This file serves as an official record of University, college, and program requirements and policies during a specific time period. It includes a directory of undergraduate programs, majors, and course descriptions. It also includes a list of University policies.

NOTE: The information in this catalog is subject to change without notice. Colleges and departments make changes in their degree requirements and course descriptions frequently. For the most current information, check with department offices, advisers, and visit the Online Catalog at www.catalogs.umn.edu.

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<tr>
<td>Theatre Arts B.A.</td>
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<td>Urban Studies B.A.</td>
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<td>Urban Studies B.S.</td>
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<td>Urban Studies Minor</td>
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<td><strong>College of Science and Engineering</strong></td>
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<tr>
<td>Aerospace Engineering and Mechanics B.A.E.M.</td>
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<tr>
<td>Astrophysics B.S.Astrop.</td>
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<td>Biomedical Engineering B.Bm.E.</td>
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<tr>
<td>Bioproducts and Biosystems Engineering B.B.E.</td>
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<tr>
<td>Chemical Engineering B.Ch.E.</td>
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<td>Civil Engineering B.C.E.</td>
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<td>Computer Engineering B.Comp.E.</td>
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<td>Earth Sciences B.S.</td>
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<td>Electrical Engineering B.E.E.</td>
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<td>Environmental Engineering B.Env.E.</td>
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<td>Geoengineering B.GeoE.</td>
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<td>Industrial and Systems Engineering B.I.Sy.E.</td>
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<td>Materials Science and Engineering B.Mat.S.E.</td>
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<td>Mathematics B.S.Math.</td>
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<td>Mechanical Engineering B.M.E.</td>
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<td><strong>Curtis L. Carlson School of Management</strong></td>
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<td>Accounting B.S.B.</td>
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<td>Entrepreneurial Management B.S.B.</td>
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<td>Entrepreneurial Management Minor</td>
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<td>Finance &amp; Risk Management Insurance B.S.B.</td>
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<td>International Business B.S.B.</td>
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<td>Management Information Systems B.S.B.</td>
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<td>Management Information Systems Minor</td>
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<td>Public &amp; Nonprofit Management B.S.B.</td>
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<td>Risk Management and Insurance Minor</td>
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<td>Supply Chain &amp; Operations Management B.S.B.</td>
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<td>Supply Chain &amp; Operations Management Minor</td>
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<td>Dental Hygiene B.S.D.H.</td>
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<td>Dental Therapy B.S.</td>
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<td>Design Minor</td>
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<td>Fashion Studies Minor</td>
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<td>Graphic Design B.F.A.</td>
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<td>Housing Studies B.S.</td>
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<td>Interior Design B.S.</td>
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<td>Interior Environments Minor</td>
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<td>Landscape Design and Planning B.E.D.</td>
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<td>Landscape Design and Planning Minor</td>
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<td>Product Design Minor</td>
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<td>Retail Merchandising B.S.</td>
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<td>Retail Merchandising Minor</td>
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<td>Medical School</td>
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<td>Mortuary Science B.S.</td>
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<td>School of Nursing</td>
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<td>Nursing B.S.N.</td>
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<td>Academic Health Center Shared</td>
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<td>Medical Laboratory Sciences B.S.</td>
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<td>Undergraduate Free Standing Minors</td>
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<td>Agronomy Minor</td>
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<td>Applied Psychology in Educational and Community Settings Minor, College</td>
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<td>Austrian and Central European Studies Minor</td>
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<td>Coaching Minor</td>
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<td>Comparative U.S. Race and Ethnicity Minor</td>
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<td>Geographic Information Science Minor</td>
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<td>History of Science, Technology, and Medicine Minor</td>
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<td>Information Technology Minor</td>
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<td>Integrated Pest Management in Cropping Systems Minor</td>
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<td>Interior Environments Minor</td>
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<td>International Agriculture Minor</td>
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<tr>
<td>Joint Military Science Leadership Minor</td>
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<td>Leadership Minor</td>
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<td>Medieval Studies Minor</td>
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<td>Native American Environmental Knowledge Minor</td>
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<td>Soil Science Minor</td>
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<td>Sustainability Studies Minor</td>
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<td>Sustainable Agriculture Minor</td>
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<td>Teaching English as a Second Language Minor</td>
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<td>Translation Minor</td>
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<td>Urban and Community Forestry Minor</td>
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<td>Water Science Minor</td>
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</table>
Biochemistry B.S.

Program Type: Baccalaureate

Requirements for this program are current for Fall 2014

Required credits to graduate with this degree: 120

Required credits within the major: 74 to 86

Degree: Bachelor of Science

Biochemists study molecules found in living organisms, particularly proteins, nucleic acids, lipids, and carbohydrates. Biochemistry majors focus their studies on the biosynthesis, metabolism, function, and regulation of these molecules of life. This information is essential to gain an understanding of many biological processes, including how diseases like cancer and diabetes develop, and to learn how genetic engineering and biotechnology can be used in ways that benefit society.

Earning a B.S. in biochemistry prepares majors for graduate study in biochemistry, or other biological sciences, professional training programs in the health sciences, careers in teaching, and entry-level positions in industries, agencies, and universities.

Biochemistry is an experimental science, and majors, especially those planning to pursue graduate studies in the field, should become acquainted with laboratory research approaches beyond those in the formal lab courses. Research options are available through BIOC 4994 or BIOC 4794W. Students should consult early with their faculty mentor to begin planning the research component of their major.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Freshmen students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:

- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Nature of Life/Nature of Science and Research

Nature of Life

Biol 1805 - Nature of Life: Introducing New Students to the Biological Sciences (0.5 cr)
Biol 1806 - Nature of Life, Part Two (0.5 cr)
Biol 2905 - Nature of Life, Part III (0.5 cr)
Biol 2906 - Nature of Life, Part IV (0.5 cr)

or Nature of Science and Research

Biol 3001 - Nature of Science and Research (1.0 cr)
Biol 2001 - Career Planning for Biologists (1.0 cr)

Quantitative Requirement

Quantitative I

Math 1241 - Calculus and Dynamical Systems in Biology [MATH] (4.0 cr)

or Math 1271 - Calculus I [MATH] (4.0 cr)

Quantitative II

Take 3 or more credit(s) from the following:
• BIOL 3270 - Introduction To Systems Biology (3.0 cr)
• CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)
• CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
• MATH 1272 - Calculus II (4.0 cr)
• STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
• BIOL 3272 - Applied Biostatistics (3.0 cr)
  or BIOL 5272 - Applied Biostatistics (3.0 cr)

Chemistry
Chemical Principles I
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
Chemical Principles II
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)

Organic Sequence
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2302 - Organic Chemistry II (3.0 cr)
  or CHEM 2304 - Organic Chemistry II for the Life Sciences (3.0 cr)

Physics
PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
  or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
PHYS 1202W - Introductory Physics for Biology and Pre-medicine II [PHYS, WI] (5.0 cr)
  or PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)

General Biology
BIOL 2002 - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
  or BIOL 2002H - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
BIOL 2003 - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
  or BIOL 2003H - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
BIOL 3004 - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)
  or BIOL 3004H - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)

Biology Core
BIOL 4003 - Genetics (3.0 cr)
Take 1 or more course(s) from the following:
• MICB 3301 - Biology of Microorganisms (5.0 cr)
• BIOL 3407 - Ecology (3.0 cr)
• BIOL 3408W - Ecology [WI] (3.0 cr)
• BIOL 3807 - Ecology (4.0 cr)
• BIOL 3809 - Evolution (3.0 cr)
• BIOL 4004 - Cell Biology (3.0 cr)

Upper Division Life Sciences Electives
Take 6 or more credit(s) from the following:
• BIOL 3211 - Physiology of Humans and Other Animals (3.0 cr)
• BIOL 3407 - Ecology (3.0 cr)
• BIOL 3408W - Ecology [WI] (3.0 cr)
• BIOL 3409 - Evolution (3.0 cr)
• BIOL 3411 - Introduction to Animal Behavior (3.0 cr)
• BIOL 3807 - Ecology (4.0 cr)
• BIOL 3811 - Introduction to Animal Behavior (4.0 cr)
• BIOL 4004 - Cell Biology (3.0 cr)
• BIOL 4121 - Microbial Ecology and Applied Microbiology (3.0 cr)
• BIOL 5309 - Molecular Ecology And Ecological Genomics (3.0 cr)
• CHEM 2311 - Organic Lab (4.0 cr)
• CHEM 4001 - Chemistry of Biomass and Biomass Conversion to Fuels and Products (4.0 cr)
• CHEM 4412 - Chemical Biology of Enzymes (3.0 cr)
• CHEM 4413 - Nucleic Acids (3.0 cr)
• CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
• EEB 5221 - Molecular Evolution (3.0 cr)
• GCD 4034 - Molecular Genetics (3.0 cr)
• GCD 4143 - Human Genetics (3.0 cr)
• GCD 4151 - Molecular Biology of Cancer (3.0 cr)
• GCD 4161 - Developmental Biology (3.0 cr)
• GCD 4171 - Stem Cells in Biology and Medicine (3.0 cr)
• GCD 5036 - Molecular Cell Biology (3.0 cr)
• MATH 5445 - Mathematical Analysis of Biological Networks (4.0 cr)
• MICB 4111 - Microbial Physiology and Diversity (3.0 cr)
• MICB 4131 - Immunology (3.0 cr)
• MICB 4151 - Molecular and Genetic Bases for Microbial Diseases (3.0 cr)
• MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
• MICB 4171 - Biology, Genetics, and Pathogenesis of Viruses (3.0 cr)
• NSCI 3101 - Introduction to Neurobiology I: Molecular, Cellular, and Systems (3.0 cr)
• NSCI 3102W - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
• PHSL 3051 - Human Physiology (4.0 cr)
• PHSL 3061 - Principles of Physiology (4.0 cr)
• STAT 3021 - Introduction to Probability and Statistics (3.0 cr)
• STAT 3022 - Data Analysis (4.0 cr)
• STAT 4101 - Theory of Statistics I (4.0 cr)
• STAT 4102 - Theory of Statistics II (4.0 cr)

Biochemistry Core
• BIOC 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
• BIOC 4332 - Biochemistry II: Molecular Mechanisms of Signal Transduction and Gene Expression (4.0 cr)
• BIOC 3960 - Research Topics in Biochemistry (1.0 cr)
• BIOC 4025 - Laboratory in Biochemistry (2.0 cr)
• BIOC 4521 - Introduction to Physical Biochemistry (3.0 cr)
  or
• CHEM 4501 - Introduction to Thermodynamics, Kinetics, and Statistical Mechanics (3.0 cr)
• CHEM 4502 - Introduction to Quantum Mechanics and Spectroscopy (3.0 cr)

Upper Division Biochemistry Electives
Take 1 or more course(s) from the following:
• BIOC 4351 - Protein Engineering (3.0 cr)
• BIOC 5213 - Selected Topics in Molecular Biology (3.0 cr)
• BIOC 5216 - Current Topics in Signal Transduction (3.0 cr)
• BIOC 5309 - Biocatalysis and Biodegradation (3.0 cr)
• BIOC 5352 - Biotechnology and Bioengineering for Biochemists (3.0 cr)
• BIOC 5361 - Microbial Genomics and Bioinformatics (3.0 cr)
• BIOC 5444 - Muscle (3.0 cr)
• BIOC 5527 - Introduction to Modern Structural Biology (4.0 cr)
• BIOC 5528 - Spectroscopy and Kinetics (4.0 cr)
• BIOC 5960 - Special Topics in Biochemistry (3.0 cr)

Upper Division Lab
Take 1 or more course(s) from the following:
• BIOC 4125 - Laboratory in Molecular Biology and Biotechnology (3.0 cr)
• GCD 4025 - Cell Biology Laboratory (2.0 cr)
• GCD 5005 - Computer Programming for Cell Biology (3.0 cr)
• MICB 4215 - Advanced Laboratory: Microbial Physiology and Diversity (3.0 cr)
• MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
• MICB 4235 - Advanced Laboratory: Virology, Immunology, and Microbial Genetics (3.0 cr)
• Students may use a maximum of seven credits of directed research toward a CBS degree. Take 2 or more credit(s) from the following:
  • BIOC 4225 - Laboratory in NMR Techniques (1.0 cr)
  • BIOC 4325 - Laboratory in Mass Spectrometry (1.0 cr)
  • BIOC 4994 - Directed Research (1.0 - 6.0 cr)
  • BIOC 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• BIOC 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• BIOC 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• BIOI 3005W - Plant Function Laboratory [WI] (2.0 cr)
• BIOI 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
• BIOI 3408W - Ecology [WI] (3.0 cr)
• BIOL 3411W - Introduction to Animal Behavior [WI] (4.0 cr)
• BIOL 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
• BIOL 4794W - Directed Research [WI] (1.0 - 6.0 cr)
• EEB 4330W - Animal Communication [WI] (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• EEB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• EEB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• GCD 4005W - Cell Biology - Writing Intensive [WI] (4.0 cr)
• GCD 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• GCD 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• MICB 4141W - Biology, Genetics, and Pathogenesis of Viruses: Writing Intensive [WI] (4.0 cr)
• MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
• MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
• MICB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• MICB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 7.0 cr)
• NSCI 3001W - Neuroscience and Society [CIV, WI] (4.0 cr)
• NSCI 3102W - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
• NSCI 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
• NSCI 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• PBIO 4516W - Plant Cell Biology: Writing Intensive [WI] (3.0 cr)
• PBIO 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• PBIO 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
Biochemistry Minor
Biochemistry, Molecular Biology, & Biophysics TCBS
College of Biological Sciences

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 10

Biochemists study molecules found in living organisms, particularly proteins, nucleic acids, lipids, and carbohydrates. Biochemistry minors focus their studies on the biosynthesis, metabolism, function, and regulation of these molecules of life. This information is essential to gain an understanding of many biological processes, including how diseases like cancer and diabetes develop, and how genetic engineering and biotechnology can be used in ways that benefit society.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students who wish to declare a minor in biochemistry can do so online at the College of Biological Sciences Web site.

Minor Courses
- BIOC 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
- BIOC 4332 - Biochemistry II: Molecular Mechanisms of Signal Transduction and Gene Expression (4.0 cr)
- BIOC 4025 - Laboratory in Biochemistry (2.0 cr)
Twin Cities Campus
Biology B.S.

Program Type: Baccalaureate
Requirements for this program are current for Fall 2014
Required credits to graduate with this degree: 120
Required credits within the major: 66 to 80
Degree: Bachelor of Science

Students majoring in biology gain a broad understanding of the fundamental nature and characteristics of living things and the ways in which they interact. Their studies cover the full range of life sciences, from cancer genes to acid rain and from lichens to marine mammals.

The biology B.S. program prepares students for study in a broad spectrum of biological sciences, professional training programs in the health sciences, careers in teaching, and entry-level scientist positions in industry, government agencies, and universities.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshmen students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

Students completing another major in the College of Biological Sciences are not eligible for the Biology B.S.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Nature of Life/Nature of Science and Research

Nature of Life
- BIOL 1805 - Nature of Life: Introducing New Students to the Biological Sciences (0.5 cr)
- BIOL 1806 - Nature of Life, Part Two (0.5 cr)
- BIOL 2905 - Nature of Life, Part III (0.5 cr)
- BIOL 2906 - Nature of Life, Part IV (0.5 cr)

or Nature of Science and Research
- BIOL 3001 - Nature of Science and Research (1.0 cr)
- BIOL 2001 - Career Planning for Biologists (1.0 cr)

Quantitative Requirement

Quantitative I
- MATH 1241 - Calculus and Dynamical Systems in Biology [MATH] (4.0 cr)

Quantitative II
- Take 3 or more credit(s) from the following:
  - BIOL 3270 - Introduction To Systems Biology (3.0 cr)
  - CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)
  - CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
• MATH 1272 - Calculus II (4.0 cr)
• STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
• BIOL 3272 - Applied Biostatistics (3.0 cr)
  or BIOL 5272 - Applied Biostatistics (3.0 cr)

Chemistry

Chemical Principles I
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)

Chemical Principles II
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)

Additional Chemistry
BIOC 2331 - Chemical Mechanisms in Biology (3.0 cr)
  or Organic Sequence
  CHEM 2301 - Organic Chemistry I (3.0 cr)
  CHEM 2311 - Organic Lab (4.0 cr)
  CHEM 2302 - Organic Chemistry II (3.0 cr)
  or CHEM 2304 - Organic Chemistry II for the Life Sciences (3.0 cr)

Physics
Students who take PHYS 1301W must have taken or have concurrent enrollment in MATH 1271. Students who take PHYS 1302W must have taken or have concurrent enrollment in MATH 1272.

PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
  or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)

PHYS 1202W - Introductory Physics for Biology and Pre-medicine II [PHYS, WI] (5.0 cr)
  or PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)

General Biology
BIOL 2002 - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
  or BIOL 2002H - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
BIOL 2003 - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
  or BIOL 2003H - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
BIOL 3004 - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)
  or BIOL 3004H - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)

Organismal Biology
Organismal biology requirements cannot fulfill both the organismal biology requirement and a major elective requirement.
Take 1 or more course(s) from the following:

Animal Biology
• BIOL 2012 - General Zoology (4.0 cr)
  or BIOL 3211 - Physiology of Humans and Other Animals (3.0 cr)
  BIOL 2005 - Animal Diversity Laboratory (2.0 cr)
  or BIOL 2007 - Marine Animal Diversity Laboratory (2.0 cr)

Plant Biology
• BIOL 2022 - General Botany (3.0 cr)
  or BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
  BIOL 3002 - Plant Biology: Function (2.0 cr)
  BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)

Microbiology
• VBS 2032 - General Microbiology With Laboratory (5.0 cr)
  or MICB 3301 - Biology of Microorganisms (5.0 cr)

Biology Core
Biology core requirements cannot fulfill both the biology core requirement and/or a major elective requirement.
Take 1 or more course(s) from the following:
• BIOL 3407 - Ecology (3.0 cr)
• BIOL 3408W - Ecology [WI] (3.0 cr)
• BIOL 3409 - Evolution (3.0 cr)
• BIOL 3411 - Introduction to Animal Behavior (3.0 cr)
• BIOL 3807 - Ecology (4.0 cr)
• BIOL 3811 - Introduction to Animal Behavior (4.0 cr)
BIOC 3021 - Biochemistry (3.0 cr)
  or BIOC 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
BIOL 4003 - Genetics (3.0 cr)
**BIOL 4004 - Cell Biology (3.0 cr)**

**Biology Major Electives**
Electives must include 2 laboratory or field courses from the approved list. To count as a lab/field course, directed research must be completed for a minimum of 3 credits; credits can be split over multiple terms using 4994, 4794W, or a combination. Students may use a maximum of seven credits of directed research toward a CBS degree. Directed research can only be used for one lab/field course. In order to count toward the lab/field course, Itasca courses (48xx) must be 2 credits or greater.

**Laboratory and Field Courses**
Take 2 or more course(s) from the following:
- **BIOC 4025** - Laboratory in Biochemistry (2.0 cr)
- **BIOC 4125** - Laboratory in Molecular Biology and Biotechnology (3.0 cr)
- **BIOC 4794W** - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- **BIOC 4994** - Directed Research (1.0 - 6.0 cr)
- **BIOL 3005W** - Plant Function Laboratory [WI] (2.0 cr)
- **BIOL 3007W** - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
- **BIOL 3408W** - Ecology [WI] (3.0 cr)
- **BIOL 3409** - Evolution (3.0 cr)
- **BIOL 3411** - Introduction to Animal Behavior (3.0 cr)
- **BIOL 3607** - Ecology (4.0 cr)
- **BIOL 3811** - Introduction to Animal Behavior (4.0 cr)
- **BIOL 3820** *(Inactive)* (2.0 cr)
- **BIOL 3825** *(Inactive)* (2.0 cr)
- **BIOL 4035** *(Inactive)* (3.0 cr)
- **BIOL 4596** - Coral Reef Ecology (Dive Trip) (2.0 cr)
- **BIOL 4794W** - Directed Research [WI] (1.0 - 6.0 cr)
- **BIOL 4862** - Biological Photography and Digital Imaging Techniques (3.0 cr)
- **BIOL 4894** - Directed Research at Itasca (1.0 - 7.0 cr)
- **BIOL 4994** - Directed Research (1.0 - 6.0 cr)
- **EEB 4129** - Mammalogy (4.0 cr)
- **EEB 4134** - Introduction to Ornithology (4.0 cr)
- **EEB 4794W** - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- **EEB 4817** *(Inactive)* (4.0 cr)
- **EEB 4839** - Field Studies in Mammalogy (4.0 cr)
- **EEB 4842** *(Inactive)* (4.0 cr)
- **EEB 4844** - Field Ornithology (4.0 cr)
- **EEB 4994** - Directed Research (1.0 - 6.0 cr)
- **EEB 5605** - Limnology Laboratory (2.0 cr)
- **ENT 4861** *(Inactive)* (3.0 cr)
- **ENT 5361** - Aquatic Insects (4.0 cr)
- **FW 4136** - Ichthyology (4.0 cr)
- **GCD 3485** - Bioinformatic Analysis: Introduction to the Computational Characterization of Genes and Proteins (3.0 cr)
- **GCD 4025** - Cell Biology Laboratory (2.0 cr)
- **GCD 4111** - Histology: Cell and Tissue Organization (4.0 cr)
- **GCD 4794W** - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- **GCD 4994** - Directed Research (1.0 - 6.0 cr)
- **GCD 5005** - Computer Programming for Cell Biology (3.0 cr)
- **MICB 3301** - Biology of Microorganisms (5.0 cr)
- **MICB 4125** - Advanced Laboratory: Microbial Physiology and Diversity (3.0 cr)
- **MICB 4225W** - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
- **MICB 4235** - Advanced Laboratory: Virology, Immunology, and Microbial Genetics (3.0 cr)
- **MICB 4794W** - Directed Research: Writing Intensive [WI] (1.0 - 7.0 cr)
- **MICB 4994** - Directed Research (1.0 - 7.0 cr)
- **NSCI 4794W** - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- **NSCI 4994** - Directed Research (1.0 - 6.0 cr)
- **PBIO 4321** - Minnesota Flora (3.0 cr)
- **PBIO 4404** - Developmental Plant Anatomy (3.0 cr)
- **PBIO 4511** - Flowering Plant Diversity (3.0 cr)
- **PBIO 4794W** - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- **PBIO 4994** - Directed Research (1.0 - 6.0 cr)
- **BIOL 3211** - Physiology of Humans and Other Animals (3.0 cr)
- **BIOL 2005** - Animal Diversity Laboratory (2.0 cr)
- **or BIOL 2007** - Marine Animal Diversity Laboratory (2.0 cr)

**Additional Electives**
Take 0 - 8 credit(s) from the following:
- **BIOL 2005 - Animal Diversity Laboratory (2.0 cr)**
- **or BIOL 2007 - Marine Animal Diversity Laboratory (2.0 cr)**
• BIOC 3960 - Research Topics in Biochemistry (1.0 cr)
• BIOC 4025 - Laboratory in Biochemistry (2.0 cr)
• BIOC 4125 - Laboratory in Molecular Biology and Biotechnology (3.0 cr)
• BIOC 4185 - Laboratory in Molecular Genetics (3.0 cr)
• BIOC 4225 - Laboratory in NMR Techniques (1.0 cr)
• BIOC 4351 - Protein Engineering (3.0 cr)
• BIOC 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
• BIOC 4325 - Laboratory in Mass Spectrometry (1.0 cr)
• BIOC 4332 - Biochemistry II: Molecular Mechanisms of Signal Transduction and Gene Expression (4.0 cr)
• BIOC 4521 - Introduction to Physical Biochemistry (3.0 cr)
• BIOC 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• BIOC 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• BIOC 4950 - Computer Simulation and Data Analysis in Biochemistry (3.0 cr)
• BIOC 4960 - Special Topics in Biochemistry (3.0 cr)
• BIOC 4993 - Directed Studies (1.0 - 7.0 cr)
• BIOC 4994 - Directed Research (1.0 - 6.0 cr)
• BIOC 5001 - Biochemistry, Molecular and Cellular Biology (5.0 cr)
• BIOC 5213 - Selected Topics in Molecular Biology (3.0 cr)
• BIOC 5309 - Biocatalysis and Biodegradation (3.0 cr)
• BIOC 5352 - Biotechnology and Bioengineering for Biochemists (3.0 cr)
• BIOC 5353 - Microbial Biochemistry and Biotechnology: Small Molecules (3.0 cr)
• BIOC 5361 - Microbial Genomics and Bioinformatics (3.0 cr)
• BIOC 5444 - Muscle (3.0 cr)
• BIOC 5527 - Introduction to Modern Structural Biology (4.0 cr)
• BIOC 5528 - Spectroscopy and Kinetics (4.0 cr)
• BIOC 5529 - Macromolecular Crystallography I: Fundamentals and Techniques (1.0 cr)
• BIOC 5532 - Macromolecular Crystallography II: Techniques and Applications (1.0 cr)
• BIOC 5560 - Special Topics in Biochemistry (3.0 cr)
• BIOL 3002 - Plant Biology: Function (2.0 cr)
• BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)
• BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
• BIOL 3209 - Understanding the Evolution-Creationism Controversy [CIV] (3.0 cr)
• BIOL 3211 - Physiology of Humans and Other Animals (3.0 cr)
• BIOL 3272 - Applied Biostatistics (3.0 cr)
• BIOL 3310 - Research Seminars in Biology (1.0 cr)
• BIOL 3407 - Ecology (3.0 cr)
• BIOL 3408W - Ecology [WI] (3.0 cr)
• BIOL 3409 - Evolution (3.0 cr)
• BIOL 3411 - Introduction to Animal Behavior (3.0 cr)
• BIOL 3503 - Biology of Aging (2.0 cr)
• BIOL 3600 - Directed Instruction (1.0 - 2.0 cr)
• BIOL 3610 - Internship: Professional Experience in Biological Sciences (1.0 - 6.0 cr)
• BIOL 3700 - Undergraduate Seminar (1.0 - 3.0 cr)
• BIOL 3850 - Ecology (4.0 cr)
• BIOL 3862 - Biological Photography and Digital Imaging Techniques (3.0 cr)
• BIOL 4035 [Inactive] (3.0 cr)
• BIOL 4121 - Microbial Ecology and Applied Microbiology (3.0 cr)
• BIOL 4201 - Teaching in the Biology Laboratory (1.0 cr)
• BIOL 4700 [Inactive] (3.0 cr)
• BIOL 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
• BIOL 4794W - Directed Research [WI] (1.0 - 6.0 cr)
• BIOL 4850 - Special Topics in Biology (1.0 - 5.0 cr)
• BIOL 4862 - Biological Photography and Digital Imaging Techniques (3.0 cr)
• BIOL 4894 - Directed Research at Itasca (1.0 - 7.0 cr)
• BIOL 4993 - Directed Studies (1.0 - 6.0 cr)
• BIOL 4994 - Directed Research (1.0 - 6.0 cr)
• BIOL 5309 - Molecular Ecology And Ecological Genomics (3.0 cr)
• BIOL 5407 - Ecology (3.0 cr)
• BIOL 5409 - Evolution (3.0 cr)
• BIOL 5950 - Special Topics in Biology (1.0 - 4.0 cr)
• BMEN 2501 - Cellular and Molecular Biology for Biomedical Engineers [BIOL] (4.0 cr)
• CHEM 4001 - Chemistry of Biomass and Biomass Conversion to Fuels and Products (4.0 cr)
• CHEM 4412 - Chemical Biology of Enzymes (3.0 cr)
• CHEM 4413 - Nucleic Acids (3.0 cr)
• CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
• CSCI 3081W - Program Design and Development [WI] (4.0 cr)
• CSCI 3921W - Social, Legal, and Ethical Issues in Computing [CIV, WI] (3.0 cr)
• CSCI 3980 - Undergraduate Colloquium (1.0 cr)
• CSCI 4980 - Special Topics in Computer Science for Undergraduates (1.0 - 3.0 cr)
• EEB 3002 - Sex, Evolution, and Behavior: Examining Human Evolutionary Biology (4.0 cr)
• EEB 3603 - Science, Protection, and Management of Aquatic Environments (3.0 cr)
• EEB 3963 - Modeling Nature and the Nature of Modeling (3.0 cr)
• EEB 4068 - Plant Physiological Ecology (3.0 cr)
• EEB 4129 - Mammalogy (4.0 cr)
• EEB 4134 - Introduction to Ornithology (4.0 cr)
• EEB 4329 - Primate Ecology and Social Behavior (3.0 cr)
• EEB 4330W - Animal Communication [WI] (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• EEB 4611 - Biogeochemical Processes (3.0 cr)
• EEB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• EEB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• EEB 4993 - Directed Studies (1.0 - 7.0 cr)
• EEB 4994 - Directed Research (1.0 - 6.0 cr)
• EEB 4811 (inactive) (4.0 cr)
• EEB 4839 - Field Studies in Mammalogy (4.0 cr)
• EEB 4842 (inactive) (4.0 cr)
• EEB 4844 - Field Ornithology (4.0 cr)
• EEB 4993 - Directed Studies (1.0 - 7.0 cr)
• EEB 4994 - Directed Research (1.0 - 6.0 cr)
• EEB 5042 - Quantitative Genetics (3.0 cr)
• EEB 5053 - Ecology: Theory and Concepts (4.0 cr)
• EEB 5068 - Plant Physiological Ecology (3.0 cr)
• EEB 5146 - Science and Policy of Global Environmental Change (3.0 cr)
• EEB 5221 - Molecular Evolution (3.0 cr)
• EEB 5322 - Evolution and Animal Cognition (3.0 cr)
• EEB 5323 (inactive) (2.0 cr)
• EEB 5605 - Limnology Laboratory (2.0 cr)
• EEB 5609 - Ecosystem Ecology (3.0 cr)
• EEB 5963 - Modeling Nature and the Nature of Modeling (3.0 cr)
• GCD 3485 - Bioinformatic Analysis: Introduction to the Computational Characterization of Genes and Proteins (3.0 cr)
• GCD 4025 - Cell Biology Laboratory (2.0 cr)
• GCD 4034 - Molecular Genetics (3.0 cr)
• GCD 4111 - Histology: Cell and Tissue Organization (4.0 cr)
• GCD 4134 - Endocrinology (3.0 cr)
• GCD 4143 - Human Genetics (3.0 cr)
• GCD 4151 - Molecular Biology of Cancer (3.0 cr)
• GCD 4161 - Developmental Biology (3.0 cr)
• GCD 4171 - Stem Cells in Biology and Medicine (3.0 cr)
• GCD 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• GCD 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• GCD 4993 - Directed Studies (1.0 - 7.0 cr)
• GCD 4994 - Directed Research (1.0 - 6.0 cr)
• GCD 5036 - Molecular Cell Biology (3.0 cr)
• MATH 3283W - Sequences, Series, and Foundations: Writing Intensive [WI] (4.0 cr)
• MATH 5445 - Mathematical Analysis of Biological Networks (4.0 cr)
• MATH 5447 - Theoretical Neuroscience (4.0 cr)
• MICB 4111 - Microbial Physiology and Diversity (3.0 cr)
• MICB 4131 - Immunology (3.0 cr)
• MICB 4141W - Biology, Genetics, and Pathogenesis of Viruses: Writing Intensive [WI] (4.0 cr)
• MICB 4151 - Molecular and Genetic Bases for Microbial Diseases (3.0 cr)
• MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
• MICB 4171 - Biology, Genetics, and Pathogenesis of Viruses (3.0 cr)
• MICB 4215 - Advanced Laboratory: Microbial Physiology and Diversity (3.0 cr)
• MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
• MICB 4235 - Advanced Laboratory: Virology, Immunology, and Microbial Genetics (3.0 cr)
• MICB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• MICB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 7.0 cr)
• MICB 4993 - Directed Studies (1.0 - 6.0 cr)
• MICB 4994 - Directed Research (1.0 - 7.0 cr)
Upper-division Writing Intensive within the major

Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:

- BIOC 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- BIOC 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)
- BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
- BIOL 3406W - Ecology [WI] (3.0 cr)
- BIOL 3411W - Introduction to Animal Behavior [WI] (4.0 cr)
- BIOC 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
- BIOC 4794W - Directed Research [WI] (1.0 - 6.0 cr)
• EEB 4330W - Animal Communication [WI] (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• EEB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• EEB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• GCD 4005W - Cell Biology - Writing Intensive [WI] (4.0 cr)
• GCD 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• GCD 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• MICB 4141W - Biology, Genetics, and Pathogenesis of Viruses: Writing Intensive [WI] (4.0 cr)
• MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
• MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
• MICB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• MICB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 7.0 cr)
• NSCI 3001W - Neuroscience and Society [CIV, WI] (4.0 cr)
• NSCI 3102W - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
• NSCI 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
• NSCI 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• PBIO 4516W - Plant Cell Biology: Writing Intensive [WI] (3.0 cr)
• PBIO 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• PBIO 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
Biology Minor

Program Type: Undergraduate minor related to major
Requirements for this program are current for Fall 2014
Required credits in this minor: 20 to 22

Biology is the scientific exploration of the diverse world of living organisms. Today, biological research spans an almost infinite spectrum of studies from molecules to ecosystems. The field of biology has expanded enormously within the past four decades.

Within a flexible curriculum, the biology minor provides an opportunity for non-CBS students to gain a broad understanding of the fundamental nature and characteristics of living things, or explore specific areas of the field in greater depth. The minor offers great freedom for students to select coursework that is most relevant to their interests and academic goals.

The biology minor is available to non-CBS students only. Due to significant course overlap, the following majors are not eligible to complete the biology minor:
- Animal Science (Science/Pre-Vet sub-plan only)
- Applied Plant Science
- Biology, Society, and the Environment
- Clinical Laboratory Sciences
- Environmental Sciences, Policy, and Management (sub-plans in Environmental Science, Environmental Education and Communication)
- Fisheries and Wildlife (all sub-plans)
- Food Science
- Physiology
- Nutrition (Nutritional Sciences sub-plan only)
- Scientific and Technical Communication (sub-plan in Biological and Health Sciences)
- Individually designed programs with a life sciences emphasis

Additionally, students completing a minor in any of the CBS undergraduate departments cannot also pursue a Biology minor.

Students interested in declaring a biology minor can do so online at the College of Biological Sciences website.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
To count for the biology minor, all courses must be taken A-F and receive a grade of C- or higher (or an S in Directed Research or Directed Studies). Courses that are cross-listed with CBS designators may be allowed for use in the minor. Up to 3 credits from a transfer institution (including those taken abroad) may be applied toward the 12 elective credits. In order to count for the biology minor, transfer courses must be evaluated by a faculty member for both biology content and the level at which they were taught.

Minor Courses
- CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
- CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
- BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
  or BIOL 1003 - Evolution and Biology of Sex [BIOL] (4.0 cr)
  or BIOL 1009 - General Biology [BIOL] (4.0 cr)
  or BIOL 1010 - Human Biology: Concepts and Current Ethical Issues [BIOL, CIV] (4.0 cr)
  or BIOL 2002 - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
  or BIOL 2002H - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)

Electives
All courses for the minor must have a CBS designator (BIOL, BIOC, GCD, EEB, MICB, NSCI, PBIO) or be cross-listed with CBS designators.
Take 12 or more credit(s) from the following:
Take 0 - 9 credit(s) from the following:

- BIOC 2331 - Chemical Mechanisms in Biology (3.0 cr)
- BIOL 2003 - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
- BIOL 2003H - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)
- BIOL 3004 - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)
- BIOL 2005 - Animal Diversity Laboratory (2.0 cr)
- BIOL 2007 - Marine Animal Diversity Laboratory (2.0 cr)
- BIOL 2012 - General Zoology (4.0 cr)
- BIOL 2022 - General Botany (3.0 cr)
- VBS 2032 - General Microbiology With Laboratory (5.0 cr)

Take 3 or more credit(s) from the following:

- BIOC 3021 - Biochemistry (3.0 cr)
- BIOC 4025 - Laboratory in Biochemistry (2.0 cr)
- BIOC 4125 - Laboratory in Molecular Biology and Biotechnology (3.0 cr)
- BIOC 4325 - Laboratory in Mass Spectrometry (1.0 cr)
- BIOC 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
- BIOC 4332 - Biochemistry II: Molecular Mechanisms of Signal Transduction and Gene Expression (4.0 cr)
- BIOC 4521 - Introduction to Physical Biochemistry (3.0 cr)
- BIOC 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- BIOC 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- BIOC 4950 - Computer Simulation and Data Analysis in Biochemistry (3.0 cr)
- BIOC 4960 - Special Topics in Biochemistry (3.0 cr)
- BIOC 4993 - Directed Studies (1.0 - 7.0 cr)
- BIOC 4994 - Directed Research (1.0 - 6.0 cr)
- BIOC 5309 - Molecular Ecology And Ecological Genomics (3.0 cr)
- BIOL 2003H - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)
- BIOL 4003 - Genetics (3.0 cr)
- BIOL 4004 - Cell Biology (3.0 cr)
- BIOL 4035 - Introduction to Animal Behavior (2.0 cr)
- BIOL 4060 - Directed Instruction (1.0 - 6.0 cr)
- BIOL 4061 - Internship: Professional Experience in Biological Sciences (1.0 - 6.0 cr)
- BIOL 4080 - Undergraduate Seminar (1.0 - 6.0 cr)
- BIOL 4082 - Directed Studies (1.0 - 4.0 cr)
- BIOL 4093 - Directed Studies (1.0 - 6.0 cr)
- BIOL 4094 - Directed Research (1.0 - 6.0 cr)
- BIOL 5309 - Molecular Ecology And Ecological Genomics (3.0 cr)
- BIOL 5309 - Molecular Ecology And Ecological Genomics (3.0 cr)
- BIOL 5950 - Special Topics in Biology (1.0 - 4.0 cr)
- EEB 3001 - Ecology and Society [ENV] (3.0 cr)
- EEB 3002 - Sex, Evolution, and Behavior: Examining Human Evolutionary Biology (4.0 cr)
- EEB 3603 - Science, Protection, and Management of Aquatic Environments (3.0 cr)
• EEB 3963 - Modeling Nature and the Nature of Modeling (3.0 cr)
• EEB 4068 - Plant Physiological Ecology (3.0 cr)
• EEB 4129 - Mammalogy (4.0 cr)
• EEB 4134 - Introduction to Ornithology (4.0 cr)
• EEB 4329 - Primate Ecology and Social Behavior (3.0 cr)
• EEB 4330W - Animal Communication [WI] (3.0 cr)
• EEB 4409W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• EEB 4611 - Biogeochemical Processes (3.0 cr)
• EEB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• EEB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• EEB 4817 (Inactive) (4.0 cr)
• EEB 4839 - Field Studies in Mammalogy (4.0 cr)
• EEB 4842 (Inactive) (4.0 cr)
• EEB 4993 - Directed Studies (1.0 - 7.0 cr)
• EEB 4994 - Directed Research (1.0 - 6.0 cr)
• EEB 5042 - Quantitative Genetics (3.0 cr)
• EEB 5053 - Ecology: Theory and Concepts (4.0 cr)
• EEB 5068 - Plant Physiological Ecology (3.0 cr)
• EEB 5146 - Science and Policy of Global Environmental Change (3.0 cr)
• EEB 5221 - Molecular Evolution (3.0 cr)
• EEB 5322 - Evolution and Animal Cognition (3.0 cr)
• EEB 5323 (Inactive) (2.0 cr)
• EEB 5371 - Principles of Systematics (3.0 cr)
• EEB 5501 - Limnology (3.0 cr)
• EEB 5605 - Limnology Laboratory (2.0 cr)
• EEB 5609 - Ecosystem Ecology (3.0 cr)
• EEB 5963 - Modeling Nature and the Nature of Modeling (3.0 cr)
• GCD 3022 - Genetics (3.0 cr)
• GCD 3033 - Principles of Cell Biology (3.0 cr)
• GCD 3485 - Bioinformatic Analysis: Introduction to the Computational Characterization of Genes and Proteins (3.0 cr)
• GCD 4025 - Cell Biology Laboratory (2.0 cr)
• GCD 4034 - Molecular Genetics (3.0 cr)
• GCD 4111 - Histology: Cell and Tissue Organization (4.0 cr)
• GCD 4134 - Endocrinology (3.0 cr)
• GCD 4143 - Human Genetics (3.0 cr)
• GCD 4151 - Molecular Biology of Cancer (3.0 cr)
• GCD 4161 - Developmental Biology (3.0 cr)
• GCD 4171 - Stem Cells in Biology and Medicine (3.0 cr)
• GCD 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• GCD 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• GCD 4993 - Directed Studies (1.0 - 7.0 cr)
• GCD 4994 - Directed Research (1.0 - 6.0 cr)
• MICB 3301 - Biology of Microorganisms (5.0 cr)
• MICB 3303 - Biology of Microorganisms (3.0 cr)
• MICB 4111 - Microbial Physiology and Diversity (3.0 cr)
• MICB 4131 - Immunology (3.0 cr)
• MICB 4141W - Biology, Genetics, and Pathogenesis of Viruses: Writing Intensive [WI] (4.0 cr)
• MICB 4151 - Molecular and Genetic Bases for Microbial Diseases (3.0 cr)
• MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
• MICB 4171 - Biology, Genetics, and Pathogenesis of Viruses (3.0 cr)
• MICB 4215 - Advanced Laboratory: Microbial Physiology and Diversity (3.0 cr)
• MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
• MICB 4235 - Advanced Laboratory: Virology, Immunology, and Microbial Genetics (3.0 cr)
• MICB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• MICB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 7.0 cr)
• MICB 4993 - Directed Studies (1.0 - 6.0 cr)
• MICB 4994 - Directed Research (1.0 - 7.0 cr)
• NSCI 3001W - Neuroscience and Society [CIV, WI] (4.0 cr)
• NSCI 3101 - Introduction to Neurobiology I: Molecular, Cellular, and Systems (3.0 cr)
• NSCI 3102W - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
• NSCI 4100 - Development of the Nervous System: Cellular and Molecular Mechanisms (3.0 cr)
• NSCI 4105 - Neurobiology Laboratory I (3.0 cr)
• NSCI 4151 - Advanced Topics in Neuroscience (3.0 cr)
• NSCI 4167 - Neuroscience in the Community (1.0 - 3.0 cr)
• NSCI 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
• NSCI 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• NSCI 4993 - Directed Studies (1.0 - 7.0 cr)
• NSCI 4994 - Directed Research (1.0 - 6.0 cr)
• PBIO 4321 - Minnesota Flora (3.0 cr)
• PBIO 4404 - Developmental Plant Anatomy (3.0 cr)
• PBIO 4511 - Flowering Plant Diversity (3.0 cr)
• PBIO 4516W - Plant Cell Biology: Writing Intensive [WI] (3.0 cr)
• PBIO 4601 - Topics in Plant Biochemistry (3.0 cr)
• PBIO 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• PBIO 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• PBIO 4993 - Directed Studies (1.0 - 7.0 cr)
• PBIO 4994 - Directed Research (1.0 - 6.0 cr)
• PBIO 5109 - Current Questions in Fungal Biology (2.0 cr)
• PBIO 5301 - Plant Genomics (3.0 cr)
• PBIO 5412 - Plant Physiology (3.0 cr)
• PBIO 5514 - Plant Molecular Genetics and Development (3.0 cr)
• PBIO 5516 - Plant Cell Biology (3.0 cr)
• PBIO 5601 - Topics in Plant Biochemistry (3.0 cr)
• PBIO 5960 - Special Topics (1.0 - 3.0 cr)
Students majoring in ecology, evolution, and behavior (EEB) focus on three related areas of biology. Ecology examines the growth and maintenance of populations and their interactions in communities, and relationships among organisms and physical events in terrestrial and aquatic ecosystems. Evolution investigates the origin and change of biological diversity by studying evolutionary patterns and processes at various temporal and spatial scales. Behavioral biology explores behavioral adaptations to the environment, mechanisms of behavior, and the evolution of social systems.

A B.S. in EEB prepares students for graduate study in integrative biology and related biological sciences, careers in teaching, and entry-level scientist positions in industry, government agencies, nonprofit agencies, and universities.

Program Requirements

**Nature of Life/Nature of Science and Research**

**Nature of Life**
- BIOL 1805 - Nature of Life: Introducing New Students to the Biological Sciences (0.5 cr)
- BIOL 1806 - Nature of Life, Part Two (0.5 cr)
- BIOL 2905 - Nature of Life, Part III (0.5 cr)
- BIOL 2906 - Nature of Life, Part IV (0.5 cr)

*or* **Nature of Science and Research**
- BIOL 3001 - Nature of Science and Research (1.0 cr)
- BIOL 2001 - Career Planning for Biologists (1.0 cr)

**Quantitative Requirement**

**Quantitative I**
- MATH 1241 - Calculus and Dynamical Systems in Biology [MATH] (4.0 cr)

*or* **MATH 1271 - Calculus I [MATH] (4.0 cr)**

**Quantitative II**
- Take 3 or more credit(s) from the following:
  - BIOL 3270 - Introduction To Systems Biology (3.0 cr)
  - CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)
  - CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
• MATH 1272 - Calculus II (4.0 cr)
• STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
• BIOL 3272 - Applied Biostatistics (3.0 cr)
  or BIOL 5272 - Applied Biostatistics (3.0 cr)

Chemistry

Chemical Principles I
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)

Chemical Principles II
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)

Additional Chemistry I
BIOC 2331 - Chemical Mechanisms in Biology (3.0 cr)
  or CHEM 2301 - Organic Chemistry I (3.0 cr)

Additional Chemistry II
EEB 4611 - Biogeochemical Processes (3.0 cr)
  or CHEM 2304 - Organic Chemistry II for the Life Sciences (3.0 cr)
  or CHEM 2302 - Organic Chemistry II (3.0 cr)

Physics
Students who take PHYS 1301W must have taken or have concurrent enrollment in MATH 1271. Students who take PHYS 1302W must have taken or have concurrent enrollment in MATH 1272.

PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
  or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
PHYS 1202W - Introductory Physics for Biology and Pre-medicine II [PHYS, WI] (5.0 cr)
  or PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)

General Biology
BIOC 2331 - Chemical Mechanisms in Biology (3.0 cr)

Organismal Biology
Courses, or course pairs, must be from two different groups.
Take 2 or more course(s) from the following:

Animal Biology
• BIOL 2012 - General Zoology (4.0 cr)
  or BIOL 3211 - Physiology of Humans and Other Animals (3.0 cr)
  BIOL 2005 - Animal Diversity Laboratory (2.0 cr)
  or PHSL 3051 - Human Physiology (4.0 cr)
  BIOL 2005 - Animal Diversity Laboratory (2.0 cr)
  or PHSL 3061 - Principles of Physiology (4.0 cr)
  BIOL 2005 - Animal Diversity Laboratory (2.0 cr)

• Plant Biology
  BIOL 2022 - General Botany (3.0 cr)
  or BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
  or BIOL 3002 - Plant Biology: Function (2.0 cr)
  BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)

• Microbiology
  VBS 2032 - General Microbiology With Laboratory (5.0 cr)
  or MICB 3301 - Biology of Microorganisms (5.0 cr)

Biology Core
BIOL 3807 and 3811, which are summer courses offered at the Itasca Biological Station, can count toward the biology core and the field/lab experience.

BIOL 3021 - Biochemistry (3.0 cr)
  or BIOL 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
BIOL 4003 - Genetics (3.0 cr)
Take 2 or more course(s) from the following:
• BIOL 3409 - Evolution (3.0 cr)
• BIOL 3407 - Ecology (3.0 cr)

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Information current as of December 12, 2014
or BIOL 3408W - Ecology [WI] (3.0 cr)
or BIOL 3807 - Ecology (4.0 cr)
• BIOL 3411 - Introduction to Animal Behavior (3.0 cr)
or BIOL 3811 - Introduction to Animal Behavior (4.0 cr)

EEB Major Electives
The 13 credits include the field/lab experience, upper division EEB requirement, and additional electives as needed. Field/lab experience courses can count in other areas of the major. Directed research must be completed for a minimum of 4 credits to count for the field/lab experience; credits can be split over multiple terms using 4994, 4794W, or both. Students may use a maximum of seven credits of directed research toward a CBS degree.
Take 13 or more credit(s) from the following:

Field/Lab Experience
Take 4 or more credit(s) from the following:
• BIOL 3807 - Ecology (4.0 cr)
• BIOL 3811 - Introduction to Animal Behavior (4.0 cr)
• BIOL 3820 (Inactive) (2.0 cr)
• BIOL 3825 (Inactive) (2.0 cr)
• BIOL 4035 (Inactive) (3.0 cr)
• BIOL 4850 - Special Topics in Biology (1.0 - 5.0 cr)
• BIOL 4862 - Biological Photography and Digital Imaging Techniques (3.0 cr)
• BIOL 4894 - Directed Research at Itasca (1.0 - 7.0 cr)
• EEB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• EEB 4817 (Inactive) (4.0 cr)
• EEB 4839 - Field Studies in Mammalogy (4.0 cr)
• EEB 4842 (Inactive) (4.0 cr)
• EEB 4844 - Field Ornithology (4.0 cr)
• EEB 4994 - Directed Research (1.0 - 6.0 cr)
• EEB 5605 - Limnology Laboratory (2.0 cr)

Upper Division EEB
Take 7 or more credit(s) from the following:
• EEB 3603 - Science, Protection, and Management of Aquatic Environments (3.0 cr)
• EEB 4068 - Plant Physiological Ecology (3.0 cr)
• EEB 4129 - Mammalogy (4.0 cr)
• EEB 4134 - Introduction to Ornithology (4.0 cr)
• EEB 4329 - Primate Ecology and Social Behavior (3.0 cr)
• EEB 4330W - Animal Communication [WI] (3.0 cr)
• EEB 4611 - Biogeochemical Processes (3.0 cr)
• EEB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• EEB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• EEB 4817 (Inactive) (4.0 cr)
• EEB 4839 - Field Studies in Mammalogy (4.0 cr)
• EEB 4842 (Inactive) (4.0 cr)
• EEB 4844 - Field Ornithology (4.0 cr)
• EEB 4994 - Directed Research (1.0 - 6.0 cr)
• EEB 4993 - Directed Studies (1.0 - 7.0 cr)
• EEB 5146 - Science and Policy of Global Environmental Change (3.0 cr)
• EEB 5221 - Molecular Evolution (3.0 cr)
• EEB 5322 - Evolution and Animal Cognition (3.0 cr)
• EEB 5323 (Inactive) (2.0 cr)
• EEB 5371 - Principles of Systematics (3.0 cr)
• EEB 5601 - Limnology (3.0 cr)
• EEB 5605 - Limnology Laboratory (2.0 cr)
• EEB 3963 - Modeling Nature and the Nature of Modeling (3.0 cr)
or EEB 5963 - Modeling Nature and the Nature of Modeling (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
or EEB 5609 - Ecosystem Ecology (3.0 cr)
• EEB 3002 - Sex, Evolution, and Behavior: Examining Human Evolutionary Biology (4.0 cr)
or ANTH 3002 - Sex, Evolution, and Behavior: Examining Human Evolutionary Biology (4.0 cr)

Additional Electives
Take 0 - 6 credit(s) from the following:
• BIOL 3960 - Research Topics in Biochemistry (1.0 cr)
• BIOL 4025 - Laboratory in Biochemistry (2.0 cr)
• BIOC 4125 - Laboratory in Molecular Biology and Biotechnology (3.0 cr)
• BIOC 4185 - Laboratory in Molecular Genetics (3.0 cr)
• BIOC 4225 - Laboratory in NMR Techniques (1.0 cr)
• BIOC 4325 - Laboratory in Mass Spectrometry (1.0 cr)
• BIOC 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
• BIOC 4332 - Biochemistry II: Molecular Mechanisms of Signal Transduction and Gene Expression (4.0 cr)
• BIOC 4521 - Introduction to Physical Biochemistry (3.0 cr)
• BIOC 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• BIOC 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• BIOC 4950 - Computer Simulation and Data Analysis in Biochemistry (3.0 cr)
• BIOC 4960 - Special Topics in Biochemistry (3.0 cr)
• BIOC 4993 - Directed Studies (1.0 - 7.0 cr)
• BIOC 4994 - Directed Research (1.0 - 6.0 cr)
• BIOC 5001 - Biochemistry, Molecular and Cellular Biology (5.0 cr)
• BIOC 5213 - Selected Topics in Molecular Biology (3.0 cr)
• BIOC 5309 - Biocatalysis and Biodegradation (3.0 cr)
• BIOC 5352 - Biotechnology and Bioengineering for Biochemists (3.0 cr)
• BIOC 5353 - Microbial Biochemistry and Biotechnology: Small Molecules (3.0 cr)
• BIOC 5361 - Microbial Genomics and Bioinformatics (3.0 cr)
• BIOC 5444 - Muscle (3.0 cr)
• BIOC 5527 - Introduction to Modern Structural Biology (4.0 cr)
• BIOC 5528 - Spectroscopy and Kinetics (4.0 cr)
• BIOC 5531 - Macromolecular Crystallography I: Fundamentals and Techniques (1.0 cr)
• BIOC 5532 - Macromolecular Crystallography II: Techniques and Applications (1.0 cr)
• BIOC 5960 - Special Topics in Biochemistry (3.0 cr)
• BIOL 3002 - Plant Biology: Function (2.0 cr)
• BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)
• BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
• BIOL 3209 - Understanding the Evolution-Creationism Controversy [CIV] (3.0 cr)
• BIOL 3211 - Physiology of Humans and Other Animals (3.0 cr)
• BIOL 3272 - Applied Biostatistics (3.0 cr)
• BIOL 3310 - Research Seminars in Biology (1.0 cr)
• BIOL 3407 - Ecology (3.0 cr)
• BIOL 3408W - Ecology [WI] (3.0 cr)
• BIOL 3409 - Evolution (3.0 cr)
• BIOL 3411 - Introduction to Animal Behavior (3.0 cr)
• BIOL 3503 - Biology of Aging (2.0 cr)
• BIOL 3600 - Directed Instruction (1.0 - 2.0 cr)
• BIOL 3610 - Internship: Professional Experience in Biological Sciences (1.0 - 6.0 cr)
• BIOL 3700 - Undergraduate Seminar (1.0 - 3.0 cr)
• BIOL 3807 - Ecology (4.0 cr)
• BIOL 3811 - Introduction to Animal Behavior (4.0 cr)
• BIOL 3820 [inactive] (2.0 cr)
• BIOL 3825 [inactive] (2.0 cr)
• BIOL 4004 - Cell Biology (3.0 cr)
• BIOL 4035 [inactive] (3.0 cr)
• BIOL 4121 - Microbial Ecology and Applied Microbiology (3.0 cr)
• BIOL 4700 [inactive] (3.0 cr)
• BIOL 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
• BIOL 4794W - Directed Research [WI] (1.0 - 6.0 cr)
• BIOL 4850 - Special Topics in Biology (1.0 - 5.0 cr)
• BIOL 4862 - Biological Photography and Digital Imaging Techniques (3.0 cr)
• BIOL 4894 - Directed Research at Itasca (1.0 - 7.0 cr)
• BIOL 4950 - Special Topics in Biology (1.0 - 4.0 cr)
• BIOL 4993 - Directed Studies (1.0 - 6.0 cr)
• BIOL 4994 - Directed Research (1.0 - 6.0 cr)
• BIOL 5309 - Molecular Ecology And Ecological Genomics (3.0 cr)
• BIOL 5407 - Ecology (3.0 cr)
• BIOL 5409 - Evolution (3.0 cr)
• BIOL 5950 - Special Topics in Biology (1.0 - 4.0 cr)
• GCD 3485 - Bioinformatic Analysis: Introduction to the Computational Characterization of Genes and Proteins (3.0 cr)
• GCD 4025 - Cell Biology Laboratory (2.0 cr)
• GCD 4034 - Molecular Genetics (3.0 cr)
• GCD 4111 - Histology: Cell and Tissue Organization (4.0 cr)
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</tr>
<tr>
<td>NSCI 5661W</td>
<td>Behavioral Neuroscience [WI]</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>NSCI 5667</td>
<td>Neurobiology of Disease (2.0 - 3.0 cr)</td>
<td></td>
</tr>
<tr>
<td>NSCI 5668</td>
<td>Neurodegeneration and Repair (2.0 cr)</td>
<td></td>
</tr>
<tr>
<td>PBIO 4321</td>
<td>Minnesota Flora</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>PBIO 4404</td>
<td>Developmental Plant Anatomy</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>PBIO 4511</td>
<td>Flowering Plant Diversity</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>PBIO 4516W</td>
<td>Plant Cell Biology: Writing Intensive [WI] (3.0 cr)</td>
<td></td>
</tr>
<tr>
<td>PBIO 4601</td>
<td>Topics in Plant Biochemistry</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>PBIO 4793W</td>
<td>Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)</td>
<td></td>
</tr>
<tr>
<td>PBIO 4794W</td>
<td>Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)</td>
<td></td>
</tr>
<tr>
<td>PBIO 4993</td>
<td>Directed Studies</td>
<td>1.0 - 7.0 cr</td>
</tr>
<tr>
<td>PBIO 4994</td>
<td>Directed Research</td>
<td>1.0 - 6.0 cr</td>
</tr>
<tr>
<td>PBIO 5109</td>
<td>Current Questions in Fungal Biology (2.0 cr)</td>
<td></td>
</tr>
<tr>
<td>PBIO 5301</td>
<td>Plant Genomics</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>PBIO 5412</td>
<td>Plant Physiology</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>PBIO 5514</td>
<td>Plant Molecular Genetics and Development</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>PBIO 5516</td>
<td>Plant Cell Biology</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>PBIO 5601</td>
<td>Topics in Plant Biochemistry</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>PBIO 5960</td>
<td>Special Topics</td>
<td>1.0 - 3.0 cr</td>
</tr>
<tr>
<td>FW 4136</td>
<td>Ichthyology</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>MATH 3283W</td>
<td>Sequences, Series, and Foundations: Writing Intensive [WI] (4.0 cr)</td>
<td></td>
</tr>
<tr>
<td>VPM 4131</td>
<td>Immunology</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>MICB 3301</td>
<td>Biology of Microorganisms</td>
<td>5.0 cr</td>
</tr>
</tbody>
</table>
or **MICB 3303** - Biology of Microorganisms (3.0 cr)

**Upper-division Writing Intensive within the major**

Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:

- **BIOC 4793W** - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- **BIOC 4794W** - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- **BIOL 3005W** - Plant Function Laboratory [WI] (2.0 cr)
- **BIOL 3007W** - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
- **BIOL 3408W** - Ecology [WI] (3.0 cr)
- **BIOL 3411W** - Introduction to Animal Behavior [WI] (4.0 cr)
- **BIOL 4793W** - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
- **BIOL 4794W** - Directed Research [WI] (1.0 - 6.0 cr)
- **EEB 4330W** - Animal Communication [WI] (3.0 cr)
- **EEB 4609W** - Ecosystem Ecology [ENV, WI] (3.0 cr)
- **EEB 4793W** - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- **EEB 4794W** - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- **GCD 4005W** - Cell Biology - Writing Intensive [WI] (4.0 cr)
- **GCD 4793W** - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- **GCD 4794W** - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- **MICB 4141W** - Biology, Genetics, and Pathogenesis of Viruses: Writing Intensive [WI] (4.0 cr)
- **MICB 4161W** - Eukaryotic Microbiology [WI] (3.0 cr)
- **MICB 4225W** - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
- **MICB 4793W** - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- **MICB 4794W** - Directed Research: Writing Intensive [WI] (1.0 - 7.0 cr)
- **NSCI 3001W** - Neuroscience and Society [CIV, WI] (4.0 cr)
- **NSCI 3102W** - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
- **NSCI 4793W** - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
- **NSCI 4794W** - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- **PBIO 4516W** - Plant Cell Biology: Writing Intensive [WI] (3.0 cr)
- **PBIO 4793W** - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- **PBIO 4794W** - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
Twin Cities Campus

Genetics, Cell Biology, and Development B.S.

College of Biological Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 80 to 89
- Degree: Bachelor of Science

Genetics, cell biology, and development (GCD) focuses on the mechanisms by which genetic information is used to specify cell structure and function, and how that information drives cellular interactions that convert a single cell to develop into a complete organism. GCD students learn about advances in the field by studying model organisms like plants, fruit flies, zebra fish, and mice.

A B.S. in GCD prepares students for graduate study in molecular biology or related biological sciences, for professional training programs in health sciences, careers in teaching, and entry-level positions in industry, government agencies, or universities.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Freshmen students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](https://www.umn.edu/admissions).

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the [liberal education requirements](https://www.umn.edu/registrar/curriculum). Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

**Nature of Life/Nature of Science and Research**

**Nature of Life**
- BIOL 1805 - Nature of Life: Introducing New Students to the Biological Sciences (0.5 cr)
- BIOL 1806 - Nature of Life, Part Two (0.5 cr)
- BIOL 2905 - Nature of Life, Part III (0.5 cr)
- BIOL 2906 - Nature of Life, Part IV (0.5 cr)

**or Nature of Science and Research**
- BIOL 3001 - Nature of Science and Research (1.0 cr)
- BIOL 2001 - Career Planning for Biologists (1.0 cr)

**Quantitative Requirement**

**Quantitative I**
- MATH 1241 - Calculus and Dynamical Systems in Biology [MATH] (4.0 cr)
  - or MATH 1271 - Calculus I [MATH] (4.0 cr)

**Quantitative II**
- Take 3 or more credit(s) from the following:
  - BIOL 3270 - Introduction To Systems Biology (3.0 cr)
  - CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)
  - CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
  - MATH 1272 - Calculus II (4.0 cr)
  - STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
•BIOL 3272 - Applied Biostatistics (3.0 cr)  
or BIOL 5272 - Applied Biostatistics (3.0 cr)

Chemistry

Chemical Principles I
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)  
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)

Chemical Principles II
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)  
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)

Organic Chemistry
CHEM 2301 - Organic Chemistry I (3.0 cr)  
CHEM 2311 - Organic Lab (4.0 cr)  
CHEM 2302 - Organic Chemistry II (3.0 cr)  
or CHEM 2304 - Organic Chemistry II for the Life Sciences (3.0 cr)

Physics

Students who take PHYS 1301W must have taken or have concurrent enrollment in MATH 1271. Students who take PHYS 1302W must have taken or have concurrent enrollment in MATH 1272.
PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)  
or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
PHYS 1202W - Introductory Physics for Biology and Pre-medicine II [PHYS, WI] (5.0 cr)  
or PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)

General Biology
BIOL 2002 - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)  
or BIOL 2002H - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
BIOL 2003 - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)  
or BIOL 2003H - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
BIOL 3004 - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)  
or BIOL 3004H - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)

Organismal Biology
Take 1 or more course(s) from the following:

Animal Biology
•BIOL 2012 - General Zoology (4.0 cr)  
or BIOL 3211 - Physiology of Humans and Other Animals (3.0 cr)  
BIOL 2005 - Animal Diversity Laboratory (2.0 cr)  
or PHSL 3051 - Human Physiology (4.0 cr)  
BIOL 2005 - Animal Diversity Laboratory (2.0 cr)  
or PHSL 3061 - Principles of Physiology (4.0 cr)  
BIOL 2005 - Animal Diversity Laboratory (2.0 cr)

•Plant Biology
•BIOL 2022 - General Botany (3.0 cr)  
or BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)  
or BIOL 3002 - Plant Biology: Function (2.0 cr)  
BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)

•Microbiology
•VBS 2032 - General Microbiology With Laboratory (5.0 cr)  
or MICB 3301 - Biology of Microorganisms (5.0 cr)

Biology Core
BIOL 3407 - Ecology (3.0 cr)  
or BIOL 3408W - Ecology [WI] (3.0 cr)  
or BIOL 3807 - Ecology (4.0 cr)  
or BIOL 3409 - Evolution (3.0 cr)  
or BIOL 3411 - Introduction to Animal Behavior (3.0 cr)  
or BIOL 3811 - Introduction to Animal Behavior (4.0 cr)  
BIOC 3021 - Biochemistry (3.0 cr)  
or BIOL 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)  
BIOL 4003 - Genetics (3.0 cr)  
BIOL 4004 - Cell Biology (3.0 cr)  
or GCD 4005W - Cell Biology - Writing Intensive [WI] (4.0 cr)

GCD Major Electives
Total of three courses are required from at least two of the following areas: genetics, cell biology, developmental biology. GCD 4151, 4161, 4171, and PBIO 5514 cannot count in more than one area. To count as an elective lab, directed research must be completed for a minimum of 3 credits; credits can be split over multiple terms using 4994, 4794W, or a combination of the two. Students may use a maximum of seven credits of directed research toward a CBS degree.

Take 18 or more credit(s) from the following:

**Elective Labs**
Take 1 or more course(s) from the following:
- BIOC 4025 - Laboratory in Biochemistry (2.0 cr)
- BIOC 4125 - Laboratory in Molecular Biology and Biotechnology (3.0 cr)
- BIOL 4035 (Inactive) (3.0 cr)
- GCD 3485 - Bioinformatic Analysis: Introduction to the Computational Characterization of Genes and Proteins (3.0 cr)
- GCD 4025 - Cell Biology Laboratory (2.0 cr)
- GCD 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- GCD 4994 - Directed Research (1.0 - 6.0 cr)
- GCD 5005 - Computer Programming for Cell Biology (3.0 cr)
- MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
- MICB 4235 - Advanced Laboratory: Virology, Immunology, and Microbial Genetics (3.0 cr)

**Genetics**
Take 0 - 3 course(s) from the following:
- EEB 5042 - Quantitative Genetics (3.0 cr)
- GCD 4034 - Molecular Genetics (3.0 cr)
- GCD 4143 - Human Genetics (3.0 cr)
- GCD 4151 - Molecular Biology of Cancer (3.0 cr)
- GCD 4161 - Developmental Biology (3.0 cr)
- GCD 4171 - Stem Cells in Biology and Medicine (3.0 cr)
- MICB 4171 - Biology, Genetics, and Pathogenesis of Viruses (3.0 cr)
- PBIO 5514 - Plant Molecular Genetics and Development (3.0 cr)

**Cell Biology**
Take 0 - 3 course(s) from the following:
- GCD 4111 - Histology: Cell and Tissue Organization (4.0 cr)
- GCD 4134 - Endocrinology (3.0 cr)
- GCD 4171 - Stem Cells in Biology and Medicine (3.0 cr)
- GCD 5036 - Molecular Cell Biology (3.0 cr)
- MICB 4131 - Immunology (3.0 cr)
- NSCI 3101 - Introduction to Neurobiology I: Molecular, Cellular, and Systems (3.0 cr)
- VPM 4131 - Immunology (3.0 cr)
- PBIO 4516W - Plant Cell Biology: Writing Intensive [WI] (3.0 cr)
  or PBIO 5516 - Plant Cell Biology (3.0 cr)

**Developmental Biology**
Take 0 - 3 course(s) from the following:
- GCD 4151 - Molecular Biology of Cancer (3.0 cr)
- GCD 4161 - Developmental Biology (3.0 cr)
- GCD 4171 - Stem Cells in Biology and Medicine (3.0 cr)
- NSCI 4100 - Development of the Nervous System: Cellular and Molecular Mechanisms (3.0 cr)
- PBIO 5514 - Plant Molecular Genetics and Development (3.0 cr)

**Additional Electives**
Take 0 - 7 credit(s) from the following:
- BIOL 3002 - Plant Biology: Function (2.0 cr)
- BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)
- BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
- BIOL 3209 - Understanding the Evolution-Creationism Controversy [CIV] (3.0 cr)
- BIOL 3211 - Physiology of Humans and Other Animals (3.0 cr)
- BIOL 3272 - Applied Biostatistics (3.0 cr)
- BIOL 3310 - Research Seminars in Biology (1.0 cr)
- BIOL 3407 - Ecology (3.0 cr)
- BIOL 3408W - Ecology [WI] (3.0 cr)
- BIOL 3409 - Evolution (3.0 cr)
- BIOL 3411 - Introduction to Animal Behavior (3.0 cr)
- BIOL 3503 - Biology of Aging (2.0 cr)
- BIOL 3600 - Directed Instruction (1.0 - 2.0 cr)
- BIOL 3610 - Internship: Professional Experience in Biological Sciences (1.0 - 6.0 cr)
- BIOL 3700 - Undergraduate Seminar (1.0 - 3.0 cr)
- BIOL 3807 - Ecology (4.0 cr)
- BIOL 3811 - Introduction to Animal Behavior (4.0 cr)
- BIOL 3820 (Inactive) (2.0 cr)
• BIOL 3825 [Inactive] (2.0 cr)
• BIOL 4035 [Inactive] (3.0 cr)
• BIOL 4121 - Microbial Ecology and Applied Microbiology (3.0 cr)
• BIOL 4201 - Teaching in the Biology Laboratory (1.0 cr)
• BIOL 4790 [Inactive] (3.0 cr)
• BIOL 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
• BIOL 4794W - Directed Research [WI] (1.0 - 6.0 cr)
• BIOL 4862 - Biological Photography and Digital Imaging Techniques (3.0 cr)
• BIOL 4894 - Directed Research at Itasca (1.0 - 7.0 cr)
• BIOL 4950 - Special Topics in Biology (1.0 - 4.0 cr)
• BIOL 4993 - Directed Studies (1.0 - 6.0 cr)
• BIOL 4994 - Directed Research (1.0 - 6.0 cr)
• BIOL 5309 - Molecular Ecology And Ecological Genomics (3.0 cr)
• BIOL 5407 - Ecology (3.0 cr)
• BIOL 5409 - Evolution (3.0 cr)
• BIOL 5590 - Special Topics in Biology (1.0 - 4.0 cr)
• BIOC 3960 - Research Topics in Biochemistry (1.0 cr)
• BIOC 4025 - Laboratory in Biochemistry (2.0 cr)
• BIOC 4125 - Laboratory in Molecular Biology and Biotechnology (3.0 cr)
• BIOC 4185 - Laboratory in Molecular Genetics (3.0 cr)
• BIOC 4225 - Laboratory in NMR Techniques (1.0 cr)
• BIOC 4325 - Laboratory in Mass Spectrometry (1.0 cr)
• BIOC 4301 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
• BIOC 4302 - Biochemistry II: Molecular Mechanisms of Signal Transduction and Gene Expression (4.0 cr)
• BIOC 4521 - Introduction to Physical Biochemistry (3.0 cr)
• BIOC 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• BIOC 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• BIOC 4950 - Computer Simulation and Data Analysis in Biochemistry (3.0 cr)
• BIOC 4960 - Special Topics in Biochemistry (3.0 cr)
• BIOC 4993 - Directed Studies (1.0 - 7.0 cr)
• BIOC 4994 - Directed Research (1.0 - 6.0 cr)
• BIOC 5001 - Biochemistry, Molecular and Cellular Biology (5.0 cr)
• BIOC 5213 - Selected Topics in Molecular Biology (3.0 cr)
• BIOC 5309 - Biocatalysis and Biodegradation (3.0 cr)
• BIOC 5352 - Biotechnology and Bioengineering for Biochemists (3.0 cr)
• BIOC 5353 - Microbial Biochemistry and Biotechnology: Small Molecules (3.0 cr)
• BIOC 5361 - Microbial Genomics and Bioinformatics (3.0 cr)
• BIOC 5444 - Muscle (3.0 cr)
• BIOC 5527 - Introduction to Modern Structural Biology (4.0 cr)
• BIOC 5528 - Spectroscopy and Kinetics (4.0 cr)
• BIOC 5531 - Macromolecular Crystallography I: Fundamentals and Techniques (1.0 cr)
• BIOC 5532 - Macromolecular Crystallography II: Techniques and Applications (1.0 cr)
• BIOC 5960 - Special Topics in Biochemistry (3.0 cr)
• EEB 3563 - Science, Protection, and Management of Aquatic Environments (3.0 cr)
• EEB 3963 - Modeling Nature and the Nature of Modeling (3.0 cr)
• EEB 4068 - Plant Physiological Ecology (3.0 cr)
• EEB 4129 - Mammalogy (4.0 cr)
• EEB 4134 - Introduction to Ornithology (4.0 cr)
• EEB 4329 - Primate Ecology and Social Behavior (3.0 cr)
• EEB 4330W - Animal Communication [WI] (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• EEB 4611 - Biogeochemical Processes (3.0 cr)
• EEB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• EEB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• EEB 4817 [Inactive] (4.0 cr)
• EEB 4839 - Field Studies in Mammalogy (4.0 cr)
• EEB 4842 [Inactive] (4.0 cr)
• EEB 4844 - Field Ornithology (4.0 cr)
• EEB 4993 - Directed Studies (1.0 - 7.0 cr)
• EEB 4994 - Directed Research (1.0 - 6.0 cr)
• EEB 5042 - Quantitative Genetics (3.0 cr)
• EEB 5053 - Ecology: Theory and Concepts (4.0 cr)
• EEB 5066 - Plant Physiological Ecology (3.0 cr)
• EEB 5146 - Science and Policy of Global Environmental Change (3.0 cr)
• EEB 5221 - Molecular Evolution (3.0 cr)
• EEB 5322 - Evolution and Animal Cognition (3.0 cr)
• EEB 5323 [Inactive] (2.0 cr)
• EEB 5605 - Limnology Laboratory (2.0 cr)
• EEB 5609 - Ecosystem Ecology (3.0 cr)
• EEB 5963 - Modeling Nature and the Nature of Modeling (3.0 cr)
• MICB 3303 - Biology of Microorganisms (3.0 cr)
• MICB 4111 - Microbial Physiology and Diversity (3.0 cr)
• MICB 4131 - Immunology (3.0 cr)
• MICB 4141W - Biology, Genetics, and Pathogenesis of Viruses: Writing Intensive [WI] (4.0 cr)
• MICB 4151 - Molecular and Genetic Bases for Microbial Diseases (3.0 cr)
• MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
• MICB 4171 - Biology, Genetics, and Pathogenesis of Viruses (3.0 cr)
• MICB 4215 - Advanced Laboratory: Microbial Physiology and Diversity (3.0 cr)
• MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
• MICB 4235 - Advanced Laboratory: Virology, Immunology, and Microbial Genetics (3.0 cr)
• MICB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• MICB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 7.0 cr)
• MICB 4993 - Directed Studies (1.0 - 6.0 cr)
• MICB 4994 - Directed Research (1.0 - 7.0 cr)
• NSCI 3001W - Neuroscience and Society [CIV, WI] (4.0 cr)
• NSCI 3101 - Introduction to Neurobiology I: Molecular, Cellular, and Systems (3.0 cr)
• NSCI 3102W - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
• NSCI 4100 - Development of the Nervous System: Cellular and Molecular Mechanisms (3.0 cr)
• NSCI 4105 - Neurobiology Laboratory I (3.0 cr)
• NSCI 4151 - Advanced Topics in Neuroscience (3.0 cr)
• NSCI 4167 - Neuroscience in the Community (1.0 - 3.0 cr)
• NSCI 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
• NSCI 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• NSCI 4993 - Directed Studies (1.0 - 7.0 cr)
• NSCI 4994 - Directed Research (1.0 - 6.0 cr)
• NSC 5031W - Perception [WI] (3.0 cr)
• NSC 5037 - Psychology of Hearing (3.0 cr)
• NSC 5040 - Brain Networks: From Connectivity to Dynamics (4.0 cr)
• NSC 5202 - Theoretical Neuroscience: Systems and Information Processing (3.0 cr)
• NSC 5203 - Basic and Clinical Vision Science (3.0 cr)
• NSC 5461 - Cellular and Molecular Neuroscience (4.0 cr)
• NSC 5462 - Neuroscience Principles of Drug Abuse (2.0 cr)
• NSC 5481 - Invertebrate Neurobiology (3.0 cr)
• NSC 5550 - Survey of Biomedical Neuroscience (2.0 cr)
• NSC 5551 - Itasca Cell and Molecular Neurobiology Laboratory (4.0 cr)
• NSC 5561 - Systems Neuroscience (4.0 cr)
• NSC 5661W - Behavioral Neuroscience [WI] (3.0 cr)
• NSC 5667 - Neurobiology of Disease (2.0 - 3.0 cr)
• NSC 5668 - Neurodegeneration and Repair (2.0 cr)
• PBIO 4321 - Minnesota Flora (3.0 cr)
• PBIO 4404 - Developmental Plant Anatomy (3.0 cr)
• PBIO 4511 - Flowering Plant Diversity (3.0 cr)
• PBIO 4516W - Plant Cell Biology: Writing Intensive [WI] (3.0 cr)
• PBIO 4601 - Topics in Plant Biochemistry (3.0 cr)
• PBIO 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• PBIO 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• PBIO 4993 - Directed Studies (1.0 - 7.0 cr)
• PBIO 4994 - Directed Research (1.0 - 6.0 cr)
• PBIO 5109 - Current Questions in Fungal Biology (2.0 cr)
• PBIO 5301 - Plant Genomics (3.0 cr)
• PBIO 5412 - Plant Physiology (3.0 cr)
• PBIO 5514 - Plant Molecular Genetics and Development (3.0 cr)
• PBIO 5516 - Plant Cell Biology (3.0 cr)
• PBIO 5601 - Topics in Plant Biochemistry (3.0 cr)
• PBIO 5960 - Special Topics (1.0 - 3.0 cr)
• BMEN 2501 - Cellular and Molecular Biology for Biomedical Engineers [BIOL] (4.0 cr)
• FW 4136 - Ichthyology (4.0 cr)
• MATH 3283W - Sequences, Series, and Foundations: Writing Intensive [WI] (4.0 cr)
• PHCL 4001 - Mechanisms of Drug Action (2.0 cr)
• PHCL 5111 - Pharmacogenomics (3.0 cr)
• MICB 3301 - Biology of Microorganisms (5.0 cr)
  or MICB 3303 - Biology of Microorganisms (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:

- BIOC 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- BIOC 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)
- BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
- BIOL 3408W - Ecology [WI] (3.0 cr)
- BIOL 3411W - Introduction to Animal Behavior [WI] (4.0 cr)
- BIOL 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
- BIOL 4794W - Directed Research [WI] (1.0 - 6.0 cr)
- EEB 4330W - Animal Communication [WI] (3.0 cr)
- EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
- EEB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- EEB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- GCD 4005W - Cell Biology - Writing Intensive [WI] (4.0 cr)
- GCD 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- GCD 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- MICB 4141W - Biology, Genetics, and Pathogenesis of Viruses: Writing Intensive [WI] (4.0 cr)
- MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
- MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
- MICB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- MICB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 7.0 cr)
- NSCI 3001W - Neuroscience and Society [CIV, WI] (4.0 cr)
- NSCI 3102W - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
- NSCI 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
- NSCI 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- PBIO 4516W - Plant Cell Biology: Writing Intensive [WI] (3.0 cr)
- PBIO 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- PBIO 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
Twin Cities Campus

Marine Biology Minor
College of Biological Sciences - Adm

College of Biological Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

Marine biology aims to understand all aspects of organisms that live in the seas, from their molecular composition and biochemistry to how they comprise ecosystems. Consistent with this breadth, the proposed marine biology minor is an interdisciplinary curriculum through which students learn foundational concepts of marine biology and gain perspectives about current issues that affect marine environments. Given that 71% of our planet is covered by oceans and 95% of the readily available water is present in oceans, understanding marine chemistry, organisms, and ecosystems is an important, interdisciplinary goal. Through a combination of courses, laboratories, field-trips, internships, and study abroad experiences, students who complete the minor will gain knowledge and skills that will enrich their lives, as well as provide a base for subsequent study in marine biology.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 4 courses before admission to the program.

Students who have at least a 2.0 average in their math and science courses and who have completed the following courses will be eligible for admission to the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Pre-requisites
Talk with adviser about equivalent courses.

Biology course
- BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
- or BIOL 1003 - Evolution and Biology of Sex [BIOL] (4.0 cr)
- or BIOL 1009 - General Biology [BIOL] (4.0 cr)
- or BIOL 1010 - Human Biology: Concepts and Current Ethical Issues [BIOL, CIV] (4.0 cr)
- or BIOL 1055 - Environmental Biology: Science and Solutions with Laboratory [BIOL, ENV] (4.0 cr)
- or BIOL 2002 - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)

Chemistry
- CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
- CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)

Additional math or science course
Take 1 or more course(s) from the following:
- •BIOC 1xxx
- •BIOC 2xxx
- •BIOL 1xxx
- •BIOL 2xxx
- •BIOL 3xxx
- •EEB 1xxx
- •EEB 2xxx
- •EEB 3xxx
- •GCD 1xxx
- •GCD 2xxx
- •GCD 3xxx
- •MICB 1xxx
- •MICB 2xxx
- •MICB 3xxx
- •NSCI 1xxx
- •NSCI 2xxx
Minor Requirements

Marine Biology Core
The three marine biology core courses provide an overview of the chemistry and biology of marine organisms and marine environments. A grade of C or better in each course is required for admission into the minor.

- BIOL 2007 - Marine Animal Diversity Laboratory (2.0 cr)
- ESCI 1006 - Oceanography [PHYS, ENV] (4.0 cr)
- FW 2003 - Introduction to Marine Biology (3.0 cr)

Marine Biology Elective Courses
Students will select marine biology-related courses such as the ones listed below. Approval of elective courses will be at the discretion of the Director of Undergraduate Studies.

Take 6 or more credit(s) from the following:
- BIOL 4590 - Coral Reef Ecology (2.0 cr)
- BIOL 4596 - Coral Reef Ecology (Dive Trip) (2.0 cr)
- CFAN 3502 - Bahamas--Tropical Marine Biology and Shark Ecology (2.0 cr)
- EEB 5601 - Limnology (3.0 cr)
- ESCI 4402 - Biogeochemical Cycles in the Ocean (3.0 cr)
- ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
- FW 4136 - Ichthyology (4.0 cr)

Marine Biology Field, Research, and Internship Experiences
Students will gain hands-on experiences in marine biology by completing a field course, research project, or internship.

a. Coral Reef Ecology Field Course (Winters, Roatan, Honduras)
b. Galapagos Field Course (May term)
c. Shark Biology Field Course (Summers, Bahamas)
d. Internship at the Mall of America or Minnesota Zoo aquarium
e. Marine Biology-related directed research
f. Other field/research experiences as approved by the director of undergraduate studies
Twin Cities Campus
Microbiology B.S.

Microbiology
College of Biological Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 76 to 80
- Degree: Bachelor of Science

Microbiologists study the structure, function, and interaction of microbes, which make up 60 percent of the earth's biomass. Regarded by many as the foundation of the biosphere, microbes were likely the first form of life on earth, predating plants and animals by more than three billion years. Microbiologists study the role of microbes, such as bacteria, fungi, and viruses in our world. A key goal of microbiologists is to find new ways to use microbes to our advantage, such as engineering bacteria to synthesize cancer drugs or clean up toxic waste sites.

The microbiology major prepares students for advanced work in graduate programs in microbiology and related fields and serves as preparation for careers in the health sciences. Microbiologists find employment in a variety of governmental, industrial, and pharmaceutical fields.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshmen students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Nature of Life/Nature of Science and Research

Nature of Life
- BIOL 1805 - Nature of Life: Introducing New Students to the Biological Sciences (0.5 cr)
- BIOL 1806 - Nature of Life, Part Two (0.5 cr)
- BIOL 2905 - Nature of Life, Part III (0.5 cr)
- BIOL 2906 - Nature of Life, Part IV (0.5 cr)

or Nature of Science and Research
- BIOL 3001 - Nature of Science and Research (1.0 cr)
- BIOL 2001 - Career Planning for Biologists (1.0 cr)

Quantitative Requirement

Quantitative Requirement
- MATH 1241 - Calculus and Dynamical Systems in Biology [MATH] (4.0 cr)
  or MATH 1271 - Calculus I [MATH] (4.0 cr)

Take 3 or more credit(s) from the following:
- BIOL 3270 - Introduction To Systems Biology (3.0 cr)
- CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)
- CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
MATH 1272 - Calculus II (4.0 cr)
STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
BIOL 3272 - Applied Biostatistics (3.0 cr)
or BIOL 5272 - Applied Biostatistics (3.0 cr)

**Chemistry**

**Chemical Principles I**
- CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
- CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)

**Chemical Principles II**
- CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
- CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)

**Additional Chemistry**
- BIOC 2331 - Chemical Mechanisms in Biology (3.0 cr)
or CHEM 2301 - Organic Chemistry I (3.0 cr)

**Physics**
Students who take PHYS 1301W must have taken or have concurrent enrollment in MATH 1271. Students who take PHYS 1302W must have taken or have concurrent enrollment in MATH 1272.

- PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)

- PHYS 1202W - Introductory Physics for Biology and Pre-medicine II [PHYS, WI] (5.0 cr)
or PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)

**Biology Core**

- BIOL 2002 - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
or BIOL 2002H - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
- BIOL 2003 - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
or BIOL 2003H - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
- BIOL 3004 - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)
or BIOL 3004H - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)
- MICB 3301 - Biology of Microorganisms (5.0 cr)
- BIOC 3021 - Biochemistry (3.0 cr)
or BIOC 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
- BIOL 4003 - Genetics (3.0 cr)

**Microbiology Major**

**Microbiology Major Core**
Take exactly 4 course(s) from the following:
- MICB 4111 - Microbial Physiology and Diversity (3.0 cr)
- MICB 4131 - Immunology (3.0 cr)
- MICB 4151 - Molecular and Genetic Bases for Microbial Diseases (3.0 cr)
- MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
- BIOC 5352 - Biotechnology and Bioengineering for Biochemists (3.0 cr)
- BIOC 5353 - Microbial Biochemistry and Biotechnology: Small Molecules (3.0 cr)
- BIOC 5361 - Microbial Genomics and Bioinformatics (3.0 cr)
- BIOC 4121 - Microbial Ecology and Applied Microbiology (3.0 cr)
- MICB 4141W - Biology, Genetics, and Pathogenesis of Viruses: Writing Intensive [WI] (4.0 cr)
or MICB 4171 - Biology, Genetics, and Pathogenesis of Viruses (3.0 cr)

**Microbiology Labs**
In order for directed research to fulfill one of the two required labs, 6 credits of MICB 4994 and/or 4794W must be completed over the course of two or more semesters. Directed research may only count for one lab. Students may use a maximum of seven credits of directed research toward a CBS degree.

Take 2 or more course(s) from the following:
- MICB 4215 - Advanced Laboratory: Microbial Physiology and Diversity (3.0 cr)
- MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
- MICB 4235 - Advanced Laboratory: Virology, Immunology, and Microbial Genetics (3.0 cr)
- MICB 4994 - Directed Research (1.0 - 7.0 cr)
- MICB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 7.0 cr)

**STEM Electives**
Take 7 or more credit(s) from the following:
- BIOC 4025 - Laboratory in Biochemistry (2.0 cr)
- BIOC 4125 - Laboratory in Molecular Biology and Biotechnology (3.0 cr)
- BIOC 4325 - Laboratory in Mass Spectrometry (1.0 cr)
- BIOC 4351 - Protein Engineering (3.0 cr)
• BIOC 4521 - Introduction to Physical Biochemistry (3.0 cr)
• BIOC 4950 - Computer Simulation and Data Analysis in Biochemistry (3.0 cr)
• BIOC 5309 - Biocatalysis and Biodegradation (3.0 cr)
• BIOC 5352 - Biotechnology and Bioengineering for Biochemists (3.0 cr)
• BIOC 5353 - Microbial Biochemistry and Biotechnology: Small Molecules (3.0 cr)
• BIOC 5361 - Microbial Genomics and Bioinformatics (3.0 cr)
• BIOC 5527 - Introduction to Modern Structural Biology (4.0 cr)
• BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
• BIOL 4004 - Cell Biology (3.0 cr)
• BIOL 5309 - Molecular Ecology and Ecological Genomics (3.0 cr)
• CHEM 2302 - Organic Chemistry II (3.0 cr)
• CHEM 2304 - Organic Chemistry II for the Life Sciences (3.0 cr)
• CHEM 2311 - Organic Lab (4.0 cr)
• CHEM 4412 - Chemical Biology of Enzymes (3.0 cr)
• CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
• EEB 4611 - Biogeochemical Processes (3.0 cr)
• EEB 5042 - Quantitative Genetics (3.0 cr)
• EEB 5221 - Molecular Evolution (3.0 cr)
• GCD 4034 - Molecular Genetics (3.0 cr)
• GCD 4111 - Histology: Cell and Tissue Organization (4.0 cr)
• GCD 4151 - Molecular Biology of Cancer (3.0 cr)
• GCD 5005 - Computer Programming for Cell Biology (3.0 cr)
• GCD 5036 - Molecular Cell Biology (3.0 cr)
• MATH 5445 - Mathematical Analysis of Biological Networks (4.0 cr)
• NSCI 3101 - Introduction to Neurobiology I: Molecular, Cellular, and Systems (3.0 cr)
• NSCI 3102W - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
• STAT 3021 - Introduction to Probability and Statistics (3.0 cr)
• STAT 3022 - Data Analysis (4.0 cr)
• STAT 4101 - Theory of Statistics I (4.0 cr)
• STAT 4102 - Theory of Statistics II (4.0 cr)

Upper-division Writing Intensive within the major

Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
• BIOC 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• BIOC 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)
• BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
• BIOL 3408W - Ecology [WI] (3.0 cr)
• BIOL 3411W - Introduction to Animal Behavior [WI] (4.0 cr)
• BIOL 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
• BIOL 4794W - Directed Research [WI] (1.0 - 6.0 cr)
• EEB 4300W - Animal Communication [WI] (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• EEB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• EEB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• GCD 4005W - Cell Biology - Writing Intensive [WI] (4.0 cr)
• GCD 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• GCD 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• MICB 4141W - Biology, Genetics, and Pathogenesis of Viruses: Writing Intensive [WI] (4.0 cr)
• MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
• MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
• MICB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• MICB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 7.0 cr)
• NSCI 3001W - Neuroscience and Society [CIV, WI] (4.0 cr)
• NSCI 3102W - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
• NSCI 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
• NSCI 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• PBIO 4516W - Plant Cell Biology: Writing Intensive [WI] (3.0 cr)
• PBIO 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• PBIO 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
Microbiology Minor

Microbiology
College of Biological Sciences

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 12

Microbiologists study the structure, function, and interaction of microbes, which make up 60 percent of the earth's biomass. Regarded by many as the foundation of the biosphere, microbes were likely the first form of life on earth, predating plants and animals by more than three billion years. Microbiologists study the role of microbes, such as bacteria, fungi, and viruses in our world. A key goal of microbiologists today is to find new ways to use microbes to our advantage, such as engineering bacteria to synthesize cancer drugs or clean up toxic waste sites.

Students completing the biology minor are not eligible for the microbiology minor.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

If a student wishes to use VBS 2032 (or a non-majors microbiology course at another institution) to gain admission to the minor, the student should contact the Director of Undergraduate Studies for Microbiology for approval.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

**Minor Prerequisite**

- **MICB 3301 - Biology of Microorganisms** (5.0 cr)
- **BIOC 3021 - Biochemistry** (3.0 cr)
  - or **BIOC 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems** (4.0 cr)

Minor Requirements

Students who wish to declare a minor in microbiology can do so online at the College of Biological Sciences website.

**Microbiology Minor**

Coursework needs to be completed at the University of Minnesota-Twin Cities.

**Genetics**

- **BIOL 4003 - Genetics** (3.0 cr)
  - or **GCD 3022 - Genetics** (3.0 cr)

**Microbiology Lecture**

Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- **MICB 4111 - Microbial Physiology and Diversity** (3.0 cr)
- **BIOL 4121 - Microbial Ecology and Applied Microbiology** (3.0 cr)
- **MICB 4131 - Immunology** (3.0 cr)
- **MICB 4151 - Molecular and Genetic Bases for Microbial Diseases** (3.0 cr)
- **MICB 4161W - Eukaryotic Microbiology [WI]** (3.0 cr)
- **MICB 4171 - Biology, Genetics, and Pathogenesis of Viruses** (3.0 cr)

**Microbiology Lab**

It is preferred that students pursuing the microbiology minor complete MICB 4215 or MCIB 4225W.

Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- **MICB 4215 - Advanced Laboratory: Microbial Physiology and Diversity** (3.0 cr)
- **MICB 4225W - Advanced Laboratory: Microbial Genetics [WI]** (3.0 cr)
• MICB 4235 - Advanced Laboratory: Virology, Immunology, and Microbial Genetics (3.0 cr)
Twin Cities Campus
Neuroscience B.S.
Neuroscience
College of Biological Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 78 to 83
- Degree: Bachelor of Science

Neuroscience majors study the molecular and cellular building blocks that make up the brain and control its function. The study of neuroscience aims to understand how complex animals, including humans, see, hear, move, think, and feel. Neuroscientists also study abnormalities that cause diseases and mechanisms that underlie pain and addiction.

A B.S. in neuroscience prepares undergraduates to pursue advanced studies in neuroscience, professional degrees in medicine, or related fields.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshmen students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Nature of Life/Nature of Science and Research
Nature of Life
BIOL 1805 - Nature of Life: Introducing New Students to the Biological Sciences (0.5 cr)
BIOL 1806 - Nature of Life, Part Two (0.5 cr)
BIOL 2905 - Nature of Life, Part III (0.5 cr)
BIOL 2906 - Nature of Life, Part IV (0.5 cr)

or Nature of Science and Research
BIOL 3001 - Nature of Science and Research (1.0 cr)
BIOL 2001 - Career Planning for Biologists (1.0 cr)

Quantitative Requirement
MATH 1271 - Calculus I [MATH] (4.0 cr)
- or MATH 1241 - Calculus and Dynamical Systems in Biology [MATH] (4.0 cr)
Take 6 or more credit(s) from the following:
• BIOL 3270 - Introduction To Systems Biology (3.0 cr)
• CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)
• CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
• MATH 1241 - Calculus and Dynamical Systems in Biology [MATH] (4.0 cr)
• MATH 1272 - Calculus II (4.0 cr)
• MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
• STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
•BIOL 3272 - Applied Biostatistics (3.0 cr)
or BIOL 5272 - Applied Biostatistics (3.0 cr)

Chemistry

Chemical Principles I
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)

Chemical Principles II
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)

Organic Chemistry
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2311 - Organic Lab (4.0 cr)
CHEM 2302 - Organic Chemistry II (3.0 cr)
or CHEM 2304 - Organic Chemistry II for the Life Sciences (3.0 cr)

Physics
Students who take PHYS 1301W must have taken or have concurrent enrollment in MATH 1271. Students who take PHYS 1302W must have taken or have concurrent enrollment in MATH 1272.

Physics Sequence A (Preferred)
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
or Physics Sequence B
PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
PHYS 1202W - Introductory Physics for Biology and Pre-medicine II [PHYS, WI] (5.0 cr)

General Biology
BIOL 2002 - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
or BIOL 2002H - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
BIOL 2003 - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
or BIOL 2003H - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
BIOL 3004 - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)
or BIOL 3004H - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)

Additional Core
Take 1 or more course(s) from the following:
•BIOL 3409 - Evolution (3.0 cr)
•BIOL 3411 - Introduction to Animal Behavior (3.0 cr)
•BIOL 3811 - Introduction to Animal Behavior (4.0 cr)
•BIOL 2012 - General Zoology (4.0 cr)
or BIOL 3211 - Physiology of Humans and Other Animals (3.0 cr)
BIOL 2005 - Animal Diversity Laboratory (2.0 cr)
or PHSL 3051 - Human Physiology (4.0 cr)
BIOL 2005 - Animal Diversity Laboratory (2.0 cr)
or PHSL 3061 - Principles of Physiology (4.0 cr)
BIOL 2005 - Animal Diversity Laboratory (2.0 cr)

Biology Core
BIOC 3021 - Biochemistry (3.0 cr)
or BIOC 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
BIOL 4003 - Genetics (3.0 cr)
BIOL 4004 - Cell Biology (3.0 cr)

Neuroscience Requirements
NSCI 3101 - Introduction to Neurobiology I: Molecular, Cellular, and Systems (3.0 cr)
NSCI 3102W - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
NSCI 4100 - Development of the Nervous System: Cellular and Molecular Mechanisms (3.0 cr)
Students may use a maximum of seven credits of directed research toward a CBS degree.
Take 3 or more credit(s) from the following:
•NSCI 4105 - Neurobiology Laboratory I (3.0 cr)
•NSCI 4167 - Neuroscience in the Community (1.0 - 3.0 cr)
•NSCI 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
•NSCI 4994 - Directed Research (1.0 - 6.0 cr)

Neuroscience Major Electives
Take 5 or more credit(s) including 2 or more sub-requirement(s) from the following:
Group A - Upper Level Courses
One course is required from Group A. Students may elect to take the Mind, Brain, Education section of EPSY 5200 (Special Topics: Psychological Foundations) to fulfill the Group A requirement. Students must submit a petition to the CBS Scholastics Committee to have this course applied to fulfill the Group A requirement.

• BMEN 5411 - Neural Engineering (3.0 cr)
or EEB 4330W - Animal Communication [WI] (3.0 cr)
or EEB 5221 - Molecular Evolution (3.0 cr)
or GCD 4034 - Molecular Genetics (3.0 cr)
or GCD 4134 - Endocrinology (3.0 cr)
or GCD 4151 - Molecular Biology of Cancer (3.0 cr)
or GCD 5036 - Molecular Cell Biology (3.0 cr)
or MICB 4131 - Immunology (3.0 cr)
or NSC 5203 - Basic and Clinical Vision Science (3.0 cr)
or NSC 5461 - Cellular and Molecular Neuroscience (4.0 cr)
or NSC 5561 - Systems Neuroscience (4.0 cr)
or NSC 5661W - Behavioral Neuroscience [WI] (3.0 cr)
or NSC 8217 - Systems and Computational Neuroscience (2.0 cr)
or PHAR 4248 - Drugs of Abuse (2.0 cr)
or PSY 5036W - Computational Vision [WI] (3.0 cr)
or PSY 5038W - Introduction to Neural Networks [WI] (3.0 cr)
or PSY 5062 - Cognitive Neuropsychology (3.0 cr)

• Group B - The Scientific Method: History and Philosophy
One course required in Group B
• BIOL 5272 - Applied Biostatistics (3.0 cr)
or HMED 3001W - Health, Disease, and Healing I [HIS, WI] (4.0 cr)
or HMED 3002W - Health Care in History II [HIS, WI] (3.0 cr)
or HSCI 3211 - Biology and Culture in the 19th and 20th Centuries [HIS, CIV] (3.0 cr)
or HSCI 3242 - The Darwinian Revolution [HIS] (3.0 cr)
or NSC 8320 - Readings in Neurobiology (1.0 - 4.0 cr)
or NSCI 3001W - Neuroscience and Society [CIV, WI] (4.0 cr)
or NSCI 4105 - Neurobiology Laboratory I (3.0 cr)
or PHCL 4001 - Mechanisms of Drug Action (2.0 cr)
or PHIL 3601W - Scientific Thought [WI] (4.0 cr)
or PHIL 4607 - Philosophy of the Biological Sciences (3.0 cr)
or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
or STAT 3021 - Introduction to Probability and Statistics (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• BIOC 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• BIOC 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)
• BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
• BIOL 3408W - Ecology [WI] (3.0 cr)
• BIOL 3411W - Introduction to Animal Behavior [WI] (4.0 cr)
• BIOL 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
• BIOL 4794W - Directed Research [WI] (1.0 - 6.0 cr)
• EEB 4330W - Animal Communication [WI] (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• EEB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• EEB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• GCD 4005W - Cell Biology - Writing Intensive [WI] (4.0 cr)
• GCD 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• GCD 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• MICB 4141W - Biology, Genetics, and Pathogenesis of Viruses: Writing Intensive [WI] (4.0 cr)
• MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
• MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
• MICB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• MICB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 7.0 cr)
• NSCI 3001W - Neuroscience and Society [CIV, WI] (4.0 cr)
• NSCI 3102W - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
• NSCI 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
• NSCI 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• PBIO 4516W - Plant Cell Biology: Writing Intensive [WI] (3.0 cr)
• PBIO 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
• PBIO 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
Twin Cities Campus

Neuroscience Minor

Neuroscience
College of Biological Sciences

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14

The neuroscience minor provides an in-depth contemporary understanding of how the nervous system functions in both health and disease. The goal of the minor is to provide instruction that will enrich the curriculum through an array of academic majors. As we will all experience the impact of nervous system disease ourselves or through family members and/or friends, instruction in this minor will offer insights into the nervous system that students can utilize throughout their lifetimes.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Neuroscience Minor Prerequisite
NSCI 1001 - Fundamental Neuroscience: Understanding Ourselves [TS] (3.0 cr)

Minor Requirements
Only one course (maximum 3 credits) from a student's major may count towards the elective credits for the minor.

Neuroscience Minor
NSCI 1001 - Fundamental Neuroscience: Understanding Ourselves [TS] (3.0 cr)
NSCI 1100 - Human Neuroanatomy [BIOL] (4.0 cr)
NSCI 3001W - Neuroscience and Society [CIV, WI] (4.0 cr)

Additional Elective
One additional course (at least 3 credits) will be required that may come from neuroscience course offerings or from courses with a neuroscience emphasis taught in other departments. Approval of elective courses will be at the discretion of the Director of the Neuroscience Minor. A sampling of pre-approved courses includes:
ANTH 1001
BIOL 1xxx
CPSY 4343
GWSS 3203W
KIN 4133
NSCI 3101
NSCI 4100
PSY 3011
PSY 3031
PSY 3061
SLHS 3302
Twin Cities Campus
Pharmacology Minor
College of Biological Sciences - Adm

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 12

Pharmacology studies how drugs affect biological systems. It is the foundation of medicine, pharmacy, dentistry, veterinary medicine, nursing, and other health care professions. Pharmacology employs scientific principles and techniques of its own, as well as from disciplines such as physiology, biochemistry, cellular and molecular biology, microbiology, immunology, genetics, structural biology, and pathology. The objectives of pharmacology include identifying new targets for therapeutic intervention, developing new therapeutics, and understanding environmental/toxicological implications.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
A GPA above 2.0 is preferred for the following:
• 2.50 already admitted to the degree-granting college
• 2.50 transferring from another University of Minnesota college
• 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students who wish to declare a minor in pharmacology can do so online at the College of Biological Sciences website. The minor requires a minimum of 12 credits.

Pharmacology Minor Required Courses
PHCL 3100 - Pharmacology for Pre-Med and Life Science Students (2.0 cr)
PHCL 2001 - Basic Principles of Pharmacology: A Drug's Fantastic Voyage (2.0 cr)

or
PHCL 4001 - Mechanisms of Drug Action (2.0 cr)

Pharmacology Elective Courses
Take 5 - 8 credit(s) from the following:
• PHCL 4001 - Mechanisms of Drug Action (2.0 cr)
• PHCL 4003 - Anti-infective drugs: Drugs that kill invaders (2.0 cr)
• PHCL 4010 - Current Research Topics in Pharmacology (2.0 cr)
• PHCL 4100 - Laboratory in Molecular Pharmacology (2.0 cr)
• PHCL 5111 - Pharmacogenomics (3.0 cr)
• PHCL 4343 - Pharmacology of the Synapse (2.0 cr)

Directed Research, Directed Study, or Additional Coursework
Take 0 - 3 credit(s) from the following:
• PHCL 4994 - Directed Research (1.0 - 3.0 cr)
• PHCL 4993 - Directed Studies (1.0 - 3.0 cr)
• PHSL 3xxx
• PHSL 4xxx
• PHSL 5xxx
• BIOC 4xxx
• BIOC 5xxx
• BIOL 3xxx
• BIOL 4xxx
• BIOL 5xxx
• NSCI 4xxx
• NSCI 5xxx
• GCD 4xxx
• MICB 4111 - Microbial Physiology and Diversity (3.0 cr)
• BIOL 4121 - Microbial Ecology and Applied Microbiology (3.0 cr)
• MICB 4131 - Immunology (3.0 cr)
• MICB 4141W - Biology, Genetics, and Pathogenesis of Viruses: Writing Intensive [WI] (4.0 cr)
• MICB 4151 - Molecular and Genetic Bases for Microbial Diseases (3.0 cr)
• MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
• MICB 4171 - Biology, Genetics, and Pathogenesis of Viruses (3.0 cr)
Twin Cities Campus
Plant Biology B.S.
Plant Biology
College of Biological Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 76 to 86
- Degree: Bachelor of Science

Plant biologists study all aspects of biology as they pertain to plants or fungi and make important contributions to analyzing and preserving biodiversity worldwide. They work to enhance the nutritional value of crops, as well as their resistance to disease, pests, and drought while working to reduce the need for pesticides, fertilizer, and irrigation.

Current faculty research interests include genomics, gene expression, chromosome structure, plant growth substances, signal transduction, plant responses to stress, the plant cytoskeleton and cell morphogenesis, metabolic activities during development, cellular structure and ultrastructure of vascular and nonvascular plants, aquatic biology, lichenology, molecular evolution and systematics, fungal/plant interactions, biological rhythms, and fungal diversity.

Plant biology majors follow one of two tracks. One track fits the need of students who are primarily interested in environmental biology, evolution, or other aspects of whole organisms; the other track is appropriate for students interested in molecular, cellular, and development biology. All plant biology majors are guaranteed experience in a research laboratory, as long as they show satisfactory progress toward their degree and make arrangements by the middle of their junior year.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshmen students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Nature of Life/Nature of Science and Research
Nature of Life
BIOL 1805 - Nature of Life: Introducing New Students to the Biological Sciences (0.5 cr)
BIOL 1806 - Nature of Life, Part Two (0.5 cr)
BIOL 2905 - Nature of Life, Part III (0.5 cr)
BIOL 2906 - Nature of Life, Part IV (0.5 cr)

or Nature of Science and Research
BIOL 3001 - Nature of Science and Research (1.0 cr)
BIOL 2001 - Career Planning for Biologists (1.0 cr)

Quantitative Requirement
Quantitative I
MATH 1241 - Calculus and Dynamical Systems in Biology [MATH] (4.0 cr)

or MATH 1271 - Calculus I [MATH] (4.0 cr)
Quantitative II
Take 3 or more credit(s) from the following:
- BIOL 3270 - Introduction To Systems Biology (3.0 cr)
- CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)
- CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
- MATH 1272 - Calculus II (4.0 cr)
- STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
- BIOL 3272 - Applied Biostatistics (3.0 cr)
or BIOL 5272 - Applied Biostatistics (3.0 cr)

Chemistry
Chemical Principles I
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)

Chemical Principles II
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)

Additional Chemistry I
BIOC 2331 - Chemical Mechanisms in Biology (3.0 cr)
or CHEM 2301 - Organic Chemistry I (3.0 cr)

Physics
Students who take PHYS 1301W must have taken or have concurrent enrollment in MATH 1271.
PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)

General Biology
BIOL 2002 - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
-or BIOL 2002H - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
BIOL 2003 - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
-or BIOL 2003H - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
BIOL 3004 - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)
-or BIOL 3004H - Foundations of Biology for Biological Sciences Majors, Part II Laboratory (3.0 cr)

General Plant Biology
BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
or BIOL 3002 - Plant Biology: Function (2.0 cr)
-with BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)

Biology Core
BIOL 3407 - Ecology (3.0 cr)
-or BIOL 3408W - Ecology [WI] (3.0 cr)
or BIOL 3807 - Ecology (4.0 cr)
BIOL 3409 - Evolution (3.0 cr)
BIOL 3021 - Biochemistry (3.0 cr)
or BIOC 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
BIOL 4003 - Genetics (3.0 cr)
BIOL 4004 - Cell Biology (3.0 cr)

Plant Biology Major Electives
At least one course must be completed from Group A and Group B. Courses from Group C may be used if additional credits are needed to reach 14 total credits. Other Group C electives can be approved via the petition process. Recommendations must be made by the director of undergraduate studies or a faculty mentor on the petition form, then submitted to CBS Student Services.
Take 14 or more credit(s) from the following:
Group A: Organismal Biology
Take 1 or more course(s) from the following:
-FNRM 3104 - Forest Ecology (4.0 cr)
-EEB 4068 - Plant Physiological Ecology (3.0 cr)
-PBIO 4321 - Minnesota Flora (3.0 cr)
-PBIO 4511 - Flowering Plant Diversity (3.0 cr)
-PLPA 5203 - Introduction to Fungal Biology (3.0 cr)

Group B: Cell Biology and Genetics
Take 1 or more course(s) from the following:
-BIOL 5309 - Molecular Ecology And Ecological Genomics (3.0 cr)
-PBIO 4601 - Topics in Plant Biochemistry (3.0 cr)
• PBIO 5301 - Plant Genomics (3.0 cr)
• PBIO 5412 - Plant Physiology (3.0 cr)
• PBIO 5514 - Plant Molecular Genetics and Development (3.0 cr)
• PBIO 4516W - Plant Cell Biology: Writing Intensive [WI] (3.0 cr)
  or PBIO 5516 - Plant Cell Biology (3.0 cr)
• Group C: Other Electives
  Take 0 - 8 credit(s) from the following:
  • BIOL 3270 - Introduction To Systems Biology (3.0 cr)
  • CHEM 2302 - Organic Chemistry II (3.0 cr)
  • CHEM 2304 - Organic Chemistry II for the Life Sciences (3.0 cr)
  • CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)
  • CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
  • EEB 3963 - Modeling Nature and the Nature of Modeling (3.0 cr)
  • MATH 1272 - Calculus II (4.0 cr)
  • PHYS 1202W - Introductory Physics for Biology and Pre-medicine II [PHYS, WI] (5.0 cr)
  • PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
  • STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
  • STAT 3021 - Introduction to Probability and Statistics (3.0 cr)
  • BIOL 3272 - Applied Biostatistics (3.0 cr)
  or BIOL 5272 - Applied Biostatistics (3.0 cr)
• Take 0 - 8 credit(s) from the following:
  • BIOC 4xxx
  • BIOC 5xxx
  • BIOL 4xxx
  • BIOL 5xxx
  • EEB 4xxx
  • EEB 5xxx
  • GCD 4xxx
  • GCD 5xxx
  • MICB 4xxx
  • MICB 5xxx
  • NSC 4xxx
  • NSC 5xxx
  • NSCI 4xxx
  • NSCI 5xxx
  • PBIO 4xxx
  • PBIO 5xxx

Lab/Field Requirement

Any course 3xxx or higher offered at the Lake Itasca Biological Station and Laboratories may be used to fulfill the Lab/Field Requirement.

• BIOL 3005W or BIOL 3007W may be used for the Lab/Field Requirement if not used in the General Plant Biology area.
• Courses that are listed in both Major Electives Group A or B AND the Lab/Field Requirement can count in both areas.
• Students may use a maximum of seven credits of directed research toward a CBS degree.

Take 3 or more course(s) from the following:
• BIOC 4025 - Laboratory in Biochemistry (2.0 cr)
• BIOC 4125 - Laboratory in Molecular Biology and Biotechnology (3.0 cr)
• BIOC 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• BIOC 4994 - Directed Research (1.0 - 6.0 cr)
• BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)
• BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
• CHEM 2311 - Organic Lab (4.0 cr)
• EEB 4068 - Plant Physiological Ecology (3.0 cr)
• EEB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• EEB 4994 - Directed Research (1.0 - 6.0 cr)
• EEB 5605 - Limnology Laboratory (2.0 cr)
• FNRM 3104 - Forest Ecology (4.0 cr)
• GCD 4025 - Cell Biology Laboratory (2.0 cr)
• GCD 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
• GCD 4994 - Directed Research (1.0 - 6.0 cr)
• MICB 3301 - Biology of Microorganisms (5.0 cr)
• MICB 4215 - Advanced Laboratory: Microbial Physiology and Diversity (3.0 cr)
• MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
• MICB 4235 - Advanced Laboratory: Virology, Immunology, and Microbial Genetics (3.0 cr)
• MICB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 7.0 cr)

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Information current as of December 12, 2014
Upper-division Writing Intensive within the major

Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:

- BIOC 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- BIOC 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)
- BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
- BIOL 3408W - Ecology [WI] (3.0 cr)
- BIOL 3411W - Introduction to Animal Behavior [WI] (4.0 cr)
- BIOL 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
- BIOL 4794W - Directed Research [WI] (1.0 - 6.0 cr)
- EEB 4330W - Animal Communication [WI] (3.0 cr)
- EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
- EEB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- EEB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- GCD 4005W - Cell Biology - Writing Intensive [WI] (4.0 cr)
- GCD 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- GCD 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- MICB 4141W - Biology, Genetics, and Pathogenesis of Viruses: Writing Intensive [WI] (4.0 cr)
- MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
- MICB 4225W - Advanced Laboratory: Microbial Genetics [WI] (3.0 cr)
- MICB 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- MICB 4794W - Directed Research: Writing Intensive [WI] (1.0 - 7.0 cr)
- NSCI 3001W - Neuroscience and Society [CIV, WI] (4.0 cr)
- NSCI 3102W - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
- NSCI 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 6.0 cr)
- NSCI 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- PIBIO 4516W - Plant Cell Biology: Writing Intensive [WI] (3.0 cr)
- PIBIO 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- PIBIO 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
Plant biologists seek to understand plants and associated organisms, including fungi and algae, at all levels of biological organization, from molecules to ecosystems. Biochemical, physiological, developmental, genetic, evolutionary, and ecological studies of plants are fundamental to improve human welfare and global conditions in the areas of health, food, energy, and environment. Some current examples of research in plant biology include developmental genetics for bioenergy and food production, ecological studies of carbon cycling, evolutionary responses to climate change, cellular responses to pathogens and abiotic stress, natural product discovery, symbiosis, molecular evolution, informatics, and the pursuit of other fundamental questions.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
The plant biology minor is available to students in the College of Biological Sciences pursuing another major in the college as well as to non-CBS students. Minor courses must be completed A-F and a grade of C- or better is required. Students must take at least one 4xxx or 5xxx course.

Students who wish to declare a minor in plant biology can do so online at the College of Biological Sciences website.

Minor Courses
Up to 4 credits of plant biology Directed Research (PBIO 4994/4794W) and/or Directed Studies (PBIO 4993/4793W) may be used. Take 10 or more credit(s) from the following:
- BIOL 2022 - General Botany (3.0 cr)
- BIOL 3002 - Plant Biology: Function (2.0 cr)
- BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)
- BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
- EEB 4068 - Plant Physiological Ecology (3.0 cr)
- FNRM 3104 - Forest Ecology (4.0 cr)
- PBIO 4321 - Minnesota Flora (3.0 cr)
- PBIO 4511 - Flowering Plant Diversity (3.0 cr)
- PBIO 4516W - Plant Cell Biology: Writing Intensive [WI] (3.0 cr)
- PBIO 4601 - Topics in Plant Biochemistry (3.0 cr)
- PBIO 4993 - Directed Studies (1.0 - 7.0 cr)
- PBIO 4994 - Directed Research (1.0 - 6.0 cr)
- PBIO 4793W - Directed Studies: Writing Intensive [WI] (1.0 - 7.0 cr)
- PBIO 4794W - Directed Research: Writing Intensive [WI] (1.0 - 6.0 cr)
- PBIO 5301 - Plant Genomics (3.0 cr)
- BIOL 5309 - Molecular Ecology And Ecological Genomics (3.0 cr)
- PBIO 5412 - Plant Physiology (3.0 cr)
- PBIO 5514 - Plant Molecular Genetics and Development (3.0 cr)
- PBIO 5516 - Plant Cell Biology (3.0 cr)
- PBIO 5960 - Special Topics (1.0 - 3.0 cr)
- PLPA 5203 - Introduction to Fungal Biology (3.0 cr)
Twin Cities Campus
University Honors Program

College of Biological Sciences, College of Continuing Education, College of Design, College of Education and Human Development, College of Food, Agricultural and Natural Resource Sciences, College of Liberal Arts, Curtis L. Carlson School of Management, School of Nursing, College of Science and Engineering

- Program Type: Other
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 14 to 44
- This program is 8 terms (4 years) long.

The University Honors Program (UHP) assists high-achieving students in making the most of their undergraduate education. Our students are driven to excel both inside and outside the classroom, but we challenge them to go one step further.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, as well as degree program requirements. For any course required in a degree program, UHP students are expected to register for the honors version of courses associated with their discipline, when offered. These courses are designed to meet degree and UHP requirements.

To remain in the honors program, students must maintain a grade point average of 3.5 and complete a set number of Honors Experiences per year (May and summer sessions included).

Freshman Year
Students build a solid foundation of knowledge to serve them throughout their undergraduate career. Most students complete first-year Honors Experiences primarily through honors courses. Courses can be found here: http://www.honors.umn.edu/experiences/courses-and-tutoring/index.php

Two honors courses
- Two honors courses (honors seminars, departmental honors courses, or freshman seminars totalling at least six credits)

Two other Honors Experiences
- Two other Honors Experiences (courses or non-course experiences)

Sophomore Year
Students continue to take advantage of the curriculum while expanding their education beyond the classroom. Through non-course Honors Experiences they begin to apply their knowledge in the laboratory, studio, or community. Examples of these experiences can be found here: http://www.honors.umn.edu/experiences/non-course-experiences/index.php.

Two honors courses
- Two honors courses (totalling at least six credits)

Two other Honors Experiences
- Two other Honors Experiences (courses or non-course experiences)

Junior Year
Students engage in research, scholarship, or creative activity with a faculty mentor—an important step toward the development of a project for the honors thesis—while deepening and broadening their knowledge and skill base. The honors thesis guide can be found here: http://www.honors.umn.edu/latin-honors/thesis-guide/index.php.

One honors course
Two other Honors Experiences
Two other Honors Experiences (courses or non-course experiences)

Senior Year
The honors education culminates in the writing of an honors thesis. Through this thesis, students demonstrate mastery of their field of study, along with the ability to think creatively and independently.

One honors course
One additional Honors Experience
The Honors Thesis
Twin Cities Campus

Accounting Certificate

CCE Certificate Programs

College of Continuing Education

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 54 to 56
- Degree: Accounting Certificate

Accountants perform a wide range of vital financial and business services aimed at ensuring an organization runs effectively and efficiently. The interdisciplinary curriculum in this undergraduate-level certificate blends accounting principles with complementary business knowledge. Students delve into basic and advanced accounting methods such as how to record, verify, and analyze financial information, prepare budget analyses, and create financial and investment strategies.

This certificate provides an interdisciplinary blend of principles designed to give a well-rounded education in accounting, business, and management. It is designed for students who want to enhance their accounting skills, prepare for a career move, or study for an upcoming CPA or CMA exam.

This certificate will also prepare you for the following examinations:

- Certified Public Accountant (CPA)
  (If you plan to pursue the CPA designation in Minnesota, in addition to meeting the necessary accounting and business-related course requirements, you must have earned an undergraduate degree and completed a total of 150 semester credits of course work.)

- Certified Management Accountant (CMA)

Contact the following organizations for information about exam requirements:

CPA: Minnesota Board of Accountancy
CMA: The Institute of Management Accountants

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Students must complete 60 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.75 already admitted to the degree-granting college
- 2.75 transferring from another University of Minnesota college
- 2.75 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Certificate Requirements

Core Accounting Requirements

ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
ACCT 3001 - Introduction to Management Accounting (3.0 cr)
ACCT 3201 - Intermediate Management Accounting (2.0 cr)
ACCT 5101 - Intermediate Accounting I (4.0 cr)
ACCT 5102W - Intermediate Accounting II [WI] (4.0 cr)
ACCT 5125 - Auditing Principles and Procedures (4.0 cr)
ACCT 5135 - Fundamentals of Federal Income Tax (4.0 cr)

Accounting Electives
Choose 6 credits from the following Accounting courses.
- ACCT 5126 - Internal Auditing (2.0 cr)
- or ACCT 5160 - Financial Statement Analysis (2.0 cr)
- or ACCT 5180 - Consolidations and Advanced Reporting (2.0 cr)
- or ACCT 5236 - Introduction to Taxation of Business (2.0 cr)
- or ACCT 5281 - Special Topics in Financial Reporting (2.0 cr)
- or ACCT 5310 - International Accounting (2.0 cr)
- or IDSC 4411 - Accounting Information Systems and IT Governance (2.0 cr)

Core Business Related Requirements
- BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
- ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- ECON 1102 - Principles of Macroeconomics (4.0 cr)
- FINA 3001 - Finance Fundamentals (3.0 cr)
- IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)

Communication
- ABUS 4023W - Communicating for Results [WI] (3.0 cr)
- or MGMT 3033W - Business Communication [WI] (3.0 cr)

Business Related Electives
Choose 3 credits from the following business related courses.
- ABUS 3301 - Introduction to Quality Management (3.0 cr)
- MGMT 3040 - Understanding the International Environment of Firms: International Business (2.0 cr)
- MGMT 4031 - Fundamentals of Management (3.0 cr)
- HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)

Management
- MGMT 3001 - Fundamentals of Management (3.0 cr)
- or ABUS 4022 - Management in Organizations (3.0 cr)
- MKTG 3001 - Principles of Marketing (3.0 cr)
- or ABUS 4701 - Introduction to Marketing (3.0 cr)

Operations
- SCO 3001 - Introduction to Operations Management (3.0 cr)
- or MM 4102 - Manufacturing Operations (3.0 cr)
Twin Cities Campus

Addiction Studies Undergraduate Certificate

CCE Certificate Programs

College of Continuing Education

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 20 to 30
- Degree: Addiction Studies Certificate Undergraduate Level

The curriculum in the Addiction Studies Undergraduate Certificate provides students with a strong theoretical and practical foundation in evidence-based treatment modalities, counseling skills, professional and ethical responsibilities, and client advocacy. The program offers two track options: self designed and service provider.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 60 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students must select one of two sub-plans: Service Provider or Self-Designed. Students must complete the certificate within four years of the admission date.

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Service Provider

Required Core Courses

Foundation Courses
- ADDS 5011 - Foundations in Addiction Studies (2.0 cr)
- ADDS 5021 - Introduction to Evidence Based Practices and the Helping Relationship (3.0 cr)
- ADDS 5031 - Applied Psychopharmacology (2.0 cr)
- ADDS 5081 - Multicultural Foundations of Behavioral Health (3.0 cr)

Mid-Level Courses
- ADDS 5041 - Methods and Models I: Motivational Counseling (2.0 cr)
- ADDS 5071 - Foundations of Co-occurring Disorders (2.0 cr)

Advanced Courses
- ADDS 5051 - Methods and Models II: Cognitive Behavioral Therapy (2.0 cr)
- ADDS 5061 - Foundations of Group Work (3.0 cr)
ADDS 5091 - Assessment and Treatment Planning I (3.0 cr)

**Internship**

- Students must take 8 credits.
- ADDS 5996 - Internship in Substance Abuse Counseling (1.0 - 8.0 cr)

**Self-Designed**

**Required Core Courses**

- ADDS 5011 - Foundations in Addiction Studies (2.0 cr)
- ADDS 5031 - Applied Psychopharmacology (2.0 cr)
- ADDS 5071 - Foundations of Co-occurring Disorders (2.0 cr)
- ADDS 5081 - Multicultural Foundations of Behavioral Health (3.0 cr)
  - or FSOS 3426 - Alcohol and Drugs: Families and Culture (3.0 cr)

**Elective Courses**

Eleven credits from courses related to Addiction Studies and approved by the Addiction Studies Adviser. Elective courses may require prerequisites that are not part of the certificate program requirements and cannot be used towards certificate completion.
Twin Cities Campus

Applied Business Certificate

CCE Certificate Programs

College of Continuing Education

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 15
- This program requires summer terms.
- Degree: Applied Business Certificate Ugrd

The Certificate in Applied Business emphasizes utility and relevance. A fully online curriculum makes this certificate among the most accessible of academic business credentials. Based on the recommendations of private, public, and nonprofit employers, the Certificate offers specialized focus areas that target professional needs. This approach ensures its immediate applicability and value.

The certificate in Applied Business allows students to choose one of four focus areas that best complements their career plans.

- Managing the Professional Practice
- Managing in Health Systems Organizations
- Managing for Sustainability, Innovation, and Quality
- Self-Designed Focus

Program Delivery

This program is available:
- partially online (between 50% to 80% of instruction is online)

Admission Requirements

Students must complete 60 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Complete the certificate within four years of the admission date.

Certificate Requirements

Students complete one of the following area of emphasis:
- Managing the Professional Practice
- Managing for Sustainability, Innovation, and Quality
- Managing in Health Systems Organizations
- Self-Designed

Managing the Professional Practice

- ABUS 4703 - Marketing for the Professional Practice (3.0 cr)
- ABUS 4705 - Leadership and Management for the Professional Practice (3.0 cr)
- ABUS 4707 - Financial Management for the Professional Practice (3.0 cr)
- ABUS 4709 - Managing the Professional Practice I: Business Design (3.0 cr)
- ABUS 4711 - Managing the Professional Practice II: Operations (3.0 cr)

or Managing for Sustainability, Innovation and Quality
ABUS 4041 - Dynamics of Leadership (3.0 cr)
ABUS 3301 - Introduction to Quality Management (3.0 cr)
ABUS 4151 - Innovation for Leaders and Organizations (3.0 cr)
ABUS 4515 - Strategy and Management for a Sustainable Future (3.0 cr)

Management
ABUS 4022 - Management in Organizations (3.0 cr)
or
HSM 4561 - Health Care Administration and Management (3.0 cr)
or
Managing in Health Systems Organizations
HSM 4561 - Health Care Administration and Management (3.0 cr)
HSM 3521 - Health Care Delivery Systems (3.0 cr)
HSM 4541 - Health Care Finance (3.0 cr)
ABUS 4151 - Innovation for Leaders and Organizations (3.0 cr)
ABUS 4515 - Strategy and Management for a Sustainable Future (3.0 cr)
or
Self-Designed
With adviser/departmental approval, students may design their own 15 credit area of emphasis. Courses include one required core management course and four electives from Applied Business or Health Systems Management.

Core Management Course
ABUS 4022 - Management in Organizations (3.0 cr)
or
HSM 4561 - Health Care Administration and Management (3.0 cr)
or
ABUS 4041 - Dynamics of Leadership (3.0 cr)
or
ABUS 4705 - Leadership and Management for the Professional Practice (3.0 cr)

Electives
Select 12 credits from the following courses.
ABUS 3301 - Introduction to Quality Management (3.0 cr)
or
ABUS 4023W - Communicating for Results [WI] (3.0 cr)
or
ABUS 4031 - Strategic Use of Business Information Systems (3.0 cr)
or
ABUS 4041 - Dynamics of Leadership (3.0 cr)
or
ABUS 4043 - Project Management in Practice (3.0 cr)
or
ABUS 4101 - Accounting and Finance for Managers (3.0 cr)
or
ABUS 4104 - Management and Human Resource Practices (3.0 cr)
or
ABUS 4151 - Innovation for Leaders and Organizations (3.0 cr)
or
ABUS 4321 - Evaluating Performance Excellence in Organizations (3.0 cr)
or
ABUS 4515 - Strategy and Management for a Sustainable Future (3.0 cr)
or
ABUS 4701 - Introduction to Marketing (3.0 cr)
or
ABUS 4703 - Marketing for the Professional Practice (3.0 cr)
or
ABUS 4707 - Financial Management for the Professional Practice (3.0 cr)
or
ABUS 4709 - Managing the Professional Practice I: Business Design (3.0 cr)
or
ABUS 4711 - Managing the Professional Practice II: Operations (3.0 cr)
or
ABUS 4901 - Special Topics in Applied Business (3.0 cr)
or
HSM 3521 - Health Care Delivery Systems (3.0 cr)
or
HSM 4541 - Health Care Finance (3.0 cr)
Twin Cities Campus

Construction Management B.A.Sc.
CCE Applied Professional Studies
College of Continuing Education

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 55 to 58
• Degree: Bachelor of Applied Science

Construction management transforms project design and its engineering requirements into a physical structure, focusing on management and business skills needed to deliver high quality construction results on time and within budget. The major offers experience and education leading directly to a professional management career in high demand areas in the construction industry, including residential, commercial, industrial, institutional, highway heavy, facility management and process systems sectors. The construction management major is offered in close collaboration with the Minnesota and regional construction industry.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 45 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
• 2.50 transferring from another University of Minnesota college
• 2.50 transferring from outside the University

Students who have 30 transferable semester credits, preferred minimum 2.50 GPA, and a strong interest in the major may be admitted to pre-major status.

Each application for admission is individually reviewed in a holistic context.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Courses
Calculus
MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)

Physics
PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
or PHYS 1107 - Introductory Physics Online I (4.0 cr)
or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)

Building Construction Plan Reading
CMGT 3011 - Construction Plan Reading (2.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Preparatory Courses
ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
CMGT 3001 - Introduction to Construction (3.0 cr)

English Composition
WRIT 1301 - University Writing (4.0 cr)
or WRIT 1401 - Writing and Academic Inquiry (4.0 cr)

Technical Writing
ABUS 4023W - Communicating for Results [WI] (3.0 cr)
or WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
or WRIT 3001 - Introduction to Technical Writing and Communication (3.0 cr)
or WRIT 3152W - Writing on Issues of Science and Technology [WI] (4.0 cr)
or PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)

Public Speaking or Interpersonal Communication
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
or COMM 3402 - Introduction to Interpersonal Communication (3.0 cr)
or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
or WRIT 3257 - Technical and Professional Presentations (3.0 cr)
or COMM 3411 - Introduction to Small Group Communication (3.0 cr)
or COMM 1313W - Analysis of Argument [WI] (3.0 cr)

Economics
ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or ECON 1102 - Principles of Macroeconomics (4.0 cr)
or APEC 1102 - Principles of Macroeconomics (3.0 cr)

Introduction to Management
ABUS 4022 - Management in Organizations (3.0 cr)
or MGMT 3001 - Fundamentals of Management (3.0 cr)

Environmental Science
GEOG 1403 - Biogeography of the Global Garden [BIOL, ENV] (4.0 cr)

Major Core Courses
Student must take CMgt 4196: Construction Management Internship for a minimum of 3 credits.
ABUS 4101 - Accounting and Finance for Managers (3.0 cr)
ABUS 4701 - Introduction to Marketing (3.0 cr)
ABUS 4013 - Legal, Ethical, and Risk Issues for Managers (3.0 cr)
CMGT 4011 - Construction Documents and Contracts (3.0 cr)
CMGT 4021 - Construction Planning and Scheduling (3.0 cr)
CMGT 4022 - Construction Estimating (3.0 cr)
CMGT 4031 - Construction Safety and Loss Control (3.0 cr)
CMGT 4041W - Specifications and Technical Writing for Construction Professionals [WI] (3.0 cr)
CMGT 4471 - Sustainability for Construction Managers (2.0 cr)
CMGT 4861 - Construction Management Capstone (2.0 cr)
CMGT 4196 - Construction Management Internship (1.0 - 4.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Commercial
Preparatory Courses
CMGT 2019 - AutoCAD for Construction Managers (2.0 cr)
BBE 3101 - Introductory Statics and Structures for Construction Management (3.0 cr)

Required Courses
CE 3202 - Surveying and Mapping (2.0 cr)
CMGT 4051 - Construction Materials for Managers (3.0 cr)
CMGT 4201 - Construction Accounting (2.0 cr)
CMGT 4542 - Building Energy Systems (3.0 cr)
CMGT 4562 - Building Envelope Design and Construction (2.0 cr)
CMGT 4572 - Structural Frames and Building Design/Construction (3.0 cr)

Technical Electives
Student must complete a total of 5 credits selected from Construction Science and/or Other.

Construction Science
CMGT 4073 - Building Codes for Construction Managers (1.0 cr)
or CMGT 4081 - Managing Erosion and Sediment Control on Construction Sites (1.0 cr)
or CMGT 4215 - Facility Quality Assessment and Commissioning (2.0 cr)
or CE 3501 - Environmental Engineering [ENV] (3.0 cr)
or CE 4401 - Steel and Reinforced Concrete Design (4.0 cr)
or BBE 4416 - Building Testing and Diagnostics (2.0 cr)
or BBE 4733 - Renewable Energy Technologies [TS] (3.0 cr)
or ARCH 4561 - Architecture and Ecology (3.0 cr)
or LA 3571 - Landscape Construction: Site Systems and Engineering (3.0 cr)
or Other
CMGT 4422 - Advanced Construction Cost Estimating (2.0 cr)
or CMGT 4550 - Topics in Construction Management (1.0 - 2.0 cr)
or CMGT 4193 - Directed Study (1.0 - 4.0 cr)
or CMGT 4196 - Construction Management Internship (1.0 - 4.0 cr)
or ABUS 4104 - Management and Human Resource Practices (3.0 cr)
or ABUS 4217 - Real Estate Development and Finance (2.0 cr)

Highway Heavy and Civil Works
Preparatory Courses
CMGT 2019 - AutoCAD for Construction Managers (2.0 cr)
BBE 3101 - Introductory Statics and Structures for Construction Management (3.0 cr)

Required Courses
CE 3201 - Transportation Engineering (3.0 cr)
CE 3202 - Surveying and Mapping (2.0 cr)
CE 4201 - Highway Design (3.0 cr)
CMGT 4051 - Construction Materials for Managers (3.0 cr)
CMGT 4201 - Construction Accounting (2.0 cr)

Technical Electives
Student must complete a total of 7 credits selected from Construction Science and Other.

Construction Science
Student must complete at least 2 credits from this group.
CMGT 4081 - Managing Erosion and Sediment Control on Construction Sites (1.0 cr)
or CE 3301 - Soil Mechanics I (3.0 cr)
or CE 3501 - Environmental Engineering [ENV] (3.0 cr)
or CE 3502 - Fluid Mechanics (4.0 cr)
or CE 4251 - Pavement Analysis, Design, and Rehabilitation (4.0 cr)
or CE 4253 - Pavement Engineering and Management (3.0 cr)
or CE 4501 - Hydrologic Design (4.0 cr)
or LA 3571 - Landscape Construction: Site Systems and Engineering (3.0 cr)
or Other

Residential
Preparatory Courses
CMGT 2019 - AutoCAD for Construction Managers (2.0 cr)
BBE 3101 - Introductory Statics and Structures for Construction Management (3.0 cr)

Required Courses
CMGT 4051 - Construction Materials for Managers (3.0 cr)
CMGT 4201 - Construction Accounting (2.0 cr)
BBE 4413 - Systems Approach to Residential Construction (4.0 cr)
BBE 4414 - Advanced Residential Building Science (4.0 cr)
BBE 4416 - Building Testing and Diagnostics (2.0 cr)

Technical Electives
Student must complete a total of 5 credits selected from Construction Science and/or Other.

Construction Science
CMGT 4073 - Building Codes for Construction Managers (1.0 cr)
or CMGT 4081 - Managing Erosion and Sediment Control on Construction Sites (1.0 cr)
or BBE 4733 - Renewable Energy Technologies [TS] (3.0 cr)
or ARCH 4561 - Architecture and Ecology (3.0 cr)
or LA 3571 - Landscape Construction: Site Systems and Engineering (3.0 cr)
or Other
CMGT 4422 - Advanced Construction Cost Estimating (2.0 cr)
or CMGT 4550 - Topics in Construction Management (1.0 - 2.0 cr)
or CMGT 4193 - Directed Study (1.0 - 4.0 cr)
or CMGT 4196 - Construction Management Internship (1.0 - 4.0 cr)
or ABUS 4104 - Management and Human Resource Practices (3.0 cr)
or ABUS 4217 - Real Estate Development and Finance (2.0 cr)

**Facility Management**

**Preparatory Courses**
- CMGT 2021 - Facility Programming and Design (2.0 cr)
- ABUS 4104 - Management and Human Resource Practices (3.0 cr)

**Required Courses**
- ABUS 4217 - Real Estate Development and Finance (2.0 cr)
- CMGT 4211 - Facility Cost Accounting and Finance (2.0 cr)
- CMGT 4213 - Facility Operations and Maintenance Intensive (3.0 cr)
- CMGT 4215 - Facility Quality Assessment and Commissioning (2.0 cr)
- CMGT 4542 - Building Energy Systems (3.0 cr)
- CMGT 4562 - Building Envelope Design and Construction (2.0 cr)

**Technical Electives**
Student must complete a total of 6 credits selected from Construction Science. Subject to topical content and adviser approval, CMgt 4193: Directed Study and CMgt 4550: Topics in Construction Management may count towards Construction Science Technical Electives. Student should check with their adviser.

**Construction Science**
- CMGT 4073 - Building Codes for Construction Managers (1.0 cr)
or CMGT 4081 - Managing Erosion and Sediment Control on Construction Sites (1.0 cr)
or CMGT 4572 - Structural Frames and Building Design/Construction (3.0 cr)
or BBE 4416 - Building Testing and Diagnostics (2.0 cr)
or BBE 4733 - Renewable Energy Technologies [TS] (3.0 cr)
or LA 3571 - Landscape Construction: Site Systems and Engineering (3.0 cr)
Twin Cities Campus

Construction Management Certificate
CCE Certificate Programs
College of Continuing Education

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 18
- Degree: Construction Management Certificate

This undergraduate certificate will give you an in-depth understanding of the design and technology framework and the communication and management skills required for your career advancement. Designed and taught by industry professionals, the program is for people interested in a career as a construction manager or industry professional who want to increase their knowledge of new technologies or improve their management and communication skills.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 45 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Certificate Requirements
- CMGT 3001 - Introduction to Construction (3.0 cr)
- CMGT 4011 - Construction Documents and Contracts (3.0 cr)
- CMGT 4021 - Construction Planning and Scheduling (3.0 cr)
- CMGT 4022 - Construction Estimating (3.0 cr)
- CMGT 4031 - Construction Safety and Loss Control (3.0 cr)
- CMGT 4073 - Building Codes for Construction Managers (1.0 cr)
- CMGT 4861 - Construction Management Capstone (2.0 cr)
Twin Cities Campus

Construction Management Minor
CCE Applied Professional Studies
College of Continuing Education

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

A minor in construction management provides foundation knowledge, industry insight, and business competencies essential in the construction sector. The facility management option provides core competencies for ensuring functionality of the built environment.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 45 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Sixty percent of credits in the minor must be completed at the University of Minnesota-Twin Cities.

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

General Construction Management

Required Courses
- CMGT 3001 - Introduction to Construction (3.0 cr)
- CMGT 4011 - Construction Documents and Contracts (3.0 cr)
- CMGT 4021 - Construction Planning and Scheduling (3.0 cr)
- CMGT 4022 - Construction Estimating (3.0 cr)
- CMGT 4031 - Construction Safety and Loss Control (3.0 cr)
- CMGT 4073 - Building Codes for Construction Managers (1.0 cr)
- CMGT 4861 - Construction Management Capstone (2.0 cr)

Facility Management

Required Courses
- CMGT 2021 - Facility Programming and Design (2.0 cr)
- CMGT 4021 - Construction Planning and Scheduling (3.0 cr)
- CMGT 4022 - Construction Estimating (3.0 cr)
- CMGT 4211 - Facility Cost Accounting and Finance (2.0 cr)
- CMGT 4213 - Facility Operations and Maintenance Intensive (3.0 cr)
- CMGT 4215 - Facility Quality Assessment and Commissioning (2.0 cr)
- CMGT 4073 - Building Codes for Construction Managers (1.0 cr)
- CMGT 4861 - Construction Management Capstone (2.0 cr)
The Dakota Language Teaching Certificate was designed to address the critical point of Dakota language loss in Minnesota by developing a cadre of Dakota language learners, speakers, and teachers. This effort is part of a global indigenous language revitalization movement based on the understanding that language is fundamental to cultural survival and tribal sovereignty.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 4 courses before admission to the program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Admission Requirements
To be admitted into the Dakota Language Teaching Certificate, you must:
Complete 4 semesters of Dakota language at the University of Minnesota
OR Pass the Dakota Proficiency Test administered by the Dakota language instructor.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students must complete the certificate within four years of the admission date.

Certificate Requirements
Core Courses
- DAKO 5126 - Advanced Dakota Language I (3.0 cr)
- DAKO 5129 - Advanced Dakota Language II (3.0 cr)
- DAKO 3125 - Introduction to Dakota Linguistics (3.0 cr)
- DAKO 3127 - Dakota Language for Teachers (3.0 cr)
Field Study
3 credits of Field Study is required
- AMIN 4996 - Field Study (1.0 - 12.0 cr)
Electives
- DAKO 3126 - Dakota Language for the Classroom (3.0 cr)
or AMIN 3141 - American Indian Language Planning (3.0 cr)
or AMIN 3143 - Language in American Indian Culture and Society (3.0 cr)
Twin Cities Campus
Facility Management Certificate
CCE Certificate Programs
College of Continuing Education

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 18
- Degree: Facility Management Certificate

The Facility Management Certificate offers a comprehensive, multidisciplinary program in which students study the complete building life cycle, from design inception and construction to maintenance, recommissioning, and demolition, with the objective of serving on the owner's side to develop, construct, and maintain buildings for the long term.

Program Delivery
This program is available:
- partially online (between 50% to 80% of instruction is online)

Admission Requirements
Students must complete 45 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Certificate Requirements
CMGT 2021 - Facility Programming and Design (2.0 cr)
CMGT 4021 - Construction Planning and Scheduling (3.0 cr)
CMGT 4022 - Construction Estimating (3.0 cr)
CMGT 4073 - Building Codes for Construction Managers (1.0 cr)
CMGT 4211 - Facility Cost Accounting and Finance (2.0 cr)
CMGT 4213 - Facility Operations and Maintenance Intensive (3.0 cr)
CMGT 4215 - Facility Quality Assessment and Commissioning (2.0 cr)
CMGT 4861 - Construction Management Capstone (2.0 cr)
Twin Cities Campus

Information Technology Infrastructure B.A.Sc.

CCE Applied Professional Studies

College of Continuing Education

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 76 to 79
- Degree: Bachelor of Applied Science

Information technology infrastructure (ITI) concerns the design, construction, and management of technology operations. The ITI major is the study and application of this knowledge to organizational and business needs. The curriculum combines a strong foundation in computer systems, networks, and data management with essential applied business courses. The ITI major prepares students for a variety of industrial, governmental, and business positions involving computer technology processes, policies, components, and services.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Students must complete 45 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

Students who have 30 transferable semester credits, preferred minimum 2.50 GPA, and a strong interest in the major may be admitted to pre-major status.

Each application for admission is individually reviewed in a holistic context.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Courses
- CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)
- CSCI 1933 - Introduction to Algorithms and Data Structures (4.0 cr)
- CSCI 2021 - Machine Architecture and Organization (4.0 cr)

Calculus
- MATH 1142 - Short Calculus [MATH] (4.0 cr)
  or MATH 1271 - Calculus I [MATH] (4.0 cr)

Physics
- PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
  or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Preparatory Courses
- ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
- INET 3101 - C Programming: Language and Applications (2.0 cr)
If you plan to take elective CSCI courses beyond curriculum requirements, enroll in CSCI 2011
- INET 3102 - Web Infrastructure (2.0 cr)
or CSCI 2011 - Discrete Structures of Computer Science (4.0 cr)

English Composition
WRIT 1301 - University Writing (4.0 cr)
or WRIT 1401 - Writing and Academic Inquiry (4.0 cr)

Public Speaking or Interpersonal Communication
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
or COMM 3402 - Introduction to Interpersonal Communication (3.0 cr)
or COMM 3605W - Persuasive Speaking and Speech Writing [WI] (3.0 cr)
or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)

Statistics
PSTL 1004 - Statistics: Understanding and Applying Data [MATH] (4.0 cr)
or SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
or STAT 1001 - Introduction to the Ideas of Statistics [MATH] (4.0 cr)
or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)

Microeconomics
ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)

Technical Writing
One technical writing course or writing intensive science course.
PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or WRIT 3001 - Introduction to Technical Writing and Communication (3.0 cr)
or WRIT 3152W - Writing on Issues of Science and Technology [WI] (4.0 cr)
or WRIT 3257 - Technical and Professional Presentations (3.0 cr)
or WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Core Courses
CSCI 4061 - Introduction to Operating Systems (4.0 cr)
CSCI 4211 - Introduction to Computer Networks (3.0 cr)
INET 4031 - System Administration (4.0 cr)
INET 4051 - IT Infrastructure Operations (3.0 cr)
INET 4082 - IT Infrastructure Projects and Processes (2.0 cr)
INET 4153 - Policy and Regulation: Effects on Global IT Infrastructure (3.0 cr)
INET 4707 - Practice of Database Systems (3.0 cr)
or CSCI 4707 - Practice of Database Systems (3.0 cr)

Technical Electives
Take 10 or more credit(s) from the following:
• INET 4011 - Network Administration (4.0 cr)
• INET 4021 - Network Programming (4.0 cr)
• INET 4032 - Storage Design and Administration (2.0 cr)
• INET 4041 - Emerging Network Technologies and Applications (3.0 cr)
• INET 4061 - Introduction to Business Intelligence and Data Warehousing (3.0 cr)
• INET 4083 - System Analysis and Design (2.0 cr)
• INET 4165 - Information Security: Technology, Ethics, Legality, and Standards (3.0 cr)
• INET 4709 - Art and Practice of Database Administration (3.0 cr)
• INET 4596 - Internship (1.0 - 3.0 cr)
or INET 4193 - Directed Study (1.0 - 4.0 cr)

Business/Communication Courses
Management
ABUS 4022 - Management in Organizations (3.0 cr)
or HSM 4561 - Health Care Administration and Management (3.0 cr)

Business Communication
ABUS 4023W - Communicating for Results [WI] (3.0 cr)

Cost Accounting
ABUS 4101 - Accounting and Finance for Managers (3.0 cr)
or HSM 4541 - Health Care Finance (3.0 cr)

Quality and Process Improvement
ABUS 3301 - Introduction to Quality Management (3.0 cr)
or MM 4201 - Quality Engineering and Process Improvement (3.0 cr)

Business/Communication Electives
Must be ABUS courses or other dept approved electives not included in core or technical requirement.
Take 6 or more credit(s) from the following:
• ABUS 3xxx
Twin Cities Campus

Information Technology Infrastructure Certificate
CCE Certificate Programs
College of Continuing Education

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 16 to 17
- Degree: Information Technology Infrastructure Certificate

The Information Technology Infrastructure (ITI) Certificate offers knowledge and skills in the high-demand areas of IT infrastructure that organizations need to manage daily business practices: network administration, system administration, and database administration. You can tailor a program of study that is the best fit for your own career path.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 45 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
1. Prerequisites
The core courses are formal prerequisites for most of the emphasis area electives, and in addition, have their own knowledge prerequisites. The University of Minnesota courses listed below satisfy these core knowledge prerequisites, but they are not part of the certificate program and are not included in the total credits required to complete the certificate. If you have equivalent education, technical training, or work experience, you may be able to obtain approval to waive one or more of them.

Math 1271 Calculus I (4 cr)
CSci 1133 Intro to Computing and Programing Concepts (4 cr)
CSci 1933 Intor to algorithms and Data Structures (4 cr)
CSci 2021 Machine Architecture and Organization (3 cr) or
EE 2361 Introduction to Microcontrollers (4 cr)
INet 3101 (for those without C programming experience)
CSci 1103 (for those without Java experience)

Also, because some of the electives are prerequisites for other electives within an area, attention must be paid to the order in which these courses are taken.

2. Complete the certificate within four years of the admission date.

Information Technology Infrastructure Certificate Emphasis Areas
Student must complete core and emphasis area courses in one of the following areas.

Network Administration
CSCI 4061 - Introduction to Operating Systems (4.0 cr)
CSCI 4211 - Introduction to Computer Networks (3.0 cr)
INET 4011 - Network Administration (4.0 cr)
INET 4082 - IT Infrastructure Projects and Processes (2.0 cr)
INET 4021 - Network Programming (4.0 cr)
   or INET 4041 - Emerging Network Technologies and Applications (3.0 cr)

-OR-

System Administration
CSCI 4061 - Introduction to Operating Systems (4.0 cr)
CSCI 4211 - Introduction to Computer Networks (3.0 cr)
INET 4031 - System Administration (4.0 cr)
INET 4165 - Information Security: Technology, Ethics, Legality, and Standards (3.0 cr)
INET 4032 - Storage Design and Administration (2.0 cr)
   or INET 4082 - IT Infrastructure Projects and Processes (2.0 cr)

-OR-

Data Administration
CSCI 4061 - Introduction to Operating Systems (4.0 cr)
INET 4082 - IT Infrastructure Projects and Processes (2.0 cr)
INET 4083 - System Analysis and Design (2.0 cr)
INET 4165 - Information Security: Technology, Ethics, Legality, and Standards (3.0 cr)
INET 4707 - Practice of Database Systems (3.0 cr)
INET 4032 - Storage Design and Administration (2.0 cr)
   or INET 4709 - Art and Practice of Database Administration (3.0 cr)

-OR-

Business System Analyst
CSCI 4061 - Introduction to Operating Systems (4.0 cr)
CSCI 4211 - Introduction to Computer Networks (3.0 cr)
INET 4082 - IT Infrastructure Projects and Processes (2.0 cr)
INET 4083 - System Analysis and Design (2.0 cr)
INET 4153 - Policy and Regulation: Effects on Global IT Infrastructure (3.0 cr)
INET 4165 - Information Security: Technology, Ethics, Legality, and Standards (3.0 cr)
   or INET 4707 - Practice of Database Systems (3.0 cr)

-OR-

Self Designed
CSCI 4061 - Introduction to Operating Systems (4.0 cr)
CSCI 4211 - Introduction to Computer Networks (3.0 cr)
INET Electives
   With CCE department/adviser approval select 9 credits from the following INET courses.
   INET 4011 - Network Administration (4.0 cr)
   or INET 4021 - Network Programming (4.0 cr)
   or INET 4031 - System Administration (4.0 cr)
   or INET 4032 - Storage Design and Administration (2.0 cr)
   or INET 4041 - Emerging Network Technologies and Applications (3.0 cr)
   or INET 4051 - IT Infrastructure Operations (3.0 cr)
   or INET 4061 - Introduction to Business Intelligence and Data Warehousing (3.0 cr)
   or INET 4082 - IT Infrastructure Projects and Processes (2.0 cr)
   or INET 4083 - System Analysis and Design (2.0 cr)
   or INET 4153 - Policy and Regulation: Effects on Global IT Infrastructure (3.0 cr)
   or INET 4165 - Information Security: Technology, Ethics, Legality, and Standards (3.0 cr)
   or INET 4193 - Directed Study (1.0 - 4.0 cr)
   or INET 4707 - Practice of Database Systems (3.0 cr)
   or INET 4709 - Art and Practice of Database Administration (3.0 cr)

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Information current as of December 12, 2014
Twin Cities Campus
Inter-College Program B.A.
CCE Individualized Degree and Inter-College Prog
College of Continuing Education

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 66
- Degree: Bachelor of Arts

Founded in 1930, the Inter-College Program (ICP) embodies the University of Minnesota's commitment to individualized undergraduate education by providing cross-college, course/credit-based degree options. Drawing upon the curricular offerings of most of the University's colleges and departments, students design either a bachelor of arts (B.A.) or a bachelor of science (B.S.) degree incorporating a significant amount of coursework from at least two different colleges within the University system.

Most students design a degree drawing from two or three departmental areas from the University. Examples include addiction studies and psychology, or Carlson School of Management, manufacturing technology, and economics.

ICP is most appropriate for self-directed students whose educational backgrounds and career and intellectual interests require both a clear personal focus and a flexible interdisciplinary approach.

Interested students should attend an information session, which are held several times each week. Academic advisers provide a detailed introduction to the program and help students begin the planning process. For further information on the Inter-College Program, visit http://www.cce.umn.edu/Inter-College-Program/index.html.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 50 credits before admission to the program.

Students are considered for admission based on a review of their application. The review includes factors such as GPA, grade trends, performance in coursework relevant to proposed areas of study, and demonstrated ability to meet curricular and developmental expectations of individualized undergraduate education. Students must have attended a program information session and an initial degree planning appointment with an adviser.

Preferred benchmarks are a 2.50 GPA and 50 semester credits completed.

Students must develop a degree plan that includes:
- Academic and career goals.
- Courses proposed for the program, from at least two colleges.
- Approval of the plan from at least two faculty or departmental advisers.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 2 semester(s) of any second language.

In applicable departmental areas, successful completion of the following courses will count toward the 50 credits: CHEM 2302, CSCI 2021, DHA 2463, FW 2001, PSY 2801.
Inter-College Program Language and Culture Requirement
Students are required to complete a second language requirement. Option 1: successfully complete the fourth semester of a single second language. Option 2: successfully complete the second semester of a single second language, plus 8 credits of additional language or culture study.

ICP Oral Communication Requirement
ABUS 4023W - Communicating for Results [WI] (3.0 cr)
or COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
or COMM 1313W - Analysis of Argument [WI] (3.0 cr)
or COMM 3411 - Introduction to Small Group Communication (3.0 cr)
or COMM 3605W - Persuasive Speaking and Speech Writing [WI] (3.0 cr)
or MGMT 3033W - Business Communication [WI] (3.0 cr)
or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
or WRIT 3257 - Technical and Professional Presentations (3.0 cr)

Upper-division Writing Intensive Requirement
Students are required to take one upper-division Writing Intensive course within the major. Students work with their adviser to select the appropriate course.

ICP Program Options

Two Area Cross-College Program
This plan combines courses from two area cross-college programs, such as CSOM and mass communications, or computer science and French.
Complete 20 approved credits of upper division coursework in one area of concentration.
Complete 20 approved credits of upper division coursework in a second area of concentration.
Complete 10 credits of elective upper division coursework.

Three Area Cross-College Program
This plan combines courses from three area cross-college programs, such as applied business, communication studies, and psychology, or public health, child psychology, and family social science.
Complete 20 approved credits of upper division coursework in one area of concentration.
Complete 12 approved credits of upper division coursework in a second area of concentration.
Complete 12 approved credits of upper division coursework in a third area of concentration.
Complete 6 credits of elective upper division coursework.

Thematic Cross-College Program
A thematic cross-college program, such as aging studies, integrates coursework from several departments--sociology, public health, family social science, and social work. Thematic programs are appropriate only when students' objectives are clearly focused on one topic that cannot be pursued in a two- or three-area program.
Complete 40 approved upper division credits on a theme with no more than 15 credits in any one department.
Complete 10 credits of elective upper division coursework.
Twin Cities Campus

Inter-College Program B.S.
CCE Individualized Degree and Inter-College Prog

College of Continuing Education

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 50
- Degree: Bachelor of Science

Founded in 1930, the Inter-College Program (ICP) embodies the University of Minnesota's commitment to individualized undergraduate education by providing cross-college, course/credit-based degree options. Drawing upon the curricular offerings of most of the University's colleges and departments, students design either a bachelor of arts (B.A.) or a bachelor of science (B.S.) degree incorporating a significant amount of coursework from at least two different colleges within the University system.

Bachelor of science degrees are those that pertain to the physical or biological sciences, have significant quantitative or investigative tools/methods expectations, or have a pronounced applied/professional component (e.g., public health, education, business, social work).

Most students design a degree drawing from two or three departmental areas from the University. Examples include addiction studies and psychology, or Carlson School of Management, manufacturing technology, and economics.

ICP is most appropriate for self-directed students whose educational backgrounds and career and intellectual interests require both a clear personal focus and a flexible interdisciplinary approach.

Interested students should attend an information session, which are held several times each week. Academic advisers provide a detailed introduction to the program and help students begin the planning process. For more information on the Inter-College Program, visit www.cce.umn.edu/Inter-College-Program/.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 50 credits before admission to the program.

Students are considered for admission based on a review of their application. The review includes factors such as GPA, grade trends, performance in coursework relevant to proposed areas of study, and demonstrated ability to meet curricular and developmental expectations of individualized undergraduate education. Students must have attended a program information session and an initial degree planning appointment with an adviser.

Preferred benchmarks are 2.50 GPA and 50 semester credits completed. For Thematic Career and Technical Education Program, preferred benchmark is 30 semester credits completed.

Students must develop a degree plan that includes:
* Academic and career goals.
* Courses proposed for the program, from at least two colleges.
* Approval of the plan from at least two faculty or departmental advisers.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).
Program Requirements
In applicable departmental areas, successful completion of the following courses will count toward the 50 credits: CHEM 2302, CSCI 2021, DHA 2463, FW 2001, PSY 2801.

ICP Oral Communication Requirement
ABUS 4023W - Communicating for Results [WI] (3.0 cr)
or COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
or COMM 1313W - Analysis of Argument [WI] (3.0 cr)
or COMM 3411 - Introduction to Small Group Communication (3.0 cr)
or COMM 3605W - Persuasive Speaking and Speech Writing [WI] (3.0 cr)
or MGMT 3033W - Business Communication [WI] (3.0 cr)
or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
or WRIT 3257 - Technical and Professional Presentations (3.0 cr)

Upper-division Writing Intensive Requirement
Students are required to take one upper-division Writing Intensive course within the major. Students work with their adviser to select the appropriate course.

ICP Program Options

Two Area Cross-College Program
This plan combines courses from two area cross-college programs, such as Carlson School of Management and mass communications, or computer science and French.
Complete 21 approved credits of upper division coursework in one area of concentration.
Complete 21 approved credits of upper division coursework in a second area of concentration.
Complete 8 supporting upper division credits in approved coursework.

-OR-

Three Area Cross-College Program
This plan combines courses from three area cross-college programs, such as applied business, communication studies, and psychology, or public health, child psychology, and family social science.
Complete 20 approved credits of upper division coursework in one area of concentration.
Complete 15 approved credits of upper division coursework in a second area of concentration.
Complete 15 approved credits of upper division coursework in a third area of concentration.

-OR-

Thematic Cross-College Program
The thematic cross-college program, such as aging studies, integrates coursework from several departments--sociology, public health, family social science, and social work. Thematic programs are appropriate only when students' objectives are clearly focused on one topic that cannot be pursued in a two- or three-area program.
Complete 50 approved upper division credits with no more than 15 credits in any one department.

-OR-

Thematic Health and Wellness Program
The thematic health and wellness program integrates coursework from several departments for students with health-related interests. Students who select this option follow the requirements for the thematic health and wellness program subplan.

-OR-

Thematic Career and Technical Education Program
The thematic career and technical education program offers professional preparation for students interested in working towards MN teaching licensure. The licensure option prepares students for teaching secondary, technical and/or community college CTE programs. Students who select this option follow the requirements for the thematic career and technical education program subplan.

-OR-

Course Group 5

Program Sub-plans
A sub-plan is not required for this program.

Thematic Health and Wellness Program

Lower Division Health and Wellness Foundation Prerequisites
Biology
PSTL 1135 will not be approved in conjunction with a Life Science Focus.

**Chemistry**
- **Chemistry Option 1**
  - CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
  - CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
  - CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
  - CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)

- **Chemistry Option 2**
  - CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
  - CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)
  - BIOC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)

**Nutrition**
- FSCN 1112 - Principles of Nutrition (3.0 cr)

**Economics**
- APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- APEC 1102 - Principles of Macroeconomics (3.0 cr)
- ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- ECON 1102 - Principles of Macroeconomics (4.0 cr)

**Social Science**
- PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
- PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
- SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)
- PSTL 1211 - Sociological Perspectives: A Multicultural America [SOCS, DSJ] (4.0 cr)
- ANTH 1003W - Understanding Cultures [SOCS, GP, WI] (4.0 cr)

**Upper Division Health & Wellness Core Requirements**

Students must complete a minimum of 31 upper division credits within the Core by choosing one course from each category. Courses are chosen in consultation with an adviser. Must earn grade of C- or better in all courses and maintain a minimum 2.00 GPA. To be competitive for graduate and professional programs in the health sciences, GPA should be 3.00 or higher.

**Anatomy**
- ANAT 3001 - Human Anatomy (3.0 cr)
- ANAT 3601 - Principles of Human Anatomy (3.0 cr)
- ANAT 3611 - Principles of Human Anatomy (3.0 cr)
- KIN 3027 - Human Anatomy for Kinesiology Students (3.0 cr)

**Physiology**
- BIOL 3211 - Physiology of Humans and Other Animals (3.0 cr)
- KIN 3385 - Human Physiology (4.0 cr)
- PHSL 3051 - Human Physiology (4.0 cr)
- PHSL 3061 - Principles of Physiology (4.0 cr)

**Terminology**
- PHAR 1002 - Medical Terminology (2.0 cr)
- PHAR 5201 - Applied Health Sciences Terminology (2.0 cr)

**Public Health**
- PUBH 3001 - Personal and Community Health (2.0 cr)
- PUBH 3004 - Basic Concepts in Personal and Community Health (4.0 cr)

**Health and Fitness**
- KIN 3001 - Lifetime Health and Wellness [SOCS] (3.0 cr)

**Nutrition**
- FSCN 3301 - Food Choices: Healing the Earth, Healing Ourselves (3.0 cr)
- FSCN 3612 - Life Cycle Nutrition (3.0 cr)
- FSCN 3614 - Nutrition Education and Counseling (3.0 cr)
- FSCN 3615 - Sociocultural Aspects of Food, Nutrition, and Health [GP] (3.0 cr)
- FSCN 4612 - Advanced Human Nutrition (4.0 cr)
- FSCN 4614 - Community Nutrition [SOCS, DSJ] (3.0 cr)
- PUBH 3905 - Nutrition for Public Health Promotion and Disease Prevention (2.0 cr)

**Statistics**
- EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)
- NURS 3710 - Statistics for Clinical Practice and Research [MATH] (3.0 cr)
- PSY 3801 - Introduction to Psychological Measurement and Data Analysis [MATH] (4.0 cr)
- SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)
- STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
- STAT 3021 - Introduction to Probability and Statistics (3.0 cr)

**Pathology**
LAMP 4177 - Nature of Disease: Pathology for Allied Health Students (3.0 cr)

Management/Economics
Note: Some of these courses have a micro- or macroeconomics prerequisite.
ABUS 4705 - Leadership and Management for the Professional Practice (3.0 cr)
or ABUS 4707 - Financial Management for the Professional Practice (3.0 cr)
or HSM 3521 - Health Care Delivery Systems (3.0 cr)
or HSM 4541 - Health Care Finance (3.0 cr)
or HSM 4561 - Health Care Administration and Management (3.0 cr)
or PUBH 3801 - Health Economics and Policy (3.0 cr)

Ethics
PHIL 3302W - Moral Problems of Contemporary Society [CIV, WI] (4.0 cr)
or PHIL 3305 - Medical Ethics (4.0 cr)

Complementary/Alternative Healing
CSPH 1001 - Principles of Holistic Health and Healing (2.0 cr)
or CSPH 3001 - Introduction to Integrative Healing (3.0 cr)
or CSPH 5101 - Introduction to Integrative Healing Practices (3.0 cr)

Communication Upper Division
ABUS 4023W - Communicating for Results [WI] (3.0 cr)
or ABUS 4571 - Introduction to Grant Writing for Health Care and Nonprofit Organizations (3.0 cr)
or HSM 4571 - Introduction to Grant Writing for Health Care and Nonprofit Organizations (3.0 cr)
or WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
or WRIT 3221W - Communication Modes and Methods [WI] (4.0 cr)
or WRIT 3257 - Technical and Professional Presentations (3.0 cr)
or WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Upper Division Health and Wellness Emphases/Foci/Specialties
Complete at least 12 to 16 upper division credits in one departmental area such as addiction, business, communication, complementary medicine, life science, nutrition, public health, sexuality, social science, social work, or youth studies. Any relevant department, certificate, or minor can be considered. Courses are chosen in consultation with an adviser. Must earn grade of C- or better in all courses. Overall emphasis/focus/specialty GPA must be at least 2.00.

Upper Division Health and Wellness Supporting Coursework
To reach the 50 upper division credits required for the major, students may add courses within the emphasis or add related supporting courses. Courses are chosen in consultation with an adviser. Students must earn a grade of C- or better in all courses.

Thematic Career and Technical Education Program

Lower Division Career and Technical Education Core Requirements
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
OLPD 1496 - Supervised Career and Technical Education Teaching (4.0 cr)
OLPD 1801 - Introduction to Career and Technical Education Teaching (2.0 cr)

Psychology
PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
or PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)

Mathematics
MATH 1001 - Excursions in Mathematics [MATH] (3.0 cr)
or MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)

Upper Division Career and Technical Education Core Requirements
EDHD 5008 - Reading in the Content Areas for Initial Licensure Candidates (1.0 - 2.0 cr)
EDHD 5001 - Learning, Cognition, and Assessment (3.0 cr)
EDHD 5009 - Human Relations: Applied Skills for School and Society (1.0 cr)

Communication
ABUS 4023W - Communicating for Results [WI] (3.0 cr)
or MGMT 3033W - Business Communication [WI] (3.0 cr)
or WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Student and Trainee Assessment
OLPD 3808 - Foundations of Student and Trainee Assessment (2.0 cr)
or OLPD 5808 - Student and Trainee Assessment (2.0 cr)

Course Development for Business and Industry
OLPD 3829 - Foundations of Course Development for Business and Industry (2.0 cr)
or OLPD 5829 - Course Development for Business and Industry (2.0 cr)

Foundations of Instructional Methods for Business and Industry
OLPD 3861 - Foundations of Instructional Methods for Business and Industry (2.0 cr)
or OLPD 5861 - Instructional Methods for Business and Industry (2.0 cr)

Philosophy and Practice of Career and Technical Education
OLPD 3801 - Foundations of Philosophy and Practice of Career and Technical Education (2.0 cr)
or OLPD 5806 - Philosophy and Practice of Career and Technical Education (2.0 cr)
Fundamentals of Alcohol and Drug Abuse  
**PUBH 3005** - Fundamentals of Alcohol and Drug Abuse for Teacher Education (1.0 cr)  
or **PUBH 3003** - Fundamentals of Alcohol and Drug Abuse (2.0 cr)  

**Upper Division Career Content Proficiency**  
While up to 32 cr may be completed before enrollment in the CTE ICP—including occupational experience, formal technical college coursework, military or industrial experience, or workshops related to the field—only 15 of these cr can be used to meet the Upper-Division Career Content Prof requirement. Experience will be evaluated by the CTE adviser and awarded the appropriate cr amount. Cr awarded over max of 15 in Career Content Proficiency can be applied to the UofM min 120 cr requirement.  
**OLPD 3451** - Technical Development: Advanced (1.0 - 32.0 cr)  
or **OLPD 5454** - Technical Development: Specialized (1.0 - 12.0 cr)  
or **OLPD 5496** - Occupational Experience in Business and Industry (1.0 - 10.0 cr)  
or **OLPD 5493** - Directed Study in Business and Industry (1.0 - 4.0 cr)  

**Upper Division Professional Electives**  
Upper Division Professional Electives must be course based instruction and are to be selected in consultation with the CTE adviser to reach 50 upper division credits in the theme. Upper division Professional Electives should total 17 credits.  
**CI 4311W** - Technology and Ethics in Society [CIV, WI] (3.0 cr)  

**Honors UHP**  
This is an honors sub-plan.  
Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.  
Current departmental honors course offerings are listed at:  
http://www.honors.umn.edu/academics/curriculum/dept_courses_current.html  
Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or with an honors directed studies, or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.
Twin Cities Campus
Interpreting Certificate
CCE Certificate Programs
College of Continuing Education

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 18 to 19
- Degree: Interpreting Certificate Ugrd

The Certificate in Interpreting is designed for both current language professionals and those new to the field. The Interpreting Certificate provides a valued university credential from a world-class university. Develop knowledge and skills in: interpreter protocols, ethical issues, specialized terminologies, consecutive interpreting, sight translation, and simultaneous interpreting.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Student must complete the following before admission:
- Complete the Language Background Form
- Complete bilingual writing samples using the Writing Sample Form

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students must select one of two sub-plans: Health Care Interpreting or Legal Interpreting. Students must complete the certificate within four years of the admission date.

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Health Care

Subplan Requirements

Required Core Courses
- TRIN 3001 - Introduction to Translation (3.0 cr)
- TRIN 3101 - Introduction to Interpreting (3.0 cr)
- TRIN 3102 - Consecutive Interpreting (3.0 cr)

Health Care Interpreting Courses
- TRIN 1201 - Health Care Terms and Concepts for Interpreters (3.0 cr)
- TRIN 4201 - Interpreting in Health Care Settings (3.0 cr)

Elective Course
Choose 1 course from the following. With adviser approval substituting another relevant course is sometimes possible.
- LING 1701 - Language and Society (4.0 cr)
- LING 3001 - Introduction to Linguistics [SOCS] (4.0 cr)
- LING 5001 - Introduction to Linguistics (4.0 cr)
- TRIN 3900 - Topics in Translation and Interpreting (3.0 cr)
or TRIN 5900 - Topics in Translation and Interpreting (1.0 - 4.0 cr)
or COMM 3411 - Introduction to Small Group Communication (3.0 cr)
or COMM 3451W - Intercultural Communication: Theory and Practice [WI] (3.0 cr)
or SPAN 3107W - Introduction to the Study of Hispanic Linguistics [WI] (3.0 cr)
or TRIN 3002 - Intermediate Translation (3.0 cr)

Legal Subplan Requirements

Required Core Courses
TRIN 3001 - Introduction to Translation (3.0 cr)
TRIN 3101 - Introduction to Interpreting (3.0 cr)
TRIN 3102 - Consecutive Interpretation (3.0 cr)

Legal Interpreting Courses
TRIN 1301 - Legal Terms and Concepts for Interpreters (3.0 cr)
TRIN 4301 - Interpreting in Legal Settings (3.0 cr)

Elective Course
LING 1701 - Language and Society (4.0 cr)
or LING 3001 - Introduction to Linguistics [SOCS] (4.0 cr)
or LING 5001 - Introduction to Linguistics (4.0 cr)
or TRIN 3900 - Topics in Translation and Interpreting (3.0 cr)
or TRIN 5900 - Topics in Translation and Interpreting (1.0 - 4.0 cr)
or COMM 3411 - Introduction to Small Group Communication (3.0 cr)
or COMM 3451W - Intercultural Communication: Theory and Practice [WI] (3.0 cr)
or SPAN 3107W - Introduction to the Study of Hispanic Linguistics [WI] (3.0 cr)
or TRIN 3002 - Intermediate Translation (3.0 cr)
Twin Cities Campus
Joint Military Science Leadership Minor
CCE Degree and Credit Programs Administration
College of Continuing Education

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18 to 20

This minor provides students with basic concepts and principles of military science and the art of leadership. Areas of study include citizenship, military history, values, ethics, integrity, honor, responsibility, management, and leadership skills. Students gain practical leadership experience, develop self-discipline, and gain confidence—all of which are valuable qualities when applied to service in a military or civilian career. In consultation with the ROTC programs, this minor is now distinct from participation in ROTC, is open to all qualified students, and does not require physical training.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Significant practical leadership experience.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students choose one of four program tracks: Aerospace Science, Military Science, Naval Science-Navy, or Naval Science-Marines.

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Aerospace Science
Aerospace Science Option
The history requirement can be satisfied by the completion of AIR 1204 and AIR 1205 or by the completion of Air Force ROTC Field Training.
- AIR 1204 - History of Airpower and Communication Skills (1.0 cr)
- AIR 1205 - Quality Air Force, Group Leadership Problems, and Presentation Techniques (1.0 cr)
- AIR 3301 - Air Force Leadership, Quality, and Communication (3.0 cr)
- AIR 3302 - Air Force Officership, Quality, and Communication (3.0 cr)
- AIR 3401 - National Security Policy (3.0 cr)
- AIR 3402 - Preparation for Active Duty (3.0 cr)
Complete a 4-credit philosophy, rhetoric, or leadership course approved by the Professor of Aerospace/Chair of the Department of Aerospace Science.

Military Science
Military Science Option
MIL 3301 - Adaptive Tactical Leadership (3.0 cr)
MIL 3302 - Applied Team Leadership (3.0 cr)
MIL 3401 - Developing Adaptive Leaders (3.0 cr)
MIL 3402 - Leadership in a Complex World (3.0 cr)
MIL 3970 - Military History (3.0 cr)
Complete a 4-credit philosophy, rhetoric, or leadership course approved by the Professor of Military Science/Chair of the Department of Military Science.

Naval Science--Marines
Naval Science-Marines Option
NAV 1102 - Seapower and Maritime Affairs (3.0 cr)
NAV 3310 - Evolution of Warfare (3.0 cr)
NAV 4401W - Leadership and Management I [WI] (3.0 cr)
NAV 4402W - Leadership and Ethics [CIV, WI] (3.0 cr)
NAV 4410 - Amphibious Warfare (3.0 cr)
Complete a 4-credit philosophy, rhetoric, or leadership course approved by the Professor of Military/Chair of the Department of Naval Science.

Naval Science—Navy
Naval Science Option
NAV 1102 - Seapower and Maritime Affairs (3.0 cr)
NAV 2201 - Ship Systems I: Naval Engineering (3.0 cr)
NAV 3301 - Navigation I: Piloting and Celestial Navigation (3.0 cr)
NAV 4401W - Leadership and Management I [WI] (3.0 cr)
NAV 4402W - Leadership and Ethics [CIV, WI] (3.0 cr)
Complete a 4-credit philosophy, rhetoric, or leadership course approved by the Professor of Military Science/Chair of the Department of Naval Science.
Manufacturing Operations Management B.A.Sc.

Program Type: Baccalaureate
Requirements for this program are current for Fall 2014
Required credits to graduate with this degree: 120
Required credits within the major: 72 to 75
Degree: Bachelor of Applied Science

Manufacturing Operations Management (MM) is the study and application of methods to improve manufacturing operations and productivity to enhance a company's competitiveness in the global arena. The curriculum combines a strong foundation in manufacturing systems and processes, supply chain/quality/project, and operations management. Graduates are prepared to work as production supervisors, materials managers, manufacturing managers, production planners, project leaders, lead technicians, order process analysts, and business analysts. The MM major is offered in close collaboration with Minnesota manufacturing professionals.

Program Delivery
This program is available:
• partially online (between 50% to 80% of instruction is online)

Admission Requirements
Students must complete 45 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
• 2.50 transferring from another University of Minnesota college
• 2.50 transferring from outside the University

Students who have 30 transferable semester credits, preferred minimum 2.50 GPA, and a strong interest in the major may be admitted to pre-major status.

Each application for admission is individually reviewed in a holistic context.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Courses
Calculus
   MATH 1142 - Short Calculus [MATH] (4.0 cr)
   or MATH 1271 - Calculus I [MATH] (4.0 cr)

Physics
   PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
   or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
   or PHYS 1107 - Introductory Physics Online I (4.0 cr)

Chemistry
   CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
   CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
   or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
   CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Preparatory Courses
   ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
English Composition
WRIT 1301 - University Writing (4.0 cr)
orWRIT 1401 - Writing and Academic Inquiry (4.0 cr)

Oral Communication
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
orCOMM 3402 - Introduction to Interpersonal Communication (3.0 cr)
orCOMM 3605W - Persuasive Speaking and Speech Writing [WI] (3.0 cr)
orPSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)

Economics
ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
orECON 1102 - Principles of Macroeconomics (4.0 cr)
orAPEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
orAPEC 1102 - Principles of Macroeconomics (3.0 cr)

Statistics
STAT 1001 - Introduction to the Ideas of Statistics [MATH] (4.0 cr)
orSTAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
orPSTL 1004 - Statistics: Understanding and Applying Data [MATH] (4.0 cr)
orSCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)

Technical Writing
One technical writing course or writing intensive science course.
PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
orPHYS 1102W - Introductory College Physics II [PHYS, WI] (4.0 cr)
orPHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
orPHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
orWRIT 3001 - Introduction to Technical Writing and Communication (3.0 cr)
orWRIT 3152W - Writing on Issues of Science and Technology [WI] (4.0 cr)
orWRIT 3257W - Technical and Professional Presentations (3.0 cr)
orWRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Major Courses
Students must complete a minimum of 3 credits of MM 4596 if MM 4501 is not taken.
MM 3001 - Manufacturing in a Global Economy (3.0 cr)
MM 3205 - Engineering for Manufacturing Operations (3.0 cr)
MM 4011 - Design of Manufacturing Systems and Simulations (3.0 cr)
MM 4012 - Manufacturing Processes and Technology (3.0 cr)
MM 4035 - Global Supply Chain Management (3.0 cr)
MM 4039 - Manufacturing Outsourcing Decisions (2.0 cr)
MM 4045 - Regulated Industry Compliance (3.0 cr)
MM 4102 - Manufacturing Operations (3.0 cr)
MM 4201 - Quality Engineering and Process Improvement (3.0 cr)
MM 4311 - Sustainable Lean Manufacturing (2.0 cr)
ABUS 4022 - Management in Organizations (3.0 cr)
ABUS 4023W - Communicating for Results [WI] (3.0 cr)
ABUS 4043 - Project Management in Practice (3.0 cr)
ABUS 4101 - Accounting and Finance for Managers (3.0 cr)
MM 4596 - Internship (1.0 - 4.0 cr)
orMM 4501 - Capstone (3.0 cr)

Technical Elective Courses
Other related 3xxx or 4xxx courses may be substituted with department approval.
Take 8 or more credit(s) from the following:
•ABUS 4041 - Dynamics of Leadership (3.0 cr)
•ABUS 4151 - Innovation for Leaders and Organizations (3.0 cr)
•ABUS 4515 - Strategy and Management for a Sustainable Future (3.0 cr)
•ABUS 4701 - Introduction to Marketing (3.0 cr)
•HSM 4541 - Health Care Finance (3.0 cr)
•HSM 4561 - Health Care Administration and Management (3.0 cr)
•PHAR 3700 - Fundamentals of Pharmacotherapy (3.0 cr)
•MT 3111 - Elements of Microelectronic Manufacturing (3.0 cr)
•MT 3121 - Thin Films Deposition (3.0 cr)
•MT 3131 - Introduction to Materials Characterization (4.0 cr)
•MT 3141 - Principles and Applications of Bionanotechnology (4.0 cr)
•MT 3142 - Nanoparticle Technology and Engineering Laboratory (1.0 cr)
•MM 4550 - Special Topics in Manufacturing (1.0 cr)

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Information current as of December 12, 2014
Twin Cities Campus
Manufacturing Operations Management Certificate
CCE Certificate Programs
College of Continuing Education

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 16
- Degree: Manufacturing Technology Certificate

The Manufacturing Operations Management Certificate can assist students to move into a position of greater responsibility in the manufacturing industry. Students learn about the most recent manufacturing industry practices and technologies and understand them from the perspective of competitive business demands.

Program Delivery
This program is available:
- partially online (between 50% to 80% of instruction is online)

Admission Requirements
Students must complete 45 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Certificate Requirements
Core Requirements
MM 3001 - Manufacturing in a Global Economy (3.0 cr)
MM 4102 - Manufacturing Operations (3.0 cr)

Technical Electives
Choose ten credits from the following courses:
MM 3205 - Engineering for Manufacturing Operations (3.0 cr)
or MM 3305 - 3D Printing and Additive Manufacturing (3.0 cr)
or MM 4011 - Design of Manufacturing Systems and Simulations (3.0 cr)
or MM 4012 - Manufacturing Processes and Technology (3.0 cr)
or MM 4035 - Global Supply Chain Management (3.0 cr)
or MM 4039 - Manufacturing Outsourcing Decisions (2.0 cr)
or MM 4045 - Regulated Industry Compliance (3.0 cr)
or MM 4201 - Quality Engineering and Process Improvement (3.0 cr)
or MM 4311 - Sustainable Lean Manufacturing (2.0 cr)
or MM 4501 - Capstone (3.0 cr)
or MM 4596 - Internship (1.0 - 4.0 cr)
Twin Cities Campus

Manufacturing Operations Management Minor
CCE Applied Professional Studies
College of Continuing Education

• Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 16

The Manufacturing Operations Management minor explores systems, processes, and tools integral to global enterprise. Study of the emerging manufacturing environment and quality engineering combines with technical elective options to enhance effectiveness in diverse research/production oriented industries (biomedical, chemical, construction, electronic, environmental, food, textiles, and transportation).

Program Delivery
This program is available:
• partially online (between 50% to 80% of instruction is online)

Admission Requirements
Students must complete 45 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
• 2.50 already admitted to the degree-granting college
• 2.50 transferring from another University of Minnesota college
• 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements

Minor Coursework
Note: MM 4035 prerequisite is ABUS 4102 or equivalent operations course or professional experience.
MM 3001 - Manufacturing in a Global Economy (3.0 cr)
MM 4102 - Manufacturing Operations (3.0 cr)

Technical electives
Take 10 or more credit(s) from the following:
• MM 3205 - Engineering for Manufacturing Operations (3.0 cr)
• MM 4011 - Design of Manufacturing Systems and Simulations (3.0 cr)
• MM 4012 - Manufacturing Processes and Technology (3.0 cr)
• MM 4035 - Global Supply Chain Management (3.0 cr)
• MM 4039 - Manufacturing Outsourcing Decisions (2.0 cr)
• MM 4045 - Regulated Industry Compliance (3.0 cr)
• MM 4201 - Quality Engineering and Process Improvement (3.0 cr)
• MM 4311 - Sustainable Lean Manufacturing (2.0 cr)
• MM 4596 - Internship (1.0 - 4.0 cr)
Twin Cities Campus
Multidisciplinary Studies B.A.
CCE Individualized Degrees
College of Continuing Education

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 50
- Degree: Bachelor of Arts

Founded in 2006 in response to the growing demand for high quality pathways to degree completion, multidisciplinary studies (MdS) embodies the University of Minnesota's commitment to individualized undergraduate education by providing returning adult learners with access to cross-college, individualized degree options. Drawing upon the curricular offerings of most of the University's colleges and departments, students design a bachelor of arts (B.A.) or bachelor of science (B.S.) degree incorporating coursework from three of five multidisciplinary areas. Multidisciplinary studies degree areas include applied, technical, and professional; arts and humanities; communications; history and social science; and science and health science. MdS students begin their journey to degree completion in a credit-based degree planning seminar in which they discern a degree plan which reflects their professional and personal goals. MdS is intended to serve returning adult learners with a minimum of a two year gap in their pursuit of higher education and who value the challenge and rewards of individualized education. Interested students are encouraged to attend an information session held multiple times per month. Academic advisers provide a detailed introduction to the program and help students begin the planning process. A growing number of courses are available online and students have the option of completing the MdS degree completely online.

For further information on multidisciplinary studies, visit http://www.cce.umn.edu/Multidisciplinary-Studies/index.html.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 50 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

Admission is based on a review of a student's application, including key factors such as GPA, grade trends, performance in course work relevant to proposed areas of study, and demonstrated ability to meet curricular and developmental expectations of individualized undergraduate education.

Students must have attended a program info. session and an advising appointment.

Preferred program match factors include:
* A two-year break in pursuit of degree (need not be continuous)
* A heavy, though not necessarily exclusive, reliance on evening and online/distance learning (ODL) course work
* Completion of 50 semester credits

During the term of admission, students must enroll in MDS 3001W: Intro to Multidisciplinary Studies, a required 3-credit course to develop a written proposal that provides a rationale for the degree plan. When the MDS 3001W instructor has determined that a proposal is complete, the instructor submits it to a faculty committee for final review and approval.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).
Program Requirements
In applicable departmental areas, successful completion of the following courses will count toward the 50 credits: CHEM 2302, CSCI 2021, DHA 2463, FW 2001, PSY 2801.

All major courses must be completed with a letter grade of C- or better.

Other Languages and/or Cultures Requirement
Students are required to complete 12 semester credits of coursework dedicated to languages and/or cultures other than the student's native language or culture.

Multidisciplinary Studies Oral Communication Requirement
ABUS 4023W - Communicating for Results [WI] (3.0 cr)
or COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
or COMM 1313W - Analysis of Argument [WI] (3.0 cr)
or COMM 3411 - Introduction to Small Group Communication (3.0 cr)
or COMM 3605W - Persuasive Speaking and Speech Writing [WI] (3.0 cr)
or MGMT 3033W - Business Communication [WI] (3.0 cr)
or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
or WRIT 3257 - Technical and Professional Presentations (3.0 cr)
or Equivalent

Multidisciplinary Studies Requirements
MDS 3001W - Introduction to Multidisciplinary Studies [WI] (3.0 cr)
Must have min of 50 upper div cr for major & include min of 15 upper div cr in each area. Students choose coursework from at least two of following areas: arts & humanities; communication; or hist & soc sci; and may choose coursework from third area: applied, tech, & prof; or science & health sci.
Multidisciplinary Studies B.S.

College of Continuing Education

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 50
- Degree: Bachelor of Science

Founded in 2006 in response to the growing demand for high quality pathways to degree completion, multidisciplinary studies (MdS) embodies the University of Minnesota's commitment to individualized undergraduate education by providing returning adult learners with access to cross-college, individualized degree options. Drawing upon the curricular offerings of most of the University's colleges and departments, students design a bachelor of arts (B.A.) or bachelor of science (B.S.) degree incorporating coursework from three of five multidisciplinary areas. Multidisciplinary studies degree areas include applied, technical, and professional; arts and humanities; communications; history and social science; and science and health science. MdS students begin their journey to degree completion in a credit-based degree planning seminar in which they discern a degree plan which reflects their professional and personal goals. MdS is intended to serve returning adult learners with a minimum of a two year gap in their pursuit of higher education and who value the challenge and rewards of individualized education. Interested students are encouraged to attend an information session held multiple times per month. Academic advisors provide a detailed introduction to the program and help students begin the planning process. A growing number of courses are available online and students have the option of completing the MdS degree entirely online.

For further information on multidisciplinary studies, visit http://www.cce.umn.edu/Multidisciplinary-Studies/index.html.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Students must complete 50 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

Admission is based on a review of a student's application, including key factors such as GPA, grade trends, performance in coursework relevant to proposed areas of study, and demonstrated ability to meet curricular and developmental expectations of individualized undergraduate education.

Students must have attended a program info. session and an advising appointment.

Preferred program match factors include:
* A two-year break in pursuit of degree (need not be continuous)
* A heavy, though not necessarily exclusive, reliance on evening and online/distance learning (ODL) course work
* Completion of 50 semester credits

During the term of admission, students must enroll in MDS 3001W: Intro to Multidisciplinary Studies, a required 3-credit course to develop a written proposal that provides a rationale for the degree plan. When the MDS 3001W instructor has determined that a proposal is complete, the instructor submits it to a faculty committee for final review and approval.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).
Program Requirements
In applicable departmental areas, successful completion of the following courses will count toward the 50 credits: CHEM 2302, CSCI 2021, DHA 2463, FW 2001, PSY 2801.

All major courses must be completed with a letter grade of C- or better.

Multidisciplinary Studies Oral Communication Requirement
- ABUS 4023W - Communicating for Results [WI] (3.0 cr)
- or COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
- or COMM 1313W - Analysis of Argument [WI] (3.0 cr)
- or COMM 3411 - Introduction to Small Group Communication (3.0 cr)
- or COMM 3605W - Persuasive Speaking and Speech Writing [WI] (3.0 cr)
- or MGMT 3033W - Business Communication [WI] (3.0 cr)
- or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
- or WRIT 3257 - Technical and Professional Presentations (3.0 cr)
- or Equivalent

Multidisciplinary Studies Quantitative or Critical Thinking Requirement
- EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)
- or EPSY 5261 - Introductory Statistical Methods (3.0 cr)
- or NURS 3710 - Statistics for Clinical Practice and Research [MATH] (3.0 cr)
- or POL 3085 - Quantitative Analysis in Political Science [MATH] (4.0 cr)
- or PSY 3801 - Introduction to Psychological Measurement and Data Analysis [MATH] (4.0 cr)
- or SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)
- or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)

Multidisciplinary Studies Requirements
- MDS 3001W - Introduction to Multidisciplinary Studies [WI] (3.0 cr)
Must have min of 50 upper div cr for major & include min of 15 upper div cr in each area. Students choose coursework from one of the following areas: applied, tech & Prof; or science & health sci; and may choose coursework from remaining areas: arts & humanities; communication; or hist & soc sci.
Twin Cities Campus

Nanotechnology Practice Certificate

CCE Certificate Programs

College of Continuing Education

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 16
- Degree: Nanotechnology Practice Certificate

The 16-credit Nanotechnology Practice Certificate is awarded for successful completion of six courses that comprise the nanotechnology capstone program for students from Dakota County Technical College. The courses are offered by the College of Continuing Education in cooperation with the U of M College of Science and Engineering. This certificate is specifically intended to provide a professional credential for the DCTC students (and possibly nanotechnology students from other partner institutions in the future).

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Students must complete 45 credits before admission to the program.

Admission to this certificate is limited to students currently enrolled in the Nanotechnology program offered through the Dakota County Technical College (DCTC).

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Certificate Requirements

- MT 3111 - Elements of Microelectronic Manufacturing (3.0 cr)
- MT 3112 - Elements of Micro and Nano Manufacturing Laboratory (1.0 cr)
- MT 3121 - Thin Films Deposition (3.0 cr)
- MT 3131 - Introduction to Materials Characterization (4.0 cr)
- MT 3141 - Principles and Applications of Bionanotechnology (4.0 cr)
- MT 3142 - Nanoparticle Technology and Engineering Laboratory (1.0 cr)
Twin Cities Campus

Ojibwe Language Teaching Certificate

College of Continuing Education

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 18
- Degree: Ojibwe Language Teaching Certificate

The Ojibwe Language Teaching Certificate was designed to address the critical point of Ojibwe language loss in Minnesota by developing a cadre of Ojibwe language learners, speakers, and teachers. This effort is part of a global indigenous language revitalization movement based on the understanding that language is fundamental to cultural survival and tribal sovereignty.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Students must complete the certificate within four years of the admission date.

Certificate Requirements

Core Requirements
- OJIB 5106 - Advanced Ojibwe Language I (3.0 cr)
- OJIB 5109 - Advanced Ojibwe Language II (3.0 cr)
- AMIN 3107 - Structure of Anishinaabemowin, the Ojibwe Language (3.0 cr)
- OJIB 3127 - Ojibwe Language for Teachers (3.0 cr)

Field Study
- 3 credits of Field Study required
- AMIN 4996 - Field Study (1.0 - 12.0 cr)

Elective Courses
- Choose one elective course.
- AMIN 3109 - Anishinaabe Literature (3.0 cr)
- or AMIN 3141 - American Indian Language Planning (3.0 cr)
- or AMIN 3143 - Language in American Indian Culture and Society (3.0 cr)
Twin Cities Campus
Translation Minor
CCE Applied Professional Studies
College of Continuing Education

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

The minor in translation allows students to develop and enhance skills for translating between English and a second language. Students earning the minor explore the rewarding and varied field of professional translation, acquire technical skills using translation memory tools, develop specific areas of expertise and interest, and improve their written command of English and another language through practical translation tasks, readings, and discussions on the history, theory, and practice of translation.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students are required to take 4 semester(s) of any second language.

Language background information and writing samples must be submitted

Minor Requirements
Core Requirement
- TRIN 3001 - Introduction to Translation (3.0 cr)
- TRIN 3002 - Intermediate Translation (3.0 cr)
- TRIN 3005 - Principles of Translation (3.0 cr)
- TRIN 3101 - Introduction to Interpreting (3.0 cr)

Elective
Choose 3 credits from a department outside of TRIN. Course(s) should be selected in consultation with the translation minor adviser.
University Honors Program
College of Biological Sciences, College of Continuing Education, College of Design, College of Education and Human Development, College of Food, Agricultural and Natural Resource Sciences, College of Liberal Arts, Curtis L. Carlson School of Management, School of Nursing, College of Science and Engineering

- Program Type: Other
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 14 to 44
- This program is 8 terms (4 years) long.

The University Honors Program (UHP) assists high-achieving students in making the most of their undergraduate education. Our students are driven to excel both inside and outside the classroom, but we challenge them to go one step further.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, as well as degree program requirements. For any course required in a degree program, UHP students are expected to register for the honors version of courses associated with their discipline, when offered. These courses are designed to meet degree and UHP requirements.

To remain in the honors program, students must maintain a grade point average of 3.5 and complete a set number of Honors Experiences per year (May and summer sessions included).

Freshman Year
Students build a solid foundation of knowledge to serve them throughout their undergraduate career. Most students complete first-year Honors Experiences primarily through honors courses. Courses can be found here: http://www.honors.umn.edu/experiences/courses-and-tutoring/index.php

Two honors courses
Two honors courses (honors seminars, departmental honors courses, or freshman seminars totalling at least six credits)

Two other Honors Experiences
Two other Honors Experiences (courses or non-course experiences)

Sophomore Year
Students continue to take advantage of the curriculum while expanding their education beyond the classroom. Through non-course Honors Experiences they begin to apply their knowledge in the laboratory, studio, or community. Examples of these experiences can be found here: http://www.honors.umn.edu/experiences/non-course-experiences/index.php.

Two honors courses
Two honors courses (totalling at least six credits)

Two other Honors Experiences
Two other Honors Experiences (courses or non-course experiences)

Junior Year
Students engage in research, scholarship, or creative activity with a faculty mentor--an important step toward the development of a project for the honors thesis--while deepening and broadening their knowledge and skill base. The honors thesis guide can be found here: http://www.honors.umn.edu/latin-honors/thesis-guide/index.php.

One honors course
Two other Honors Experiences
Two other Honors Experiences (courses or non-course experiences)

Senior Year
The honors education culminates in the writing of an honors thesis. Through this thesis, students demonstrate mastery of their field of study, along with the ability to think creatively and independently.

One honors course
One additional Honors Experience
The Honors Thesis
Adult Education Undergraduate Certificate
Organizational Leadership, Policy and Development
College of Education and Human Development

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 14
- Degree: Adult Education Certificate Ugrd

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Degree and non-degree seeking students from both within and outside the department are eligible to get the certificate.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Required Courses
OLPD 3202 - Introduction to Strategies for Teaching Adults (3.0 cr)
OLPD 3601 - Introduction to Human Resource Development (3.0 cr)
OLPD 5202 - Perspectives of Adult Learning and Development (3.0 cr)

Applied Experience in Adult Education
Choose from one of the following two course options. If OLPD 4696, 4 credits must be completed.
OLPD 5296 - Field Experience in Adult Education (1.0 - 6.0 cr)
or OLPD 4696 - Internship: Human Resource Development (1.0 - 4.0 cr)

Electives
If a student needs to take more credits in order to reach the 14 credit minimum for this Certificate, those remaining credits can be selected from the courses listed below.
OLPD 3640 - Introduction to Organization Development (3.0 cr)
or OLPD 5211 - Introduction to the Undereducated Adult (1.0 cr)
or OLPD 5212 - Introduction to Adult Literacy in the Workplace (1.0 cr)
or OLPD 5213 - Introduction to Adult Literacy in the Community (1.0 cr)
Twin Cities Campus
Applied Psychology in Educational and Community Settings Minor

Education Psychology
College of Education and Human Development

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

The applied psychology in educational and community settings (APECS) minor is an 18-credit program in the application of psychological theory (systems-ecological, developmental, behavioral, cognitive-behavioral) and scientific findings in educational settings to enhance the academic, social, and emotional competence of youth and adults. Emphasis areas include child/adolescent/adult learning and interpersonal, social, cultural, institutional, and economic contexts that shape cognition, motivation, and performance. Students gain direct experience by enrolling in either a research or community service practicum course. The APECS minor is designed to meet the needs of learners from diverse backgrounds and provide the tools necessary to keep pace with the increasing diversity found in schools and communities.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

APECS Required Courses
- EPSY 3301 - Introduction to Educational Psychology [SOCS] (3.0 cr)
- EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)
- EPSY 3132 - Psychology of Multiculturalism in Education [DSJ] (3.0 cr)
- EPSY 3302 - Introduction to Communication Skills for Educational and Community Settings (3.0 cr)

APECS Practicum
Complete 3 credits of practicum.
- EPSY 3133 - Practicum: Service Learning, Psychology of Multiculturalism in Education (1.0 - 3.0 cr)
  or EPSY 3303 - Educational Psychology Undergraduate Research Practicum (3.0 cr)

APECS Electives
- EPSY 3119 - Learning, Cognition, and Assessment (3.0 cr)
  or EPSY 5613 - Foundations of Special Education I (3.0 cr)
  or EPSY 5616 - Classroom Management and Behavior Analytic Problem Solving (3.0 cr)
  or EPSY 5461 - Cross-Cultural Counseling (3.0 cr)
  or EPSY 5401 - Counseling Procedures (3.0 cr)
  or EPSY 5432 - Foundations of Individual/Organizational Career Development (3.0 cr)
  or EPSY 5221 - Principles of Educational and Psychological Measurement (3.0 cr)
  or YOST 3234 - Youth Agencies, Organizations, and Youth Service Systems (3.0 cr)
  or YOST 3235 - Community Building, Civic Engagement, and Civic Youthwork (4.0 cr)
  or YOST 4315 - Youthwork in Schools (4.0 cr)
  or YOST 4317 - Youthwork in Contested Spaces (3.0 cr)
Twin Cities Campus

Autism Spectrum Disorders Certificate

Educational Psychology

College of Education and Human Development

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 13
- Degree: Autism Spectrum Disorders Certificate

The certificate program in autism spectrum disorders (ASD) is designed to prepare teachers and related service personnel to design and deliver services to children and youth with ASD and their families.

ASD are developmental disorders of neurobiological origin that can affect intellectual functioning, social abilities, and language and communication skills.

This 13-credit program offers specialized training in methods of assessment, intervention, and treatment evaluation. This program offers professional development opportunities for autism resource specialists, public and private social service agency staff, personnel at public and private schools, treatment facility personnel, and psychology and education professionals.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

A GPA above 2.0 is preferred for the following:
- 2.80 already admitted to the degree-granting college
- 2.80 transferring from another University of Minnesota college
- 2.80 transferring from outside the University

By the beginning of the program, undergraduate applicants must have earned at least 60 credit hours with a minimum 2.80 GPA. Undergraduate and international students wishing to complete the certificate must be admitted to a degree program at the Univ of MN Twin Cities campus.

All applicants must submit the following materials:
- Two letters of recommendation on letterhead stationery from individuals who can address the applicant's abilities to work in a professional context with this population
- Typed goal statement (no more than one page)
- Completed application
- Transcripts from all post-secondary institutions attended or currently attending, except the University of Minnesota. For students not currently in a University of Minnesota program, transcripts must be received from the issuing school in a sealed and stamped envelope.
- Foreign transcript evaluation (if applicable) from an accredited reviewer (ECS http://www.ece.org/ or WES http://www.wes.org/students/index.asp).

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

All coursework must be completed for the certificate. Students will have a maximum of four years to do so from the moment of admission. Students must maintain a minimum 3.00 GPA in certificate coursework to remain in the program.

Required Coursework

Students must complete the following coursework (13 credits).
- EPSY 5616 - Classroom Management and Behavior Analytic Problem Solving (3.0 cr)
EPSY 5631 - Module 1: Introduction to Augmentative and Alternative Communication (1.0 cr)
EPSY 5632 - Module 2: Evidence-based Methods for AAC Assessment and Intervention (2.0 cr)
EPSY 5633 - Module 3: Speech-generating Devices and High-Tech AAC (1.0 cr)
EPSY 5661 - Introduction to Autism Spectrum Disorder (3.0 cr)
EPSY 5663 - Assessment and Intervention for Individuals with Autism Spectrum Disorders (3.0 cr)
Twin Cities Campus

Business and Marketing Education B.S.
Organizational Leadership, Policy and Development
College of Education and Human Development

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 58 to 61
- Degree: Bachelor of Science

This undergraduate program focuses on business and marketing education. Coursework includes leadership, sales management, marketing, e-marketing, project management, business communication, management and supervisory development, and customer relationship management.

The program equips students with the knowledge, skills, and abilities that enable them to make meaningful contributions to organizations through employing principles and practices of business planning, project management, sales, marketing, and leadership development.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 30 credits before admission to the program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
A minimum grade of C- is required for all Foundation, Major, and Supporting Program courses. The only course that can be taken pass-fail is OLPD 4496.

Foundational Coursework
These courses are intended to be taken as prerequisites to the major, however this is not strictly required. Students can take some of these courses as they are taking introductory courses in BME, however it is recommended that most of these courses are finished within a student's first 90 credits.

Psychology
- PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
- or PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)

Public Speaking
- PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
- or COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)

Mathematics
- PSTL 1006 - College Algebra through Modeling [MATH] (3.0 cr)
- or PSTL 1004 - Statistics: Understanding and Applying Data [MATH] (4.0 cr)
- or MATH 1001 - Excursions in Mathematics [MATH] (3.0 cr)
- or MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
- or STAT 1001 - Introduction to the Ideas of Statistics [MATH] (4.0 cr)
- or A higher level math course may be taken to fulfill this requirement. Consult an advisor for options.

Economics
- APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1102 - Principles of Macroeconomics (3.0 cr)
or ECON 1102 - Principles of Macroeconomics (4.0 cr)

**Business Writing**
- WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
- or MGMT 3033W - Business Communication [WI] (3.0 cr)
- or WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

**Personal Leadership**
- OLPD 1302 - Personal Leadership in the University (3.0 cr)
- or OLPD 1301W - Personal Leadership in the University [WI] (3.0 cr)

**Future Studies**
- OLPD 2811 - Societies of the Future: Changing Work Contexts [TS] (3.0 cr)
- or OLPD 2811H - Societies of the Future: Changing Work Contexts, Honors [TS] (3.0 cr)

**Major Coursework**
A total of 24 credits of major coursework is required. These 24 credits include five specific required courses (listed below), one Computer Applications course (options listed below), a 4-credit Applied Experience, and 3 credits of electives within the BME major (options listed below).

- OLPD 3401 - Teaching Marketing Promotion (3.0 cr)
- OLPD 3424 - Sales Training (3.0 cr)
- OLPD 3318 - Introduction to Project Management (3.0 cr)
- OLPD 4426 - Strategic Customer Relationship Management (3.0 cr)
- OLPD 3496 - Profession and Practice of Business and Marketing Education (2.0 cr)

**Computer Applications for Business and Industry**
Students must choose one of the courses below. OLPD 5303 is recommended.
- CI 5303 (Inactive) (3.0 cr)
- or CI 5362 - Foundations of Interactive Design for Web-based Learning (3.0 cr)
- or CI 5363 - New Media and Interaction Design for Online and Mobile Learning (3.0 cr)
- or CI 5301 - Foundations of Computer Applications for Business and Education (3.0 cr)

**Applied Experience**
All students must complete 4 credits of an applied experience. This is an opportunity to apply theory to practice and to deepen learning through "real-world" interaction. Students can complete all 4 credits in OLPD 4496, or can coordinate a combination of all or some of the options listed here. Students must consult and work closely with the Applied Experience Coordinator.

- OLPD 4496 - Applied Experience in Business & Marketing Education (1.0 - 4.0 cr)
- or OLPD 4420 - Practicum in Nonprofit Organizations (2.0 cr)
- or OLPD 3306 - Leadership Minor: Field Experience (3.0 cr)

**Electives within the Major**
Students must complete 3 additional credits of electives from the following list of course options.

- OLPD 3305 - Learning About Leadership Through Film and Literature (3.0 cr)
- or OLPD 3380 - Developing Intercultural Competence (3.0 cr)
- or OLPD 3461 - Professional Sales Management (3.0 cr)
- or OLPD 3820 - Principles of Supervisory Management (3.0 cr)
- or OLPD 3828 - Diversity in the Workplace (3.0 cr)
- or OLPD 4318 - Advanced Project Management (3.0 cr)
- or OLPD 4401 - E-Marketing (3.0 cr)
- or OLPD 4602 - Managing Work Teams (3.0 cr)
- or OLPD 4627 - Management and Supervisory Training and Development (3.0 cr)
- or OLPD 4870 - Introduction to Integrating Human Rights into Organizational Leadership (3.0 cr)

**Supporting Program**
Students must create a supporting program of at least 12 credits. These courses must be taken outside of OLPD. This is an opportunity for students to explore a related area of interest that helps strengthen their major area of study or widens the arena for application of skills and concepts. Specifics of the Supporting Program must be arrived at in consultation with an OLPD Program Advisor. Common courses include:

- Take 12 or more credit(s) from the following:
  - ABUS 3301 - Introduction to Quality Management (3.0 cr)
  - ABUS 4022 - Management in Organizations (3.0 cr)
  - ABUS 4041 - Dynamics of Leadership (3.0 cr)
  - ABUS 4101 - Accounting and Finance for Managers (3.0 cr)
  - ABUS 4151 - Innovation for Leaders and Organizations (3.0 cr)
  - ABUS 4515 - Strategy and Management for a Sustainable Future (3.0 cr)
  - ABUS 4701 - Introduction to Marketing (3.0 cr)
  - ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
  - ACCT 3001 - Introduction to Management Accounting (3.0 cr)
  - BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
  - CMGT 3001 - Introduction to Construction (3.0 cr)
  - COMM 3422 - Interviewing and Communication (3.0 cr)
Program Sub-plans

A sub-plan is not required for this program.

Honors UHP
This is an honors sub-plan.

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.

Current departmental honors course offerings are listed at:

Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or with an honors directed studies, or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.
Twin Cities Campus

Career and Technical Education B.S.
Work and Human Resource Education
College of Education and Human Development

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 90
- Degree: Bachelor of Science

The major in career and technical education (CTE) is a professional development degree program offering professional preparation in the field. Students may select one of several program options.

The licensure program option prepares students for Minnesota teaching licensure for grades 9-12 in one of eight career and technical education fields:

* communication technology careers
* construction careers
* creative design careers
* early childhood careers
* hospitality service careers
* manufacturing careers
* medical careers
* transportation careers

The general career and technical education option prepares students to teach in technical and community college CTE programs.

For more information on program and licensure requirements, contact the program adviser at 612-625-7250.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 30 credits before admission to the program.

Currently, Career and Technical Education major is not accepting applications.

Students must have completed at least 30 semester credits or sufficient verified and approved technical work experience to be awarded 30 credits toward the degree. Applicants to the postsecondary general career and technical education option must have a minimum 2.00 GPA.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Currently, Career and Technical Education major is not accepting applications.

A minimum 2.00 overall GPA with no grade lower than C- is required for major courses with the following designators: BIE, EDHD, HRD, and WHRE. A minimum grade of C- is also required for general psychology. A minimum 2.50 overall GPA is required for recommendation for Minnesota teaching licensure.

Electives to complete the 120 credits must be selected in consultation with an adviser.
Foundation Courses
MGMT 3033W - Business Communication [WI] (3.0 cr)
or WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
EDHD 5008 - Reading in the Content Areas for Initial Licensure Candidates (1.0 - 2.0 cr)
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
or PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
MATH 1001 - Excursions in Mathematics [MATH] (3.0 cr)
or MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)

Pedagogical Studies
OLPD 1496 - Supervised Career and Technical Education Teaching (4.0 cr)
EDHD 5001 - Learning, Cognition, and Assessment (3.0 cr)
OLPD 1801 - Introduction to Career and Technical Education Teaching (2.0 cr)
OLPD 3808 - Foundations of Student and Trainee Assessment (2.0 cr)
or OLPD 5808 - Student and Trainee Assessment (2.0 cr)
OLPD 3829 - Foundations of Course Development for Business and Industry (2.0 cr)
or OLPD 5829 - Course Development for Business and Industry (2.0 cr)
OLPD 3861 - Foundations of Instructional Methods for Business and Industry (2.0 cr)
or OLPD 5861 - Instructional Methods for Business and Industry (2.0 cr)
OLPD 3801 - Foundations of Philosophy and Practice of Career and Technical Education (2.0 cr)
or OLPD 5806 - Philosophy and Practice of Career and Technical Education (2.0 cr)

Career Content Proficiency
Up to 32 credits may be completed before enrollment in the CTE program. Credits may include occupational experience, formal technical college coursework, military or industrial experience, or workshops related to the field. Credits will be evaluated for transfer to BIE 3151. The remainder of credits in this requirement must be completed after enrollment.

Complete a total of 44 credits from the following or adviser approved:
OLPD 3451 - Technical Development: Advanced (1.0 - 32.0 cr)
OLPD 5454 - Technical Development: Specialized (1.0 - 12.0 cr)
OLPD 5496 - Occupational Experience in Business and Industry (1.0 - 10.0 cr)
OLPD 5493 - Directed Study in Business and Industry (1.0 - 4.0 cr)

Additional Requirements
EDHD 5009 - Human Relations: Applied Skills for School and Society (1.0 cr)
PUBH 3005 - Fundamentals of Alcohol and Drug Abuse for Teacher Education (1.0 cr)
or PUBH 3003 - Fundamentals of Alcohol and Drug Abuse (2.0 cr)
CI 2311W - Introduction to Technology and Ethics in Society [CIV, WI] (3.0 cr)
or CI 4311W - Technology and Ethics in Society [CIV, WI] (3.0 cr)
Twin Cities Campus
Coaching Certificate
Kinesiology, School of
College of Education and Human Development

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 17
- There is a student coaching experience that takes place at selected high schools, primarily in the greater Twin Cities area.
- Degree: Coaching Certificate Ugrd

The certificate in coaching provides a coordinated, meaningful, and functional framework from which future coaches can launch their coaching careers. Offered by the School of Kinesiology (KIN) in the College of Education & Human Development (CEHD), the program is designed to exceed requirements for high school coaches.

The program offers an integrated series of courses that prepares undergraduate or graduate students to:
- Develop proficiency in sport specific technical, tactical, and competency.
- Understand athletic injury prevention and care.
- Design sport-specific practice sessions that are safe and age-appropriate for athletes of varied abilities.
- Properly apply the training principles of specificity, frequency, duration, and intensity specific to their sport.
- Organize and integrate physical, social, and mental skills development into sports programs.
- Develop a coaching philosophy.
- Discuss the role and responsibility of coaching in society.
- Articulate and understand basic legal liability and risk management issues in coaching.
- Understand the governing bodies of sport competition within the local administrative units.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

Admission is open to all University students. A Coaching Program Application Form must be submitted. Students must also maintain a 2.50 GPA in courses submitted for the completion of the coaching certificate.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students must maintain a 2.50 GPA in courses submitted for the completion of the coaching certificate.

Certificate Courses
Students completing the certificate are required to take the courses listed below.
Current CPR and AED Certification through national certification agency
KIN 3114 - Prevention and Care of Athletic Injuries (3.0 cr)
KIN 4641 - Training and Conditioning for Sport (3.0 cr)
KIN 4697 - Student Coaching and Seminar (3.0 cr)
Organization and Management
KIN 3143 - Organization and Administration of Sport (3.0 cr)
or KIN 5725 - Organization and Management of Physical Education and Sport (3.0 cr)
or SMGT 3143 - Organization and Management of Sport (3.0 cr)

**Sport Psychology-Sociology**
One course required.
KIN 3136 - Mental Skills Training for Sport (3.0 cr)
or KIN 5136 - Psychology of Coaching (3.0 cr)
or KIN 5371 - Sport and Society (3.0 cr)
or KIN 5375 - Competitive Sport for Children and Youth (3.0 cr)
or KIN 5723 - Psychology of Sport Injury (3.0 cr)
or KIN 5720 - Special Topics in Kinesiology (2.0 - 4.0 cr)

**Coaching Theory**
One coaching theory course required. Please note: If coaching specialization course is not listed, alternatives can be made with the coaching program director.
KIN 3168 - Soccer Coaching Theory and Skill Development (2.0 cr)
or KIN 3169 - Volleyball Coaching Theory and Skill Development (2.0 cr)
or KIN 3171 - Baseball Coaching Theory and Skill Development (2.0 cr)
or KIN 3172 - Basketball Coaching Theory and Skill Development (2.0 cr)
or KIN 3173 - Football Coaching Theory and Skill Development (2.0 cr)
or KIN 3178 - Tennis Coaching Theory and Skill Development (2.0 cr)
or KIN 3179 - Track and Field Coaching Theory and Skill Development (2.0 cr)
Coaching Minor

The coaching minor offers an in-depth study of the theoretical and practical nature of coaching through a planned and integrated series of courses. Completion of the coaching minor also will qualify the student for the University of Minnesota Coaching Certificate.

Additional program offerings also include a certificate in coaching.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
A GPA above 2.0 is preferred for the following:
• 2.50 already admitted to the degree-granting college
• 2.50 transferring from another University of Minnesota college
• 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Admission is open to all University students. A Coaching Program Application Form must be submitted. Students must also maintain a 2.50 GPA in courses submitted for the completion of the coaching minor. There are 23 total credits required for the minor; however, if student has taken a H.S. anatomy course, it will fulfill the 3-credit human anatomy requirement.

Minor Courses
Students completing the minor are required to take the courses listed below.

Current CPR and AED Certification through national certification agency

Sport Training
The following 3 courses are required to complete the minor.
KIN 3114 - Prevention and Care of Athletic Injuries (3.0 cr)
KIN 4641 - Training and Conditioning for Sport (3.0 cr)
KIN 4697 - Student Coaching and Seminar (3.0 cr)

Organization and Management
KIN 3143 - Organization and Administration of Sport (3.0 cr)
or
KIN 5725 - Organization and Management of Physical Education and Sport (3.0 cr)
or
SMGT 3143 - Organization and Management of Sport (3.0 cr)

Human Anatomy
Take 1 of the following KIN, ANAT, or PSTL courses. If student has taken a H.S. anatomy course, that will fulfill the 3-credit human anatomy requirement.
KIN 3027 - Human Anatomy for Kinesiology Students (3.0 cr)
or
ANAT 3001 - Human Anatomy (3.0 cr)
or
ANAT 3601 - Principles of Human Anatomy (3.0 cr)
or
ANAT 3611 - Principles of Human Anatomy (3.0 cr)
or
PSTL 1135 - Essentials of Human Anatomy and Physiology [BIOL] (4.0 cr)

Electives
In addition to the courses below, any program-related course approved by the coaching program coordinator can be applied toward this minor.

Sport Psychology - Sociology
Take 1 course from the following list.
Take 1 or more course(s) from the following:
• KIN 3136 - Mental Skills Training for Sport (3.0 cr)
• KIN 5136 - Psychology of Coaching (3.0 cr)
• KIN 5371 - Sport and Society (3.0 cr)
• KIN 5375 - Competitive Sport for Children and Youth (3.0 cr)
• KIN 5723 - Psychology of Sport Injury (3.0 cr)
• KIN 5720 - Special Topics in Kinesiology (2.0 - 4.0 cr)

Sport Physical Sciences
Take 1 course from the following list.
Take 1 or more course(s) from the following:

• KIN 4385 - Exercise Physiology (4.0 cr)
• KIN 4520 - Current Topics in Kinesiology (2.0 - 4.0 cr)
• KIN 4741 - Strength and Power Development and Program Design (3.0 cr)
• KIN 4841 - Athletic Performance and Environmental Considerations (3.0 cr)
• KIN 5142 - Applied Sport Nutrition for Athletic Performance (3.0 cr)
• KIN 5641 - Scientific Theory and Application of Training and Conditioning in Sport (3.0 cr)
• KIN 5720 - Special Topics in Kinesiology (2.0 - 4.0 cr)

Coaching Theory
Take 1 course from the following list. Please note: If coaching specialization course is not listed, alternatives can be made with the coaching program director.
Take 1 or more course(s) from the following:

• KIN 3168 - Soccer Coaching Theory and Skill Development (2.0 cr)
• KIN 3169 - Volleyball Coaching Theory and Skill Development (2.0 cr)
• KIN 3171 - Baseball Coaching Theory and Skill Development (2.0 cr)
• KIN 3172 - Basketball Coaching Theory and Skill Development (2.0 cr)
• KIN 3173 - Football Coaching Theory and Skill Development (2.0 cr)
• KIN 3176 - Tennis Coaching Theory and Skill Development (2.0 cr)
• KIN 3179 - Track and Field Coaching Theory and Skill Development (2.0 cr)
Disability Policy and Services Certificate
Organizational Leadership, Policy and Development
College of Education and Human Development

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 12
- Degree: Disability Policy and Services Certificate Ugrd

The undergraduate Certificate in Disability Policy and Services is designed to allow undergraduate students, as well as community professionals, to study policies and services that affect the lives of children, youth, and adults with disabilities. The 12-credit program surveys the spectrum of education, health, and social services available to individuals with disabilities and their families, and examines the public and private networks of disability services from an interdisciplinary perspective. The program's individualized learning experience requires students to integrate theory with practice by completing a disability-related research project or working directly with people with disabilities in settings such as schools, recreation centers, or human-service agencies.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 60 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

Admission is open to degree-seeking or non-degree seeking students who meet the following criteria: (1) Be an undergraduate-level student who has completed at least 60 undergraduate semester credits of coursework or equivalent; (2) Have a minimum 2.50 grade point average (GPA).

Students must complete all program requirements within 5 years after admission, and must maintain a minimum 3.00 GPA. To stay in good standing, students must carry no more than 3 credits of incomplete coursework and must respond to an annual survey updating their current status in the program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
The Certificate program has three required components: a three-credit interdisciplinary core course; six credits of specialized coursework; and an individualized learning experience (ILE) accompanied by six interdisciplinary reflection groups.

Students are encouraged to work with their advisers and the ICI Certificate Coordinator to plan their programs. Coursework applied to the Certificate must be taken A-F.

Required Course
This course provides a broad overview of disability policy and services, and introduces students to philosophical approaches to service provision, the evolution of policies and services affecting people with disabilities, and contemporary approaches to providing services to people with disabilities throughout the life cycle.

OLPD 5356 - Disability Policy and Services (3.0 cr)

Specialized Coursework
This component broadens the student’s level of knowledge in disability policies and services. Students must choose from courses offered across the University focusing on disability policy, disability services, and/or interdisciplinary teaming, such as communication disorders, family social science, kinesiology, nursing, public affairs, or social work. A list of more than 50 approved courses is available from the ICI Certificate Coordinator. Six credits required.

Individualized Learning Experience (3 cr/200 hours)
This component allows students to integrate and apply the information they have learned in coursework. Students work with the ICI Certificate Coordinator to design an individualized learning experience (ILE) in which they work with persons who have disabilities in settings like schools, recreation centers, health clinics, or human-service agencies. The ILE can be completed in one or two semesters, but must total at least 3 credits and at least 200 hours.
Twin Cities Campus

Early Childhood Education: Foundations B.S.
Institute of Child Development
College of Education and Human Development

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 60
• None
• Degree: Bachelor of Science

The undergraduate program in Early Childhood Education: Foundations prepares students to work with young children and their families. The curriculum includes an extensive core of liberal education courses that are central to early childhood teaching and child development.

The program prepares graduates to work in non-licensure educational settings (including daycare centers or youth community programs), to pursue advanced degrees, or to work in other settings where a strong liberal education base is useful.

In addition, the undergraduate degree program prepares students for entry into the Master of Education (M.Ed.)/initial licensure programs in Early Childhood Education, Early Childhood Special Education, or Elementary Education. M.Ed. admission requirements include successful completion of all requirements for the B.S. degree, and successful school practicum experiences. Preferred admission to the M.Ed. program requires a minimum 2.80 GPA.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 45 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
• 2.50 already admitted to the degree-granting college
• 2.50 transferring from another University of Minnesota college
• 2.50 transferring from outside the University

*Completion of the General Psychology requirement and at least half of the courses in content areas 1-5. Strong applicants will have Child Psychology completed or in progress.

* At least 60 hours of paid or unpaid experience working with young children. This may include mentoring, tutoring, camp counseling, babysitting, or nannying, as documented by CEHD application forms.

*Two letters of recommendation from individuals who know your work with young children are required.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Basic Requirements (Content Area 1)
One year college-level spoken second language or American Sign Language (ASL) is highly recommended.
PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
or PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
CPSY 2301 - Introductory Child Psychology (4.0 cr)
or CPSY 3301 - Introductory Child Psychology for Social Sciences (4.0 cr)

Language and Communication (Content Area 2)
CI 3610 - Linguistics for Teachers [SOCS] (3.0 cr)
or ENGL 3601 - Analysis of the English Language (4.0 cr)
or LING 3001 - Introduction to Linguistics [SOCS] (4.0 cr)

Foundations of Reading
CI 5413 - Foundations of Reading (3.0 cr)
Practicum: Working with Developing Readers
CI 5414 - Practicum: Working With Developing Readers (2.0 cr)

Children's Literature
CI 3401W - Diversity in Children's Literature [WI] (3.0 cr)

Literature
Any LE approved literature - 3 credits or above

Mathematics (Content Area 3)
PSTL 1006 - College Algebra through Modeling [MATH] (3.0 cr)
or MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
or MATH 1051 - Precalculus I [MATH] (3.0 cr)
or MATH 1151 - Precalculus II [MATH] (3.0 cr)

Science (Content Area 4)
Students must complete a biological science course with a lab, a physical science course with a lab, and one science course with or without a lab.

Biological Science w/Lab
PSTL 1131 - Principles of Biological Science [BIOL] (4.0 cr)
or BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)

Physical Science w/Lab
PSTL 1163 - Physics by Inquiry [PHYS, ENV] (4.0 cr)
or PHYS 3071W - Laboratory-Based Physics for Teachers [PHYS, WI] (4.0 cr)
or PHYS 1001W - Energy and the Environment [PHYS, ENV, WI] (4.0 cr)

Earth Science
AST 1001 - Exploring the Universe [PHYS, ENV] (4.0 cr)
or ESCI 1001 - Earth and Its Environments [PHYS, ENV] (4.0 cr)
or ESCI 1101 - Introduction to Geology [ENV] (3.0 cr)

Social Studies (Content Area 5)
PSTL 1231 - America's Past and Present: Multicultural Perspectives [HIS, DSJ] (4.0 cr)
or PSTL 1251 - Forces of Modern Historical Change: Global Perspectives [HIS, GP] (4.0 cr)
or HIST 1301W - Authority and Rebellion: American History to 1865 [HIS, DSJ, WI] (4.0 cr)
or HIST 1302W - Global America: U.S. History Since 1865 [HIS, DSJ, WI] (4.0 cr)
or The above courses are preferred, but other history courses accepted.

Human Geography
GEOG 1301W - Our Globalizing World [SOCS, GP, WI] (3.0 cr)
or GEOG 3381W - Population in an Interacting World [SOCS, GP, WI] (4.0 cr)
or GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
or GEOG 3374W - The City in Film [AH, WI] (4.0 cr)

Social Science Elective
PSTL 1204 - Ways of Knowing in the Social Sciences [SOCS, DSJ] (4.0 cr)
or PSTL 1211 - Sociological Perspectives: A Multicultural America [SOCS, DSJ] (4.0 cr)
or ANTH 1003W - Understanding Cultures [SOCS, GP, WI] (4.0 cr)
or POL 1001 - American Democracy in a Changing World [SOCS] (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Requirements include a minimum 2.00 GPA and no grade lower than C- for major courses. Students planning to pursue the M.Ed./initial licensure program in Early Childhood Education, Early Childhood Special Education, or Elementary Education and Minnesota state teaching licensure must have a 2.80 GPA in the undergraduate program and meet other requirements. The MTLE basic skills test must be completed before graduation and before entry into the M.Ed./initial licensure program.

Foundation Courses
CPSY 4331 - Social and Personality Development (3.0 cr)
CPSY 4343 - Cognitive Development (3.0 cr)
CPSY 4993 - Directed Experiences in Early Childhood Education (3.0 cr)
EDHD 5007 - Technology for Teaching and Learning (1.5 cr)
EDHD 5009 - Human Relations: Applied Skills for School and Society (1.0 cr)
PUBH 3003 - Fundamentals of Alcohol and Drug Abuse (2.0 cr)
*or* PUBH 3005 - Fundamentals of Alcohol and Drug Abuse for Teacher Education (1.0 cr)

**Major Courses**
Students must be admitted to the program before taking these courses. Many of the major courses have an experiential component.
- CI 3211 - Introduction to Elementary Teaching (3.0 cr)
- CI 3212 - Practicum: Elementary Teaching (2.0 cr)
- CPSY 5251 - Social and Philosophical Foundations of Early Childhood Education (2.0 cr)
- CPSY 5252W - Facilitating Social and Emotional Learning in Early Childhood Education [WI] (3.0 cr)
- CPSY 5253 - Facilitating Cognitive and Language Learning in Early Childhood Education (3.0 cr)
- CPSY 5254 - Facilitating Creative and Motor Learning in Early Childhood Education (2.0 cr)
- CPSY 5281 - Student Teaching in Early Childhood Education (1.0 - 6.0 cr)
- EPSY 5625 - Education of Infants, Toddlers, and Preschool Children with Disabilities: Introduction (2.0 cr)
- EPSY 5681 - Education of Preschool Children With Disabilities: Methods and Materials (3.0 cr)

**Recommended Electives**
Recommend KIN 3327, MTHE 3101 and 3102, and EDHD 5001 or EPSY 3119, and EDHD 5005 to students going on to initial licensure programs in elementary education.

**Upper-division Writing Intensive within the major**
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
- Take 0 - 1 course(s) from the following:
  - CI 3401W - Diversity in Children's Literature [WI] (3.0 cr)
  - CPSY 5252W - Facilitating Social and Emotional Learning in Early Childhood Education [WI] (3.0 cr)

**Pre-Licensure or Non-Licensure Options**

**Non-Licensure Option**
Students complete appropriate electives of interest for their program, in consultation with their adviser.
Twin Cities Campus

Elementary Education: Foundations B.S.

Curriculum & Instruction
College of Education and Human Development

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 62 to 65
- Degree: Bachelor of Science

The B.S. degree program in Elementary Education: Foundations prepares students to work with children, including those with special needs and in urban school settings.

The program does not lead directly to teaching licensure, but prepares students to enter the master of education (M.Ed.)/initial licensure program in elementary education, which leads to state of Minnesota teaching licensure. It also prepares graduates to work in non-licensure educational settings (daycare centers or youth community programs) or other settings where a strong liberal education base is useful. The curriculum includes an extensive core of liberal education coursework that is central to elementary school teaching.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 9 courses before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

Admission is based on the following criteria:
* Minimum 2.50 overall GPA; higher GPA is recommended.
* At least 70 hours of paid or unpaid experience working with children, including at least 35 hours in a K-6 public classroom setting. This may include mentoring, tutoring, and camp counseling, but not babysitting or nannying.
* Experience with diverse populations.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Basic Requirements
CI 1001 - Introduction to the Elementary School (3.0 cr)
Introductory Psychology
PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
or PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)

Mathematics
PSTL 1006 - College Algebra through Modeling [MATH] (3.0 cr)
or MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)

Science
BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
or PSTL 1131 - Principles of Biological Science [BIOL] (4.0 cr)
PSTL 1171 - Earth Systems and Environments [PHYS, ENV] (4.0 cr)
or AST 1001 - Exploring the Universe [PHYS, ENV] (4.0 cr)
or ESCI 1001 - Earth and Its Environments [PHYS, ENV] (4.0 cr)

Social Studies
Additional social studies course
PSTL 1204 - Ways of Knowing in the Social Sciences [SOCS, DSJ] (4.0 cr)
or ANTH 1003W - Understanding Cultures [SOCS, GP, WI] (4.0 cr)
or ANTH 1005W - Introduction to Cultural Diversity and the World System [SOCS, GP, WI] (4.0 cr)
or POL 1001 - American Democracy in a Changing World [SOCS] (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Introductory Block
CI 3212 - Practicum: Elementary Teaching (2.0 cr)
with CI 3211 - Introduction to Elementary Teaching (3.0 cr)
with EDHD 5001 - Learning, Cognition, and Assessment (3.0 cr)
  or EPSY 3119 - Learning, Cognition, and Assessment (3.0 cr)

Foundation Courses
EDHD 5007 - Technology for Teaching and Learning (1.5 cr)
PUBH 3003 - Fundamentals of Alcohol and Drug Abuse (2.0 cr)
  or PUBH 3005 - Fundamentals of Alcohol and Drug Abuse for Teacher Education (1.0 cr)
CI 4121 - Culture Power and Education (2.0 cr)
  or EDHD 5009 - Human Relations: Applied Skills for School and Society (1.0 cr)
CI 4122 - Social Class Education and Pedagogy (2.0 - 3.0 cr)
  or EDHD 5005 - School and Society (2.0 cr)
CPSY 2301 - Introductory Child Psychology (4.0 cr)

Special Education Block
This block of courses should be taken during the third semester in the major, one year after the introductory block.
EPSY 5613 - Foundations of Special Education I (3.0 cr)
  with EPSY 5616 - Classroom Management and Behavior Analytic Problem Solving (3.0 cr)
  with CI 3283 - Practicum: Special Education K-6 (2.0 cr)

Mathematics
Mathematics for Elementary Teachers I
MTHE 3101 - Mathematics and Pedagogy for Elementary Teachers I (3.0 cr)
Mathematics for Elementary Teachers II
MTHE 3102 - Mathematics and Pedagogy for Elementary Teachers II (3.0 cr)

Science
Physical Science with Lab
PSTL 1163 - Physics by Inquiry [PHYS, ENV] (4.0 cr)
  or PHYS 1001W - Energy and the Environment [PHYS, ENV, WI] (4.0 cr)
  or PHYS 3071W - Laboratory-Based Physics for Teachers [PHYS, WI] (4.0 cr)

Social Studies
Human Geography
GEOG 1301W - Our Globalizing World [SOCS, GP, WI] (3.0 cr)
  or GEOG 3381W - Population in an Interacting World [SOCS, GP, WI] (4.0 cr)
  or GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
  or GEOG 3374W - The City in Film [AH, WI] (4.0 cr)
  or GEOG 1372 - Geography of Global Cities [SOCS, GP] (3.0 cr)
  or GEOG 1973 - Geography of the Twin Cities [SOCS] (3.0 cr)
  or GEOG 3973 - Geography of the Twin Cities [SOCS] (3.0 cr)

Literacy
CI 3401W - Diversity in Children's Literature [WI] (3.0 cr)
Linguistics
LING 3001 - Introduction to Linguistics [SOCS] (4.0 cr)
  or ENGL 3601 - Analysis of the English Language (4.0 cr)
  or CI 3610 - Linguistics for Teachers [SOCS] (3.0 cr)
Reading Processes and Development
CI 5413 - Foundations of Reading (3.0 cr)
with CI 5414 - Practicum: Working With Developing Readers (2.0 cr)

**Arts**
CI 3001 - Survey of Art Activities (2.0 cr)

**Performing Arts**
PSTL 1312 - Creating Identities Through Art and Performance [AH] (4.0 cr)
or MUED 3011 - Music in Childhood (3.0 cr)

**Kinesiology**
KIN 3327 - Teaching Physical Education in the Elementary School (2.0 cr)
**Twin Cities Campus**

**Family Social Science B.S.**

**Family Social Science**

**College of Education and Human Development**

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 54 to 58
- This program requires summer terms.
- Degree: Bachelor of Science

Family social science is a multidisciplinary major for those who are interested in helping people, counseling, and understanding human relationships. This major prepares graduates for careers in working with individuals, families, or systems in human services. The major is enhanced by a required internship related to the student's specific program and career goals. Qualified graduates may continue their education through graduate study in family social science, child and human development, social work, or allied health disciplines.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](#).

**General Requirements**

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the [liberal education requirements](#). Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

**Program Requirements**

**Preparatory Courses**

**Economics**
- **APEC 1101** - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or **APEC 1102** - Principles of Macroeconomics (3.0 cr)
- or **ECON 1101** - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or **ECON 1102** - Principles of Macroeconomics (4.0 cr)

**Statistics**
- **PSTL 1004** - Statistics: Understanding and Applying Data [MATH] (4.0 cr)
- or **STAT 1001** - Introduction to the Ideas of Statistics [MATH] (4.0 cr)
- or **EPSY 3264** - Basic and Applied Statistics [MATH] (3.0 cr)
- or **SCO 2550** - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
- or **STAT 3011** - Introduction to Statistical Analysis [MATH] (4.0 cr)

**Additional Course**
- **FSOS 1101** - Intimate Relationships [SOCS] (4.0 cr)
- or **FSOS 1201** - Human Development in Families: Lifespan [SOCS, DSJ] (4.0 cr)
- or **PSTL 1211** - Sociological Perspectives: A Multicultural America [SOCS, DSJ] (4.0 cr)
- or **PSTL 1246** - Multicultural Contexts: Engaging Citizenship and Democracy [SOCS, CIV] (3.0 cr)
- or **PSTL 1281** - Principles of Psychology [SOCS] (4.0 cr)
- or **SW 1001** - Introduction to the World of Social Work: A Global Perspective (3.0 cr)
- or choose a course from one of the following areas: anthropology, child psychology, human development, political science, psychology, social work, or sociology

**Communication Courses**
- **PSTL 1461** - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
- or **COMM 1101** - Introduction to Public Speaking [CIV] (3.0 cr)
- **ENGL 3027W** - The Essay [WI] (4.0 cr)
- or **WRT 3029W** - Business and Professional Writing [WI] (3.0 cr)
- or **PSTL 3324W** - Writing in the Workplace for Education and Human Development Majors [WI] (4.0 cr)
or PSTL 3325V - Honors: Project-Based Writing For Education and Human Development Majors [WI] (4.0 cr)
or PSTL 3325W - Project-Based Writing For Education and Human Development Majors [WI] (4.0 cr)
or WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

**Major Courses**
- FSOS 2101 - Preparation for Working With Families (2.0 cr)
- FSOS 2103 - Family Policy (3.0 cr)
- FSOS 2105 - Methods in Family Research (3.0 cr)
- FSOS 3101 - Personal and Family Finances (3.0 cr)
- FSOS 3102 - Family Systems and Diversity [SOCS, DSJ] (3.0 cr)
- FSOS 3104 - Global and Diverse Families [SOCS, GP] (3.0 cr)

**Professional Core Courses**
Take 18 or more credit(s) from the following:
- FSOS 3426 - Alcohol and Drugs: Families and Culture (3.0 cr)
- FSOS 3429 - Counseling Skills Practicum I (3.0 cr)
- FSOS 4101 - Sexuality and Gender in Families and Close Relationships (3.0 cr)
- FSOS 4104W - Family Psychology [WI] (3.0 cr)
- FSOS 4106 - Family Resource Management (3.0 cr)
- FSOS 4150 - Special Topics in Family Social Science (1.0 - 4.0 cr)
- FSOS 4152 - Gay, Lesbian, and Bisexual People in Families (3.0 cr)
- FSOS 4153 - Family Financial Counseling (3.0 cr)
- FSOS 4154W - Families and Aging [WI] (3.0 cr)
- FSOS 4155 - Parent-Child Relationships (3.0 cr)
- FSOS 4156 - Legal-Economic Controversies in Families (3.0 cr)
- FSOS 5150 - Special Topics in Family Social Science (1.0 - 4.0 cr)
- FSOS 5426 - Alcohol and Drugs: Families and Culture (3.0 cr)

**Advanced/Applied Skill Course**
Students must take FSOS 4294 or FSOS 4296 for 4 credits.
Take 4 or more credit(s) from the following:
- FSOS 4294 - Research Internship (1.0 - 4.0 cr)
- FSOS 4296 - Field Study: Working With Families (1.0 - 12.0 cr)

**Upper-division Writing Intensive within the major**
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
- ENGL 3027W - The Essay [WI] (4.0 cr)
- WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
- PSTL 3324W - Writing in the Workplace for Education and Human Development Majors [WI] (4.0 cr)
- PSTL 3325W - Project-Based Writing For Education and Human Development Majors [WI] (4.0 cr)
- PSTL 3325V - Honors: Project-Based Writing For Education and Human Development Majors [WI] (4.0 cr)
- WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
**Twin Cities Campus**

**Family Social Science Minor**

**Family Social Science**

**College of Education and Human Development**

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

See major description for more information.

**Program Delivery**

This program is available:

- via classroom (the majority of instruction is face-to-face)

**Minor Requirements**

**Minor Courses**

- FSOS 1101 - Intimate Relationships [SOCS] (4.0 cr)
- FSOS 3102 - Family Systems and Diversity [SOCS, DSJ] (3.0 cr)

Take 3 or more course(s) from the following:

- FSOS 2103 - Family Policy (3.0 cr)
- FSOS 3101 - Personal and Family Finances (3.0 cr)
- FSOS 3104 - Global and Diverse Families [SOCS, GP] (3.0 cr)
- FSOS 3426 - Alcohol and Drugs: Families and Culture (3.0 cr)
- FSOS 4101 - Sexuality and Gender in Families and Close Relationships (3.0 cr)
- FSOS 4104W - Family Psychology [WI] (3.0 cr)
- FSOS 4106 - Family Resource Management (3.0 cr)
- FSOS 4152 - Gay, Lesbian, and Bisexual People in Families (3.0 cr)
- FSOS 4154W - Families and Aging [WI] (3.0 cr)
- FSOS 4155 - Parent-Child Relationships (3.0 cr)
Twin Cities Campus
Family Violence Prevention Minor
School of Social Work
College of Education and Human Development

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

The family violence prevention minor is a 15-credit undergraduate program for students interested in strengthening their educational experience with a research base and a set of practical skills in family violence prevention. It is an intensive, interdisciplinary learning experience for students in all fields of study.

Courses are in fields related to social services, education, health care, and other direct services addressing issues related to child abuse and neglect, adult domestic violence, elder abuse, and intergenerational abuse. Students learn theories and research related to violent behavior, examine relationships between violence in society and violence within families, and explore different professional responses to violence. Elective courses provide the opportunity to integrate these concepts into further study within a major or in other fields of interest.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
SW 3701 - Introduction to Child Maltreatment: Intervention and Prevention (3.0 cr)
SW 3702 - Introduction to Adult Intimate Partner Violence: Intervention and Prevention (3.0 cr)
SW 3703 - Gender Violence in Global Perspective (3.0 cr)

Take 6 or more credit(s) from the following:
- CAPY 5623 - Assessment and Treatment Interventions: Anxiety and Depression in Children and Adolescents (1.0 cr)
- CSPH 5211 - Peacemaking and Spirituality: A Journey Toward Healing and Strength (2.0 - 3.0 cr)
- FSOS 1101 - Intimate Relationships [SOCS] (4.0 cr)
- FSOS 3104 - Global and Diverse Families [SOCS, GP] (3.0 cr)
- FSOS 3426 - Alcohol and Drugs: Families and Culture (3.0 cr)
- GWSS 3415 - Feminist Perspectives on Domestic Violence and Sexual Assault [DSJ] (3.0 cr)
- JWST 3521W - History of the Holocaust [WI] (3.0 cr)
- SOC 3101 - Introduction to the Criminal Justice System [SOCS, CIV] (3.0 cr)
- SOC 3102 - Introduction to Criminal Behavior and Social Control (3.0 cr)
- SOC 3501 - Sociology of Families [SOCS, DSJ] (3.0 cr)
- SOC 4109 - Domestic Criminal Violence (3.0 cr)
- SOC 4461 - Sociology of Ethnic and Racial Conflict [DSJ] (3.0 cr)
- YOST 5322 - Work With Youth: Families (2.0 cr)
- AFRO 3072 - Racism: Social and Psychological Consequences for Black Americans (3.0 cr)
  or AFRO 5072 (Inactive) (3.0 cr)
Twin Cities Campus

Human Resource Development B.S.
Organizational Leadership, Policy and Development

College of Education and Human Development

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 58 to 61
• Degree: Bachelor of Science

The undergraduate program in human resource development equips learners with the knowledge, skills, and abilities that enable them to make meaningful contributions to the advancement of organizational systems in a variety of sectors, based on the principles, methods, and tools of the fields of workplace learning, training, organization development, leadership development, and career development.

The B.S. prepares students for entry-level positions in training, career development, organization development, and workplace learning. Typical job titles include training coordinator, technical trainer, instructional designer, organization development assistant, training facilitator, or learning and development specialist. Undergraduate students also develop a foundation for graduate study, and such degrees are typically required for advancement in the field.

Students who complete the B.S. degree simultaneously earn a certificate in human resource development.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 30 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
• 2.50 already admitted to the degree-granting college
• 2.50 transferring from another University of Minnesota college
• 2.50 transferring from outside the University

Admission requirements include 30 credits, completed or in progress.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
A minimum grade of C- is required for all Foundation, Major, and Supporting Program courses. The only course that can be taken S/N is OLPD 4696.

Foundation Courses
These courses are intended to be taken as prerequisites to the major, although this is not strictly required. Student can take some of these courses as they are taking introductory courses in HRD, however most of these courses should be completed within the first 90 credits.

Psychology
PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
or PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)

Public Speaking
PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
or COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)

Mathematics
- PSTL 1006 - College Algebra through Modeling [MATH] (3.0 cr)
- or PSTL 1004 - Statistics: Understanding and Applying Data [MATH] (4.0 cr)
- or MATH 1001 - Excursions in Mathematics [MATH] (3.0 cr)
- or MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
- or STAT 1001 - Introduction to the Ideas of Statistics [MATH] (4.0 cr)
- or A higher level math course may be taken to fulfill this requirement. Consult an advisor for options.

Economics
- APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1102 - Principles of Macroeconomics (3.0 cr)
- or ECON 1102 - Principles of Macroeconomics (4.0 cr)

Business Writing
- WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
- or MGMT 3033W - Business Communication [WI] (3.0 cr)
- or PSTL 3324W - Writing in the Workplace for Education and Human Development Majors [WI] (4.0 cr)
- or PSTL 3325W - Project-Based Writing For Education and Human Development Majors [WI] (4.0 cr)
- or WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Personal Leadership
- OLPD 1302 - Personal Leadership in the University (3.0 cr)
- or OLPD 1301W - Personal Leadership in the University [WI] (3.0 cr)
- or PA 1961W - Personal Leadership in the University [WI] (3.0 cr)

Future Studies
- OLPD 2811 - Societies of the Future: Changing Work Contexts [TS] (3.0 cr)
- or OLPD 2811H - Societies of the Future: Changing Work Contexts, Honors [TS] (3.0 cr)

Major Courses
Students must complete a minimum of 24 credits in the major. These 24 credits include five specific required courses (list below), one Computer applications course (options listed below), a 4-credit Internship, and 3 credits of electives within the HRD major (options below).

- OLPD 3601 - Introduction to Human Resource Development (3.0 cr)
- OLPD 3202 - Introduction to Strategies for Teaching Adults (3.0 cr)
- OLPD 3620 - Introduction to Training and Development (3.0 cr)
- OLPD 3640 - Introduction to Organization Development (3.0 cr)
- OLPD 3696 - Profession and Practice of Human Resource Development (2.0 cr)
- OLPD 4696 - Internship: Human Resource Development (1.0 - 4.0 cr)

Computer Applications for Business & Industry
- CI 5301 - Foundations of Computer Applications for Business and Education (3.0 cr)
- or IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)

HRD Electives
Students must complete a minimum of 3 credits of electives from the following list of course options.
Take 3 or more credit(s) from the following:
- OLPD 3305 - Learning About Leadership Through Film and Literature (3.0 cr)
- OLPD 3318 - Introduction to Project Management (3.0 cr)
- OLPD 3380 - Developing Intercultural Competence (3.0 cr)
- OLPD 3828 - Diversity in the Workplace (3.0 cr)
- OLPD 4318 - Advanced Project Management (3.0 cr)
- OLPD 4608 - Introduction to International Human Resource Development (3.0 cr)
- OLPD 4870 - Introduction to Integrating Human Rights into Organizational Leadership (3.0 cr)

Supporting Program
Students must create a supporting program of at least 12 credits. These courses can be taken outside of OLPD. This is an opportunity for students to explore a related area of interest that helps strengthen their major area of study or widens the arena for application of skills and concepts. Specifics of the Supporting Program must be arrived at in consultation with an OLPD Program Advisor. Common courses include:
Take 12 or more credit(s) from the following:
- ABUS 4104 - Management and Human Resource Practices (3.0 cr)
- COMM 3441 - Introduction to Organizational Communication (3.0 cr)
- HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
- HRIR 3031 - Staffing and Selection: Strategic and Operational Concerns (2.0 cr)
- HRIR 3041 - The Individual in the Organization (2.0 cr)
- HRIR 3042 - The Individual and Organizational Performance (2.0 cr)
- HRIR 3051 - Compensation: Theory and Practice (2.0 cr)
- HRIR 3071 - Union Organizing and Labor Relations (2.0 cr)
• HRIR 3072 - Collective Bargaining and Dispute Resolution (2.0 cr)
• MGMT 3004 - Business Strategy (3.0 cr)
• MGMT 4002 - Managerial Psychology (4.0 cr)
• PSY 3711 - Psychology in the Workplace (3.0 cr)
• SCO 3001 - Introduction to Operations Management (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
• MGMT 3033W - Business Communication [WI] (3.0 cr)
• WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
• PSTL 3324W - Writing in the Workplace for Education and Human Development Majors [WI] (4.0 cr)
• PSTL 3325W - Project-Based Writing For Education and Human Development Majors [WI] (4.0 cr)
Twin Cities Campus

Human Resource Development Certificate
Organizational Leadership, Policy and Development
College of Education and Human Development

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 14
- Degree: Human Resource Development Certificate Ugrd

The Human Resource Development Certificate provides additional recognition of expertise in the field.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
OLPD 3601, OLPD 3620, and OLPD 3640 must be completed before enrollment in OLPD 4696 is allowed.

Required Courses
- OLPD 3601 - Introduction to Human Resource Development (3.0 cr)
- OLPD 3620 - Introduction to Training and Development (3.0 cr)
- OLPD 3640 - Introduction to Organization Development (3.0 cr)

Internship: Human Resource Development
OLPD 3601, OLPD 3620, and OLPD 3640 must all be completed before the student can enroll in OLPD 4696, the Internship in HRD. OLPD 4696 must be taken for a total of 2 credits, although these 2 credits can be spread over two semesters or completed in a single semester. If you have questions, please speak with the HRD Internship Advisor in OLPD by emailing ugolpd@umn.edu
- OLPD 4696 - Internship: Human Resource Development (1.0 - 4.0 cr)

Electives in Human Resource Development
The remaining credits can be selected from HRD coursework or one of the following courses.
- OLPD 3202 - Introduction to Strategies for Teaching Adults (3.0 cr)
- or OLPD 3305 - Learning About Leadership Through Film and Literature (3.0 cr)
- or OLPD 3828 - Diversity in the Workplace (3.0 cr)
- or OLPD 4608 - Introduction to International Human Resource Development (3.0 cr)
- or OLPD 4870 - Introduction to Integrating Human Rights into Organizational Leadership (3.0 cr)
The CEHD Integrated Degree Program (IDP) is a multidisciplinary major comprised entirely of CEHD content, which allows students to combine preexisting curricular areas in the college. Areas consist of coursework form CEHD minors, certificates and other departmentally-designated grouping of core courses that can be combined to create an integrated course of study within the CEHD that fits the needs and interests of students. The IDP major provides structured options to students which, according to research, leads to increased retention and timely graduation. The IDP major is designed for students who are primarily already admitted to CEHD.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 30 credits before admission to the program.

Students are considered for admission based on a review of their application. The review includes factors such as GPA, grade trends, performance in coursework relevant to proposed areas of study, and demonstrated ability to meet curricular and developmental expectations of individualized undergraduate education.

Students must develop a degree plan that includes:
• Academic and career goals
• Courses proposed for the program

Regardless of what minors/certificates/concentration areas students choose to integrate, one course in each of the following areas must be taken:

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Social Sciences
Take exactly 1 course(s) from the following:
• PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
• PSTL 1211 - Sociological Perspectives: A Multicultural America [SOCS, DSJ] (4.0 cr)
• PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
• PSTL 1204 - Ways of Knowing in the Social Sciences [SOCS, DSJ] (4.0 cr)
• SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)

Public Speaking
PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
or COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)

Math
PSTL 1004 - Statistics: Understanding and Applying Data [MATH] (4.0 cr)
or PSTL 1006 - College Algebra through Modeling [MATH] (3.0 cr)
or MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
or STAT 1001 - Introduction to the Ideas of Statistics [MATH] (4.0 cr)
or MATH 1051 - Precalculus I [MATH] (3.0 cr)
or MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1151 - Precalculus II [MATH] (3.0 cr)

IDP Area Requirements
Students choosing the IDP Sport Management Area are required to take SMGT 1701 before declaring their major.
Students choosing the IDP Leadership Area are required to take OLPD 1301W or PA 1961W or OLPD 1302 before declaring their major.

**General Requirements**
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the [liberal education requirements](#). Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

**Program Requirements**
List of core courses for each department in the IDP program

<table>
<thead>
<tr>
<th>Applied Psychology in Educational and Community Settings</th>
<th>EPSY 3301, EPSY 3264, EPSY 3132, EPSY 3302</th>
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<tbody>
<tr>
<td>Practicum Requirements</td>
<td>EPSY 3133 or EPSY 3303</td>
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<tr>
<td>Autism Spectrum Disorder</td>
<td>EPSY 5616, EPSY 5631, EPSY 5632, EPSY 5633, EPSY 5661, EPSY 5663</td>
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<tr>
<td>Business and Marketing Education</td>
<td>OLPD 3318, OLPD 3401, OLPD 3424, OLPD 4426</td>
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<tr>
<td>Coaching (Two Area option)</td>
<td>Current CPR and AED Certification through national certification agency</td>
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<td></td>
<td>KIN 3114, KIN 4641, KIN 4697</td>
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<td>Organizational Development</td>
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<td></td>
<td>KIN 3143 or KIN 5725 or SMGT 3143</td>
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<td></td>
<td>Human Anatomy</td>
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<td></td>
<td>KIN 3027 or ANAT 3001 or ANAT 3601 or ANAT 3611 or PSTL 1135</td>
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<tr>
<td>Coaching (Three Area option)</td>
<td>Current CPR and AED Certification through national certification agency</td>
</tr>
<tr>
<td></td>
<td>KIN 3114, KIN 4641, KIN 4697</td>
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<tr>
<td></td>
<td>Organizational Development</td>
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<td></td>
<td>KIN 3143 or KIN 5725 or SMGT 3143</td>
</tr>
<tr>
<td>Early Childhood Education</td>
<td>CPSY 2301, CPSY 4993, CPSY 5252, CPSY 5253, CPSY 5254</td>
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<tr>
<td>Family Social Sciences</td>
<td>FSOS 1101 and FSOS 3102</td>
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<tr>
<td>Family Violence Prevention</td>
<td>SW 3702, SW 3703, SW 3701</td>
</tr>
<tr>
<td>Human Resource Development</td>
<td>OLPD 3601, OLPD 3620, OLPD 3640, OLPD 4696</td>
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<tr>
<td>Leadership</td>
<td>Leadership, you and your community</td>
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<td></td>
<td>OLPD 3302 or PA 3961</td>
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<td></td>
<td>Field Experience</td>
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<td></td>
<td>OLPD 3306 or PA 3971</td>
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</tbody>
</table>
Leadership for Global Citizenship
OLPD 4303W or PA 4961W

Outdoor Recreation and Education
REC 2151, REC 3993, REC 4311

Social Justice
SW 3501, SW 4501, (SW 2501W or SW 1501)

Special Education
EPSY 2601, EPSY 5613, (EPSY 5114 or EPSY 3119)

Sport Management
SMGT 3111, SMGT 3143, SMGT 3421, SMGT 3631

Youth Studies
YOST 1001

List of possible LE and WI courses
PSTL 1163 - Physics by Inquiry [PHYS, ENV] (4.0 cr)
PSTL 1312 - Creating Identities Through Art and Performance [AH] (4.0 cr)
PSTL 1131 - Principles of Biological Science [BIOL] (4.0 cr)
PSTL 1251 - Forces of Modern Historical Change: Global Perspectives [HIS, GP] (4.0 cr)
PSTL 1365W - Stories of Self and Community: Multicultural Perspectives [LITR, DSJ, WI] (4.0 cr)
PSTL 1525W - First-Year Inquiry: Multidisciplinary Ways of Knowing [WI] (4.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• PSTL 3324W - Writing in the Workplace for Education and Human Development Majors [WI] (4.0 cr)
• PSTL 3325W - Project-Based Writing For Education and Human Development Majors [WI] (4.0 cr)
• CPSY 4334W - Children, Youth in Society [WI] (3.0 cr)
• FSOS 4104W - Family Psychology [WI] (3.0 cr)
• FSOS 4154W - Families and Aging [WI] (3.0 cr)
• OLPD 4303W - Leadership for Global Citizenship [WI] (3.0 cr)
• CI 4311W - Technology and Ethics in Society [CIV, WI] (3.0 cr)
• REC 3541W - Recreation Programming [WI] (3.0 cr)
• REC 3601W - Leisure and Human Development [WI] (3.0 cr)
• SMGT 3881W - Senior Seminar in Sport Management [WI] (3.0 cr)
• YOST 4401W - Young People’s Spirituality and Youthwork: An Introduction [WI] (4.0 cr)
• KIN 3126W - Sport and Exercise Psychology [WI] (3.0 cr)

IDP Area Requirements

Two Area Within-College Program
This plan combines courses from two area within-college programs, such as BME and ECE, or Coaching and Special Ed..
Complete 21 approved credits of upper division coursework in one area of concentration.
Complete 21 approved credits of upper division coursework in a second area of concentration.
Complete 8 credits of supporting program upper division CEHD coursework.

-OR-

Three Area Within-College Program
This plan combines courses from three area within-college programs, such as BME, ECE, and Special Ed., or Coaching, Outdoor and Recreation, and Leadership.
Complete 20 approved credits of upper division coursework in one area of concentration.
Complete 15 approved credits of upper division coursework in a second area of concentration
Complete 15 approved credits of upper division coursework in a third area of concentration.
Twin Cities Campus
Kinesiology B.S.
College of Education and Human Development

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120 to 125
- Required credits within the major: 69 to 72
- Degree: Bachelor of Science

The bachelor of science (B.S.) program in kinesiology is a comprehensive, science-based academic degree program centered around the physical, biological, and social sciences related to the study of physical activity and human movement. Major coursework includes content focusing on human anatomy and physiology, exercise physiology, movement science, sociology, and sport and exercise psychology.

This curriculum provides exceptional academic preparation for students interested in graduate and professional programs in allied health, biomechanics, chiropractic medicine, dentistry, ergonomics, exercise physiology, exercise rehabilitation, human factors and performance, movement science, motor performance, nursing, occupational therapy, physical education licensure, physical therapy, preventative and rehabilitation medicine, psychology of sport and exercise, sport management, and sport sociology.

Examples of career choices for graduates with a B.S. in kinesiology include: athletic performance training, coaching, exercise testing and prescription in clinical and health settings, personal training in health clubs and corporate settings, pharmaceutical sales, physical therapist, physical education teacher, occupational therapist, public health management, fitness/sport/medical device sales, wellness and fitness specialist, and youth sports director.

Program requirements for the majors at the College of Education and Human Development fulfill a number of the University’s required Liberal Education cores and themes. Students have multiple options for fulfilling remaining LE requirements.

The courses listed below fulfill the remaining Kinesiology B.S. LE requirements and are designed explicitly to align with CEHD’s mission by providing foundational skill development and preparation for advanced coursework in kinesiology. Courses include: PsTL 1231, PsTL 1251, PsTL 1312, PsTL 1365W, PsTL 1366, PsTL 1367W, and PsTL 1368.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 60 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

To be eligible to apply to the major, students must have:
* At least 60 credits completed or in progress
* Completed one course from five of the six following categories:
  Psychology
  Biology Course with Lab
  Chemistry Course with Lab
  Physics Course with Lab
  Introduction to Kinesiology
  Human Anatomy

Students transferring into the University of Minnesota must have completed one course from each of the following categories:
  Psychology
  Biology Course with Lab
  Chemistry Course with Lab
  Physics Course with Lab

Once admitted to the major, transfer students will be expected to complete the following courses in their first semester:
Introduction to Kinesiology
Human Anatomy

NOTE: Students are strongly encouraged to take a Math/Statistics course before entering the major.

Students pursuing the M.Ed./initial licensure program in physical education must have a 2.80 GPA in the undergraduate program and meet other requirements.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Psychology
PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
or
PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
or
PSY 1001H - Honors Introduction to Psychology [SOCS] (4.0 cr)

Biology Course with Lab
BIOL 1009 - General Biology [BIOL] (4.0 cr)
or
BIOL 1009H - Honors: General Biology [BIOL] (4.0 cr)
or
BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
or
BIOL 1001H - Introductory Biology I: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
or
BIOL 2002 - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
or
PSTL 1131 - Principles of Biological Science [BIOL] (4.0 cr)
or
PSTL 1135 - Essentials of Human Anatomy and Physiology [BIOL] (4.0 cr)
or
FSCN 2021 - Introductory Microbiology (4.0 cr)

Chemistry Course with Lab
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)
or
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
or
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
or
CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
or
CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)

Physics Course with Lab
PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
or
PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
or
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or
PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)

Introduction to Kinesiology
KIN 1871 - Survey of Kinesiology, Recreation, and Sport (3.0 cr)

Human Anatomy
KIN 3027 - Human Anatomy for Kinesiology Students (3.0 cr)
or
ANAT 3001 - Human Anatomy (3.0 cr)
or
ANAT 3601 - Principles of Human Anatomy (3.0 cr)
or
ANAT 3611 - Principles of Human Anatomy (3.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Core Requirements
KIN 3112 - Introduction to Biomechanics (4.0 cr)
KIN 3126W - Sport and Exercise Psychology [WI] (3.0 cr)
KIN 3131W - History and Philosophy of Sport [WI] (3.0 cr)
KIN 3132 - Introduction to Motor Development Across the Lifespan (3.0 cr)
KIN 3135 - Introduction to Motor Learning and Control (3.0 cr)
KIN 3982 - Research Methods in Kinesiology (3.0 cr)
KIN 4385 - Exercise Physiology (4.0 cr)
KIN 3385 - Human Physiology (4.0 cr)
or PHSL 3051 - Human Physiology (4.0 cr)
SMGT 3501 - Sport in a Diverse Society [SOCS, DSJ] (3.0 cr)
or SMGT 3501H - Sport in a Diverse Society: Honors [SOCS, DSJ] (3.0 cr)

Physical Activity Course Requirement
Take 5 credits of physical activity, including at least one course from each of the three following categories:

Aquatics/Dance/Posture
Take 1 or more course(s) from the following:
• PE 1004 - Diving: Springboard (1.0 cr)
• PE 1007 - Beginning Swimming (1.0 cr)
• PE 1016 - Posture and Individual Exercise (1.0 cr)
• PE 1107 - Intermediate Swimming (1.0 cr)
• PE 1205 - Scuba and Skin Diving (1.0 cr)
• PE 1207 - Advanced Swimming (1.0 cr)
• DNCE 1001 - Modern Dance Technique 1 (1.0 cr)
• DNCE 1002 - Modern Dance Technique 2 (1.0 cr)
• DNCE 1010 - Modern Dance Technique 3 (1.0 - 2.0 cr)
• DNCE 1020 - Modern Dance Technique 4 (1.0 - 2.0 cr)
• DNCE 1030 - Men's Modern Dance Technique (1.0 cr)
• DNCE 1040 - Modern Dance Partnering Technique (1.0 cr)
• DNCE 1101 - Ballet Technique 1 (1.0 cr)
• DNCE 1102 - Ballet Technique 2 (1.0 cr)
• DNCE 1110 - Ballet Technique 3 (2.0 cr)
• DNCE 1120 - Ballet Technique 4 (2.0 cr)
• DNCE 1201 - Jazz Technique 1 (1.0 cr)
• DNCE 1202 - Jazz Technique 2 (1.0 cr)
• DNCE 1210 - Jazz Technique 3 (1.0 cr)
• DNCE 1220 - Jazz Technique 4 (1.0 cr)
• DNCE 1301 - Tap Technique 1 (1.0 cr)
• DNCE 1302 - Tap Technique 2 (1.0 cr)
• DNCE 1313 - African Based Movement (1.0 cr)
• DNCE 1315 - Flamenco (1.0 cr)
• DNCE 1323 - Swing Dance (1.0 cr)
• DNCE 1327 - Argentine Tango (1.0 cr)
• DNCE 1331 - Yoga (1.0 cr)
• DNCE 1335 - T'ai Chi Ch'uan (1.0 cr)
• DNCE 1343 - Hip Hop Movement (1.0 cr)
• DNCE 1345 - Alexander Technique for Movement Artists (1.0 cr)
• DNCE 1347 - Pilates Conditioning (1.0 cr)
• DNCE 1349 - Contact Improvisation (1.0 cr)
• DNCE 1351 - African Diasporic Movement 1 (1.0 cr)
• DNCE 1352 - African Diasporic Movement 2 (1.0 cr)
• DNCE 1353 - African Diasporic Movement 3 (1.0 cr)
• DNCE 1354 - African Diasporic Movement 4 (1.0 cr)
• DNCE 3010 - Modern Dance Technique 5 (2.0 cr)
• DNCE 3020 - Modern Dance Technique 6 (2.0 cr)
• DNCE 3110 - Ballet Technique 5 (2.0 cr)
• DNCE 3120 - Ballet Technique 6 (2.0 cr)
• DNCE 3210 - Jazz Technique 5 (1.0 cr)
• DNCE 3220 - Jazz Technique 6 (1.0 cr)
• DNCE 3301 - Tap Technique 3 (1.0 cr)
• DNCE 3302 - Tap Technique 4 (1.0 cr)
• DNCE 3311 - Contemporary Indian Dance 1 (1.0 cr)
• DNCE 3312 - Contemporary Indian Dance 2 (1.0 cr)
• DNCE 3337 - Body Mind Centering (2.0 cr)
• DNCE 3351 - African Diasporic Movement 5 (1.0 cr)
• DNCE 3352 - African Diasporic Movement 6 (1.0 cr)

Individual Sports/Team Sport
Take 1 or more course(s) from the following:
- PE 1029 - Handball (1.0 cr)
- PE 1031 - Sabre Fencing (1.0 cr)
- PE 1032 - Badminton (1.0 cr)
- PE 1033 - Foil Fencing (1.0 cr)
- PE 1034 - Judo (1.0 cr)
- PE 1035 - Karate (1.0 cr)
- PE 1036 - Racquetball (1.0 cr)
- PE 1037 - Squash Racquets (1.0 cr)
- PE 1038 - Beginning Tennis (1.0 cr)
- PE 1043 - Beginning Horse Riding (1.0 cr)
- PE 1044 - Self-Defense (1.0 cr)
- PE 1045 - Rock Climbing (1.0 cr)
- PE 1046 - Tae Kwon Do (1.0 cr)
- PE 1048 - Bowling (1.0 cr)
- PE 1053 - Ice Skating (1.0 cr)
- PE 1055 - Golf (1.0 cr)
- PE 1056 - Nordic (Cross-Country) Skiing (1.0 cr)
- PE 1057 - Beginning Skiing (1.0 cr)
- PE 1058 - Snowboarding (1.0 cr)
- PE 1059 - Track and Field (1.0 cr)
- PE 1065 - Beginning Tumbling and Gymnastics (1.0 cr)
- PE 1067 - Basketball (1.0 cr)
- PE 1071 - Beginning Cricket (1.0 cr)
- PE 1072 - Soccer (1.0 cr)
- PE 1074 - Beginning Volleyball (1.0 cr)
- PE 1075 - Ice Hockey (1.0 cr)
- PE 1076 - Flag Football (1.0 cr)
- PE 1077 - Lacrosse (1.0 cr)
- PE 1078 - Ultimate Disc (1.0 cr)
- PE 1079 - Rugby (Non-contact) (1.0 cr)
- PE 1082 - Broomball (1.0 cr)
- PE 1129 - Intermediate Handball (1.0 cr)
- PE 1133 - Intermediate Foil Fencing (1.0 cr)
- PE 1135 - Intermediate Karate (1.0 cr)
- PE 1137 - Intermediate Squash (1.0 cr)
- PE 1146 - Intermediate Tae Kwan Do (1.0 cr)
- PE 1154 - Figure Skating (1.0 cr)
- PE 1174 - Intermediate Volleyball (1.0 cr)

Conditioning/Weight Training
Take 1 or more course(s) from the following:
- PE 1012 - Beginning Running (1.0 cr)
- PE 1014 - Conditioning (1.0 cr)
- PE 1015 - Weight Training (1.0 cr)
- PE 1262 - Marathon Training (3.0 cr)

Electives Requirement
Students must take a minimum of 12-credits of KIN designated coursework that support the degree program. A minimum of 6 credits must be taken at the 4xxx-5xxx level. No more than 6 credits of field experience coursework (3696, 3993, or 4967) can be used toward the elective credits. Courses that fulfill other kinesiology degree requirements cannot be used towards elective requirements. Student may wish to consult with adviser on course selection.
- KIN 3001 - Lifetime Health and Wellness [SOCS] (3.0 cr)
- KIN 3114 - Prevention and Care of Athletic Injuries (3.0 cr)
- KIN 3136 - Mental Skills Training for Sport (3.0 cr)
- KIN 3143 - Organization and Administration of Sport (3.0 cr)
- KIN 3168 - Soccer Coaching Theory and Skill Development (2.0 cr)
- KIN 3169 - Volleyball Coaching Theory and Skill Development (2.0 cr)
- KIN 3171 - Baseball Coaching Theory and Skill Development (2.0 cr)
- KIN 3172 - Basketball Coaching Theory and Skill Development (2.0 cr)
- KIN 3173 - Football Coaching Theory and Skill Development (2.0 cr)
- KIN 3178 - Tennis Coaching Theory and Skill Development (2.0 cr)
- KIN 3179 - Track and Field Coaching Theory and Skill Development (2.0 cr)
- KIN 3505 - Intro to Human-Centered Design (3.0 cr)
- KIN 3696 - Supervised Practical Experience (1.0 - 10.0 cr)
- KIN 3993 - Directed Study in Kinesiology (1.0 - 10.0 cr)
or KIN 3993H - Directed Study in Kinesiology: Honors (1.0 - 10.0 cr)
or KIN 4001H - Honors Seminar in Kinesiology (3.0 cr)
or KIN 4133 - Perceptual-Motor Control and Learning (3.0 cr)
or KIN 4134 - The Aging Motor System (3.0 cr)
or KIN 4136 - Embodied Cognition (3.0 cr)
or KIN 4441 - Movement Neuroscience (3.0 cr)
or KIN 4520 - Current Topics in Kinesiology (2.0 - 4.0 cr)
or KIN 4641 - Training and Conditioning for Sport (3.0 cr)
or KIN 4697 - Student Coaching and Seminar (3.0 cr)
or KIN 4741 - Strength and Power Development and Program Design (3.0 cr)
or KIN 4841 - Athletic Performance and Environmental Considerations (3.0 cr)
or KIN 4941 - Applied Sport Science (3.0 cr)
or KIN 5001 - Foundations of Human Factors/Ergonomics (3.0 cr)
or KIN 5103 - Developmental/Adapted Physical Education (3.0 cr)
or KIN 5104 - Physical Activities for Persons with Disabilities (3.0 cr)
or KIN 5122 - Applied Exercise Physiology (3.0 cr)
or KIN 5123 - Motivational Interventions in Physical Activity (3.0 cr)
or KIN 5126 - Social Psychology of Sport & Physical Activity (3.0 cr)
or KIN 5136 - Psychology of Coaching (3.0 cr)
or KIN 5141 - Nutrition and Exercise for Health Promotion and Disease Prevention (3.0 cr)
or KIN 5142 - Applied Sport Nutrition for Athletic Performance (3.0 cr)
or KIN 5235 - Advanced Biomechanics II: Kinetics (3.0 cr)
or KIN 5371 - Sport and Society (3.0 cr)
or KIN 5375 - Competitive Sport for Children and Youth (3.0 cr)
or KIN 5385 - Exercise for Healthy Aging & Disease Prevention and Management (3.0 cr)
or KIN 5435 - Advanced Theory and Techniques of Exercise Science (3.0 cr)
or KIN 5485 - Advanced Electrocardiogram Interpretation (3.0 cr)
or KIN 5505 - Human-Centered Design - Principles and Applications (3.0 cr)
or KIN 5511 - Sport and Gender (3.0 cr)
or KIN 5585 - Pediatric Physiology and Health: Concepts and Applications (2.0 cr)
or KIN 5641 - Scientific Theory and Application of Training and Conditioning in Sport (3.0 cr)
or KIN 5720 - Special Topics in Kinesiology (2.0 - 4.0 cr)
or KIN 5723 - Psychology of Sport Injury (3.0 cr)
or KIN 5725 - Organization and Management of Physical Education and Sport (3.0 cr)
or KIN 5801 - Legal Aspects of Sport and Recreation (4.0 cr)
or KIN 5941 - Clinical Movement Neuroscience (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• KIN 3126W - Sport and Exercise Psychology [WI] (3.0 cr)
• KIN 3131W - History and Philosophy of Sport [WI] (3.0 cr)
The 17-credit Leadership Minor program is interdisciplinary, multidimensional, experiential, and global. Students will explore and experience multiple frameworks of leadership. The program prepares students for real-life leadership experiences, both on campus and in the larger global community by combining social change theories of leadership with authentic community leadership. This minor is a collaborative effort of the College of Education and Human Development's department of Organizational Leadership, Policy, and Development, the Hubert H. Humphrey School of Public Affairs, and the Office for Student Affairs.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students officially declare the Leadership Minor in the first weeks of their field experience course (the third core course of the minor) after completing the first two courses of the program with a grade of C- or better.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements

Personal Leadership in the University
- PA 1961W - Personal Leadership in the University [WI] (3.0 cr)
- or OLPD 1301W - Personal Leadership in the University [WI] (3.0 cr)
- or OLPD 1302 - Personal Leadership in the University (3.0 cr)
- or CFAN 1101 - Dean's Engaged Leaders Seminar (3.0 cr)

Leadership, You and Your Community
- PA 3961 - Leadership, You, and Your Community (3.0 cr)
- or OLPD 3302 - Leadership, You, and Your Community (3.0 cr)

Field Experience
- PA 3971 - Leadership Minor: Field Experience (3.0 cr)
- or OLPD 3306 - Leadership Minor: Field Experience (3.0 cr)

Leadership for Global Citizenship
- PA 4961W - Leadership for Global Citizenship [WI] (3.0 cr)
- or OLPD 4303W - Leadership for Global Citizenship [WI] (3.0 cr)

Leadership Electives
In consultation with the leadership minor office, take at least 5 additional credits to complete the 17-credit requirement. The following approved elective options form one list composed of courses from colleges across Twin Cities campus.

Take 1 or more course(s) totaling 5 or more credit(s) from the following:
- ABUS 4012 - Strategic Decision Making and Problem Solving (3.0 cr)
- ABUS 4022 - Management in Organizations (3.0 cr)
- ABUS 4023W - Communicating for Results [WI] (3.0 cr)
- ABUS 4031 - Strategic Use of Business Information Systems (3.0 cr)
- ABUS 4041 - Dynamics of Leadership (3.0 cr)
- ABUS 4043 - Project Management in Practice (3.0 cr)
- AFEE 2221 - People Skills for Leadership (3.0 cr)
- AFEE 4221 - Rural Leadership Development (3.0 cr)
- AFRO 3072 - Racism: Social and Psychological Consequences for Black Americans (3.0 cr)
- AFRO 3131 - Contemporary Issues in Africa (3.0 cr)
- AFRO 3543 - Psychology and the Black American Experience (3.0 cr)
• AFRO 4105 - Ways of Knowing in Africa and the African Diaspora (3.0 cr)
• AMST 3114 - America in International Perspective [DSJ] (3.0 cr)
• AMST 4101 - Gender, Sexuality, and Politics in America [HIS, DSJ] (3.0 cr)
• ANTH 1005W - Introduction to Cultural Diversity and the World System [SOCS, GP, WI] (4.0 cr)
• ANTH 3002 - Sex, Evolution, and Behavior: Examining Human Evolutionary Biology (4.0 cr)
• ANTH 3015W - Biology, Evolution, and cultural Development of Language [SOCS, WI] (3.0 cr)
• ANTH 3041 - Ecological Anthropology (3.0 cr)
• ANTH 3242W - Hero, Savage, or Equal?: Representations of NonWestern Peoples in the Movies [WI] (3.0 cr)
• ANTH 4009W - Warfare and Human Evolution [WI] (3.0 cr)
• ANTH 4071 - Race, Culture, and Vision (3.0 cr)
• ASL 3705 - Cultural Perspectives of Deafness (3.0 cr)
• BA 3000 - Career Skills (1.0 cr)
• BA 3100 - Global Seminar (3.0 cr)
• BA 4503 - Carlson Ventures Enterprise (2.0 cr)
• CHIC 4275 - Theory in Action: Community Engagement in a Social Justice Framework [CIV] (3.0 cr)
• CI 1911 - Ethics, Wealth, and Education in a Democracy (3.0 cr)
• CI 2311W - Introduction to Technology and Ethics in Society [CIV, WI] (3.0 cr)
• CI 4311W - Technology and Ethics in Society [CIV, WI] (3.0 cr)
• CLA 2005 - Introduction to Liberal Education and Responsible Citizenship (3.0 cr)
• COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
• COMM 1313W - Analysis of Argument [WI] (3.0 cr)
• COMM 3401 - Introduction to Communication Theory (3.0 cr)
• COMM 3409 - Nonverbal Communication [SOCS] (3.0 cr)
• COMM 3411 - Introduction to Small Group Communication (3.0 cr)
• COMM 3422 - Interviewing and Communication (3.0 cr)
• COMM 3441 - Introduction to Organizational Communication (3.0 cr)
• COMM 3451W - Intercultural Communication: Theory and Practice [WI] (3.0 cr)
• COMM 3452W - Communication and the Intercultural Reentry [WI] (3.0 cr)
• COMM 3605W - Persuasive Speaking and Speech Writing [WI] (3.0 cr)
• COMM 3615 - Argumentation (3.0 cr)
• COMM 3625 - Communication Ethics (3.0 cr)
• COMM 3631 - Freedom of Speech [CIV] (3.0 cr)
• COMM 3645W - How Pictures Persuade [WI] (3.0 cr)
• COMM 4235 - Electronic Media and Ethnic Minorities--A World View (3.0 cr)
• COMM 4263 - Feminist Media Studies [DSJ] (3.0 cr)
• COMM 4291 - New Telecommunication Media (3.0 cr)
• COMM 4404W - Language Borderlands [WI] (3.0 cr)
• COMM 4407 - Communication and Conflict (3.0 cr)
• COMM 5411 - Small Group Communication Research (3.0 cr)
• CPSY 4996 - Field Study in Child Psychology (1.0 - 4.0 cr)
• CSCI 3921W - Social, Legal, and Ethical Issues in Computing [CIV, WI] (3.0 cr)
• CSCL 3979 - Issues in Cultural Pluralism [DSJ] (3.0 cr)
• CSPH 3201 - Introduction to Mindfulness-Based Stress Reduction (2.0 cr)
• DES 1111 - Creative Problem Solving (3.0 cr)
• DES 1111H - Honors: Creative Problem Solving (3.0 cr)
• DES 4165 - Design and Globalization [DSJ] (3.0 cr)
• EDHD 5005 - School and Society (2.0 cr)
• OLPD 3310 - Special Topics for Undergraduates (1.0 - 3.0 cr)
• OLPD 3336 - Religion, Ethics, and Educational Policy [CIV] (3.0 cr)
• OLPD 3330 - Global Identity: Connecting Your International Experience to Your Future (1.0 cr)
• OLPD 3318 - Introduction to Project Management (3.0 cr)
• OLPD 3304 - Strategic Leadership for Future Societies (3.0 cr)
• OLPD 3305 - Learning About Leadership Through Film and Literature (3.0 cr)
• OLPD 4318 - Advanced Project Management (3.0 cr)
• OLPD 5048 - Cross-Cultural Perspectives on Leadership (3.0 cr)
• OLPD 5080 - Special Topics: Organizational Leadership, Policy, & Development (1.0 - 3.0 cr)
• OLPD 5095 - Problems: Organizational Leadership, Policy, and Development (1.0 - 3.0 cr)
• OLPD 5323 - Women in Leadership (3.0 cr)
• EEB 4329 - Primate Ecology and Social Behavior (3.0 cr)
• ENGL 3505 - Community Learning Internships I (3.0 cr)
• ENGL 3506 - Learning Internships II (4.0 cr)
• ENGL 3741 - Literacy and American Cultural Diversity [DSJ] (4.0 cr)
• EPSY 3101 - Creativity and Intelligence: an Introduction (3.0 cr)
• EPSY 3132 - Psychology of Multiculturalism in Education [DSJ] (3.0 cr)
• EPSY 3133 - Practicum: Service Learning, Psychology of Multiculturalism in Education (1.0 - 3.0 cr)
• EPSY 3302 - Introduction to Communication Skills for Educational and Community Settings (3.0 cr)
• EPSY 3303 - Educational Psychology Undergraduate Research Practicum (3.0 cr)
• EPSY 5135 - Human Relations Workshop (4.0 cr)
• ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
• ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
• FSON 3615 - Sociocultural Aspects of Food, Nutrition, and Health [GP] (3.0 cr)
• PSOS 2101 - Preparation for Working With Families (2.0 cr)
• GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
• GEOG 3381W - Population in an Interacting World [SOCS, GP, WI] (4.0 cr)
• GLOS 1015W - Globalization: Issues and Challenges [GP, WI] (4.0 cr)
• GLOS 3143 - Living in the Global (3.0 cr)
• GLOS 3144 - Knowledge, Power, and the Politics of Representation in Global Studies (4.0 cr)
• GLOS 3144H - Honors: Knowledge, Power, and the Politics of Representation in Global Studies (4.0 cr)
• GLOS 3402 - Human Rights Internship (3.0 cr)
• GLOS 3602 - Other Worlds: Globalization and Culture (3.0 cr)
• GLOS 3605 - From Printing Press to Internet: Media, Communications, and History (3.0 cr)
• GLOS 3643 - Islam and the West (3.0 cr)
• GWSS 3003 - Gender and Global Politics [SOCS, GP] (3.0 cr)
• GWSS 3003H - Honors: Gender and Global Politics (3.0 - 4.0 cr)
• GWSS 3351 - Women and Diasporas in Modern History (3.0 cr)
• GWSS 3404 - Transnational Sexualities [GP] (3.0 cr)
• GWSS 3406 - Gender, Labor, and Politics [SOCS, GP] (3.0 cr)
• GWSS 3590 - Topics: Social Change, Activism, Law, and Policy Studies (3.0 cr)
• OLPD 3640 - Introduction to Organization Development (3.0 cr)
• OLPD 4602 - Managing Work Teams (3.0 cr)
• OLPD 4606 - Introduction to International Human Resource Development (3.0 cr)
• OLPD 5607 - Organization Development (3.0 cr)
• HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
• HRIR 3032 - Training and Development (2.0 cr)
• HRIR 3041 - The Individual in the Organization (2.0 cr)
• HRIR 3042 - The Individual and Organizational Performance (2.0 cr)
• HRIR 4100W - HRIR Capstone: Personal and Organizational Leadership [WI] (4.0 cr)
• HSCI 3242 - The Darwinian Revolution [HIS] (3.0 cr)
• HSCI 3331 - Technology and American Culture [HIS, TS] (3.0 cr)
• HSCI 3333W - Issues in American Science and Technology in the Past Century [HIS, CIV, WI] (3.0 cr)
• HSCI 3401 - Ethics in Science and Technology [HIS, CIV] (3.0 cr)
• HSCI 4321 - History of Computing [TS, HIS] (3.0 cr)
• HSCI 4455 - Women, Gender, and Science [HIS, DSJ] (3.0 cr)
• HSG 1461 - Introduction to Housing (3.0 cr)
• HSG 2463 - Housing and Community Development (3.0 cr)
• IBUS 3003 - Information Systems for Business Processes and Management: An International Perspective (4.0 cr)
• IBUS 3010 - Introduction to Global Entrepreneurship in China (4.0 cr)
• IBUS 3021 - Human Resources Management in Australia (4.0 cr)
• IBUS 4050 - Management of Innovation and Change (4.0 cr)
• ID 3201 - Career Planning (2.0 cr)
• ID 3208 - Internship Reflection: Making Meaning of Your Experience (1.0 cr)
• ID 3571 - HECUA: Inequality in America - Contested Theories of Poverty, Inequality, and Social Change [SOCS] (4.0 cr)
• ID 3572 - HECUA: Inequality in America - Social Policy and Anti-Poverty Strategies in Theory and Practice [DSJ] (4.0 cr)
• ID 3573 - HECUA: Inequality in America Internship Seminar [CIV] (8.0 cr)
• IS 4001 - Information Systems Capstone Course: A Live Case (2.0 cr)
• INET 3065 - Computer Security for the Business Professional (3.0 cr)
• INET 4082 - IT Infrastructure Projects and Processes (2.0 cr)
• INET 4153 - Policy and Regulation: Effects on Global IT Infrastructure (3.0 cr)
• INET 4165 - Information Security: Technology, Ethics, Legality, and Standards (3.0 cr)
• IS 4151 - Innovation for Leaders and Organizations (3.0 cr)
• IS 5001 - Introduction to Innovation Studies (1.0 - 4.0 cr)
• IS 5002 - Final Project for Innovation Studies (1.0 - 4.0 cr)
• JOUR 3005 - Mass Media Effects [SOCS] (3.0 cr)
• JOUR 3251 - Evaluative Research in Strategic Communication (3.0 cr)
• JOUR 3551 - Economics of New Media [TS] (3.0 cr)
• JOUR 3552 - Internet and Global Society [GP] (3.0 cr)
• JOUR 3741 - Diversity and Mass Communication [DSJ] (3.0 cr)
• JOUR 3745 - Mass Media and Popular Culture [AH, DSJ] (3.0 cr)
• JOUR 3771 - Mass Media Ethics: Moral Reasoning and Case Studies [CIV] (3.0 cr)
• JOUR 3796 - Mass Media and Politics (3.0 cr)
• JOUR 4259 - Strategic Communication Case Analysis (3.0 cr)
• JOUR 4272 - Interactive Advertising (3.0 cr)
• JOUR 4302 - Electronic Photojournalism (3.0 cr)
• JOUR 4551 - New Media and Culture [AH, TS] (3.0 cr)
• JOUR 4721 - Mass Media and U.S. Society [SOOS, DSJ] (3.0 cr)
• JOUR 4801 - Global Communication (3.0 cr)
• JWST 3113 - [Inactive] (3.0 cr)
• JWST 3520 - History of the Holocaust (3.0 cr)
• JWST 3521W - History of the Holocaust [WI] (3.0 cr)
• JWST 3522 - History of the Arab-Israeli Conflict (3.0 cr)
• LAS 3441 - Chicana/o History to 1900 (3.0 cr)
• LS 5100 - Liberal Studies Seminar (1.0 - 4.0 cr)
• MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)
• MGMT 3040 - Understanding the International Environment of Firms: International Business (2.0 cr)
• MGMT 4000 - Issues in Nonprofit Management (4.0 cr)
• MGMT 4002 - Managerial Psychology (4.0 cr)
• MGMT 4004W - Business Policy: Strategy Formulation and Implementation [WI] (3.0 cr)
• MGMT 4008 - Entrepreneurial Management (4.0 cr)
• MGMT 4080W - Applied Technology Entrepreneurship [WI] (4.0 cr)
• MGMT 4171W - Entrepreneurship in Action I [WI] (4.0 cr)
• MGMT 4172 - Entrepreneurship in Action II (4.0 cr)
• MIL 3301 - Adaptive Tactical Leadership (3.0 cr)
• MIL 3302 - Applied Team Leadership (3.0 cr)
• MIL 3303 - MS III One Credit Lead Lab (1.0 cr)
• MIL 3304 - MS III One Credit Lead Lab (1.0 cr)
• MIL 3401 - Developing Adaptive Leaders (3.0 cr)
• MIL 3402 - Leadership in a Complex World (3.0 cr)
• MIL 3403 - MS IV One Credit Lead Lab (1.0 cr)
• MIL 3404 - MS IV One Credit Lead Lab (1.0 cr)
• MKTG 3001 - Principles of Marketing (3.0 cr)
• MKTG 4050 - Integrated Marketing Communications (4.0 cr)
• MKTG 4080W - Marketing Strategy [WI] (4.0 cr)
• MOT 4001 - Leadership, Professionalism and Business Basics for Engineers (2.0 cr)
• NAV 4401W - Leadership and Management I [WI] (3.0 cr)
• NAV 4402W - Leadership and Ethics [CIV, WI] (3.0 cr)
• NSCI 3102W - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
• NSCI 4167 - Neuroscience in the Community (1.0 - 3.0 cr)
• NURS 3806 - Nurse as Professional (2.0 cr)
• NURS 4104 - Ethical Sensitivity and Reasoning in Health Care (2.0 cr)
• NURS 4106 - Nurse as Collaborator (1.0 cr)
• NURS 4305 - Practicum: Community-based Care of Families Across Life Span (3.0 cr)
• NURS 4324 - Transcultural Nursing and Global Health [GP] (3.0 cr)
• NURS 4402 - Taking Ethical Action in Health Care [CIV] (1.0 cr)
• NURS 4706 - Transition to Practice (1.0 cr)
• NURS 4707 - Nursing Leadership: Professional Practice in Complex Systems (2.0 cr)
• PA 1401 - Public Affairs: Community Organizing Skills for Public Action [CIV] (3.0 cr)
• PA 3990 - General Topics in Public Policy (1.0 - 3.0 cr)
• PA 3991 - Independent Study (1.0 - 3.0 cr)
• PA 4101 - Nonprofit Management and Governance (3.0 cr)
• PA 4190 - Topics in Public and Nonprofit Leadership and Management (1.0 - 3.0 cr)
• PA 5001 - Intellectual Foundations of Public Action (1.5 cr)
• PA 5490 - Topics in Social Policy (1.0 - 4.0 cr)
• PA 5920 - Skills Workshop (0.5 - 4.0 cr)
• PA 5941 - Leadership for the Common Good (3.0 cr)
• PHIL 1003W - Introduction to Ethics [CIV, WI] (4.0 cr)
• PHIL 1006W - Philosophy and Cultural Diversity [AH, DSJ, WI] (4.0 cr)
• PHIL 3234 - Knowledge and Society (4.0 cr)
• PHIL 3302W - Moral Problems of Contemporary Society [CIV, WI] (4.0 cr)
• PHIL 3307 - Social Justice and Community Service [AH, CIV] (4.0 cr)
• PHIL 4325 - Education and Social Change [AH, CIV] (4.0 cr)
• PHIL 4526 - Lives Worth Living: Questions of Self, Vocation, and Community [CIV, AH] (4.0 cr)
• POL 1234 - Citizen U: Building Tomorrow's Citizens Today (3.0 cr)
• POL 3235W - Democracy and Citizenship [CIV, WI] (3.0 cr)
• POL 3306 - Presidential Leadership and American Democracy (3.0 cr)
• POL 3739 - Politics of Race, Class, and Ethnicity (3.0 cr)
• POL 3766 - Political Psychology of Mass Behavior [SOCS] (3.0 cr)
• POL 3767 - Political Psychology of Elite Behavior [CIV] (3.0 cr)
• POL 3835 - International Relations [SOCS, GP] (3.0 cr)
• POL 3873V - Global Citizenship and International Ethics [CIV, WI] (3.0 cr)
• POL 4331 - Thinking Strategically in Domestic Politics (3.0 - 4.0 cr)
• POL 4463 - The Cuban Revolution Through the Words of Cuban Revolutionaries [GP] (3.0 cr)
• POL 4487 - The Struggle for Democratization and Citizenship (4.0 cr)
• POL 3489W - Citizens, Consumers, and Corporations [CIV, WI] (3.0 cr)
• POL 4771 - Racial Attitudes and Intergroup Conflict (3.0 cr)
• POL 4773W - Interest Groups, Social Movements and Politics of Race, Class, and Gender [DSJ, WI] (3.0 cr)
• POL 4885W - International Conflict and Security [GP, WI] (4.0 cr)
• POL 4887 - Thinking Strategically in International Politics [MATH] (3.0 cr)
• PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
• PSTL 3214 - Community Action (4.0 cr)
• PSTL 4216 - Solving Complex Problems: Community-based Approaches (4.0 cr)
• PSTL 4217 - Inquiry and Assessment for Citizen Scholars (4.0 cr)
• PSY 3061 - Introduction to Biological Psychology (3.0 cr)
• PSY 3201 - Introduction to Social Psychology (3.0 cr)
• PSY 3633 - Happiness: Integrating Research Across Psychological Sciences (3.0 cr)
• PSY 3711 - Psychology in the Workplace (3.0 cr)
• PSY 3960 - Undergraduate Seminar in Psychology (1.0 - 5.0 cr)
• PUBH 3050 - Practicum in Peer Education I (2.0 cr)
• PUBH 3052 - Practicum in Peer Education II (2.0 cr)
• PUBH 3093 - Directed Study: Public Health (1.0 - 4.0 cr)
• REC 2151 - Outdoor and Camp Leadership (3.0 cr)
• RELS 3111 - Too Jewish? The Complex Construction of the Jewish American Psyche in Literature, Art, and Film (3.0 cr)
• RELS 3373 - Religion and Society in Imperial China (3.0 cr)
• RELS 3623 - Religion and the U.S. Founding: Contests Then and Now Over the Place of Religion in Politics [HIS] (3.0 cr)
• RELS 3715 - History of the Crusades (3.0 cr)
• RELS 3801 - Philosophy of Religion (3.0 cr)
• RELS 4049 - Religion and Culture (3.0 cr)
• SMGT 3501 - Sport in a Diverse Society [SOCS, DSJ] (3.0 cr)
• SMGT 3601 - Ethics and Values in Sport (2.0 cr)
• SOC 3201 - Inequality: Introduction to Stratification (3.0 cr)
• SOC 3211W - American Race Relations [DSJ, WI] (3.0 cr)
• SOC 3301W - Politics and Society [WI] (3.0 cr)
• SOC 3411W - Organizations and Society [WI] (3.0 cr)
• SOC 3451W - Cities & Social Change [WI] (3.0 cr)
• SOC 4090 - Topics in Sociology (3.0 cr)
• SOC 4305 - Environment & Society: An Enduring Conflict [ENV] (3.0 cr)
• SOC 4309 - Religion in American Public Life: Culture, Politics, & Communities [CIV] (3.0 cr)
• SOC 4461 - Sociology of Ethnic and Racial Conflict [DSJ] (3.0 cr)
• SOC 4703 - Contemporary American Culture [CIV] (3.0 cr)
• SPAN 3401 - Latino Immigration and Community Service [CIV] (3.0 cr)
• SW 3301 - GLBT Social Movements (3.0 cr)
• SW 3303 - Theories and Practices of Social Change Organizing (4.0 cr)
• SW 3703 - Gender Violence in Global Perspective (3.0 cr)
• SW 3810 - Special Topics (1.0 - 4.0 cr)
• URBs 3001W - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)
• URBs 3301W - American Cities As Settings for Cultural Diversity [WI] (3.0 cr)
• URBs 3500 - Urban Studies Workshop (3.0 cr)
• OLpd 3820 - Principles of Supervisory Management (3.0 cr)
• OLPD 3801 - Foundations of Philosophy and Practice of Career and Technical Education (2.0 cr)
• OLPD 3828 - Diversity in the Workplace (3.0 cr)
• WRIT 3152W - Writing on Issues of Science and Technology [WI] (4.0 cr)
• WRIT 3244W - Critical Literacies: How Words Change the World [AH, DSJ, WI] (3.0 cr)
• WRIT 3361 - Literature of Social Movements in the United States: 1950 to Present [LITR, CIV] (3.0 cr)
• WRIT 3371W - Technology, Self, and Society [WI] (3.0 cr)
• WRIT 3577W - Rhetoric, Technology, and the Internet [TS, WI] (3.0 cr)
• WRIT 3671 - Visual Rhetoric and Document Design (3.0 cr)
• WRIT 3751W - Seminar: Theory and Practice of Writing Consultancy [WI] (4.0 cr)
• WRIT 4501 - Usability and Human Factors in Technical Communication (3.0 cr)
• WRIT 4562 - International Professional Communication (3.0 cr)
• WRIT 4573W - Writing Proposals and Grant Management [WI] (3.0 cr)
• WRIT 4662W - Writing With Digital Technologies [WI] (4.0 cr)
• YOST 3101 - Youthwork: Orientations and Approaches (4.0 cr)
• YOST 3235 - Community Building, Civic Engagement, and Civic Youthwork (4.0 cr)
• YOST 4316 - Media and Youth: Learning, Teaching, and Doing (2.0 cr)
• YOST 4325 - Improving Everyday Youthwork: Practical Program Evaluation (3.0 cr)
• CSCL 3173W - The Rhetoric of Everyday Life [CIV, WI] (3.0 cr)
• PA 4971 - Directed Study, Leadership Minor (1.0 - 4.0 cr)
• CI 4312 - Sex, Drugs, and the Internet: Educational Perspectives [TS, WI] (3.0 cr)
• CE 5571 - Acala Global Venture Design: Grand Challenges [GP] (3.0 - 4.0 cr)
• FSOS 3104 - Global and Diverse Families [SOCS, GP] (3.0 cr)
• CHIC 3900 - Topics in Chicano Studies (3.0 cr)
• POL 3769 - Public Opinion and Voting Behavior [SOCS] (3.0 cr)
• PHAR 4200W - Drugs and the U.S. Health Care System [CIV, WI] (3.0 cr)
• PUBH 3001 - Personal and Community Health (2.0 cr)
• PHIL 4350 - Catching Lives Worth Living: Participation in the Growth of a Living-Learning Community (2.0 cr)
• SOC 3251W - Sociological Perspectives on Race, Class, and Gender [SOCS, DSJ, WI] (3.0 cr)
• OLPD 4301 - Global Youth Leadership and Community Engagement (6.0 cr)
• OLPD 5011 - Leading Organizational Change: Theory and Practice (3.0 cr)
• REC 4900 - Special Topics: Contemporary Issues in Leisure Services (1.0 - 12.0 cr)
• PSTL 1366 - Stories of Self and Community: Multicultural Perspectives [LITR, DSJ] (3.0 cr)
• CSPH 3211 - Living on Purpose: An Exploration of Self, Purpose, and Community (2.0 cr)
• GWSS 3307 - Feminist Film Studies [AH, DSJ] (3.0 cr)
Outdoor Recreation and Education Minor

The Outdoor Recreation and Education minor provides students with the opportunity to study a specific area of the Recreation and Leisure field. While students can take other coursework related to leadership, management, policy, programming, and tourism, no other University classes have a specific outdoor focus.

The priority of the Outdoor Recreation and Education minor would be to provide students with education and skills training necessary to be successful in this field. Students will concentrate on the following:

1) Specific leadership skills to work with groups and individuals from various socioeconomic backgrounds, with varying physical and cognitive abilities, from all age groups, races, and orientations, along with the understanding of leadership roles, methods and models;
2) The development, implementation, and evaluation of programs and services to meet the needs of these populations;
3) Policy and management related to our public land for both use by our citizens and also preservation for the enjoyment of future generations;
4) Understanding the use of our outdoor resources and the economic and environmental impact created;
5) Eco-tourism and sustainability;
6) Global impacts based on the use of outdoor spaces, pollution, climate changes and others.

Students in the minor will benefit from the many alumni and community partners that have a vested interest in the education and training of our future professionals. Specific individual projects and/or research will be conducted with related agencies that will provide not only real-world, relevant experience and skill development, but establish mentor relationships and premium opportunities for networking in the industry.

For more detailed information regarding this free standing minor, visit z.umn.edu/oris

Program Delivery

This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements

Student must complete 16 credits from the designated list for the ORE minor.

Required courses
Students are required to take 4 credits of REC 3993 - Directed Study.
- REC 2151 - Outdoor and Camp Leadership (3.0 cr)
- REC 3993 - Directed Study in Recreation, Park, and Leisure Studies (1.0 - 9.0 cr)
- REC 4311 - Programming Outdoor & Env Ed (3.0 cr)
- REC 4161 - Recreation Land Policy (3.0 cr)

Electives
Take 3 or more credits from the following:
• REC 3321 - Outdoor Recreation 3-Season Skills (3.0 cr)
• REC 3322 - Outdoor Recreation Winter Skills (3.0 cr)
• REC 4191 - Adventure Recreation, Tourism, and Eco-Tourism (3.0 cr)
• REC 4301 - Wilderness and Adventure Education (4.0 cr)
• REC 4900 - Special Topics: Contemporary Issues in Leisure Services (1.0 - 12.0 cr)
**Twin Cities Campus**

**Recreation, Park and Leisure Studies B.S.**

*Kinesiology, School of  
College of Education and Human Development*

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 71
- Degree: Bachelor of Science

The undergraduate program in recreation, park, and leisure studies prepares students to assume leadership, supervisory, or beginning administrative responsibilities and design and deliver leisure services to diverse populations in a variety of settings. In addition to the general education requirements, core professional courses give students a firm foundation in the recreation field. Students further define their career interests by selecting focus electives that allow them to combine recreation with other disciplines such as management, social work, youth studies, sports management, outdoor education and tourism.

The program features a 9-credit practicum experience, which allows students to integrate theory and practical applications in the field. Students select an agency that will provide an experiential learning opportunity in their specific area of interest.

Graduates may find employment in such locations as public park and recreation programs at the municipal, state, or national level, commercial recreation, outdoor education and natural resources, outdoor recreation and tourism.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

Students must complete 30 credits before admission to the program.

Students must complete at least 30 credits of the University's requirements and have earned a minimum overall GPA of 2.00, with preference given to applicants with a higher average.

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](#).

**General Requirements**

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the [liberal education requirements](#). Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

**Program Requirements**

Requirements include a minimum 2.00 GPA.

**Foundation Courses**

For additional college requirements, consult with an SPS program adviser.

**PE 1xxx**

Take 3 or more course(s) from the following:

- PE 1xxx

**Public Speaking**

- COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
- or COMM 1101H - Honors: Introduction to Public Speaking [CIV] (3.0 cr)
- or COMM 1313W - Analysis of Argument [WI] (3.0 cr)
- or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)

**Sociology**

- SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)
- or SOC 1011V - Honors: Introduction to Sociology [SOCS, DSJ, WI] (4.0 cr)
- or PSTL 1211 - Sociological Perspectives: A Multicultural America [SOCS, DSJ] (4.0 cr)

**Psychology**
PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
or PSY 1001H - Honors Introduction to Psychology [SOCS] (4.0 cr)
or PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)

**Personal and Community Health**
- PUBH 3004 - Basic Concepts in Personal and Community Health (4.0 cr)
or take the following course pair
  - PUBH 3001 - Personal and Community Health (2.0 cr)
  - PUBH 3003 - Fundamentals of Alcohol and Drug Abuse (2.0 cr)

**Required Core Courses**
- REC 1501 - Orientation to Leisure and Recreation (3.0 cr)
- REC 3281 - Research and Evaluation in Recreation, Park, and Leisure Studies (4.0 cr)
- REC 3541W - Recreation Programming [WI] (3.0 cr)
- REC 3551 - Administration and Finance of Leisure Services (4.0 cr)
- REC 3601W - Leisure and Human Development [WI] (3.0 cr)
- REC 3796 - Senior Internship in Recreation, Park, and Leisure Studies (9.0 cr)
- REC 4271 - Community Leisure Services for Persons with Disabilities (3.0 cr)
- REC 5801 - Legal Aspects of Sport and Recreation (4.0 cr)

**Upper-division Writing Intensive within the major**
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
- REC 3541W - Recreation Programming [WI] (3.0 cr)
- REC 3601W - Leisure and Human Development [WI] (3.0 cr)

**Electives (20 credits)**
Students must take 20 credits of elective coursework in consultation with their faculty adviser and are encouraged to select a focus in either Outdoor Recreation or Recreation Administration. The following are some possible electives in each focus area. This list is not exhaustive and students may consult with their faculty adviser for approval on courses not listed.

**Focus Electives**
Take exactly 1 sub-requirements(s) from the following:

**Outdoor Recreation**
Take 1 or more course(s) from the following:
- REC 2151 - Outdoor and Camp Leadership (3.0 cr)
- REC 3321 - Outdoor Recreation 3-Season Skills (3.0 cr)
- REC 3322 - Outdoor Recreation Winter Skills (3.0 cr)
- REC 3993 - Directed Study in Recreation, Park, and Leisure Studies (1.0 - 9.0 cr)
- REC 4161 - Recreation Land Policy (3.0 cr)
- REC 4301 - Wilderness and Adventure Education (4.0 cr)
- REC 4311 - Programming Outdoor & Env Ed (3.0 cr)
- CI 5537 - Principles of Environmental Education (3.0 cr)
- CI 5747 - Global and Environmental Education: Content and Practice (3.0 cr)
- YOST 2101 - Urban Youth and Youth Issues [DSJ] (4.0 cr)
- YOST 2241 - Experiential Learning (4.0 cr)
- YOST 3032 - Adolescent and Youth Development for Youthworkers (4.0 cr)
- YOST 3101 - Youthwork: Orientations and Approaches (4.0 cr)
- YOST 3234 - Youth Agencies, Organizations, and Youth Service Systems (3.0 cr)

**Recreation Administration**
Take 1 or more course(s) from the following:
- REC 5111 - Sports Facilities (3.0 cr)
- REC 5115 - Event Management in Sport (3.0 cr)
- REC 4191 - Adventure Recreation, Tourism, and Eco-Tourism (3.0 cr)
- REC 5461 - Foundations of Sport Management (3.0 cr)
- REC 5511 - Sport and Gender (3.0 cr)
- REC 5601 - Sport Management Ethics and Policy (3.0 cr)
- KIN 3001 - Lifetime Health and Wellness [SOCS] (3.0 cr)
- KIN 3143 - Organization and Administration of Sport (3.0 cr)
- KIN 5126 - Social Psychology of Sport & Physical Activity (3.0 cr)
- KIN 5375 - Competitive Sport for Children and Youth (3.0 cr)
- KIN 5725 - Organization and Management of Physical Education and Sport (3.0 cr)
- SMGT 3421 - Business of Sport (3.0 cr)
- SMGT 3631 - Sport Marketing (3.0 cr)
• SMGT 3632 - Sport Sales and Fund-raising (3.0 cr)
• CI 5301 - Foundations of Computer Applications for Business and Education (3.0 cr)
• CI 5304 - Data Management for Online Integration (3.0 cr)
• CI 5351 - Technology Tools for Educators (3.0 cr)
• OLPD 3601 - Introduction to Human Resource Development (3.0 cr)
• OLPD 3620 - Introduction to Training and Development (3.0 cr)
Twin Cities Campus
Social Justice Minor
School of Social Work
College of Education and Human Development

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 17 to 18

The social justice minor offers undergraduate students the opportunity to theorize about the meanings of social justice and practice "doing" social justice advocacy in community organizations. The minor is an interdisciplinary, cross-collegiate undergraduate program. Students create socially just communities and a respectful space for all opinions in the dialogue-based classrooms. Teaching faculty, students, and community groups become partners in creating and sharing in an authentic collective learning experience. The program is based on the belief in equity and fairness in every aspect of human experience and the importance of recognizing the struggles for liberation and the social movements of many peoples globally.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
The social justice minor requires three of the four core courses (11 to 12 credits), all of which include 30 hours of service learning in social justice organizations, and 6 credits of elective courses.

Core Courses
These courses include 30 hours of service learning in social justice organizations.

- SW 3501 - Theories and Practices of Social Change Organizing (4.0 cr)
- SW 4501 - Senior Seminar in Social Justice (4.0 cr)
- SW 2501W - Introduction to Social Justice [WI] (4.0 cr)
  or SW 1501 - Introduction to Peace Studies (3.0 cr)

Electives
Take 6 or more credit(s) from the following:

- AAS 1101 - Imagining Asian America [SOCS, DSJ] (3.0 cr)
- AAS 3301 - Asian America Through Arts and Culture [AH, DSJ] (3.0 cr)
- AFRO 3120 - Social and Intellectual Movements in the African Diaspora [HIS, GP] (3.0 cr)
- AFRO 3251W - Sociological Perspectives on Race, Class, and Gender [WI] (3.0 cr)
- AFRO 3426 - African Americans, Social Policy, and the Welfare State (3.0 cr)
- AFRO 3866 - The Civil Rights and Black Power Movement, 1954-1984 (3.0 cr)
- AMST 3001 - Contemporary Perspectives on Asian America [DSJ] (3.0 cr)
- CHIC 1112 - Introduction to Chicana/o Studies: Critical Paradigms [DSJ] (3.0 cr)
- CHIC 1275 - Service Learning in the Chicano/Latino Community [CIV] (3.0 cr)
- CHIC 3212 - Chicana Studies: La Chicana in Contemporary Society [AH, DSJ] (3.0 cr)
- CHIC 3275 - Service Learning in the Chicano/Latino Community [CIV] (3.0 cr)
- CHIC 3374 - Migrant Farmworkers in the United States: Families, Work, and Advocacy [CIV] (4.0 cr)
- CHIC 3446 - Chicana/o History II: WWII, El Movimiento, and the New Millennium [HIS, DSJ] (3.0 cr)
- CHIC 4275 - Theory in Action: Community Engagement in a Social Justice Framework [CIV] (3.0 cr)
- CI 2311W - Introduction to Technology and Ethics in Society [CIV, WI] (3.0 cr)
- EPSY 3132 - Psychology of Multiculturalism in Education [DSJ] (3.0 cr)
- EPSY 3133 - Practicum: Service Learning, Psychology of Multiculturalism in Education (1.0 - 4.0 cr)
- EPSY 3480 - Topics in Natural Resources (1.0 - 4.0 cr)
- ESPM 3480 - Topics in Natural Resources (1.0 - 4.0 cr)
- FSOS 3104 - Global and Diverse Families [SOCS, GP] (3.0 cr)
- GEOG 3379 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
- GLBT 3301 - Gay, Lesbian, Bisexual, and Transgender Social Movements in the United States (3.0 cr)
- GWSS 1002 - Politics of Sex [SOCS, DSJ] (3.0 - 4.0 cr)
- GWSS 3003 - Gender and Global Politics [SOCS, GP] (3.0 cr)
- GWSS 3350 - Topics: Social Change, Activism, Law, and Policy Studies (3.0 cr)
- HIST 3877 - Asian American History, 1850-Present [HIS, DSJ] (3.0 cr)
- OLDP 3304 - Strategic Leadership for Future Societies (3.0 cr)
• PHIL 1004W - Introduction to Political Philosophy [AH, CIV, WI] (4.0 cr)
• PHIL 1007 - Introduction to Political Philosophy Practicum (1.0 cr)
• PHIL 3301 - Environmental Ethics [ENV] (4.0 cr)
• PHIL 3302W - Moral Problems of Contemporary Society [CIV, WI] (4.0 cr)
• PHIL 3307 - Social Justice and Community Service [AH, CIV] (4.0 cr)
• PHIL 4231 - Philosophy of Language (3.0 cr)
• PHIL 4325 - Education and Social Change [AH, CIV] (4.0 cr)
• POL 4210 - Topics in Political Theory (3.0 cr)
• SOC 3003 - Social Problems (3.0 cr)
• SOC 3201 - Inequality: Introduction to Stratification (3.0 cr)
• SOC 3211W - American Race Relations [DSJ, WI] (3.0 cr)
• SOC 3251W - Sociological Perspectives on Race, Class, and Gender [SOCS, DSJ, WI] (3.0 cr)
• SOC 3322W - Social Movements, Protests, and Change [CIV, WI] (3.0 cr)
• SOC 4461 - Sociology of Ethnic and Racial Conflict [DSJ] (3.0 cr)
• SPAN 3401 - Latino Immigration and Community Service [CIV] (3.0 cr)
• SW 3301 - GLBT Social Movements (3.0 cr)
• SW 3703 - Gender Violence in Global Perspective (3.0 cr)
• TH 5117 - Performance and Social Change (3.0 cr)
• YOST 3101 - Youthwork: Orientations and Approaches (4.0 cr)
• AAS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
  or GWSS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
• AAS 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
  or AFRO 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
  or AMIN 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
  or CHIC 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
• ID 3561 - HECUA Off Campus Programs: Literature in Political, Social, and Historical Contexts [LITR] (4.0 cr)
  or ID 3563 - HECUA Off-Campus Study Program: WSC Internship Seminar [CIV] (8.0 cr)
  or ID 3571 - HECUA: Inequality in America - Contested Theories of Poverty, Inequality, and Social Change [SOCS] (4.0 cr)
  or ID 3572 - HECUA: Inequality in America - Social Policy and Anti-Poverty Strategies in Theory and Practice [DSJ] (4.0 cr)
  or ID 3573 - HECUA: Inequality in America Internship Seminar [CIV] (8.0 cr)
Twin Cities Campus
Special Education B.S.
Educational Psychology
College of Education and Human Development

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 57
- Student teaching and practicum experiences will be conducted at public school sites.
- Degree: Bachelor of Science

The Bachelor of Science degree program in Special Education (BS/SE) prepares students as generalists to serve children with frequently occurring (high incidence) disabilities. The program emphasizes the fundamentals of special education, effective intervention strategies, and the problem solving approach to instruction. Graduates of the BS/SE program receive a license as an Academic and Behavioral Strategist (ABS) to teach in the field of special education in grades kindergarten through age 21.

The (BS/SE) program prepares interested students to enter a licensure program in one or more specialized fields e.g. Early Childhood-Special Education, Learning Disabilities, Emotional/Behavioral Disorders, Developmental Disabilities, Deaf/Hard of Hearing, in conjunction with a M.A./M.Ed. degree in the 5th year of study.

The BS/SE undergraduate program maintains the integrity of a research-based degree program recognized nationally. The program is specifically designed for developing teachers as researchers by focusing on the latest developments in educational research and supporting the need to make informed, data-based instructional decisions to ensure that children with special needs reach their full potential.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 30 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.75 already admitted to the degree-granting college
- 2.75 transferring from another University of Minnesota college
- 2.75 transferring from outside the University

To be eligible to apply to the major, students must have:

* At least 30 credits completed or in progress

* Completed EPSY 2601 and EPSY 3701

Students transferring into the University of Minnesota must have completed the equivalent of first-year composition (WRIT 1301) and college algebra or higher (PSTL 1006, Math 1031, or higher).

Once admitted to the major, transfer students will be expected to complete EPSY 2601 and EPSY 3701 in their first semester.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Admission Requirements
To meet the admission requirements, students must have a 2.75 cumulative GPA, at least 30 credits completed or in progress and the following courses completed. (EPSY 2601 and EPSY 3701 must be completed with a grade of C- or higher.)

EPSY 2601 - Understanding Differences, Disabilities and the Career of Special Education (4.0 cr)
EPSY 3701 - Practicum: Field Experience in Special Education (2.0 cr)

Required Courses
The following courses must be complete or in progress.
WRIT 1301 - University Writing (4.0 cr)
or WRIT 1401 - Writing and Academic Inquiry (4.0 cr)
PSTL 1006 - College Algebra through Modeling [MATH] (3.0 cr)
or MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
or MATH 1051 - Precalculus I [MATH] (3.0 cr)
or MATH 1151 - Precalculus II [MATH] (3.0 cr)
or MATH 1142 - Short Calculus [MATH] (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Foundation Courses
All students are required to the following courses:
CPSY 2301 - Introductory Child Psychology (4.0 cr)
EPSY 3132 - Psychology of Multiculturalism in Education [DSJ] (3.0 cr)
PUBH 3005 - Fundamentals of Alcohol and Drug Abuse for Teacher Education (1.0 cr)
EDHD 5009 - Human Relations: Applied Skills for School and Society (1.0 cr)
EDHD 5007 - Technology for Teaching and Learning (1.5 cr)

Core Requirements
Open electives: Students can be advised to take additional coursework to suit their needs/interests. For example, students can study a second language, obtain coaching certification, take part in global experiences, begin work on a second license area (i.e. Elementary Education), or seek a minor course of study including (but not limited to) an EPsy minor.
EPSY 5613 - Foundations of Special Education I (3.0 cr)
EPSY 5616 - Classroom Management and Behavior Analytic Problem Solving (3.0 cr)
EPSY 5631 - Module 1: Introduction to Augmentative and Alternative Communication (1.0 cr)
EPSY 5611W - Research-based Practices in Academic and Behavior Disabilities [WI] (3.0 cr)
EPSY 3119 - Learning, Cognition, and Assessment (3.0 cr)
EPSY 5617 - Academic and Social Interventions for Students with Mild to Moderate Disabilities (3.0 cr)
EPSY 5614 - Assessment and Due Process in Special Education (4.0 cr)
EPSY 5617 - Academic and Social Interventions for Students with Mild to Moderate Disabilities (3.0 cr)
EPSY 5604 - Transition From School to Work and Community Living for Persons With Special Needs (3.0 cr)
EPSY 5605 - Collaborative Practices for the Special Educator (3.0 cr)
EPSY 5704 - Practicum in Middle/Secondary Settings (1.0 cr)
EPSY 5741 - Student Teaching: Academic and Behavioral Strategist (6.0 cr)
EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• EPSY 5611W - Research-based Practices in Academic and Behavior Disabilities [WI] (3.0 cr)
Twin Cities Campus
Sport Management B.S.
Kinesiology, School of
College of Education and Human Development

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 75
- Degree: Bachelor of Science

The sport management major focuses on contemporary sport as a product of social, psychological, and economic phenomena. Because of its prominent role in our culture, economy, and societal behavior, sport is a popular subject for academic inquiry. Graduates may find employment in sport marketing and management, coaching, sport administration, and sport or other fitness-related occupations. The program also prepares students for graduate study in sport management.

Coursework in sport management addresses such topics as ethics and sport, psychology of sport performance, sport as a sociocultural phenomenon, sport management, sport marketing and promotion, and event management.

Features of the program include an 8-credit experiential course, a senior seminar, and a set of focused electives.

Program requirements for the majors at the College of Education and Human Development fulfill a number of the University's required Liberal Education cores and themes. Students have multiple options for fulfilling remaining LE requirements.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 60 credits before admission to the program.

Admission preference is given to students who have completed liberal education requirements and have an overall GPA of 2.00 before the admission deadline. Because of a large number of applicants, a 2.75 GPA is recommended.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Admission Requirements
KIN 1871 - Survey of Kinesiology, Recreation, and Sport (3.0 cr)
SMGT 1701 - Introduction to Sport Management (2.0 cr)
PSTL 1571 - Computer Literacy and Problem Solving (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Foundation Courses
Take a minimum of 24 credits from this group, including 6 credits of education and human development electives (excluding courses with KIN, REC, or SMGT designators). With the guidance of a Student Services adviser, choose from courses listed at http://www.education.umn.edu/catalogs/course-desc/.

PE 1xxx
- Take 3 or more course(s) from the following:
- PE 1xxx
Public Speaking
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
or COMM 1313W - Analysis of Argument [WI] (3.0 cr)
or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)

Sociology
PSTL 1211 - Sociological Perspectives: A Multicultural America [SOCS, DSJ] (4.0 cr)
or SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)

Psychology
PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
or PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)

Public Health
PUBH 3004 - Basic Concepts in Personal and Community Health (4.0 cr)
or take the following course pair
PUBH 3001 - Personal and Community Health (2.0 cr)
PUBH 3003 - Fundamentals of Alcohol and Drug Abuse (2.0 cr)

Required Core Courses
Students must complete 8 credits of SMGT 3996.
SMGT 3111 - Sports Facility and Event Management (3.0 cr)
SMGT 3143 - Organization and Management of Sport (3.0 cr)
SMGT 3421 - Business of Sport (3.0 cr)
SMGT 3501 - Sport in a Diverse Society [SOCS, DSJ] (3.0 cr)
SMGT 3601 - Ethics and Values in Sport (2.0 cr)
SMGT 3631 - Sport Marketing (3.0 cr)
SMGT 3861 - Legal Aspects of Sport (3.0 cr)
SMGT 3881W - Senior Seminar in Sport Management [WI] (3.0 cr)
SMGT 3996 - Practicum: The Sport Experience (2.0 - 8.0 cr)

Focus Electives (20 credits)
Students must take an additional 20 credits of elective coursework in consultation with the sport management adviser, are strongly encouraged to take SMGT 3632, and are encouraged to select a related minor area of focus or study. Students are required to complete the focus elective proposal form and meet with their sport management adviser prior to registering for and completing classes. These courses must be upper division (3000 level or higher) unless approved by your sport management adviser.
Take 20 or more credit(s) from the following:
• SMGT 3632 - Sport Sales and Fund-raising (3.0 cr)
• SMGT 3993 - Directed Study in Sport Management (1.0 - 3.0 cr)
• KIN 3001 - Lifetime Health and Wellness [SOCS] (3.0 cr)
• KIN 3126W - Sport and Exercise Psychology [WI] (3.0 cr)
• KIN 3131W - History and Philosophy of Sport [WI] (3.0 cr)
• KIN 5804 - National Collegiate Athletic Association (NCAA) Compliance (2.0 cr)
• REC 3541W - Recreation Programming [WI] (3.0 cr)
• REC 3601W - Leisure and Human Development [WI] (3.0 cr)
• REC 4271 - Community Leisure Services for Persons with Disabilities (3.0 cr)
• ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
• BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
• CMGT 3001 - Introduction to Construction (3.0 cr)
• COMM 3201 - Introduction to Electronic Media Production (3.0 - 4.0 cr)
• ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
• ECON 1102 - Principles of Macroeconomics (4.0 cr)
• MGMT 3001 - Fundamentals of Management (3.0 cr)
• MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)
• MKTG 3001 - Principles of Marketing (3.0 cr)
• OLPD 1301W - Personal Leadership in the University [WI] (3.0 cr)
• OLPD 1302 - Personal Leadership in the University (3.0 cr)
• OLPD 3302 - Leadership, You, and Your Community (3.0 cr)
• OLPD 3305 - Learning About Leadership Through Film and Literature (3.0 cr)
• OLPD 3401 - Teaching Marketing Promotion (3.0 cr)
• OLPD 3424 - Sales Training (3.0 cr)
• OLPD 3601 - Introduction to Human Resource Development (3.0 cr)
• OLPD 3640 - Introduction to Organization Development (3.0 cr)
• OLPD 4401 - E-Marketing (3.0 cr)
• OLPD 4426 - Strategic Customer Relationship Management (3.0 cr)
• PSTL 3324W - Writing in the Workplace for Education and Human Development Majors [WI] (4.0 cr)
• PSTL 3325W - Project-Based Writing For Education and Human Development Majors [WI] (4.0 cr)
• YOST 3001 - Introduction to History & Philosophy of Youthwork (4.0 cr)
• YOST 3032 - Adolescent and Youth Development for Youthworkers (4.0 cr)
Upper-division Writing Intensive within the major

Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:

• SMGT 3881W - Senior Seminar in Sport Management [WI] (3.0 cr)
Twin Cities Campus
Sport Management Minor
Kinesiology, School of
College of Education and Human Development

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 17

The sport management minor provides students from different disciplines the opportunity to explore interest in the sport industry, while combining their passion for sport with sport management concepts and practices.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 1 courses before admission to the program.

Students must complete the application process. Please go to this website for more information:
http://www.cehd.umn.edu/kin/smgt/smgt-minor.asp.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Admission Requirement
Students are required to complete SMGT 1701 prior to entry into the minor.
SMGT 1701 - Introduction to Sport Management (2.0 cr)

Minor Requirements

Minor Coursework
Students completing the minor are required to take the courses listed below.
SMGT 3111 - Sports Facility and Event Management (3.0 cr)
SMGT 3143 - Organization and Management of Sport (3.0 cr)
SMGT 3421 - Business of Sport (3.0 cr)
SMGT 3631 - Sport Marketing (3.0 cr)

Minor Elective Coursework
Students must also elect to take one additional course (3 credits) from the SMGT designator courses or, if in consultation with the minor adviser, they are pre-approved to take one of the graduate level KIN designated courses related to sport management.

Additional electives will be available in consultation with the sport management minor program director.
SMGT 3632 - Sport Sales and Fund-raising (3.0 cr)
or SMGT 3861 - Legal Aspects of Sport (3.0 cr)
or SMGT 3993 - Directed Study in Sport Management (1.0 - 3.0 cr)
**Twin Cities Campus**

**Teaching English as a Second Language Certificate**

*Curriculum & Instruction*

**College of Education and Human Development**

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 15
- Degree: Teaching English as a Second Language Certificate

Four courses are required to complete the undergraduate certificate: Teaching English as a Second Language.

**Program Delivery**

This program is available:

- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](http://www.admissions.umn.edu).

**General Requirements**

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the [liberal education requirements](http://www.umn.edu). Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

**Program Requirements**

**Required Courses for Certificate**

- **LING 3001** - Introduction to Linguistics [SOCS] (4.0 cr)
- or **LING 5001** - Introduction to Linguistics (4.0 cr)

**Other Required Courses**

- **CI 3611W** - Basics in Teaching English as a Second Language [WI] (4.0 cr)
- **CI 3613** - Practical Language Learning for International Communication (3.0 cr)
- **CI 3612** - Introduction to Pronunciation and Grammar for ESL Teachers (4.0 cr)
Twin Cities Campus

Teaching English as a Second Language Minor

Curriculum & Instruction

College of Education and Human Development

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14 to 15

Four courses are required to complete the undergraduate minor: Teaching English as a Second Language.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Required Courses for Minor

LING 3001 - Introduction to Linguistics [SOCS] (4.0 cr)
  or LING 5001 - Introduction to Linguistics (4.0 cr)
  or CI 3610 - Linguistics for Teachers [SOCS] (3.0 cr)
CI 3611W - Basics in Teaching English as a Second Language [WI] (4.0 cr)
CI 3612 - Introduction to Pronunciation and Grammar for ESL Teachers (4.0 cr)
CI 3613 - Practical Language Learning for International Communication (3.0 cr)
Twin Cities Campus
University Honors Program
College of Biological Sciences, College of Continuing Education, College of Design, College of Education and Human Development, College of Food, Agricultural and Natural Resource Sciences, College of Liberal Arts, Curtis L. Carlson School of Management, School of Nursing, College of Science and Engineering

- Program Type: Other
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 14 to 44
- This program is 8 terms (4 years) long.

The University Honors Program (UHP) assists high-achieving students in making the most of their undergraduate education. Our students are driven to excel both inside and outside the classroom, but we challenge them to go one step further.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, as well as degree program requirements. For any course required in a degree program, UHP students are expected to register for the honors version of courses associated with their discipline, when offered. These courses are designed to meet degree and UHP requirements.

To remain in the honors program, students must maintain a grade point average of 3.5 and complete a set number of Honors Experiences per year (May and summer sessions included).

Freshman Year
Students build a solid foundation of knowledge to serve them throughout their undergraduate career. Most students complete first-year Honors Experiences primarily through honors courses. Courses can be found here: http://www.honors.umn.edu/experiences/courses-and-tutoring/index.php
- Two honors courses
- Two other Honors Experiences

Sophomore Year
Students continue to take advantage of the curriculum while expanding their education beyond the classroom. Through non-course Honors Experiences they begin to apply their knowledge in the laboratory, studio, or community. Examples of these experiences can be found here: http://www.honors.umn.edu/experiences/non-course-experiences/index.php
- Two honors courses
- Two other Honors Experiences

Junior Year
Students engage in research, scholarship, or creative activity with a faculty mentor—an important step toward the development of a project for the honors thesis--while deepening and broadening their knowledge and skill base. The honors thesis guide can be found here: http://www.honors.umn.edu/latin-honors/thesis-guide/index.php
- One honors course
Two other Honors Experiences
Two other Honors Experiences (courses or non-course experiences)

Senior Year
The honors education culminates in the writing of an honors thesis. Through this thesis, students demonstrate mastery of their field of study, along with the ability to think creatively and independently.

One honors course
One additional Honors Experience
The Honors Thesis
Twin Cities Campus
Youth Studies B.S.
School of Social Work
College of Education and Human Development

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 62 to 63
- N/A
- Degree: Bachelor of Science

Youth studies is an interdisciplinary program that prepares students for practice and scholarship. Faculty conduct community-based action research and evaluation on youth issues, programs, policies, and services. The major emphasizes civic engagement for young people marginalized in their communities.

Coursework focuses on everyday lives of young people, working with urban, marginalized, and other youth populations, and international/global perspectives and youth civic engagement.

Youth studies courses move students into the community through regular site visits, program observations, service-learning placements, international exchanges, and internships. Students are supported by culturally competent academic advising and one-on-one student-elder partnerships with faculty, staff, or community leaders. Qualified graduates may pursue graduate study in social work, education, or public policy.

Program requirements for the majors at the College of Education and Human Develop fulfill a number of the University's required Liberal Education cores and themes. Students have multiple options for fulfilling remaining LE requirements.

The courses listed below fulfill the remaining Youth Studies B.S. LE requirements and are designed explicitly to align with CEHD's mission by providing foundational skill development and preparation for advanced coursework in Youth Studies. Courses include: PsTL 1112, PsTL 1131, PsTL 1135, PsTL 1163, PsTL 1231, PsTL 1251, PsTL 1251, PsTL 1312, PsTL 1365W, PsTL 1366, PsTL 1367W, and PsTL 1368.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Preparatory Courses
YOST 1001 - Seeing Youth, Thinking Youth: Media, Popular Media, and Scholarship (3.0 cr)

Sociology Requirement
PSTL 1211 - Sociological Perspectives: A Multicultural America [SOCS, DSJ] (4.0 cr)
or SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)

Statistics Requirement
PSTL 1004 - Statistics: Understanding and Applying Data [MATH] (4.0 cr)
or STAT 1001 - Introduction to the Ideas of Statistics [MATH] (4.0 cr)
or EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)

Social Science Requirement
CPSY 2xxx
or POL 1xxx
or FSOS 1xxx

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Information current as of December 12, 2014
or GEOG 1301W - Our Globalizing World [SOCS, GP, WI] (3.0 cr)
or Psychology
PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
or PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
or Anthropology
ANTH 1003W - Understanding Cultures [SOCS, GP, WI] (4.0 cr)
or ANTH 1005W - Introduction to Cultural Diversity and the World System [SOCS, GP, WI] (4.0 cr)

College Communication Courses
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
PSTL 3324W - Writing in the Workplace for Education and Human Development Majors [WI] (4.0 cr)
or PSTL 3325W - Project-Based Writing For Education and Human Development Majors [WI] (4.0 cr)
or ENGL 3027W - The Essay [WI] (4.0 cr)
or WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Foundation Courses
YOST 2101 - Urban Youth and Youth Issues [DSJ] (4.0 cr)
YOST 2241 - Experiential Learning (4.0 cr)
YOST 3001 - Introduction to History & Philosophy of Youthwork (4.0 cr)
YOST 3032 - Adolescent and Youth Development for Youthworkers (4.0 cr)
YOST 3101 - Youthwork: Orientations and Approaches (4.0 cr)
YOST 4325 - Improving Everyday Youthwork: Practical Program Evaluation (3.0 cr)
or FSOS 2105 - Methods in Family Research (3.0 cr)
or SOC 3801 - Sociological Research Methods (4.0 cr)

Professional Core
Take 9 credits from the following Professional Core:
YOST 3031 - International Youthwork (3.0 cr)
or YOST 3234 - Youth Agencies, Organizations, and Youth Service Systems (3.0 cr)
or YOST 3235 - Community Building, Civic Engagement, and Civic Youthwork (4.0 cr)
or YOST 3240 - Special Topics in Youth Studies (2.0 - 8.0 cr)
or YOST 4301 - Communicating With Adolescents About Sexuality (3.0 cr)
or YOST 4314 - Theater Activities in Youthwork and Education (2.0 cr)
or YOST 4315 - Youthwork in Schools (4.0 cr)
or YOST 4316 - Media and Youth: Learning, Teaching, and Doing (2.0 cr)
or YOST 4317 - Youthwork in Contested Spaces (3.0 cr)
or YOST 4319 - Understanding Youth Subcultures (3.0 cr)
or YOST 4321 - Work with Youth: Individual (2.0 cr)
or YOST 4322 - Work with Youth: Families (2.0 cr)
or YOST 4323 - Work with Youth: Groups (2.0 cr)
or YOST 4401W - Young People's Spirituality and Youthwork: An Introduction [WI] (4.0 cr)
or YOST 4402 - Youth Policy: Enhancing Healthy Development in Everyday Life (4.0 cr)
or YOST 4403 - Indirect Youthwork: Working on Behalf of Young People (4.0 cr)

Advanced/Applied Skills
8 credits minimum, to be completed during final year of study.
YOST 4196 - Youthwork Internship (4.0 cr)
YOST 4411 - Youth Research and Youth Program Evaluation (4.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• PSTL 3324W - Writing in the Workplace for Education and Human Development Majors [WI] (4.0 cr)
• PSTL 3325W - Project-Based Writing For Education and Human Development Majors [WI] (4.0 cr)
• ENGL 3027W - The Essay [WI] (4.0 cr)
• WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
Twin Cities Campus
Youth Studies Minor
School of Social Work
College of Education and Human Development

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16

The youth studies is a 16-credit undergraduate minor that addresses youth as an idea, youth as young people, youthhood as the everyday lives of young people, and the responses of communities to this population.

Participants in the youth studies minor learn about and critically analyze at a beginning level the families of ideas, models, concepts, discourses, and ways of understanding, responding to, and working with young people. Participants craft their unique program from among the required designated courses to prepare for graduate training/education in the many scholarly and youth work professional fields. Participants do not become trained workers with youth nor receive any certification to do youth work in any participating field.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Youth Studies Minor Courses
YOST 1001 - Seeing Youth, Thinking Youth: Media, Popular Media, and Scholarship (3.0 cr)

Youth Studies Electives
Electives to be chosen in consultation with youth studies adviser.
Take exactly 13 credit(s) from the following:
- YOST 3xx
- YOST 4xx
Twin Cities Campus
Agricultural and Food Business Management B.S.
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 68
- Degree: Bachelor of Science

The agricultural and food business management major is offered jointly by CFANS and the Carlson School of Management. The curriculum emphasizes concepts and methods from economics and business management and their use in identifying, analyzing, and solving management problems related to food, agriculture, natural resources, and economic development. The program provides a balance between applied economics and business management studies, with a limited amount of applied science. Students may elect a variety of courses or minors in their junior and senior years to accommodate special interests and career goals.

Graduates of the curriculum are prepared for a wide range of employment opportunities in the food system and other agribusinesses. Examples of employment areas include finance and banking, management, input, commodity and food marketing, sales, administration, public and industrial relations, production management, economic and statistical analysis, managerial accounting, management information systems, and supply chain management.

Students completing the program may also pursue graduate studies in preparation for research, teaching, or continuing education positions in academic institutions, government agencies, or industry.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 26 credits before admission to the program.

Freshman and transfer students are usually admitted to pre-major status before admission to this major.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

Students are admitted to the major after satisfactory completion of a pre-agricultural and food business management program. Admission standards are developed in conjunction with the Carlson School of Management.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Admission Requirements
Students must complete the following management "tool" courses taken A-F before entering the program and earn a GPA of at least 2.50 in these courses.

- APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- APEC 1102 - Principles of Macroeconomics (3.0 cr)
- or ECON 1102 - Principles of Macroeconomics (4.0 cr)
- MATH 1142 - Short Calculus [MATH] (4.0 cr)
- or MATH 1271 - Calculus I [MATH] (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).
Program Requirements

All major requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C-.

Students may not major in both agricultural and food business management and applied economics.

Foundation Core

COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
  or AFEE 2421 - Professional Communication for Agriculture, Food, and the Environment (3.0 cr)
WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
MGMT 3033W - Business Communication [WI] (3.0 cr)

Applied Economics Core

APEC 1001 - Orientation to Applied Economics (1.0 cr)
  or CFAN 3201 - Career and Internship Preparation (1.0 cr)
APEC 3001 - Applied Microeconomics: Consumers, Producers, and Markets (4.0 cr)
  or APEC 4821W - Business Economics and Strategy [WI] (3.0 cr)
APEC 3501 - Agribusiness Finance (3.0 cr)
  or FINA 3001 - Finance Fundamentals (3.0 cr)
APEC 3002 - Applied Microeconomics: Managerial Economics (4.0 cr)
  or APEC 3003 - Introduction to Applied Econometrics (4.0 cr)

CSOM Core

SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
  or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
SCO 3001 - Introduction to Operations Management (3.0 cr)
ACCT 3001 - Introduction to Management Accounting (3.0 cr)
  or MGMT 3001 - Fundamentals of Management (3.0 cr)
  or MKTG 3001 - Principles of Marketing (3.0 cr)

Experiential Learning

CFAN 2201 - Secure & Succeed in Internships (2.0 cr)
  or CFAN 3096 - Making the Most of your Internship (1.0 cr)

Interdisciplinary Learning

APEC 3202 - An Introduction to the Food System: Analysis, Management and Design (3.0 cr)
  or APEC 4103 - World Food Problems [GP] (3.0 cr)
  or ESPE 1011 - Issues in the Environment [ENV] (3.0 cr)
  or FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
  or ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)

Upper-division Writing Intensive within the major

Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements. Take 0 - 1 course(s) from the following:

• ACCT 5102W - Intermediate Accounting II [WI] (4.0 cr)
• ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• APEC 4451W - Food Marketing Economics [CIV, WI] (3.0 cr)
• APEC 4821W - Business Economics and Strategy [WI] (3.0 cr)
• MGMT 3033W - Business Communication [WI] (3.0 cr)
• MKTG 4080W - Marketing Strategy [WI] (4.0 cr)
• MKTG 4082W - Brand Management [WI] (4.0 cr)
• WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Program Sub-plans

Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)
Agricultural Markets and Risk Management
Students must take a minimum of two APEC courses (6-8 cr) and a minimum of two CSOM courses (6-8 cr) or a CSOM minor.

Markets & Risk
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- APEC 3006 - Applied Macroeconomics: Government and the Economy (3.0 cr)
  or APEC 3007 - Applied Macroeconomics: Policy, Trade, and Development [GP] (3.0 cr)
- APEC 3411 - Commodity Marketing (3.0 cr)
  or APEC 4481 - Futures and Options Markets (3.0 cr)
  or APEC 4501 - Financial Modeling (3.0 cr)
• Take 2 or more course(s) totaling 6 or more credit(s) from the following:
  • BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
  • FINA 4121 - Financial Markets and Interest Rates (2.0 cr)
  • FINA 4321 - Portfolio Management and Performance Evaluation (2.0 cr)
  • FINA 4522 - Options & Derivatives I (2.0 cr)
  • INS 4100 - Corporate Risk Management (2.0 cr)
  • INS 4200 - Insurance Theory and Practice (2.0 cr)
  • MGMT 3040 - Understanding the International Environment of Firms: International Business (2.0 cr)
  • MGMT 4040 - Negotiation Strategies (4.0 cr)
  • MKTG 3010 - Marketing Research (4.0 cr)
  • MKTG 3040 - Buyer Behavior (4.0 cr)
  • SCO 3045 - Sourcing and Supply Management (2.0 cr)
  • SCO 3072 - Managing Technologies in the Supply Chain (2.0 cr)

Entrepreneurship and Business Management
Students must take a minimum of two APEC courses (6-8 cr) and a minimum of two CSOM courses (6-8 cr) or a CSOM minor.

Entrepreneurship & Business
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- APEC 3006 - Applied Macroeconomics: Government and the Economy (3.0 cr)
  or APEC 3007 - Applied Macroeconomics: Policy, Trade, and Development [GP] (3.0 cr)
- APEC 3451 - Food and Agricultural Sales (3.0 cr)
  or APEC 3551 - Entrepreneurship Fundamentals for Value-Added Rural Businesses (3.0 cr)
  or APEC 4481 - Futures and Options Markets (3.0 cr)
  or APEC 4501 - Financial Modeling (3.0 cr)
  or APEC 5811 - Cooperative Organization (3.0 cr)
• Take 2 or more course(s) totaling 6 or more credit(s) from the following:
  • ACCT 3201 - Intermediate Management Accounting (2.0 cr)
  • BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
  • FINA 4221 - Principles of Corporate Finance (2.0 cr)
  • HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
  • MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)
  • MGMT 4008 - Entrepreneurial Management (4.0 cr)
  • MKTG 3010 - Marketing Research (4.0 cr)

Financial Analysis and Business Management
Students must take a minimum of two APEC courses (6-8 cr) and a minimum of two CSOM courses (6-8 cr) or a CSOM minor.

Financial Management
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- APEC 3006 - Applied Macroeconomics: Government and the Economy (3.0 cr)
  or APEC 3007 - Applied Macroeconomics: Policy, Trade, and Development [GP] (3.0 cr)
- APEC 4481 - Futures and Options Markets (3.0 cr)
  or APEC 4501 - Financial Modeling (3.0 cr)
  or APEC 5751 - Global Trade and Policy (3.0 cr)
• Take 2 or more course(s) totaling 6 or more credit(s) from the following:
  • ACCT 5101 - Intermediate Accounting I (4.0 cr)
  • ACCT 5102W - Intermediate Accounting II [WI] (4.0 cr)
  • ACCT 5160 - Financial Statement Analysis (2.0 cr)
  • BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
  • FINA 4121 - Financial Markets and Interest Rates (2.0 cr)
  • FINA 4122 - Banking Institutions (2.0 cr)
• FINA 4221 - Principles of Corporate Finance (2.0 cr)
• FINA 4321 - Portfolio Management and Performance Evaluation (2.0 cr)
• FINA 4522 - Options & Derivatives I (2.0 cr)
• FINA 4622 - International Finance (2.0 cr)
• INS 4100 - Corporate Risk Management (2.0 cr)
• INS 4200 - Insurance Theory and Practice (2.0 cr)

Food Sales and Industry Management
Students must take a minimum of two APEC courses (6-8 cr) and a minimum of two CSOM courses (6-8 cr) or a CSOM minor.

Food Sales & Industry Management
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
• APEC 3006 - Applied Macroeconomics: Government and the Economy (3.0 cr)
  or APEC 3007 - Applied Macroeconomics: Policy, Trade, and Development [GP] (3.0 cr)
• APEC 3451 - Food and Agricultural Sales (3.0 cr)
  or APEC 3821 - Retail Center Management (3.0 cr)
  or APEC 4451W - Food Marketing Economics [CIV, WI] (3.0 cr)
  or APEC 4461 - Horticultural Marketing (3.0 cr)
  or APEC 4501 - Financial Modeling (3.0 cr)
• Take 2 or more course(s) totaling 6 or more credit(s) from the following:
  • MKTG 3010 - Marketing Research (4.0 cr)
  • MKTG 3040 - Buyer Behavior (4.0 cr)
  • MKTG 4030 - Sales Management (4.0 cr)
  • MKTG 4050 - Integrated Marketing Communications (4.0 cr)
  • MKTG 4060 - Marketing Channels (4.0 cr)
  • MKTG 4080W - Marketing Strategy [WI] (4.0 cr)
  • MKTG 4082W - Brand Management [WI] (4.0 cr)
  • SCO 3045 - Sourcing and Supply Management (2.0 cr)
  • SCO 3056 - Supply Chain Planning and Control (4.0 cr)
  • SCO 3072 - Managing Technologies in the Supply Chain (2.0 cr)

Individualized
Students preparing for career opportunities that emphasize skills, such as accounting, communications, law, or information systems may use this alternative to design an area of emphasis. A program of study under the emphasis must be approved by the adviser and the major coordinator. At least 6 of the 12 credits must be completed after receiving approval.

Individualized Area
Select 12 credits from individual electives
12 credits from individual electives
Twin Cities Campus

Agricultural and Food Business Management Minor

College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 13 to 16

This minor is designed for undergraduate students who want to include courses in business management (such as marketing, finance, entrepreneurship) to enhance and/or supplement courses in their major program and prepare for careers in industry or a graduate business program. The minor has a microeconomic, firm and industry-level focus.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

AFBM Minor Courses

APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
  or APEC 1101H - Principles of Microeconomics [SOCS, GP] (4.0 cr)
  or ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)

Take 3 or more course(s) from the following:
- APEC 3001 - Applied Microeconomics: Consumers, Producers, and Markets (4.0 cr)
- APEC 3002 - Applied Microeconomics: Managerial Economics (4.0 cr)
- APEC 3202 - An Introduction to the Food System: Analysis, Management and Design (3.0 cr)
- APEC 3411 - Commodity Marketing (3.0 cr)
- APEC 3451 - Food and Agricultural Sales (3.0 cr)
- APEC 3501 - Agribusiness Finance (3.0 cr)
- APEC 3551 - Entrepreneurship Fundamentals for Value-Added Rural Businesses (3.0 cr)
- APEC 3811 - Principles of Farm Management (3.0 cr)
- APEC 3821 - Retail Center Management (3.0 cr)
- APEC 3991 - Independent Study in Applied Economics (1.0 - 4.0 cr)
- APEC 4451W - Food Marketing Economics [CIV, WI] (3.0 cr)
- APEC 4461 - Horticultural Marketing (3.0 cr)
- APEC 4481 - Futures and Options Markets (3.0 cr)
- APEC 4501 - Financial Modeling (3.0 cr)
- APEC 4821W - Business Economics and Strategy [WI] (3.0 cr)
- APEC 5811 - Cooperative Organization (3.0 cr)
Twin Cities Campus
Agricultural Education B.S.
Applied Economics
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120 to 122
- Required credits within the major: 71 to 98
- This program requires summer terms.
- Degree: Bachelor of Science

The undergraduate agricultural education program is a collaborative partnership between the College of Food, Agricultural and Natural Resource Sciences (CFANS) and the College of Education and Human Development (CEHD). Graduates of the program are prepared for formal and nonformal teaching positions, as well as organizational and business career opportunities that emphasize leadership and communication skills.

Two specializations are available. The agricultural education teacher licensure specialization prepares students to meet Minnesota Board of Teaching requirements. Students who complete the agricultural leadership and communications specialization seek career paths in organizations and businesses within food, agriculture, and natural resources.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All major requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C-.

Physical and Biological Sciences
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)
AGRO 1101 - Biology of Plant Food Systems [BIOL] (4.0 cr)
  or BIOL 1009 - General Biology [BIOL] (4.0 cr)

Mathematics
MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)

Major Courses
AFEE 1001 - Introduction to Agricultural Education and Extension (1.0 cr)
AFEE 1002 - Principles of Career Planning for Agricultural Professionals (1.0 cr)
AFEE 2051 - Current Technical Competencies (3.0 cr)
AFEE 2096 - Professional Practicum in Agricultural Education: Early Experience (1.0 - 3.0 cr)
AFEE 5111W - Agricultural Education: Methods of Teaching [WI] (4.0 cr)

Agricultural Science
CFAN 1501 - Biotechnology, People, and the Environment [TS] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
• AFEE 5111W - Agricultural Education: Methods of Teaching [WI] (4.0 cr)
• AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Agricultural Leadership and Communication
This specialization prepares students for careers in organizations and businesses within food, agriculture, and natural resources. Employment opportunities range from training and development, commodity, agribusiness, sales and marketing, extension, nonformal teaching and learning, public relations, university-related, nonprofit, and communications. It provides students with the opportunity to take a broad spectrum of courses within food, agriculture, and natural resources. Professional courses are focused around leadership, communication, and organizational principles. Students develop leadership and communication skills that employers have determined are critical to a successful career.

Internships provide students with relevant experience and networking opportunities. Students use electives to declare a minor or certificate to supplement coursework in the agricultural education major; some require limited additional coursework.

Animal Science
ANSC 1101 - Introductory Animal Science (4.0 cr)

Applied Economics and Agribusiness
APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
APEC 1xxx
or APEC 2xxx
or APEC 3xxx
or APEC 4xxx
or APEC 5xxx
APEC 3451 - Food and Agricultural Sales (3.0 cr)
or OLDP 3461 - Professional Sales Management (3.0 cr)

Natural Resources
Take 3 or more credit(s) from the following:
• CFAN 3513 - The Natural History of Norway [GP] (3.0 cr)
• ESPM 1011 - Issues in the Environment [ENV] (3.0 cr)
• EEB 1xxx
• EEB 2xxx
• EEB 3xxx
• EEB 4xxx
• EEB 5xxx
• ESPM 1xxx
• ESPM 2xxx
• ESPM 3xxx
• ESPM 4xxx
• ESPM 5xxx
• FR 1xxx
• FR 2xxx
• FR 3xxx
• FR 4xxx
• FR 5xxx
• FW 1xxx
• FW 2xxx
• FW 3xxx
•FW 4xxx
•FR 5xxx

**Plant Science**

CFAN 3001 - Pests and Crop Protection (3.0 cr)

or HORT 1001 - Plant Propagation [BIOL] (4.0 cr)

or AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)

or ENT 4015 - Ornamentals and Turf Entomology (3.0 cr)

or HORT 1003 - Horticulture for the Home Gardener (3.0 cr)

**Soil Science**

SOIL 1125 - The Soil Resource [ENV] (4.0 cr)

or SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)

**Agricultural Education**

AFEE 3361 - World Development Problems [GP] (3.0 cr)

AFEE 3096 - Experiential Learning: Production and Business (1.0 - 8.0 cr)

**Leadership**

AFEE 2221 - People Skills for Leadership (3.0 cr)

AFEE 4221 - Rural Leadership Development (3.0 cr)

**Communication**

AFEE 2421 - Professional Communication for Agriculture, Food, and the Environment (3.0 cr)

AFEE 3430 - Communicating Food, Agriculture & Environmental Science to the Public (3.0 cr)

**Human Resource Development**

OLPD 3601 - Introduction to Human Resource Development (3.0 cr)

or JOUR 1001 - Introduction to Mass Communication [SOCS, TS] (3.0 cr)

or COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)

**Leadership, Communication, HRD Elective**

Leadership minor course 2-4xxx

or COMM 2-4xxx

or JOUR 2-4xxx

or OLPD 3620 - Introduction to Training and Development (3.0 cr)

or OLPD 3640 - Introduction to Organization Development (3.0 cr)

or OLPD 3805 - Introduction to Strategic Planning Through Human Resources (3.0 cr)

or OLPD 4602 - Managing Work Teams (3.0 cr)

or OLPD 4608 - Introduction to International Human Resource Development (3.0 cr)

**Experiential Learning**

This requirement is fulfilled by AFEE 3096, which also fulfills part of the Agricultural Education requirement.

**Interdisciplinary Learning**

This requirement may be fulfilled by ESPM 1011, which also fulfills the Natural Resources requirement. It may also be fulfilled by CFAN 1501, which also fulfills the Agricultural Science requirement.

AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)

**Agricultural Education Teacher Licensure**

This specialization prepares students to meet Minnesota Board of Teaching requirements in agricultural education for grades 5-12 and for teacher coordinator of work-based learning. It includes a broad study of courses in food, agriculture, and natural resources. Professional courses are focused on standards of effective teaching and content pedagogy. Students gain relevant knowledge through integrated field experience. In addition to teaching in the formal classroom, graduates are prepared for a wide range of employment opportunities in training, nonformal teaching and learning, sales, management and public relations in the food, agriculture, and natural resource industry.

Students may graduate from this program with a minimum 2.00 overall GPA, but a minimum 2.50 overall GPA is required for recommendation for Minnesota teaching licensure.

**Social Sciences**

PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)

or PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)

**Communication**

WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

**Animal Science**

ANSC 1101 - Introductory Animal Science (4.0 cr)

Take 1 or more course(s) from the following:

• ANSC 1403 - Companion Animal Nutrition and Care (3.0 cr)
• ANSC 2012 - Livestock and Carcass Evaluation (3.0 cr)
• ANSC 2401 - Animal Nutrition (3.0 cr)
• ANSC 3221 - Animal Breeding (4.0 cr)

**Applied Economics and Agribusiness**

APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
Take 1 or more course(s) from the following:

- APEC 1251 - Principles of Accounting (3.0 cr)
- APEC 3411 - Commodity Marketing (3.0 cr)
- APEC 3811 - Principles of Farm Management (3.0 cr)
- APEC 3821 - Retail Center Management (3.0 cr)
- APEC 3451 - Food and Agricultural Sales (3.0 cr)
  or OLPD 3461 - Professional Sales Management (3.0 cr)

**Food Science**

ANSC 1511 - Food Animal Products for Consumers (3.0 cr)
  or FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)

**Natural Resources**

Take 3 or more credit(s) from the following:

- CFAN 3513 - The Natural History of Norway [GP] (3.0 cr)
- EEB 3001 - Ecology and Society [ENV] (3.0 cr)
- ESPM 1011 - Issues in the Environment [ENV] (3.0 cr)
- FW 2001W - Introduction to Fisheries, Wildlife, and Conservation Biology [ENV, WI] (3.0 cr)
  + FR 1xxx
  + FR 2xxx
  + FR 3xxx
  + FR 4xxx
  + FR 5xxx

**Plant Science**

Take 3 or more credit(s) from the following:

- AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)
- HORT 1001 - Plant Propagation [BIOL] (4.0 cr)
- HORT 1003 - Horticulture for the Home Gardener (3.0 cr)
- HORT 1013 - Floral Design (3.0 cr)
- CFAN 3001 - Pests and Crop Protection (3.0 cr)
  or ENT 4015 - Ornaments and Turf Entomology (3.0 cr)

**Soil Science**

SOIL 1125 - The Soil Resource [ENV] (4.0 cr)
  or SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)

**Technology**

AFEE 3112 - Building Construction Technology (3.0 cr)

**Education**

EDHD 5008 - Reading in the Content Areas for Initial Licensure Candidates (1.0 - 2.0 cr)
EDHD 5007 - Technology for Teaching and Learning (1.5 cr)
EDHD 5010 - Cultures, Schools, and Communities (Human Relations) (2.0 cr)
EDHD 5020 - Cultures, Schools, and Communities (Human Relations) (1.0 cr)
EDHD 5016 - Teaching Students with Special Needs in Inclusive Settings (1.0 cr)
EDHD 5000 - Cultures, Schools, and Communities (Human Relations) (1.0 cr)
EDHD 5015 - Teaching Students with Special Needs in Inclusive Settings (1.0 cr)
PUBH 3005 - Fundamentals of Alcohol and Drug Abuse for Teacher Education (1.0 cr)
EDHD 5013 - Child and Adolescent Development for Teaching and Learning (1.0 cr)
EDHD 5014 - Child and Adolescent Development for Teaching and Learning (2.0 cr)

**Agricultural Education**

AFEE 5112 - Agricultural Education Program Organization and Curriculum for Youth (3.0 cr)
AFEE 5114 - Agricultural Education Teaching Seminar (1.0 cr)
AFEE 5116 - Coordination of SAE Programs: Work-based Learning (2.0 cr)
AFEE 5118 - Strategies for Managing and Advising the FFA Organization (2.0 cr)
AFEE 5697 - Teaching Internship: School and Classroom Setting (2.0 cr)
AFEE 5698 - Teaching Internship (3.0 - 8.0 cr)

**Public Speaking**

AFEE 2421 - Professional Communication for Agriculture, Food, and the Environment (3.0 cr)

**Experiential Learning**

This requirement is fulfilled by AFEE 5698, which also fulfills the Agricultural Education requirement.

**Interdisciplinary Learning**

This requirement may be fulfilled by ESPM 1011, which also fulfills part of the Natural Resources requirement or FSCN 1102 which fulfills the Food Science requirement. It may also be fulfilled by CFAN 1501, which also fulfills the Agricultural Science requirement.

**Honors UHP**

This is an honors sub-plan.

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.
Current departmental honors course offerings are listed at:
http://www.honors.umn.edu/academics/curriculum/dept_courses_current.html

Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or with an honors directed studies, or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.
Twin Cities Campus
Agricultural Industries and Marketing B.S.
College of Food, Agri & Natural Resource Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 78 to 93
- Degree: Bachelor of Science

This major prepares students for careers in agricultural industries. Industries related to modern agriculture include manufacturers and distributors of farm production inputs (such as equipment, structures, health products, seeds, fertilizers, and crop protection products); assemblers, processors, manufacturers, and distributors of products originating from farms (products such as meat, milk, eggs, wool, grains, fruits, vegetables, nursery crops, flowers, and turf); and finance and insurance industries providing agricultural credit. Agribusinesses such as these, as well as state, federal, and marketing agencies, need individuals who have a broad education in the scientific (and technical) aspects of agriculture, effective work and communication skills, and quantitative and qualitative skills to solve business problems.

The scientific knowledge and technical skills necessary to become an effective agribusiness professional are provided through requirements in the basic and agricultural sciences and are strengthened by selection of one of three areas of emphasis: crops and soils industries, food industries, or an individualized emphasis.

With 21 free standing elective credits, all AIM majors are encouraged to pursue a CFANS or other minor. Only 6 credits in the AIM major may also be counted towards a minor. For students interested in preparing for the Certified Crop Advisor (CCA) exam or the certified professional agronomist (CPAg) programs, a minor in agronomy is highly recommended.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All major requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C-.

Quantitative Foundations
MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
  or MATH 1142 - Short Calculus [MATH] (4.0 cr)
  or MATH 1271 - Calculus I [MATH] (4.0 cr)
ANSC 3011 - Statistics for Animal Science (4.0 cr)
  or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
  or ESPM 3012 - Statistical Methods for Environmental Scientists and Managers [MATH] (4.0 cr)

Communication
COMM 3411 - Introduction to Small Group Communication (3.0 cr)
WRIT 3257 - Technical and Professional Presentations (3.0 cr)
WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
AFEE 3430 - Communicating Food, Agriculture & Environmental Science to the Public (3.0 cr)
  or COMM 3422 - Interviewing and Communication (3.0 cr)

Public Speaking
AFEE 2421 - Professional Communication for Agriculture, Food, and the Environment (3.0 cr)

Business Management
APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)  
APEC 1102 - Principles of Macroeconomics (3.0 cr)  
APEC 1251 - Principles of Accounting (3.0 cr)  
APEC 3411 - Commodity Marketing (3.0 cr)  
**or** APEC 4451W - Food Marketing Economics [CIV, WI] (3.0 cr)  
APEC 3451 - Food and Agricultural Sales (3.0 cr)  
**or** MKTG 4030 - Sales Management (4.0 cr)  
APEC 3811 - Principles of Farm Management (3.0 cr)  
**or** APEC 3821 - Retail Center Management (3.0 cr)  
**or** MGMT 3001 - Fundamentals of Management (3.0 cr)  
**or** MKTG 3001 - Principles of Marketing (3.0 cr)  
**or** APEC 3551 - Entrepreneurship Fundamentals for Value-Added Rural Businesses (3.0 cr)

Experiential Learning
CFAN 3096 - Making the Most of your Internship (1.0 cr)

Interdisciplinary Learning
AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)  
**or** ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)  
**or** ESPM 4021W - Problem Solving: Environmental Review [WI] (4.0 cr)  
**or** ESPM 4041W - Problem Solving for Environmental Change [WI] (4.0 cr)  
**or** AGRO 3305 - Agroecosystems of the world [GP] (3.0 cr)  
**or** AGRO 4103 - World Food Problems [GP] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
- AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)  
- ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)  
- APEC 4451W - Food Marketing Economics [CIV, WI] (3.0 cr)  
- BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)  
- ESPM 4021W - Problem Solving: Environmental Review [WI] (4.0 cr)  
- ESPM 4041W - Problem Solving for Environmental Change [WI] (4.0 cr)  
- HORT 3005W - Environmental Effects on Horticultural Crops [WI] (4.0 cr)  
- WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Crops and Soils Industries
Students must complete at least 14 credits in their area of emphasis and an internship or a student project.

Science Foundations
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)  
CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)  
SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)  
AGRO 1101 - Biology of Plant Food Systems [BIO] (4.0 cr)  
**or** BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIO] (4.0 cr)  
**or** BIOL 1009 - General Biology [BIO] (4.0 cr)  
BIOC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)  
**or** HORT 2100 - Agricultural Biochemistry (3.0 cr)

Agriculture
AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)  
AGRO 1660W - First-Year Colloquium/Experience in Agroecosystems Analysis [WI] (2.0 cr)  
AGRO 4660 - Senior Capstone (2.0 cr)  
AGRO 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
or AIM 4011 - Student Project/Field Investigation (3.0 cr)
or AGRO 4093 - Directed Studies for Advanced Students (1.0 - 4.0 cr)
or International Field Studies Seminar option

Crops and Soils Industries
CFAN 3001 - Pests and Crop Protection (3.0 cr)
SOIL 3416 - Plant Nutrients in the Environment (3.0 cr)
AGRO 4005 - Applied Crop Physiology and Development (4.0 cr)
or HORT 3005W - Environmental Effects on Horticultural Crops [WI] (4.0 cr)
or take the following course pair
Biol 3002 - Plant Biology: Function (2.0 cr)
BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)
AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
or AGRO 4103 - World Food Problems [GP] (3.0 cr)
or AGRO 4401 - Plant Genetics and Breeding (4.0 cr)
or AGRO 4505 - Biology, Ecology, and Management of Invasive Plants (3.0 cr)
or ESPM 3221 - Soil Conservation and Land-Use Management (3.0 cr)

Food Industries
Science Foundations
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
AGRO 1101 - Biology of Plant Food Systems [BIOL] (4.0 cr)
or BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
or BIOL 1009 - General Biology [BIOL] (4.0 cr)

Food and Nutrition
FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
FSCN 1112 - Principles of Nutrition (3.0 cr)
FSCN 2021 - Introductory Microbiology (4.0 cr)
or VBS 2032 - General Microbiology With Laboratory (5.0 cr)
AIM 4011 - Student Project/Field Investigation (3.0 cr)
or FSCN 4006 - Professional Experience Program: Internship (1.0 - 4.0 cr)
or AGRO 4093 - Directed Studies for Advanced Students (1.0 - 4.0 cr)
or International Field Studies Seminar option
Orientation
AFEE 1002 - Principles of Career Planning for Agricultural Professionals (1.0 cr)
or AGRO 1660W - First-Year Colloquium/Experience in Agroecosystems Analysis [WI] (2.0 cr)

Food Industries
FSCN 3102 - Introduction to Food Science (3.0 cr)
FSCN 3731 - Food Service Operations Management Laboratory (2.0 cr)
FSCN 3732 - Food Service Operations Management (3.0 cr)
FSCN 4131 - Food Quality (3.0 cr)
ANSC 1511 - Food Animal Products for Consumers (3.0 cr)
or FSCN 3612 - Life Cycle Nutrition (3.0 cr)
or FSCN 3615 - Sociocultural Aspects of Food, Nutrition, and Health [GP] (3.0 cr)
or FSCN 4614 - Community Nutrition [SOCS, DSJ] (3.0 cr)
or MKTG 3010 - Marketing Research (4.0 cr)

Individualized
At least 14 credits must be selected in consultation with an adviser and with approval of the AIM major committee. The courses comprising the individualized emphasis must have a definite theme. A collection of unrelated courses is unacceptable.

Science Foundations
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)
SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)
AGRO 1101 - Biology of Plant Food Systems [BIOL] (4.0 cr)
or BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
or BIOL 1009 - General Biology [BIOL] (4.0 cr)
BIOC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)
or HORT 2100 - Agricultural Biochemistry (3.0 cr)

Individualized Emphasis Electives
14 credits from individual electives

Agriculture
AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)
AGRO 4660 - Senior Capstone (2.0 cr)
AGRO 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
  or AIM 4011 - Student Project/Field Investigation (3.0 cr)
  or AGRO 4093 - Directed Studies for Advanced Students (1.0 - 4.0 cr)
  or International Field Studies Seminar option
Orientation
APEC 1001 - Orientation to Applied Economics (1.0 cr)
  or AFEE 1002 - Principles of Career Planning for Agricultural Professionals (1.0 cr)
  or AGRO 1660W - First-Year Colloquium/Experience in Agroecosystems Analysis [WI] (2.0 cr)
Twin Cities Campus

Agronomy Minor

College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 17

This minor provides strong science-based courses emphasizing crop management in the context of sustainable ecosystems. It is well suited for students majoring in agriculture, food and environmental education; animal science; business and economics; environmental science, or for students seeking knowledge and principles of crop production. The minor allows students to complete coursework providing the minimal background needed to prepare for the Certified Crop Advisor (CCA) exams. Students must complete a minimum of 17 credits.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses

- AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)
- SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)

Electives

Take 9 or more credit(s) from the following:

- AGRO 2501 - Plant Identification for Urban and Rural Landscapes (2.0 cr)
- AGRO 3305 - Agroecosystems of the world [GP] (3.0 cr)
- AGRO 3660 - Plant Genetic Resources: Identification, Conservation, and Utilization (3.0 cr)
- AGRO 4005 - Applied Crop Physiology and Development (4.0 cr)
- AGRO 4401 - Plant Genetics and Breeding (4.0 cr)
- AGRO 4505 - Biology, Ecology, and Management of Invasive Plants (3.0 cr)
- AGRO 4888 - Issues in Sustainable Agriculture (2.0 cr)
- CFAN 3001 - Pests and Crop Protection (3.0 cr)
- PLPA 2001 - Introductory Plant Pathology (3.0 cr)
- SOIL 3416 - Plant Nutrients in the Environment (3.0 cr)
Twin Cities Campus
Animal Science B.S.
Animal Science
College of Food, Agricultural and Natural Resource Sciences

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 71 to 84
• This program requires summer terms.
• Degree: Bachelor of Science

The animal science major prepares students for veterinary school, work as managers and technical advisers for animal production systems, various careers in animal industries or biotechnology, or graduate study in animal-related specializations. Areas of emphasis include industry & business, production, companion animal, equine, or pre-vet/science. In addition, depending on the area of emphasis, students may select from the following areas of study: dairy, beef, sheep, swine, equine, companion animal, or poultry.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All major requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C-.

Foundation Courses
BIOL 1009 - General Biology [BIOL] (4.0 cr)
WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
or MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1155 - Intensive Precalculus [MATH] (5.0 cr)

Professional Courses
ANSC 1101 - Introductory Animal Science (4.0 cr)
ANSC 3011 - Statistics for Animal Science (4.0 cr)
ANSC 2401 - Animal Nutrition (3.0 cr)
ANSC 3221 - Animal Breeding (4.0 cr)
ANSC 3301 - Human and Animal Physiology (3.0 cr)
ANSC 3302 - Human and Animal Physiology Laboratory (1.0 cr)
Choose at least 1 course/course grouping:
Take 1 or more course(s) from the following:
• ANSC 4601 - Pork Production Systems Management (4.0 cr)
• ANSC 4602 - Sheep Production Systems Management (4.0 cr)
• ANSC 4603 - Beef Production Systems Management (4.0 cr)
• ANSC 4604 - Dairy Production Systems Management (4.0 cr)
• VCS 4606 - Small Animal Management (3.0 cr)
• Approved course from Midwest Poultry Consortium
• ANSC 2055 - Horse Management (2.0 cr)
• ANSC 2056 - Horse Management Practicum (2.0 cr)
Experiential Learning
Students must take a minimum of 3 credits of internship or a minimum of 6 credits of senior thesis.

ANSC 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
or ANSC 4009W - Undergraduate Research Thesis [WI] (1.0 - 6.0 cr)

Interdisciplinary Learning
Take 1 or more course(s) from the following:
- ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
- APEC 4103 - World Food Problems [GP] (3.0 cr)
- FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
- PLPA 2003 - Plague, Famine, and Beer: The Impact of Microscopic Organisms on Human Civilization [HIS] (3.0 cr)
- APEC 3202 - An Introduction to the Food System: Analysis, Management and Design (3.0 cr)
- CFAN 3333 - Insects, Microbes and Plants [TS] (3.0 cr)
- ESPM 1011 - Issues in the Environment [ENV] (3.0 cr)
- ESPM 3575 - Wetlands (3.0 cr)
- ESPM 4021W - Problem Solving: Environmental Review [WI] (4.0 cr)
- FW 2001W - Introduction to Fisheries, Wildlife, and Conservation Biology [ENV, WI] (3.0 cr)
- HORT 4850 - Pollinator Protection in Managed Landscapes (3.0 cr)
- CFAN 1501 - Biotechnology, People, and the Environment [TS] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
- ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
- ANSC 4009W - Undergraduate Research Thesis [WI] (1.0 - 6.0 cr)
- APEC 4451W - Food Marketing Economics [CIV, WI] (3.0 cr)
- APEC 4821W - Business Economics and Strategy [WI] (3.0 cr)
- ESPM 4021W - Problem Solving: Environmental Review [WI] (4.0 cr)
- ESPM 4041W - Problem Solving for Environmental Change [WI] (4.0 cr)
- WRIT 3152W - Writing on Issues of Science and Technology [WI] (4.0 cr)
- WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Industry and Business

Industry and Business Core Courses
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)
BIOC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)
or HORT 2100 - Agricultural Biochemistry (3.0 cr)

APEC 1101 - Principles of Microeconomics [SOC5, GP] (4.0 cr)
Take 12 or more credit(s) from the following:
- WRIT 3152W - Writing on Issues of Science and Technology [WI] (4.0 cr)
- WRIT 3257 - Technical and Professional Presentations (3.0 cr)
- APEC 1102 - Principles of Macroeconomics (3.0 cr)
- APEC 1251 - Principles of Accounting (3.0 cr)
- ANSC 3851 - Livestock Merchandising (3.0 cr)
- APEC 3001 - Applied Microeconomics: Consumers, Producers, and Markets (4.0 cr)
- APEC 3002 - Applied Microeconomics: Managerial Economics (4.0 cr)
- APEC 3411 - Commodity Marketing (3.0 cr)
- APEC 3451 - Food and Agricultural Sales (3.0 cr)
- APEC 3501 - Agribusiness Finance (3.0 cr)
- APEC 3811 - Principles of Farm Management (3.0 cr)
- APEC 3821 - Retail Center Management (3.0 cr)
- APEC 4451W - Food Marketing Economics [CIV, WI] (3.0 cr)
- APEC 4821W - Business Economics and Strategy [WI] (3.0 cr)
- COMM 3411 - Introduction to Small Group Communication (3.0 cr)
• JOUR 4551 - New Media and Culture [AH, TS] (3.0 cr)
• JOUR 1001 - Introduction to Mass Communication [SOCS, TS] (3.0 cr)

Animal Science Electives
Courses cannot fulfill two areas unless also a liberal education requirement.
Take 6 or more credit(s) from the following:
• AFEE 2051 - Current Technical Competencies (3.0 cr)
• CFAN 1501 - Biotechnology, People, and the Environment [TS] (3.0 cr)
• AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)
• ANSC 1011 - Animals and Society [CIV] (3.0 cr)
• ANSC 1403 - Companion Animal Nutrition and Care (3.0 cr)
• ANSC 1511 - Food Animal Products for Consumers (3.0 cr)
• ANSC 2012 - Livestock and Carcass Evaluation (3.0 cr)
• APEC 1251 - Principles of Accounting (3.0 cr)
• SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)
• VBS 2032 - General Microbiology With Laboratory (5.0 cr)
• ANSC 3007 - Equine Nutrition (3.0 cr)
• ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• ANSC 3305 - Reproductive Biology in Health and Disease (4.0 cr)
• ANSC 3509 - Animal Biotechnology (3.0 cr)
• ANSC 3511 - Animal Growth and Development (3.0 cr)
• ANSC 4011 - Dairy Cattle Genetics (3.0 cr)
• ANSC 4401 - Swine Nutrition (3.0 cr)
• ANSC 4403 - Ruminant Nutrition (3.0 cr)
• ANSC 4404 - Applied Dairy Nutrition (2.0 cr)
• ANSC 4601 - Pork Production Systems Management (4.0 cr)
• ANSC 4602 - Sheep Production Systems Management (4.0 cr)
• ANSC 4603 - Beef Production Systems Management (4.0 cr)
• ANSC 3609 - Business Planning for Animal Enterprises (2.0 cr)
• ANSC 4604 - Dairy Production Systems Management (4.0 cr)
• ANSC 4613 - Advanced Beef Production Systems Management (2.0 cr)
• ANSC 4614 - Advanced Dairy Production Systems Management (4.0 cr)
• APEC 3411 - Commodity Marketing (3.0 cr)
• APEC 3451 - Food and Agricultural Sales (3.0 cr)
• APEC 3811 - Principles of Farm Management (3.0 cr)
• ENT 3281 - Veterinary Entomology (3.0 cr)
• VCS 4606 - Small Animal Management (3.0 cr)
• VPM 3700 - Equine Reproduction and Breeding Management (2.0 cr)
• ANSC 1701 - Historical Influence of the Horse on Society [HIS] (3.0 cr)
• ANSC 3307 - Artificial Insemination Techniques (1.0 cr)
• ANSC 2056 - Horse Management Practicum (2.0 cr)
• ANSC 3403 - Companion Animal Hot Button Issues (3.0 cr)
• ANSC 2055 - Horse Management (2.0 cr)
• ANSC 3801 - Livestock Merchandising (3.0 cr)
• ANSC 4305 - Companion & Wild Species Reproduction (2.0 cr)
• APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
• FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
• FSCN 2021 - Introductory Microbiology (4.0 cr)
• GCD 3022 - Genetics (3.0 cr)
• VBS 2100 - Companion Animal Anatomy (3.0 cr)
• ANSC 1201 - Backyard Chickens: Science, Technology, and Society [TS] (3.0 cr)
• FDSY 2102 - Diversity of Agricultural Production Systems (3.0 cr)
• Midwest Poultry Consortium Summer Courses - Madison, WI
• Any CFANS Major Study/Learning Abroad Course

Production
Production Core Courses
ANSC 3609 - Business Planning for Animal Enterprises (2.0 cr)
APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)
BIOC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)
or HORT 2100 - Agricultural Biochemistry (3.0 cr)

Animal Science Electives
Courses cannot fulfill two areas unless also a liberal education requirement. Students should choose a concentration area in at least one species. Consult an advisor with questions.
Take 18 or more credit(s) from the following:

- **AFEE 2051** - Current Technical Competencies (3.0 cr)
- **CFAN 1501** - Biotechnology, People, and the Environment [TS] (3.0 cr)
- **AGRO 1103** - Crops, Environment, and Society [ENV] (4.0 cr)
- **ANSC 1011** - Animals and Society [CIV] (3.0 cr)
- **ANSC 1403** - Companion Animal Nutrition and Care (3.0 cr)
- **ANSC 1511** - Food Animal Products for Consumers (3.0 cr)
- **ANSC 2012** - Livestock and Carcass Evaluation (3.0 cr)
- **APEC 1251** - Principles of Accounting (3.0 cr)
- **SOIL 2125** - Basic Soil Science [PHYS, ENV] (4.0 cr)
- **VBS 2032** - General Microbiology With Laboratory (5.0 cr)
- **ANSC 3007** - Equine Nutrition (3.0 cr)
- **ANSC 3203W** - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
- **ANSC 3305** - Reproductive Biology in Health and Disease (4.0 cr)
- **ANSC 3509** - Animal Biotechnology (3.0 cr)
- **ANSC 3511** - Animal Growth and Development (3.0 cr)
- **ANSC 4011** - Dairy Cattle Genetics (3.0 cr)
- **ANSC 4401** - Swine Nutrition (3.0 cr)
- **ANSC 4403** - Ruminant Nutrition (3.0 cr)
- **ANSC 4404** - Applied Dairy Nutrition (2.0 cr)
- **ANSC 4601** - Pork Production Systems Management (4.0 cr)
- **ANSC 4602** - Sheep Production Systems Management (4.0 cr)
- **ANSC 4603** - Beef Production Systems Management (4.0 cr)
- **ANSC 3609** - Business Planning for Animal Enterprises (2.0 cr)
- **ANSC 4604** - Dairy Production Systems Management (4.0 cr)
- **ANSC 4613** - Advanced Beef Production Systems Management (2.0 cr)
- **ANSC 4614** - Advanced Dairy Production Systems Management (4.0 cr)
- **APEC 3411** - Commodity Marketing (3.0 cr)
- **APEC 3451** - Food and Agricultural Sales (3.0 cr)
- **APEC 3811** - Principles of Farm Management (3.0 cr)
- **ENT 3281** - Veterinary Entomology (3.0 cr)
- **VCS 4606** - Small Animal Management (3.0 cr)
- **VPM 3700** - Equine Reproduction and Breeding Management (2.0 cr)
- **ANSC 1701** - Historical Influence of the Horse on Society [HIS] (3.0 cr)
- **ANSC 3307** - Artificial Insemination Techniques (1.0 cr)
- **ANSC 2056** - Horse Management Practicum (2.0 cr)
- **ANSC 3403** - Companion Animal Hot Button Issues (3.0 cr)
- **ANSC 2055** - Horse Management (2.0 cr)
- **ANSC 3801** - Livestock Merchandising (3.0 cr)
- **ANSC 4305** - Companion & Wild Species Reproduction (2.0 cr)
- **APEC 3411** - Animal Biotechnology (3.0 cr)
- **VPM 3700** - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
- **FDSY 2102** - Diversity of Agricultural Production Systems (3.0 cr)
- **Midwest Poultry Consortium Summer Courses - Madison, WI**
- **Any CFANS Major Study/Learning Abroad Course**

**Companion Animal**

**Companion Animal Core Courses**

**ANSC 3609** - Business Planning for Animal Enterprises (2.0 cr)

Take 6 or more credit(s) from the following:

- **ANSC 1403** - Companion Animal Nutrition and Care (3.0 cr)
- **ANSC 3403** - Companion Animal Hot Button Issues (3.0 cr)
- **ANSC 4305** - Companion & Wild Species Reproduction (2.0 cr)
- **VBS 2100** - Companion Animal Anatomy (3.0 cr)
- **ANSC 1201** - Backyard Chickens: Science, Technology, and Society [TS] (3.0 cr)
- **FDSY 2102** - Diversity of Agricultural Production Systems (3.0 cr)
- **Midwest Poultry Consortium Summer Courses - Madison, WI**
- **Any CFANS Major Study/Learning Abroad Course**

**Animal Science Electives**

Courses cannot fulfill two areas unless also a liberal education requirement.

Take 11 or more credit(s) from the following:
• AFEE 2051 - Current Technical Competencies (3.0 cr)
• CFAN 1501 - Biotechnology, People, and the Environment [TS] (3.0 cr)
• AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)
• ANSC 1011 - Animals and Society [CIV] (3.0 cr)
• ANSC 1403 - Companion Animal Nutrition and Care (3.0 cr)
• ANSC 1511 - Food Animal Products for Consumers (3.0 cr)
• ANSC 2012 - Livestock and Carcass Evaluation (3.0 cr)
• APEC 1251 - Principles of Accounting (3.0 cr)
• SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)
• VBS 2032 - General Microbiology With Laboratory (5.0 cr)
• ANSC 3007 - Equine Nutrition (3.0 cr)
• ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• ANSC 3305 - Reproductive Biology in Health and Disease (4.0 cr)
• ANSC 3509 - Animal Biotechnology (3.0 cr)
• ANSC 3511 - Animal Growth and Development (3.0 cr)
• ANSC 4011 - Dairy Cattle Genetics (3.0 cr)
• ANSC 4401 - Swine Nutrition (3.0 cr)
• ANSC 4403 - Ruminant Nutrition (3.0 cr)
• ANSC 4404 - Applied Dairy Nutrition (2.0 cr)
• ANSC 4601 - Pork Production Systems Management (4.0 cr)
• ANSC 4602 - Sheep Production Systems Management (4.0 cr)
• ANSC 4603 - Beef Production Systems Management (4.0 cr)
• ANSC 3609 - Business Planning for Animal Enterprises (2.0 cr)
• ANSC 4604 - Dairy Production Systems Management (4.0 cr)
• ANSC 4613 - Advanced Beef Production Systems Management (2.0 cr)
• APEC 4514 - Advanced Dairy Production Systems Management (4.0 cr)
• APEC 3411 - Commodity Marketing (3.0 cr)
• APEC 3451 - Food and Agricultural Sales (3.0 cr)
• APEC 3811 - Principles of Farm Management (3.0 cr)
• ENT 3281 - Veterinary Entomology (3.0 cr)
• VCS 4606 - Small Animal Management (3.0 cr)
• VPM 3700 - Equine Reproduction and Breeding Management (2.0 cr)
• ANSC 1701 - Historical Influence of the Horse on Society [HIS] (3.0 cr)
• ANSC 3307 - Artificial Insemination Techniques (1.0 cr)
• ANSC 2056 - Horse Management Practicum (2.0 cr)
• ANSC 3403 - Companion Animal Hot Button Issues (3.0 cr)
• ANSC 2055 - Horse Management (2.0 cr)
• ANSC 3801 - Livestock Merchandising (3.0 cr)
• ANSC 4305 - Companion & Wild Species Reproduction (2.0 cr)
• APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
• FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
• FSCN 2021 - Introductory Microbiology (4.0 cr)
• GCD 3022 - Genetics (3.0 cr)
• VBS 2100 - Companion Animal Anatomy (3.0 cr)
• ANSC 1201 - Backyard Chickens: Science, Technology, and Society [TS] (3.0 cr)
• FDSY 2102 - Diversity of Agricultural Production Systems (3.0 cr)
• Midwest Poultry Consortium Summer Courses - Madison, WI
• Study/Learning Abroad Course

Equine

Equine Core Courses

AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)
APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)
BIOC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)

or HORT 2100 - Agricultural Biochemistry (3.0 cr)

Take 1 or more course(s) from the following:
• APEC 1251 - Principles of Accounting (3.0 cr)
• ANSC 3609 - Business Planning for Animal Enterprises (2.0 cr)
• APEC 3451 - Food and Agricultural Sales (3.0 cr)

Take 5 or more credit(s) from the following:
• ANSC 1701 - Historical Influence of the Horse on Society [HIS] (3.0 cr)
• ANSC 3007 - Equine Nutrition (3.0 cr)
• VPM 3700 - Equine Reproduction and Breeding Management (2.0 cr)
Animal Science Electives
Courses cannot fulfill two areas unless also a liberal education requirement.
Take 6 or more credit(s) from the following:

- **AFEE 2051** - Current Technical Competencies (3.0 cr)
- **CFAN 1501** - Biotechnology, People, and the Environment [TS] (3.0 cr)
- **AGRO 1103** - Crops, Environment, and Society [ENV] (4.0 cr)
- **ANSC 1011** - Animals and Society [CIV] (3.0 cr)
- **ANSC 1403** - Companion Animal Nutrition and Care (3.0 cr)
- **ANSC 1511** - Food Animal Products for Consumers (3.0 cr)
- **ANSC 2012** - Livestock and Carcass Evaluation (3.0 cr)
- **APEC 1251** - Principles of Accounting (3.0 cr)
- **SOIL 2125** - Basic Soil Science [PHYS, ENV] (4.0 cr)
- **VBS 2032** - General Microbiology With Laboratory (5.0 cr)
- **ANSC 3007** - Equine Nutrition (3.0 cr)
- **ANSC 3203W** - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
- **ANSC 3305** - Reproductive Biology in Health and Disease (4.0 cr)
- **ANSC 3509** - Animal Biotechnology (3.0 cr)
- **ANSC 3511** - Animal Growth and Development (3.0 cr)
- **ANSC 4011** - Dairy Cattle Genetics (3.0 cr)
- **ANSC 4401** - Swine Nutrition (3.0 cr)
- **ANSC 4403** - Ruminant Nutrition (3.0 cr)
- **ANSC 4404** - Applied Dairy Nutrition (2.0 cr)
- **ANSC 4601** - Pork Production Systems Management (4.0 cr)
- **ANSC 4602** - Sheep Production Systems Management (4.0 cr)
- **ANSC 4603** - Beef Production Systems Management (4.0 cr)
- **ANSC 4609** - Business Planning for Animal Enterprises (2.0 cr)
- **ANSC 4611** - Dairy Production Systems Management (4.0 cr)
- **ANSC 4613** - Advanced Beef Production Systems Management (2.0 cr)
- **ANSC 4614** - Advanced Dairy Production Systems Management (4.0 cr)
- **APEC 3411** - Commodity Marketing (3.0 cr)
- **APEC 3451** - Food and Agricultural Sales (3.0 cr)
- **APEC 3811** - Principles of Farm Management (3.0 cr)
- **ENT 3281** - Veterinary Entomology (3.0 cr)
- **VCS 4606** - Small Animal Management (3.0 cr)
- **VPM 3700** - Equine Reproduction and Breeding Management (2.0 cr)
- **ANSC 1701** - Historical Influence of the Horse on Society [HIS] (3.0 cr)
- **ANSC 3307** - Artificial Insemination Techniques (1.0 cr)
- **ANSC 2056** - Horse Management Practicum (2.0 cr)
- **ANSC 3403** - Companion Animal Hot Button Issues (3.0 cr)
- **ANSC 2055** - Horse Management (2.0 cr)
- **ANSC 3801** - Livestock Merchandising (3.0 cr)
- **ANSC 4305** - Companion & Wild Species Reproduction (2.0 cr)
- **APEC 1101** - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- **FSCN 1102** - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
- **FSCN 2021** - Introductory Microbiology (4.0 cr)
- **GCD 3022** - Genetics (3.0 cr)
- **VBS 2100** - Companion Animal Anatomy (3.0 cr)
- **ANSC 1201** - Backyard Chickens: Science, Technology, and Society [TS] (3.0 cr)
- **FDSY 2102** - Diversity of Agricultural Production Systems (3.0 cr)
- **Midwest Poultry Consortium Summer Courses - Madison, WI**
- **Any CFANS Major Study/Learning Abroad Course**

Pre-Vet/Science
Pre-veterinarian students should/must account for the course requirements of the respective College of Veterinary Medicine Schools they hope to apply to when choosing other electives.

Pre-vet/Science Core Courses

- **CHEM 1061** - Chemical Principles I [PHYS] (3.0 cr)
- **CHEM 1065** - Chemical Principles I Laboratory [PHYS] (1.0 cr)
- **CHEM 1062** - Chemical Principles II [PHYS] (3.0 cr)
- **CHEM 1066** - Chemical Principles II Laboratory [PHYS] (1.0 cr)
- **CHEM 2301** - Organic Chemistry I (3.0 cr)
- **BIOL 2021** - Biochemistry (3.0 cr)

Take 7 or more credit(s) from the following:

- **CHEM 2311** - Organic Lab (4.0 cr)
• GCD 3022 - Genetics (3.0 cr)
• PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
• PHYS 1102W - Introductory College Physics II [PHYS, WI] (4.0 cr)
• VBS 2032 - General Microbiology With Laboratory (5.0 cr)
  or FSCN 2021 - Introductory Microbiology (4.0 cr)

Animal Science Electives
Courses cannot fulfill two areas unless also a liberal education requirement. Take 12 or more credit(s) from the following:
• AFEE 2051 - Current Technical Competencies (3.0 cr)
• CFAN 1501 - Biotechnology, People, and the Environment [TS] (3.0 cr)
• AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)
• ANSC 1011 - Animals and Society [CIV] (3.0 cr)
• ANSC 1403 - Companion Animal Nutrition and Care (3.0 cr)
• ANSC 1511 - Food Animal Products for Consumers (3.0 cr)
• ANSC 2012 - Livestock and Carcass Evaluation (3.0 cr)
• APEC 1251 - Principles of Accounting (3.0 cr)
• SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)
• VBS 2032 - General Microbiology With Laboratory (5.0 cr)
• ANSC 3007 - Equine Nutrition (3.0 cr)
• ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• ANSC 3305 - Reproductive Biology in Health and Disease (4.0 cr)
• ANSC 3509 - Animal Biotechnology (3.0 cr)
• ANSC 3511 - Animal Growth and Development (3.0 cr)
• ANSC 4011 - Dairy Cattle Genetics (3.0 cr)
• ANSC 4401 - Swine Nutrition (3.0 cr)
• ANSC 4403 - Ruminant Nutrition (3.0 cr)
• ANSC 4404 - Applied Dairy Nutrition (2.0 cr)
• ANSC 4601 - Pork Production Systems Management (4.0 cr)
• ANSC 4602 - Sheep Production Systems Management (4.0 cr)
• ANSC 4603 - Beef Production Systems Management (4.0 cr)
• ANSC 3609 - Business Planning for Animal Enterprises (2.0 cr)
• ANSC 4604 - Dairy Production Systems Management (4.0 cr)
• ANSC 4613 - Advanced Beef Production Systems Management (2.0 cr)
• ANSC 4614 - Advanced Dairy Production Systems Management (4.0 cr)
• APEC 3411 - Commodity Marketing (3.0 cr)
• APEC 3451 - Food and Agricultural Sales (3.0 cr)
• APEC 3811 - Principles of Farm Management (3.0 cr)
• ENT 3281 - Veterinary Entomology (3.0 cr)
• ANSC 4609 - Business Planning for Animal Enterprises (2.0 cr)
• ANSC 4610 - Advanced Beef Production Systems Management (2.0 cr)
• ANSC 4611 - Advanced Dairy Production Systems Management (2.0 cr)
• APEC 3411 - Commodity Marketing (3.0 cr)
• APEC 3451 - Food and Agricultural Sales (3.0 cr)
• APEC 3811 - Principles of Farm Management (3.0 cr)
• ENT 3281 - Veterinary Entomology (3.0 cr)
• VCS 4606 - Small Animal Management (3.0 cr)
• VPM 3700 - Equine Reproduction and Breeding Management (2.0 cr)
• ANSC 1701 - Historical Influence of the Horse on Society [HIS] (3.0 cr)
• ANSC 3307 - Artificial Insemination Techniques (1.0 cr)
• ANSC 2056 - Horse Management Practicum (2.0 cr)
• ANSC 3403 - Companion Animal Hot Button Issues (3.0 cr)
• ANSC 2055 - Horse Management (2.0 cr)
• ANSC 3901 - Livestock Merchandising (3.0 cr)
• ANSC 4305 - Companion & Wild Species Reproduction (2.0 cr)
• APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
• FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
• FSCN 2021 - General Microbiology With Laboratory (4.0 cr)
• GCD 3022 - Genetics (3.0 cr)
• VBS 2100 - Companion Animal Anatomy (3.0 cr)
• ANSC 1201 - Backyard Chickens: Science, Technology, and Society [TS] (3.0 cr)
• FDSY 2102 - Diversity of Agricultural Production Systems (3.0 cr)
• Midwest Poultry Consortium Summer Courses - Madison, WI
• Any CFANS Major Study/Learning Abroad Course

Honors UHP
This is an honors sub-plan.

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.

Current departmental honors course offerings are listed at:
http://www.honors.umn.edu/academics/curriculum/dept_courses_current.html
Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, honors directed studies, or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.

As part of their honors program, CFANS students complete CFAN 3100H; they must submit their project for this faculty-mentored honors experience to the honors committee for approval prior to registration.
Twin Cities Campus
Animal Science Minor
Animal Science
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 20

This minor is for students who want to include animal science coursework to enhance or supplement their major program. Students have flexibility in choosing courses to meet the requirements.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students must complete at least 20 credits of courses with an animal science (ANSC) designator.

Minor Courses
At least 10 credits must be 3xxx or higher.
Take 20 or more credit(s) from the following:
Take at most 10 credit(s) from the following:
- ANSC 1xxx
- ANSC 2xxx
- Take 10 or more credit(s) from the following:
  - ANSC 3xxx
  - ANSC 4xxx
  - ANSC 5xxx
Twin Cities Campus
Applied Economics B.S.
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 52
- Degree: Bachelor of Science

The Applied Economics major is designed to give students a solid foundation in economics and in how it is applied in the real world to improve people’s lives. Core courses provide training in microeconomics, macroeconomics, and econometrics. Additional courses focus on environmental and resource economics, international and development economics, agricultural economics, and the economics of the public sector.

Students majoring in Applied Economics develop strong critical thinking skills, data analysis proficiency, and the ability to communicate their ideas in writing. Our students have pursued careers in government and in the private sector using their B.S. degrees. Others have pursued professional or graduate training in economics, law, management, or public policy.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Every student’s program is capped off with 12 credits of advanced-level coursework APEC 3XXX, 4XXX), called a professional application cluster.

All major requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C- or better.

Foundations Core
WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)

or AFEE 2421 - Professional Communication for Agriculture, Food, and the Environment (3.0 cr)
COMM 5441 - Communication in Human Organizations (3.0 cr)

or COMM 3422 - Interviewing and Communication (3.0 cr)

or WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)

or WRIT 3441 - Editing, Critique, and Style (3.0 cr)

or WRIT 3257 - Technical and Professional Presentations (3.0 cr)

or AFEE 3430 - Communicating Food, Agriculture & Environmental Science to the Public (3.0 cr)

Students considering graduate study in applied economics are encouraged to take MATH 1271 and MATH 1272.

MATH 1142 - Short Calculus [MATH] (4.0 cr)

or MATH 1271 - Calculus I [MATH] (4.0 cr)

Professional Courses
APEC 1001 - Orientation to Applied Economics (1.0 cr)

or CFAN 3201 - Career and Internship Preparation (1.0 cr)
APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
APEC 1102 - Principles of Macroeconomics (3.0 cr)
APEC 3001 - Applied Microeconomics: Consumers, Producers, and Markets (4.0 cr)
APEC 3002 - Applied Microeconomics: Managerial Economics (4.0 cr)
or APEC 3003 - Introduction to Applied Econometrics (4.0 cr)
APEC 3006 - Applied Macroeconomics: Government and the Economy (3.0 cr)
SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)

Experiential Learning
CFAN 2201 - Secure & Succeed in Internships (2.0 cr)
or CFAN 3096 - Making the Most of your Internship (1.0 cr)

Interdisciplinary Learning
APEC 3202 - An Introduction to the Food System: Analysis, Management and Design (3.0 cr)
or APEC 4103 - World Food Problems [GP] (3.0 cr)
or ESPM 1011 - Issues in the Environment [ENV] (3.0 cr)
or FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
or ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
• WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
Twin Cities Campus

Applied Economics Minor

College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16 to 20

Applied Economics involves the application of economic theory and empirical methods to examine a wide range of topics in different areas of economics, such as agricultural economics, economic education, development economics, economic growth, labor economics and public economics. It also seeks to explain the impacts of public policies in these areas.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

To receive a minor, students must complete Principles of Microeconomics and Principles of Macroeconomics, plus 3 elective courses at the 3-000 level or higher. No more than 6 credits may be counted for both the major and the Applied Economics Minor. Students must have an overall minimum GPA of 2.00 for the minor program coursework. All courses are to be taken on a letter grade basis with a minimum grade of C- in each course.

Minor Courses

APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)  
   or ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)  
APEC 1102 - Principles of Macroeconomics (3.0 cr)  
   or ECON 1102 - Principles of Macroeconomics (4.0 cr)  
Take 3 or more course(s) from the following:
- APEC 3001 - Applied Microeconomics: Consumers, Producers, and Markets (4.0 cr)  
- APEC 3002 - Applied Microeconomics: Managerial Economics (4.0 cr)  
- APEC 3006 - Applied Macroeconomics: Government and the Economy (3.0 cr)  
- APEC 3007 - Applied Macroeconomics: Policy, Trade, and Development [GP] (3.0 cr)  
- APEC 3061 - Economic Development in Contemporary Africa [GP, SOCS] (3.0 cr)  
- APEC 3071 - Agriculture and Economic Growth in Developing Countries (3.0 cr)  
- APEC 3202 - An Introduction to the Food System: Analysis, Management and Design (3.0 cr)  
- APEC 3411 - Commodity Marketing (3.0 cr)  
- APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)  
- APEC 3991 - Independent Study in Applied Economics (1.0 - 4.0 cr)  
- APEC 4103 - World Food Problems [GP] (3.0 cr)  
- APEC 5321 - Regional Economic Analysis (3.0 cr)  
- APEC 5341 - Public Finance (3.0 cr)  
- APEC 5511 - Labor Economics (3.0 cr)  
- APEC 5651 - Economics of Natural Resource and Environmental Policy (3.0 cr)  
- APEC 5711 - U.S. Agricultural and Environmental Policy (3.0 cr)  
- APEC 5721 - Economics of Science and Technology Policy (3.0 cr)  
- APEC 5731 - Economic Growth and International Development (3.0 cr)  
- APEC 5751 - Global Trade and Policy (3.0 cr)
Twin Cities Campus
Bio-Based Products Engineering Minor
Bioproducts and Biosystems Engineering
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14

This program provides students with a strong background in the basic sciences and engineering and their application to manufacturing and end-use applications of materials, chemicals, and energy from renewable resources.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
Take 14 or more credits from the following:
- BBE 4001 - Chemistry of Biomass and Biomass Conversion to Fuels and Products [ENV] (4.0 cr)
- BBE 4301 - Applied Surface and Colloid Science (3.0 cr)
- BBE 4302 - Biodegradation of Bioproducts (3.0 cr)
- BBE 4303 - Introduction to Bio-based Materials Science (3.0 cr)
- BBE 4305 - Pulp and Paper Technology (3.0 cr)
- BBE 4401 - Bioproducts Engineering (3.0 cr)
- BBE 4404 - Biopolymers and Biocomposites Engineering (3.0 cr)
- BBE 4502W - BBE Capstone Design [WI] (4.0 cr)
Twin Cities Campus

Bioproducts Marketing and Management B.S.

Bioproducts and Biosystems Engineering

College of Food, Agricultural and Natural Resource Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 74 to 86
- Degree: Bachelor of Science

Bio-based products are materials, chemicals, and energy derived from renewable, bio-resources, including forestry, agriculture, and other biomass. Many of the commercial products and forms of energy that we use today come from depleting fossil fuels derived from renewable bio-resources. The molecular building blocks and components of biomass can be harnessed to heat homes, run cars, light buildings, and provide industrial and consumer products. These products include fibers and fiber-based products, paper, board, engineered wood, structural panels, wood-based composites, renewable plastics, and bio-derived chemicals and fuels.

This major provides students with a strong foundation in the sustainable use of bio-resources while protecting the environment. The interdisciplinary bio-based products major combines coursework in science, engineering, technology, and business—all related to the manufacturing and end-use applications of materials, products, and energy from renewable resources.

Students choose one of the following two areas of specialization: bio-based products marketing and management or residential building science and technology. In addition, the department also offers a minor in bio-based products engineering that enables students in any of the basic sciences and engineering majors to gain a better understanding of and appreciation for sustainable use of the renewable resources.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

All minor requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C- or better.

Major Courses

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BBE 1001</td>
<td>Bioproducts and Biosystems Engineering Orientation</td>
<td>1.0 cr</td>
</tr>
<tr>
<td>BBE 1002</td>
<td>Biorenewable Resources [TS]</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>BBE 4302</td>
<td>Biodegradation of Bioproducts</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>BBE 4413</td>
<td>Systems Approach to Residential Construction</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>ESPM 3607</td>
<td>Natural Resources Consumption and Sustainability [GP]</td>
<td>3.0 cr</td>
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Biological Sciences

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 1001</td>
<td>Introductory Biology: Evolutionary and Ecological Perspectives [BIOL]</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>or BIOL 1009</td>
<td>General Biology [BIOL]</td>
<td>4.0 cr</td>
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Experiential Learning

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BBE 4504W</td>
<td>Bio-based Products Development and Management [WI]</td>
<td>3.0 cr</td>
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</table>

Interdisciplinary Learning

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BBE 4412W</td>
<td>Biocomposites and Biomass Energy [WI]</td>
<td>4.0 cr</td>
</tr>
</tbody>
</table>
Upper-division Writing Intensive within the major

Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
• ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
• BBE 4412W - Biocomposites and Biomass Energy [WI] (4.0 cr)
• BBE 4504W - Bio-based Products Development and Management [WI] (3.0 cr)
• CE 3402W - Civil Engineering Materials [WI] (3.0 cr)

Program Sub-plans

Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Marketing and Management
The bio-based products marketing and management specialization combines coursework in liberal arts, basic sciences, communications, and business. Students learn about the physical and social aspects of renewable bio-based products and resources, and the combination of marketing and sales courses with technical bio-based products engineering coursework prepares them for the growing bio-based products industries.

Mathematical Thinking

STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)

Physical and Biological Sciences
Take one of the following pairs of courses.
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)
BIOC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)
or CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)

Physics

PHYS 1001W - Energy and the Environment [PHYS, ENV, WI] (4.0 cr)

Economics

APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
APEC 1102 - Principles of Macroeconomics (3.0 cr)
or ECON 1102 - Principles of Macroeconomics (4.0 cr)

Bio-Based Products Marketing and Management

ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
BBE 3101 - Introductory Statics and Structures for Construction Management (3.0 cr)
BBE 4407 - Bioproducts: Manufacturing and Applications (3.0 cr)
ESPM 3603 - Environmental Life Cycle Analysis (3.0 cr)
MGMT 3001 - Fundamentals of Management (3.0 cr)
MKTG 3001 - Principles of Marketing (3.0 cr)
FINA 3001 - Finance Fundamentals (3.0 cr)
or APEC 3501 - Agribusiness Finance (3.0 cr)

Residential Building Science and Technology
The residential building science and technology program is designed to investigate the important relationships between people, their homes, and the environment. From a solid scientific and engineering base, this interdisciplinary program builds critical thinking skills and helps students explore the opportunities that can enhance the performance of houses. The curriculum draws upon a wide range of resources across the University and includes physical science, social science, management, marketing, communications, material sciences, and engineering coursework.

The environment and international perspectives themes are satisfied automatically by completing required courses in the residential building science and technology specialization.
Mathematical Thinking
MATH 1271 - Calculus I [MATH] (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)
STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
or STAT 3021 - Introduction to Probability and Statistics (3.0 cr)

Chemistry and Physics
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
PHYS 1102W - Introductory College Physics II [PHYS, WI] (4.0 cr)
or PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)

Course Group Social Sciences
ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)

Residential Building Science and Technology
BBE 2001 - Mechanics and Structural Design (4.0 cr)
BBE 4414 - Advanced Residential Building Science (4.0 cr)
BBE 4416 - Building Testing and Diagnostics (2.0 cr)
CE 3402W - Civil Engineering Materials [WI] (3.0 cr)
CMGT 3011 - Construction Plan Reading (2.0 cr)
CMGT 4021 - Construction Planning and Scheduling (3.0 cr)
ESPM 3601 - Sustainable Housing--Community, Environment, and Technology [TS] (3.0 cr)
ARCH 1701 - The Designed Environment (3.0 cr)
or DES 1101W - Introduction to Design Thinking [AH, WI] (4.0 cr)
or LA 1201 - Learning from the Landscape [AH, DSJ] (3.0 cr)

Residential Building Science & Technology Technical Electives
Course selections must be approved by faculty adviser.
Take 8 or more credit(s) from the following:
• ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
• ARCH 1281 - Design Fundamentals I [AH] (4.0 cr)
• ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
• ARCH 4561 - Architecture and Ecology (3.0 cr)
• BBE 2201 - Renewable Energy and the Environment [TS] (3.0 cr)
• BBE 3503 - Marketing of Bio-based Products (4.0 cr)
• BBE 4355 - Design of Wood Structures (3.0 cr)
• BBE 4407 - Bioproducts: Manufacturing and Applications (3.0 cr)
• BBE 4733 - Renewable Energy Technologies [TS] (3.0 cr)
• BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
• CE 3301 - Soil Mechanics I (3.0 cr)
• CMGT 4011 - Construction Documents and Contracts (3.0 cr)
• CMGT 4022 - Construction Estimating (3.0 cr)
• CMGT 4031 - Construction Safety and Loss Control (3.0 cr)
• HSG 1461 - Introduction to Housing (3.0 cr)
• HSG 2463 - Housing and Community Development (3.0 cr)
• HSG 4465 - Housing in a Global Perspective (3.0 cr)
• HSG 5463 - Housing Policy (3.0 cr)
• HSG 3461 - Sustainable Housing--Community, Environment, and Technology [TS] (3.0 cr)
• ESPM 3480 - Topics in Natural Resources (1.0 - 4.0 cr)
• ESPM 3603 - Environmental Life Cycle Analysis (3.0 cr)
• ESPM 3604 - Environmental Management Systems and Strategy (3.0 cr)
• ESPM 5019 - Business, Natural Environment, and Global Economy (2.0 cr)
• HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
• IE 5531 - Engineering Optimization I (4.0 cr)
• LA 3501 - Environmental Design and Its Biological and Physical Context [ENV] (3.0 cr)
• MGMT 3001 - Fundamentals of Management (3.0 cr)
• MKTG 3001 - Principles of Marketing (3.0 cr)
• SCO 3001 - Introduction to Operations Management (3.0 cr)
• SCO 3041 - Project Management (2.0 cr)
• SCO 3059 - Quality Management and Lean Six Sigma (4.0 cr)
• CMGT 2019 - AutoCAD for Construction Managers (2.0 cr)
or ARCH 3351 - AutoCAD I (3.0 cr)
or CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
Honors UHP
This is an honors sub-plan.

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.

Current departmental honors course offerings are listed at:
http://www.honors.umn.edu/academics/curriculum/dept_courses_current.html

Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or with an honors directed studies, or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.

As part of their honors program, CFANS students complete CFAN 3100H; they must submit their project for this faculty-mentored honors experience to the honors committee for approval prior to registration.
Twin Cities Campus

Climatology Minor

Soil, Water, & Climate

College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 20

The minor allows students to broaden their expertise in weather and climate studies. Students who will be working for any industry or agency that depends on understanding weather and climate change will find the minor useful. Students take a required course in meteorology and the atmosphere. Electives are in climate variations and change, atmospheric composition and air pollution, biometeorology, and global environmental change. Students must complete at least 20 credits to complete the minor.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses

ESPM 1425 - The Atmosphere [PHYS, ENV] (4.0 cr)

Electives

Take 16 or more credit(s) from the following:
- ESPM 3425 - Atmospheric Pollution: From Smog to Climate Change (3.0 cr)
- ESPM 3131 - Environmental Physics (3.0 cr)
- ESPM 4609 - Air Pollution Impacts, Management, and Ethical Challenges [CIV] (3.0 cr)
- ESPM 5402 - Biometeorology (3.0 cr)
- LAAS 5425 - Atmospheric Processes I: Thermodynamics and Dynamics of the Atmosphere (3.0 cr)
- LAAS 5426 - Atmospheric Processes II: Radiation, Composition, and Climate (3.0 cr)
- EEB 5146 - Science and Policy of Global Environmental Change (3.0 cr)
- GEOG 3401 - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
- GEOG 5426 - Climatic Variations (3.0 cr)
- ESCI 1006 - Oceanography [PHYS, ENV] (4.0 cr)
- ESCI 3002 - Climate Change and Human History [ENV] (3.0 cr)
- ESCI 3402 - Science and Politics of Global Warming [ENV] (3.0 cr)
Corporate Environmental Management Minor

Bioproducts and Biosystems Engineering
College of Food, Agricultural and Natural Resource Sciences

Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 16

The corporate environmental management (CEM) minor is designed to provide students with an excellent opportunity to gain a broad exposure to the strategic, analytical, and managerial processes associated with the environmental impact of companies’ and other organizations’ products and processes. Completion of the CEM minor enhances students’ preparation for graduate school and for entering a career in the growing corporate functions of environmental management and regulatory compliance.

The CEM minor is available to students in good standing in all majors at the University of Minnesota, Twin Cities.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 4 courses before admission to the program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Courses
APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
  or ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
  or ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
  or BIOL 1009 - General Biology [BIOL] (4.0 cr)
MATH 1142 - Short Calculus [MATH] (4.0 cr)
  or Any first semester calculus
SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
  or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)

Minor Requirements

Minor Courses
ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
ESPM 3603 - Environmental Life Cycle Analysis (3.0 cr)
ESPM 3604 - Environmental Management Systems and Strategy (3.0 cr)
Take 6 or more credit(s) from the following:
  • ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
  • ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
  • ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
  • ESPM 3602 - Regulations and Corporate Environmental Management (3.0 cr)
  • ESPM 3605 - Recycling: Extending Raw Materials [TS] (3.0 cr)
  • ESPM 3606W - Pollution Prevention: Principles, Technologies, and Practices [WI] (3.0 cr)
  • ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
  • ESPM 4607 - Industrial Biotechnology and the Environment (3.0 cr)
  • BBE 4608 - Environmental and Industrial Microbiology (3.0 cr)
**Entomology Minor**

**Entomology Minor Requirements**

- **Required Type:** Undergraduate free-standing minor
- **Requirements for this program are current for Fall 2014**
- **Required credits in this minor:** 16

This minor provides a strong background in entomological principles and theory suitable for students interested in a variety of professions or advanced degree programs. Examples include programs in entomology, veterinary science, or public health; teaching biology in secondary educational institutions; or enhancing marketable skills for a variety of professional careers, such as forest health specialist, crop consultant, grounds manager, pest management specialist, agronomist, greenhouse or nursery technician, natural resource manager, or water quality specialist. Specific courses are selected based on students’ educational objectives, in consultation with a minor adviser.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

### Minor Requirements

#### Minor Courses

This is a required course

**ENT 1005 - Insect Biology [BIOL] (4.0 cr)**

#### Electives

Take 12 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>ENT 1905</td>
<td>Topics: Freshman Seminar</td>
<td>1.0 - 3.0 cr</td>
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<tr>
<td>CFAN 3001</td>
<td>Pests and Crop Protection</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>ENT 3281</td>
<td>Veterinary Entomology</td>
<td>3.0 cr</td>
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<tr>
<td>ENT 3925</td>
<td>Insects, Aquatic Habitats, and Pollution</td>
<td>3.0 cr</td>
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<td>ENT 4015</td>
<td>Ornamentals and Turf Entomology</td>
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<td>ENT 4021</td>
<td>Honey Bees and Insect Societies</td>
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<td>ENT 4022</td>
<td>Honey Bee Management</td>
<td>1.0 cr</td>
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<tr>
<td>ENT 4086</td>
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<td>1.0 - 3.0 cr</td>
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<td>ENT 4231</td>
<td>Insect Behavior</td>
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<td>ENT 4251</td>
<td>Forest and Shade Tree Entomology</td>
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<td>ENT 4861</td>
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<td>ENT 5009</td>
<td>Pesticides in Horticulture: Their Use and Abuse</td>
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<td>ENT 5011</td>
<td>Insect Structure and Function</td>
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<td>ENT 5021</td>
<td>Insect Biodiversity and Evolution</td>
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<td>ENT 5041</td>
<td>Insect Ecology</td>
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<td>ENT 5045</td>
<td>Insect Population Dynamics</td>
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<td>ENT 5051</td>
<td>Scientific Illustration of Insects</td>
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<td>ENT 5121</td>
<td>Applied Experimental Design</td>
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<td>ENT 5241</td>
<td>Ecological Risk Assessment</td>
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<td>ENT 5275</td>
<td>Medical Entomology</td>
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<td>ENT 5341</td>
<td>Biological Control of Insects and Weeds</td>
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<td>ENT 5351</td>
<td>Insect Pathology</td>
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<td>ENT 5361</td>
<td>Aquatic Insects</td>
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<tr>
<td>ENT 5371</td>
<td>Principles of Systematics</td>
<td>3.0 cr</td>
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<td>ENT 5900</td>
<td>Basic Entomology</td>
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<td>ENT 5910</td>
<td>Special Problems in Entomology</td>
<td>1.0 - 6.0 cr</td>
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<td>ENT 5920</td>
<td>Special Lectures in Entomology</td>
<td>2.0 - 4.0 cr</td>
</tr>
<tr>
<td>ENT 5025</td>
<td>Field Methods in Insect Taxonomy</td>
<td>1.0 cr</td>
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Information current as of December 12, 2014
Twin Cities Campus

Environmental Sciences, Policy and Management B.S.
College of Food, Agri & Natural Resource Sciences
College of Food, Agricultural and Natural Resource Sciences

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 71 to 92
• This program requires summer terms.
• Degree: Bachelor of Science

The environmental sciences, policy and management (ESPM) major is designed to address the needs posed by the complexity of environmental and renewable resource issues that are faced on a state, national, and global level. This interdisciplinary, environmental major prepares graduates to solve environmental problems from an integrated knowledge base.

The mission of the ESPM major is to

* improve the basis for environmental decision-making by integrating physical, biological, and social sciences with policy analysis and management;

* educate the next generation of environmental professionals and leaders;

* foster innovative approaches for the education of environmental professionals;

* facilitate science/social science/policy linkages within and beyond the University.

Students complete a set of common "integrated core" courses that focus on integrated problem solving using environmental sciences, policy, ethics, management models, and communication theory. Students also incorporate classroom and fieldwork.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All students complete Required Courses below and choose one of the following ESPM tracks: conservation and resource management (CRM); corporate environmental management (CEM); environmental education and communication (EEC); policy, planning, law and society (PPLS); and environmental science (ES).

Students are strongly encouraged to have an international experience before graduation. Courses completed during an international experience (study, work, volunteer, research) can meet program requirements, liberal education requirements, and/or electives. Discussion with an adviser prior to commencing an international experience is required to plan how courses meet requirements in the ESPM major.

All major requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C-.

Communication Skills
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
or AFEE 2421 - Professional Communication for Agriculture, Food, and the Environment (3.0 cr)
Biological Sciences

**BIOL 1001** - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)

or **BIOL 1009** - General Biology [BIOL] (4.0 cr)

Integrated ESPM Core

**ESPM 1011** - Issues in the Environment [ENV] (3.0 cr)

**ESPM 2021** - Environmental Sciences: Integrated Problem Solving (3.0 cr)

**ESPM 3000** - Seminar on Current Issues for ESPM (1.0 cr)

**ESPM 1001** - Freshmen Orientation to Environmental Sciences, Policy, and Management (1.0 cr)

or **ESPM 1002** - Transfer Orientation Seminar (1.0 cr)

**ESPM 4021W** - Problem Solving: Environmental Review [WI] (4.0 cr)

or **ESPM 4041W** - Problem Solving for Environmental Change [WI] (4.0 cr)

Experiential Learning

ESPM 4021W or ESPM 4041W fulfills this requirement.

Interdisciplinary Learning

ESPM 1011, ESPM 2021, ESPM 3575, ESPM 4021W, or ESPM 4041W fulfills this requirement.

Program Sub-plans

Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Corporate Environmental Management

The CEM track provides graduates with the fundamental skills to systematically determine the environmental burdens associated with a firm's products or manufacturing processes and to identify opportunities that generate value from environmental risk reduction, regulatory compliance programs, and other alternatives for improving environmental performance. The CEM track prepares students for positions in growing environmental, health, and safety organizations housed within private enterprises, consultancies, and governmental institutions, as well as for graduate study in business, public policy, environmental sciences, and industrial ecology.

Student experiences within this track focus on analytical tools; the business, legal, regulatory, and ethical framework in which industrial firms operate; physical, chemical, and biological mechanisms associated with industrial emissions; techniques used to reduce the environmental impacts of industrial activity; and effective communication.

Social Sciences

**ESPM 3261** - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)

or **APEC 1101** - Principles of Microeconomics [SOCS, GP] (4.0 cr)

or **ECON 1101** - Principles of Microeconomics [SOCS, GP] (4.0 cr)

**ESPM 3241W** - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)

or **ESPM 3271** - Environmental Policy, Law, and Human Behavior [CIV, SOCS] (3.0 cr)

Prerequisite CEM Courses

**ACCT 2050** - Introduction to Financial Reporting (4.0 cr)

**MATH 1271** - Calculus I [MATH] (4.0 cr)

**MATH 1272** - Calculus II (4.0 cr)

**STAT 3011** - Introduction to Statistical Analysis [MATH] (4.0 cr)

**MGMT 3001** - Fundamentals of Management (3.0 cr)

**PHYS 1301W** - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)

**PHYS 1302W** - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)

**CHEM 1061** - Chemical Principles I [PHYS] (3.0 cr)

**CHEM 1065** - Chemical Principles I Laboratory [PHYS] (1.0 cr)

**CHEM 1062** - Chemical Principles II [PHYS] (3.0 cr)

**CHEM 1066** - Chemical Principles II Laboratory [PHYS] (1.0 cr)

CEM Track Required Courses

**CE 3501** - Environmental Engineering [ENV] (3.0 cr)

**ESPM 3602** - Regulations and Corporate Environmental Management (3.0 cr)

**ESPM 3603** - Environmental Life Cycle Analysis (3.0 cr)

**ESPM 3604** - Environmental Management Systems and Strategy (3.0 cr)


**ESPM 4096** - Professional Experience Program: Internship (1.0 cr)

or **ESPM 3111** - Hydrology and Water Quality Field Methods (3.0 cr)

or Appropriate study abroad

or **FNRM 2101** - Identifying Forest Plants (1.0 cr)
with FNRM 2102 - Northern Forests: Field Ecology (2.0 cr)
with FNRM 2104 - Measuring Forest Resources (1.0 cr)

Track Contract Courses
Take 12 or more credit(s) from the following:

- ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
- ESPM 3605 - Recycling: Extending Raw Materials [TS] (3.0 cr)
- ESPM 3607 - Natural Resources Consumption and Sustainability [GP] (3.0 cr)
- ESPM 3656 - Composting and Organics Utilization (3.0 cr)
- ESPM 4216 - Contaminant Hydrology (3.0 cr)
- ESPM 4601 - Soils and Pollution (3.0 cr)
- ESPM 4607 - Industrial Biotechnology and the Environment (3.0 cr)
- BBE 4608 - Environmental and Industrial Microbiology (3.0 cr)
- ESPM 4609 - Air Pollution Impacts, Management, and Ethical Challenges [CIV] (3.0 cr)
- AFEE 3361 - World Development Problems [GP] (3.0 cr)
- APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
- BBE 2201 - Renewable Energy and the Environment [TS] (3.0 cr)
- BBE 3023 - Ecological Engineering Principles (3.0 cr)
- BBE 3033 - Material and Energy Balances in Biological Systems (3.0 cr)
- BBE 4504W - Bio-based Products Development and Management [WI] (3.0 cr)
- BBE 4535 - Assessment and Diagnosis of Impaired Waters (3.0 cr)
- BBE 4744 - Engineering Principles for Biological Scientists (4.0 cr)
- ENT 5121 - Applied Experimental Design (4.0 cr)
- ENGL 3501 - Public Discourse: Coming to Terms With the Environment [LITR, ENV] (3.0 cr)
- WRIT 3315 - Writing on Issues of Land and the Environment [AH, DSJ] (3.0 cr)
- HSCI 3244 - History of Ecology and Environmentalism [HIS, ENV] (3.0 cr)

Conservation and Resource Management
Students in the CRM track are involved in what Thoreau suggested was "environmental wisdom," or the ability to make effective decisions about the environment by synthesizing natural and human created facts and information. Students integrate this understanding with diverse economic and social insight to make effective decisions for the environment and society.

This track prepares students for technical support, operational, and managerial positions in diverse aspects of resource conservation and management with local, state, and federal agencies and the private sector. This track also prepares students for graduate study in a wide range of areas.

Students solve problems in field settings and communicate their understanding, synthesis, and decision-making to diverse audiences. They gain experience in the actual implementation of decisions. Students may also develop special skills through electives (e.g., geographic information systems, geospatial analysis).

Social Sciences
ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
or ESPM 3271 - Environmental Policy, Law, and Human Behavior [CIV, SOCS] (3.0 cr)

CRM Core Courses
MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
ESPM 3012 - Statistical Methods for Environmental Scientists and Managers [MATH] (4.0 cr)
or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
BIOL 2022 - General Botany (3.0 cr)
or BIOL 2012 - General Zoology (4.0 cr)
or ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
or ESPM 3101 - Conservation of Plant Biodiversity (3.0 cr)
or ESPM 3612W - Soil and Environmental Biology [WI] (3.0 cr)
or FNRM 1101 - Dendrology: Identifying Forest Trees and Shrubs (3.0 cr)
or FNRM 3104 - Forest Ecology (4.0 cr)
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
or BIQC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)
or BIQC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)  
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)  
SOIL 1125 - The Soil Resource [ENV] (4.0 cr)  
or SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)

**Internship**

Requires approval and supervision by faculty adviser from track.  
ESPM 4096 - Professional Experience Program: Internship (1.0 cr)

**CRM Contract Courses**

Courses taken to meet other requirements cannot be double counted here, nor can courses count for multiple groups. Course selections from contract area must be made through a faculty adviser. A contract is required.

Take 36 or more credit(s) including 4 or more sub-requirements(s) from the following:

**Conservation and Management**

Take 10 or more credit(s) from the following:

- ESPM 3101 - Conservation of Plant Biodiversity (3.0 cr)
- ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
- ESPM 3221 - Soil Conservation and Land-Use Management (3.0 cr)
- ESPM 3575 - Wetlands (3.0 cr)
- ESPM 3602 - Regulations and Corporate Environmental Management (3.0 cr)
- ESPM 3603 - Environmental Life Cycle Analysis (3.0 cr)
- ESPM 3607 - Natural Resources Consumption and Sustainability [GP] (3.0 cr)
- ESPM 3612W - Soil and Environmental Biology [WI] (3.0 cr)
- ESPM 3656 - Composting and Organics Utilization (3.0 cr)
- ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
- ESPM 4216 - Contaminant Hydrology (3.0 cr)
- ESPM 4601 - Soils and Pollution (3.0 cr)
- BBE 4608 - Environmental and Industrial Microbiology (3.0 cr)
- ESPM 4609 - Air Pollution Impacts, Management, and Ethical Challenges [CIV] (3.0 cr)
- BBE 4504W - Bio-based Products Development and Management [WI] (3.0 cr)
- BBE 4535 - Assessment and Diagnosis of Impaired Waters (3.0 cr)
- EEB 3603 - Science, Protection, and Management of Aquatic Environments (3.0 cr)
- ENT 3925 - Insects, Aquatic Habitats, and Pollution (3.0 cr)
- ENT 4251 - Forest and Shade Tree Entomology (3.0 cr)
- FNRM 3104 - Forest Ecology (4.0 cr)
- FNRM 3114 - Hydrology and Watershed Management (3.0 cr)
- FNRM 3411 - Managing Forest Ecosystems: Silviculture (3.0 cr)
- FNRM 5153 - Forest Hydrology & Watershed Biogeochemistry (3.0 cr)
- FW 4102 - Principles of Conservation Biology [ENV] (3.0 cr)
- FW 4103 - Principles of Wildlife Management (3.0 cr)
- FW 5604W - Fisheries Ecology and Management [WI] (3.0 cr)
- HORT 5071 - Ecological Restoration (4.0 cr)
- SOIL 3416 - Plant Nutrients in the Environment (3.0 cr)
- SOIL 5555 - Wetland Soils (3.0 cr)
- ENGL 3501 - Public Discourse: Coming to Terms With the Environment [LITR, ENV] (3.0 cr)
- HSCI 3244 - History of Ecology and Environmentalism [HIS, ENV] (3.0 cr)
- WRIT 3315 - Writing on Issues of Land and the Environment [AH, DSJ] (3.0 cr)

*Minimum of 7 credits which must include one course in the sub-requirement list.*

Take 1 or more course(s) totaling 2 - 3 credit(s) from the following:

- ESPM 3031 - Applied Global Positioning Systems for Geographic Information Systems (3.0 cr)
- ESPM 3211 - Survey, Measurement, and Modeling for Environmental Analysis (3.0 cr)
- ESPM 4021W - Problem Solving: Environmental Review [WI] (4.0 cr)
- ESPM 4295W - GIS in Environmental Science and Management [WI] (4.0 cr)
- FNRM 3218 - Measuring and Modeling Forests (3.0 cr)
- FNRM 3262 - Remote Sensing of Natural Resources and Environment (3.0 cr)
- FNRM 5412 - Digital Remote Sensing (3.0 cr)
- FW 5051 - Analysis of Populations (4.0 cr)
- GIS 5571 - ArcGIS I (3.0 cr)

*Must register for one of these two courses.*

- *FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)*  
or  *GEOG 3561 - Principles of Geographic Information Science (4.0 cr)*

*Take 1 or more course(s) totaling 2 - 3 credit(s) from the following:*  
- ESPM 3031 - Applied Global Positioning Systems for Geographic Information Systems (3.0 cr)
- ESPM 3111 - Hydrology and Water Quality Field Methods (3.0 cr)
- PBIO 4321 - Minnesota Flora (3.0 cr)
- SOIL 4093 - Directed Study (1.0 - 7.0 cr)
- SOIL 4511 - Field Study of Soils (2.0 cr)
• FNRM 2101 - Identifying Forest Plants (1.0 cr)
  with FNRM 2102 - Northern Forests: Field Ecology (2.0 cr)
  with FNRM 2104 - Measuring Forest Resources (1.0 cr)
• Take 3 or more credit(s) from the following:
  • ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
  • ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
  • ESPM 3271 - Environmental Policy, Law, and Human Behavior [CIV, SOCS] (3.0 cr)
  • ESPM 3602 - Regulations and Corporate Environmental Management (3.0 cr)
  • ESPM 3604 - Environmental Management Systems and Strategy (3.0 cr)
  • ESPM 4242 - Methods for Environmental and Natural Resource Policy Analysis (3.0 cr)

Environmental Education & Communication
Students in the EEC track gain a solid base of knowledge in the environmental sciences, environmental ethics, and the social context of environmental issues, and they develop a practical set of skills for teaching effectively in informal settings and for communicating clearly in written, oral, and electronic forms. This track prepares students to work at government agencies, nature centers, parks, non-governmental organizations, and similar institutions, and is appropriate for students who wish to gain a broad understanding of environmental issues and the choices humans can make to mitigate unwanted impacts of human behavior on the environment.

Students may specialize in a content area through a minor, study abroad experience in ESPM topics, and/or a student designed content area. Students are encouraged to make choices that strengthen their expertise in an area and/or provide comparative understanding from another culture or discipline.

Courses listed in the track but not taken are good possibilities for use in a content area, as are courses listed below. ESPM students should see their adviser for a list of minors.

Mathematical Thinking
STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
or SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)
or ESPM 3012 Statistical Methods. Take only if your CLE mathematical thinking requirement is satisfied by another course.

Physical Science
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)

Social Sciences
ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
or ESPM 3271 - Environmental Policy, Law, and Human Behavior [CIV, SOCS] (3.0 cr)

Education and Communication
ESPM 2401 - Environmental Education/Interpretation (3.0 cr)
COMM 3441 - Introduction to Organizational Communication (3.0 cr)
or COMM 3451W - Intercultural Communication: Theory and Practice [WI] (3.0 cr)
or ENGL 3501 - Public Discourse: Coming to Terms With the Environment [LITR, ENV] (3.0 cr)
or WRIT 3152W - Writing on Issues of Science and Technology [WI] (4.0 cr)
or WRIT 3221W - Communication Modes and Methods [WI] (4.0 cr)
or WRIT 3701W - Rhetorical Theory for Writing Studies [WI] (4.0 cr)
ESPM 4811 - Environmental Interpretation (3.0 cr)
or CI 5534 - Studies in Science Education (3.0 cr)
or CI 5537 - Principles of Environmental Education (3.0 cr)
or CI 5747 - Global and Environmental Education: Content and Practice (3.0 cr)
or REC 4301 - Wilderness and Adventure Education (4.0 cr)
or REC 4311 - Programming Outdoor & Env Ed (3.0 cr)
EPSY 5243 - Principles and Methods of Evaluation (3.0 cr)
or OLDP 5501 - Principles and Methods of Evaluation (3.0 cr)
or FNRM 5259 - Visitor Behavior Analysis (3.0 cr)

Human Dimensions
ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
or PHIL 3301 - Environmental Ethics [ENV] (4.0 cr)
Take 2 or more course(s) from the following:
  • ESPM 3607 - Natural Resources Consumption and Sustainability [GP] (3.0 cr)
  • ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
  • ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
  • GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
  • GEOG 3376 - Political Ecology of North America [ENV] (3.0 cr)
  • HSCI 3244 - History of Ecology and Environmentalism [HIS, ENV] (3.0 cr)
SOC 3451W - Cities & Social Change [WI] (3.0 cr)
SOC 4311 - Race, Class, and the Politics of Nature (3.0 cr)
WRIT 3315 - Writing on Issues of Land and the Environment [AH, DSJ] (3.0 cr)
CSCL 3361 - Visions of Nature: The Natural World and Political Thought [ENV] (3.0 cr)

Natural Sciences

Ecology
BIOL 3407 - Ecology (3.0 cr)
or BIOL 3408W - Ecology [WI] (3.0 cr)
or EEB 3001 - Ecology and Society [ENV] (3.0 cr)
or FNRM 3104 - Forest Ecology (4.0 cr)
or FW 2003 - Introduction to Marine Biology (3.0 cr)

Physical Environment
ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
or BBE 2201 - Renewable Energy and the Environment [TS] (3.0 cr)
or EEB 3603 - Science, Protection, and Management of Aquatic Environments (3.0 cr)
or EEB 5601 - Limnology (3.0 cr)
or FNRM 3114 - Hydrology and Watershed Management (3.0 cr)
or ESCI 1001 - Earth and Its Environments [PHYS, ENV] (4.0 cr)
or PHYS 1001W - Energy and the Environment [PHYS, ENV, WI] (4.0 cr)
or SOIL 1125 - The Soil Resource [ENV] (4.0 cr)

Organismal Biology
Take 3 or more course(s) including 2 or more sub-requirements(s) from the following:

Plant
Take 1 or more course(s) from the following:
• BIOL 2022 - General Botany (3.0 cr)
• FNRM 1101 - Dendrology: Identifying Forest Trees and Shrubs (3.0 cr)
• PBIO 4321 - Minnesota Flora (3.0 cr)
• PBIO 4511 - Flowering Plant Diversity (3.0 cr)

Animal
Take 1 or more course(s) from the following:
• BIOL 2012 - General Zoology (4.0 cr)
• EEB 4129 - Mammalogy (4.0 cr)
• EEB 4134 - Introduction to Ornithology (4.0 cr)
• ENT 1005 - Insect Biology [BIOL] (4.0 cr)
• ENT 5361 - Aquatic Insects (4.0 cr)
• FW 4101 - Herpetology (4.0 cr)
• FW 4136 - Ichthyology (4.0 cr)

Complex Human and Natural Systems
ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
or EEB 5146 - Science and Policy of Global Environmental Change (3.0 cr)
or FNRM 4501 - Urban Forest Management: Managing Greenspaces for People (3.0 cr)
or FNRM 5146 - Science and Policy of Global Environmental Change (3.0 cr)
or FW 2001W - Introduction to Fisheries, Wildlife, and Conservation Biology [ENV, WI] (3.0 cr)
or FW 4102 - Principles of Conservation Biology [ENV] (3.0 cr)
or HORT 5071 - Ecological Restoration (4.0 cr)
or LA 3501 - Environmental Design and Its Biological and Physical Context [ENV] (3.0 cr)
or URBS 3751 - Understanding the Urban Environment [ENV] (3.0 cr)

Field Experience
ESPM 4096 - Professional Experience Program: Internship (1.0 cr)
or FNRM 2101 - Identifying Forest Plants (1.0 cr)
with FNRM 2102 - Northern Forests: Field Ecology (2.0 cr)
with FNRM 2104 - Measuring Forest Resources (1.0 cr)

Environmental Science
The ES track focuses on the application and integration of basic and applied sciences to solve complex environmental problems. Students can earn professional licenses and certification in several areas and will be qualified to work as soil scientists, hydrologists, water quality and wetland ecology scientists, environmental remediation scientists, climatologists, and atmospheric scientists. Graduates find jobs with environmental regulatory agencies, private consulting firms, and nonprofit organizations. This track provides a diverse basic and applied science background that also prepares students for scientific research through advanced graduate studies.

Students in this track use an understanding of biology, chemistry, physics, and mathematics to develop a broad knowledge base in soil, hydrologic, atmospheric, and biological sciences. Students study the interaction between science and the functioning of urban, forested, and agricultural lands, as well as hydrologic, atmospheric, soil, and wetland resources.

Social Sciences
ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
or ESPM 3271 - Environmental Policy, Law, and Human Behavior [CIV, SOCS] (3.0 cr)

Additional Basic Science and Math Courses

ESPM 3131 - Environmental Physics (3.0 cr)
PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
BIOC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)
or BIOL 2012 - General Zoology (4.0 cr)
or BIOL 2022 - General Botany (3.0 cr)
ESPM 3012 - Statistical Methods for Environmental Scientists and Managers [MATH] (4.0 cr)
or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)

Applied Sciences and Technology Courses

ESPM 1425 - The Atmosphere [PHYS, ENV] (4.0 cr)
ESPM 4096 - Professional Experience Program: Internship (1.0 cr)
FNRM 3114 - Hydrology and Watershed Management (3.0 cr)
ESCI 1001 - Earth and its Environments [PHYS, ENV] (4.0 cr)
SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)
FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)
or GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
or BIOL 3407 - Ecology (3.0 cr)
or BIOL 3408W - Ecology [WI] (3.0 cr)
or FNRM 3104 - Forest Ecology (4.0 cr)
or FNRM 3411 - Managing Forest Ecosystems: Silviculture (3.0 cr)

Take 2 or more credit(s) from the following:
• ESPM 3031 - Applied Global Positioning Systems for Geographic Information Systems (3.0 cr)
• ESPM 3111 - Hydrology and Water Quality Field Methods (3.0 cr)
• PBio 4321 - Minnesota Flora (3.0 cr)
• SOIL 3521 - Soil Judging (1.0 cr)
• SOIL 4093 - Directed Study (1.0 - 7.0 cr)
• SOIL 4511 - Field Study of Soils (2.0 cr)
• FNRM 2101 - Identifying Forest Plants (1.0 cr)
  with FNRM 2102 - Northern Forests: Field Ecology (2.0 cr)
  with FNRM 2104 - Measuring Forest Resources (1.0 cr)

ES Contract Courses

Students must develop a contract with their faculty adviser to create an area of specialization. All track electives must be upper division. Depending on the selected courses, students have the opportunity to become certified or licensed as a professional soil scientist, hydrologist, wetland delineator, erosion control specialist, or site evaluator for individual sewage treatment system. Below are sample courses that could be taken to complete a contract; it is not a comprehensive list.

Take 9 or more credit(s) from the following:
Take 0 - 21 credit(s) from the following:
• ESPM 3221 - Soil Conservation and Land-Use Management (3.0 cr)
• ESPM 3612W - Soil and Environmental Biology [WI] (3.0 cr)
• ESPM 3656 - Composting and Organics Utilization (3.0 cr)
• LAAS 5515 - Soil Formation: Earth Surface Processes and Biogeochemistry (3.0 cr)
• SOIL 3416 - Plant Nutrients in the Environment (3.0 cr)
• SOIL 3521 - Soil Judging (1.0 cr)
• SOIL 4511 - Field Study of Soils (2.0 cr)
• SOIL 5555 - Wetland Soils (3.0 cr)
• ESCI 4703 - Glacial Geology (4.0 cr)
• WRIT 3315 - Writing on Issues of Land and the Environment [AH, DSJ] (3.0 cr)

• Take 0 - 21 credit(s) from the following:
  • ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
  • ESPM 4216 - Contaminant Hydrology (3.0 cr)
  • EEB 3603 - Science, Protection, and Management of Aquatic Environments (3.0 cr)
  • EEB 5605 - Limnology Laboratory (2.0 cr)
  • FNRM 5153 - Forest Hydrology & Watershed Biogeochemistry (3.0 cr)

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Information current as of December 12, 2014
• FW 5604W - Fisheries Ecology and Management [WI] (3.0 cr)
• PUBH 6190 - Environmental Chemistry (3.0 cr)
• WRS 5101 - Water Policy (3.0 cr)
• Take 0 - 21 credit(s) from the following:
  • ESPM 3612W - Soil and Environmental Biology [WI] (3.0 cr)
  • ESPM 5402 - Biometeorology (3.0 cr)
  • AGRO 4505 - Biology, Ecology, and Management of Invasive Plants (3.0 cr)
  • AGRO 5321 - Ecology of Agricultural Systems (3.0 cr)
  • BIOL 3002 - Plant Biology: Function (2.0 cr)
  • BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)
  • BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
  • EEB 3963 - Modeling Nature and the Nature of Modeling (3.0 cr)
  • EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
  • EEB 4611 - Biogeochemical Processes (3.0 cr)
  • ENT 5361 - Aquatic Insects (4.0 cr)
  • FNRM 3104 - Forest Ecology (4.0 cr)
  • FNRM 3203 - Forest Fire and Disturbance Ecology (3.0 cr)
  • FNRM 3204 - Landscape Ecology and Management (3.0 cr)
  • FNRM 3411 - Managing Forest Ecosystems: Silviculture (3.0 cr)
  • FNRM 5146 - Science and Policy of Global Environmental Change (3.0 cr)
  • FW 3565 - Fisheries and Wildlife Ecology and Management: Field Trip (2.0 cr)
  • HORT 5071 - Ecological Restoration (4.0 cr)
  • LA 3204 - Holistic Landscape Ecology and Bioregional Practice (3.0 cr)
  • BIOL 4121 - Microbial Ecology and Applied Microbiology (3.0 cr)
  • ENGL 3501 - Public Discourse: Coming to Terms With the Environment [LITR, ENV] (3.0 cr)
  • HIST 3417 - Food in History [HIS, ENV] (3.0 cr)
• Take 0 - 21 credit(s) from the following:
  • BIOL 3407 - Ecology (3.0 cr)
   or BIOL 3408W - Ecology [WI] (3.0 cr)
• Take 0 - 21 credit(s) from the following:
  • ESPM 3425 - Atmospheric Pollution: From Smog to Climate Change (3.0 cr)
  • ESPM 5402 - Biometeorology (3.0 cr)
  • ESCI 3002 - Climate Change and Human History [ENV] (3.0 cr)
  • GEOG 5423 - Climate Models and Modeling (3.0 cr)
  • GEOG 5426 - Climatic Variations (3.0 cr)
  • GEOG 5565 - Geographical Analysis of Human-Environment Systems (3.0 cr)
• Take 0 - 21 credit(s) from the following:
  • ESPM 3211 - Survey, Measurement, and Modeling for Environmental Analysis (3.0 cr)
  • ESPM 3603 - Environmental Life Cycle Analysis (3.0 cr)
  • ESPM 4216 - Contaminant Hydrology (3.0 cr)
  • ESPM 4295W - GIS in Environmental Science and Management [WI] (4.0 cr)
  • ESPM 4601 - Soils and Pollution (3.0 cr)
  • ESPM 5601 - Principles of Waste Management (3.0 cr)
  • CE 3501 - Environmental Engineering [ENV] (3.0 cr)
  • CHEM 2301 - Organic Chemistry I (3.0 cr)
  • ENT 5241 - Ecological Risk Assessment (3.0 cr)
  • FNRM 3218 - Measuring and Modeling Forests (3.0 cr)
  • FNRM 3262 - Remote Sensing of Natural Resources and Environment (3.0 cr)
  • FNRM 5412 - Digital Remote Sensing (3.0 cr)
  • GEOG 3401 - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
  • GEOG 3531 - Numerical Spatial Analysis (4.0 cr)
  • GIS 5563 - Advanced Geographic Information Science (3.0 cr)
  • GIS 5571 - ArcGIS I (3.0 cr)
  • PUBH 6103 - Exposure to Environmental Hazards (2.0 cr)
  • PUBH 6104 - Environmental Health Effects: Introduction to Toxicology (2.0 cr)
  • PUBH 6105 - Environmental and Occupational Health Policy (2.0 cr)
  • PUBH 6132 - Air, Water, and Health (2.0 cr)
  • PUBH 6171 - Exposure Assessment for Air Contaminants (3.0 cr)
  • PUBH 6175 - Environmental Measurements Laboratory (2.0 cr)

**Policy, Planning, Law and Society**

The PPLS track focuses on developing understanding and problem-solving skills germane to the interaction between human and natural systems. Students will be well prepared for policy development and analysis, strategy development, and decision-making in a range of positions and institutional settings. Example positions include those as a policy analyst, community planner, social researcher, or lawyer in public agencies, with legislative bodies, consulting firms, and conservation organizations. This track also prepares students...
for graduate study in policy, planning, and law programs.

Students study concepts, issues, and problem solving approaches that address the policy, legal, economic, political, planning and sociological aspects of environment and natural resource management. This study includes ethics and conflict management. The track further emphasizes an interdisciplinary approach for examining problems, such as sustainable land use planning, resource conservation and management, law, and environmental protection at a range of political levels and spatial scales and developing effective and innovative solutions. Students develop skill in integrating knowledge from the physical, biological, and social sciences to develop policy and planning alternatives and appropriate strategies to provide real solutions to complex problems.

### Physical Science

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1015</td>
<td>Introductory Chemistry: Lecture</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>CHEM 1017</td>
<td>Introductory Chemistry: Laboratory</td>
<td>1.0 cr</td>
</tr>
</tbody>
</table>

### PPLS Core and Contract Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESPM 3241W</td>
<td>Natural Resource and Environmental Policy [SOCS, CIV, WI]</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>ESPM 3261</td>
<td>Economics and Natural Resources Management [SOCS, ENV]</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>ESPM 3271</td>
<td>Environmental Policy, Law, and Human Behavior [CIV, SOCS]</td>
<td>3.0 cr</td>
</tr>
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### Policy and Planning

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ESPM 3202W</td>
<td>Environmental Conflict Management, Leadership, and Planning [WI]</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>ESPM 3245</td>
<td>Sustainable Land Use Planning and Policy [ENV]</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>ESPM 4242</td>
<td>Methods for Environmental and Natural Resource Policy Analysis</td>
<td>3.0 cr</td>
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<tr>
<td>ESPM 4256</td>
<td>Natural Resource Law and the Management of Public Lands and Waters [3.0 cr]</td>
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</tbody>
</table>

Choice of ESPM 3251 (Natural Resources in Sustainable International Development) or an equivalent study abroad course.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ESPM 3251</td>
<td>Natural Resources in Sustainable International Development [GP]</td>
<td>3.0 cr</td>
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<tr>
<td>or</td>
<td>Appropriate Study Abroad</td>
<td></td>
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</tbody>
</table>

### Field Session Options

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESPM 4056</td>
<td>Professional Experience Program: Internship</td>
<td>1.0 cr</td>
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<tr>
<td>or</td>
<td>Cloquet Field Session</td>
<td></td>
</tr>
<tr>
<td>FNRM 2101</td>
<td>Identifying Forest Plants</td>
<td>1.0 cr</td>
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<tr>
<td>or</td>
<td>FNRM 2102 - Northern Forests: Field Ecology</td>
<td>2.0 cr</td>
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<tr>
<td>or</td>
<td>FNRM 2104 - Measuring Forest Resources</td>
<td>1.0 cr</td>
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</tbody>
</table>

### Methods

Choose one course from the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESPM 3211</td>
<td>Survey, Measurement, and Modeling for Environmental Analysis</td>
<td>3.0 cr</td>
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<tr>
<td>or</td>
<td>POL 3085 - Quantitative Analysis in Political Science [MATH]</td>
<td>4.0 cr</td>
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<tr>
<td>or</td>
<td>PSY 3001W - Introduction to Research Methods [WI]</td>
<td>4.0 cr</td>
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<tr>
<td>or</td>
<td>FNRM 5259 - Visitor Behavior Analysis</td>
<td>3.0 cr</td>
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</tbody>
</table>

Take exactly one course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FNRM 3131</td>
<td>Geographical Information Systems (GIS) for Natural Resources [TS]</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>or</td>
<td>GEOG 3561 - Principles of Geographic Information Science</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>ESPM 3012</td>
<td>Statistical Methods for Environmental Scientists and Managers [MATH]</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>or</td>
<td>STAT 3011 - Introduction to Statistical Analysis [MATH]</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>or</td>
<td>SOC 3811 - Basic Social Statistics [MATH]</td>
<td>4.0 cr</td>
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</tbody>
</table>

### Ecology and Management

Choose 3 credits from the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESPM 3108</td>
<td>Ecology of Managed Systems [ENV]</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>or</td>
<td>ESPM 3656 - Composting and Organics Utilization</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>or</td>
<td>ESPM 3575 - Wetlands</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>or</td>
<td>FNRM 3104 - Forest Ecology</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>or</td>
<td>FNRM 3411 - Managing Forest Ecosystems: Silviculture</td>
<td>3.0 cr</td>
</tr>
</tbody>
</table>

Choose 6-8 credits from the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESPM 3603</td>
<td>Environmental Life Cycle Analysis</td>
<td>3.0 cr</td>
</tr>
<tr>
<td>or</td>
<td>ESPM 3604 - Environmental Management Systems and Strategy</td>
<td>3.0 cr</td>
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<tr>
<td>or</td>
<td>ESPM 4021W - Problem Solving: Environmental Review [WI]</td>
<td>4.0 cr</td>
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<tr>
<td>or</td>
<td>ESPM 4061W - Water Quality and Natural Resources [ENV, WI]</td>
<td>3.0 cr</td>
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<tr>
<td>or</td>
<td>BBE 2201 - Renewable Energy and the Environment [TS]</td>
<td>3.0 cr</td>
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<tr>
<td>or</td>
<td>FNRM 3114 - Hydrology and Watershed Management</td>
<td>3.0 cr</td>
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<tr>
<td>or</td>
<td>FNRM 5146 - Science and Policy of Global Environmental Change</td>
<td>3.0 cr</td>
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<tr>
<td>or</td>
<td>FNRM 3101 - Park and Protected Area Tourism</td>
<td>3.0 cr</td>
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<tr>
<td>or</td>
<td>FNRM 4232W - Managing Recreational Lands [WI]</td>
<td>4.0 cr</td>
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<tr>
<td>or</td>
<td>SOIL 1125 - The Soil Resource [ENV]</td>
<td>4.0 cr</td>
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<tr>
<td>or</td>
<td>SOIL 2125 - Basic Soil Science [PHYS, ENV]</td>
<td>4.0 cr</td>
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</tbody>
</table>

### PPLS Contract Courses

Students must specialize in a content area to strengthen their expertise, through a minor, appropriate study abroad experience, and/or a student designed area. Courses listed in the track but not taken are good choices for use in a content area, as are courses listed below. PPLS students should see their adviser for a list of appropriate minors. Submit a contract for 12 credits of 3XXX or above credits, completed through prior consultation with your faculty adviser.
Take 12 or more credit(s) from the following:
• ESPM 3xxx
• AGRO 3xxx
• APEC 3xxx
• BBE 3xxx
• COMM 3xxx
• ECON 3xxx
• ENT 3xxx
• FR 3xxx
• FW 3xxx
• GEOG 3xxx
• GLOS 3xxx
• MGMT 3xxx
• POL 3xxx
• RRM 3xxx
• SOIL 3xxx
• WIRT 3xxx
• WRS 3xxx
Twin Cities Campus
Environmental Sciences, Policy and Management Minor
College of Food, Agri & Natural Resource Sciences
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16

The environmental sciences, policy and management minor provides students in programs such as biology, education, journalism, political science, and others with the basic understanding to recognize, evaluate, and develop solutions to a range of environmental problems. Students interested in the minor should contact Student Services in 190 Coffey Hall.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Minor Core
Take 2 or more course(s) totaling 6 - 8 credit(s) from the following:
- ESPM 1011 - Issues in the Environment [ENV] (3.0 cr)
- ESPM 3607 - Natural Resources Consumption and Sustainability [GP] (3.0 cr)
- FW 2001W - Introduction to Fisheries, Wildlife, and Conservation Biology [ENV, WI] (3.0 cr)
- SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)
- BIOL 3407 - Ecology (3.0 cr)
  or BIOL 3408W - Ecology [WI] (3.0 cr)
  or EEB 3001 - Ecology and Society [ENV] (3.0 cr)
  or FNRM 3104 - Forest Ecology (4.0 cr)

Electives
See your minor adviser for a list of these courses arranged by the following themes: environmental education and communication; environmental management and policy; and environmental and biological sciences. Students may but are not required to take all 10 credits in one thematic area.
NOTE: at least two courses MUST have an ESPM designator.
Take 10 or more credit(s) from the following:
- ESPM 2401 - Environmental Education/Interpretation (3.0 cr)
- ESPM 3002 (Inactive) (1.0 cr)
- ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
- ESPM 3101 - Conservation of Plant Biodiversity (3.0 cr)
- ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
- ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
- ESPM 3211 - Survey, Measurement, and Modeling for Environmental Analysis (3.0 cr)
- ESPM 3221 - Soil Conservation and Land-Use Management (3.0 cr)
- ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
- ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
- ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
- ESPM 3271 - Environmental Policy, Law, and Human Behavior [CIV, SOCS] (3.0 cr)
- ESPM 3575 - Wetlands (3.0 cr)
- ESPM 3601 - Sustainable Housing--Community, Environment, and Technology [TS] (3.0 cr)
- ESPM 3602 - Regulations and Corporate Environmental Management (3.0 cr)
- ESPM 3603 - Environmental Life Cycle Analysis (3.0 cr)
- ESPM 3604 - Environmental Management Systems and Strategy (3.0 cr)
- ESPM 3605 - Recycling: Extending Raw Materials [TS] (3.0 cr)
- ESPM 3612W - Soil and Environmental Biology [WI] (3.0 cr)
- ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
- ESPM 4216 - Contaminant Hydrology (3.0 cr)
- ESPM 4256 - Natural Resource Law and the Management of Public Lands and Waters (3.0 cr)
- ESPM 4295W - GIS in Environmental Science and Management [WI] (4.0 cr)
• ESPM 4601 - Soils and Pollution (3.0 cr)
• ESPM 4607 - Industrial Biotechnology and the Environment (3.0 cr)
• BBE 4608 - Environmental and Industrial Microbiology (3.0 cr)
• ESPM 4811 - Environmental Interpretation (3.0 cr)
• ESPM 5601 - Principles of Waste Management (3.0 cr)
• BBE 2201 - Renewable Energy and the Environment [TS] (3.0 cr)
• CI 5537 - Principles of Environmental Education (3.0 cr)
• CI 5747 - Global and Environmental Education: Content and Practice (3.0 cr)
• EEB 3603 - Science, Protection, and Management of Aquatic Environments (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• EEB 4611 - Biogeochemical Processes (3.0 cr)
• ENT 3925 - Insects, Aquatic Habitats, and Pollution (3.0 cr)
• ENT 5241 - Ecological Risk Assessment (3.0 cr)
• FNRM 1101 - Dendrology: Identifying Forest Trees and Shrubs (3.0 cr)
• FNRM 3114 - Hydrology and Watershed Management (3.0 cr)
• FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)
• FNRM 3203 - Forest Fire and Disturbance Ecology (3.0 cr)
• FNRM 3204 - Landscape Ecology and Management (3.0 cr)
• FNRM 3218 - Measuring and Modeling Forests (3.0 cr)
• FNRM 3411 - Managing Forest Ecosystems: Silviculture (3.0 cr)
• FNRM 5146 - Science and Policy of Global Environmental Change (3.0 cr)
• FW 4102 - Principles of Conservation Biology [ENV] (3.0 cr)
• FW 5411 (Inactive) (3.0 cr)
• FW 5604W - Fisheries Ecology and Management [WI] (3.0 cr)
• HSCI 3244 - History of Ecology and Environmentalism [HIS, ENV] (3.0 cr)
• PBIO 4321 - Minnesota Flora (3.0 cr)
• PBIO 4511 - Flowering Plant Diversity (3.0 cr)
• PHL 3301 - Environmental Ethics [ENV] (4.0 cr)
• REC 4301 - Wilderness and Adventure Education (4.0 cr)
• SOIL 5555 - Wetland Soils (3.0 cr)
• SUST 3003 - Sustainable People, Sustainable Planet [ENV] (3.0 cr)
Twin Cities Campus
Fisheries and Wildlife B.S.
Fisheries, Wildlife, and Conservation Biology
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 79 to 92
- This program requires summer terms.
- Degree: Bachelor of Science

The fisheries and wildlife curriculum gives students a broad science background emphasizing biological and environmental sciences and other coursework needed for careers in fisheries, wildlife, conservation biology, and other natural resource and environmental fields. Graduates are prepared to research, plan, and implement the management, protection, and enhancement of fisheries and aquatic resources, wildlife resources, and biological diversity. Graduates find employment as fisheries and wildlife scientists and managers, naturalists, zoo biologists, environmental biologists, environmental educators, and other natural resource professionals. The program also provides students with the fundamental science background needed to enter a wide variety of graduate programs in biological and natural resource sciences as well as professional programs in veterinary medicine, environmental law, and environmental education.

Students select an area of specialization, usually by the end of the sophomore year. Areas of specialization include conservation biology, fisheries, and wildlife. Although no computer course is required, students are expected to be computer literate and competent using word processing, spreadsheet, and email software.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
After completing a core curriculum that includes liberal education, communications, basic science, mathematics, and an orientation to the fields of fisheries, wildlife, and conservation biology, students complete additional credits in one of three areas of specialization: fisheries, wildlife, or conservation biology. Some of the core curriculum courses also fulfill diversified core and designated theme requirements. Electives to complete the required 120 credits are chosen in consultation with a program adviser.

Students may also fulfill the minimum requirements for admission to the University's College of Veterinary Medicine and other colleges of veterinary medicine by completing a bachelor's degree in fisheries and wildlife within any of the three areas of specialization.

All major requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C- or better.

Communication Skills
Take 1 or more course(s) from the following:
- COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
- WRIT 3257 - Technical and Professional Presentations (3.0 cr)
- WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Mathematical Thinking
Take 1 or more course(s) from the following:
- MATH 1142 - Short Calculus [MATH] (4.0 cr)
- MATH 1271 - Calculus I [MATH] (4.0 cr)
Take 1 or more course(s) from the following:
- FW 4001 - Biometry [WI] (4.0 cr)
- ESPM 3012 - Statistical Methods for Environmental Scientists and Managers [MATH] (4.0 cr)

Chemical and Biological Sciences
- CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
- CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
- BIOL 1009 - General Biology [BIOL] (4.0 cr)
- BIOL 2012 - General Zoology (4.0 cr)
- GCD 3022 - Genetics (3.0 cr)

Take 1 or more course(s) from the following:
- BIOL 3407 - Ecology (3.0 cr)
- BIOL 3408W - Ecology [WI] (3.0 cr)
- BIOL 3807 - Ecology (4.0 cr)

Fisheries, Wildlife, and Conservation Biology Courses
- FW 1001 - Orientation in Fisheries, Wildlife, and Conservation Biology (1.0 cr)
- FW 3106 - Important Plants in Fisheries and Wildlife Habitats (1.0 cr)
- FW 3108 - Field Methods in Research and Conservation of Vertebrate Populations (3.0 cr)
- FW 2001W - Introduction to Fisheries, Wildlife, and Conservation Biology [ENV, WI] (3.0 cr)

Second Professional
- Second Professional also can be satisfied with a pre-approved UROP or Directed Study. If you are interested, please discuss with Jim Perry, FW Major Coordinator.
- FW 4701 - Fisheries and Wildlife Problem Solving (2.0 cr)
- or FW 5625 - Wildlife Handling and Immobilization for Research and Management (2.0 cr)
- or CFAN 3096 - Making the Most of your Internship (1.0 cr)
- or CFAN 3502 - Bahamas/Tropical Marine Biology and Shark Ecology (2.0 cr)
- or CFAN 3504 - Vertebrate Research Design and Field Survey Techniques [GP] (3.0 cr)
- or CFAN 3514 - Machu Picchu: Biodiversity & Climate Change in Peru [ENV] (3.0 cr)

Social Science and Humanities
- ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
- or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1102 - Principles of Macroeconomics (3.0 cr)
- or ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or ECON 1102 - Principles of Macroeconomics (4.0 cr)

Interdisciplinary Learning
- FW 2001W fulfills this requirement.

Experiential Learning
- CFAN 3514 or FW 5051 fulfills this requirement.

Upper-division Writing Intensive within the major
- Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
- Take 0 - 1 course(s) from the following:
  - BIOL 3408W - Ecology [WI] (3.0 cr)
  - EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
  - ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
  - ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
  - ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
  - ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
  - FW 5603W - Habitats and Regulation of Wildlife [WI] (3.0 cr)
  - FW 5604W - Fisheries Ecology and Management [WI] (3.0 cr)
  - WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Program Sub-plans
- Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)
Conservation Biology
The conservation biology specialization is for students interested in careers dealing with a broad range of conservation issues in aquatic or terrestrial habitats. Positions typically focus on protection of endangered species and management for biodiversity. Careers as environmental educators or naturalists are also options.

All required courses in the specialization must be taken A-F and completed with a grade of at least C-.

**Human Dimensions**
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
- ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
- ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
- ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
- ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
- ESPM 3251 - Natural Resources in Sustainable International Development [GP] (3.0 cr)
- ESPM 3271 - Environmental Policy, Law, and Human Behavior [CIV, SOCS] (3.0 cr)
- SUST 3003 - Sustainable People, Sustainable Planet [ENV] (3.0 cr)
- FW 5003 - Human Dimensions of Biological Conservation (3.0 cr)

**Animals and Plants**
Take 2 or more course(s) from the following:
- FW 2003 - Introduction to Marine Biology (3.0 cr)
- FW 4136 - Ichthyology (4.0 cr)
- FW 4101 - Herpetology (4.0 cr)
- ENT 5021 - Insect Biodiversity and Evolution (4.0 cr)
- ENT 5361 - Aquatic Insects (4.0 cr)
- EEB 4129 - Mammalogy (4.0 cr)
  - or EEB 4839 - Field Studies in Mammalogy (4.0 cr)
- EEB 4134 - Introduction to Ornithology (4.0 cr)
  - or EEB 4844 - Field Ornithology (4.0 cr)
Take 1 or more course(s) from the following:
- FNRM 1101 - Dendrology: Identifying Forest Trees and Shrubs (3.0 cr)
- PBIO 4321 - Minnesota Flora (3.0 cr)
- PBIO 4511 - Flowering Plant Diversity (3.0 cr)

**Community and Ecosystem Ecology**
FNRM 3204 - Landscape Ecology and Management (3.0 cr)
Take 1 or more course(s) from the following:
- FNRM 3104 - Forest Ecology (4.0 cr)
- ESPM 3575 - Wetlands (3.0 cr)
- EEB 3603 - Science, Protection, and Management of Aquatic Environments (3.0 cr)
- EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
- ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
- ESPM 5071 - Ecological Restoration (4.0 cr)

**Conservation Biology**
FW 4102 - Principles of Conservation Biology [ENV] (3.0 cr)
FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)
Take 1 or more course(s) from the following:
- FW 4103 - Principles of Wildlife Management (3.0 cr)
- FW 5051 - Analysis of Populations (4.0 cr)
- FW 5603W - Habitats and Regulation of Wildlife [WI] (3.0 cr)
- FW 5604W - Fisheries Ecology and Management [WI] (3.0 cr)

Fisheries
The fisheries area of specialization is for students who wish to pursue careers in fisheries and aquatic resource science, management, and administration; fish hatchery management; and aquaculture, aquatic education, and aquatic environmental assessment. The curriculum meets the education criteria for the Certified Fisheries Professional designation established by the American Fisheries Society, the major professional organization for fisheries scientists and managers in North America.

All required courses in the specialization must be taken A-F and completed with a grade of at least C-.

**Human Dimensions**
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
- ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
- ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
- ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
- ESPM 3271 - Environmental Policy, Law, and Human Behavior [CIV, SOCS] (3.0 cr)
• FW 5003 - Human Dimensions of Biological Conservation (3.0 cr)

Animals and Plants
FW 4136 - Ichthyology (4.0 cr)
FW 4401 - Fish Physiology and Behavior (3.0 cr)
Take 1 or more course(s) from the following:
• FW 2003 - Introduction to Marine Biology (3.0 cr)
• FW 4101 - Herpetology (4.0 cr)
• ENT 5021 - Insect Biodiversity and Evolution (4.0 cr)
• ENT 5361 - Aquatic Insects (4.0 cr)

Community and Ecosystem Ecology
EEB 5601 - Limnology (3.0 cr)
Take 1 or more course(s) from the following:
• FNRM 3114 - Hydrology and Watershed Management (3.0 cr)
• FNRM 3204 - Landscape Ecology and Management (3.0 cr)
• ESPM 3575 - Wetlands (3.0 cr)
• ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• ESPM 5071 - Ecological Restoration (4.0 cr)

Fisheries
FW 5051 - Analysis of Populations (4.0 cr)
FW 5604W - Fisheries Ecology and Management [WI] (3.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
BIOC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)
or CHEM 2101 - Introductory Analytical Chemistry Lecture (3.0 cr)
or CHEM 2301 - Organic Chemistry I (3.0 cr)
Physical Sciences
Take 1 or more course(s).
PHYS 1001W - Energy and the Environment [PHYS, ENV, WI] (4.0 cr)
or PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
or PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)

Wildlife
The wildlife specialization is for students who wish to pursue careers in wildlife science, management, and administration; zoo biology; terrestrial ecology; environmental assessment; and education. With proper selection of electives, students can meet the education criteria for the Certified Wildlife Biologist designation established by the Wildlife Society, the major professional organization for wildlife scientists and managers in North America.

All required courses in the specialization must be taken A-F and completed with a grade of at least C-.

Human Dimensions
Take 2 or more course(s) from the following:
• ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
• ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
• ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
• ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
• ESPM 3271 - Environmental Policy, Law, and Human Behavior [CIV, SOCS] (3.0 cr)
• FW 5003 - Human Dimensions of Biological Conservation (3.0 cr)

Animal and Plants
Take 2 or more course(s) from the following:
• FW 4101 - Herpetology (4.0 cr)
• EEB 4129 - Mammalogy (4.0 cr)
or EEB 4839 - Field Studies in Mammalogy (4.0 cr)
• EEB 4134 - Introduction to Ornithology (4.0 cr)
or EEB 4844 - Field Ornithology (4.0 cr)
Take 1 or more course(s) from the following:
• FNRM 1101 - Dendrology: Identifying Forest Trees and Shrubs (3.0 cr)
• PBIO 4321 - Minnesota Flora (3.0 cr)
• PBIO 4511 - Flowering Plant Diversity (3.0 cr)

Community and Ecosystem Ecology
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• FNRM 3104 - Forest Ecology (4.0 cr)
• FNRM 3204 - Landscape Ecology and Management (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• ESPM 3575 - Wetlands (3.0 cr)
• ESPM 5071 - Ecological Restoration (4.0 cr)
• ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)

Wildlife
FW 4103 - Principles of Wildlife Management (3.0 cr)
FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)
FW 5051 - Analysis of Populations (4.0 cr)
FW 5603W - Habitats and Regulation of Wildlife [WI] (3.0 cr)

Physical Sciences
Take 1 or more course(s)

PHYS 1001W - Energy and the Environment [PHYS, ENV, WI] (4.0 cr)
or
PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
or
PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)

Pre-Veterinary Medicine
This sub-plan is optional and does not fulfill the sub-plan requirement for this program.

The doctor of veterinary medicine degree (D.V.M.) is a rigorous four-year professional program preceded by three to four years of pre-professional study. Although a bachelor's degree is not required for admission to the D.V.M. program, approximately 70 percent of the students entering the program each year have completed their bachelor's degree. Fisheries and wildlife is one of the primary college majors at the University of Minnesota that offers a pre-veterinary program.

The following courses are required in addition to the fisheries and wildlife core requirements and courses in one of three areas of specialization. These courses may be substituted for the "suggested courses" in the areas of specialization.

Required Courses
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
BIOC 3021 - Biochemistry (3.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2311 - Organic Lab (4.0 cr)
VBS 2032 - General Microbiology With Laboratory (5.0 cr)
or
MICB 3301 - Biology of Microorganisms (5.0 cr)
CHEM 2302 - Organic Chemistry II (3.0 cr)
or
CHEM 2304 - Organic Chemistry II for the Life Sciences (3.0 cr)
PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
PHYS 1102W - Introductory College Physics II [PHYS, WI] (4.0 cr)
or
PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
PHYS 1202W - Introductory Physics for Biology and Pre-medicine II [PHYS, WI] (5.0 cr)
or
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)

Other Recommended Courses
The following courses are not required to complete the pre-vet requirements.
ANSC 1101 - Introductory Animal Science (4.0 cr)
FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)
FW 4103 - Principles of Wildlife Management (3.0 cr)
ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
ESPM 3575 - Wetlands (3.0 cr)
FW 5603W - Habitats and Regulation of Wildlife [WI] (3.0 cr)
EEB 4129 - Mammalogy (4.0 cr)
ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
FNRM 1101 - Dendrology: Identifying Forest Trees and Shrubs (3.0 cr)
FW 5051 - Analysis of Populations (4.0 cr)
EEB 4134 - Introduction to Ornithology (4.0 cr)
Twin Cities Campus
Fisheries and Wildlife Minor
College of Food, Agricultural and Natural Resource Sciences

• Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 16 to 18

The fisheries and wildlife minor enables students in programs such as biology, communications, education, forestry, natural resources, environmental studies, and others to develop an understanding of the principles and practices of fisheries, wildlife, and conservation biology. An overview is provided of fish and wildlife biology and the general principles applied to managing their populations and habitats. Students interested in the minor should contact the CFANS Student Services Office.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
Ecology
BIOL 3407 - Ecology (3.0 cr)
or BIOL 3408W - Ecology [WI] (3.0 cr)
or FNRM 3104 - Forest Ecology (4.0 cr)
or Or any other ecology course

Principles of Fisheries, Wildlife and Conservation Biology
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• FW 2001W - Introduction to Fisheries, Wildlife, and Conservation Biology [ENV, WI] (3.0 cr)
• FW 2003 - Introduction to Marine Biology (3.0 cr)
• FW 4102 - Principles of Conservation Biology [ENV] (3.0 cr)
• FW 4103 - Principles of Wildlife Management (3.0 cr)

Human Dimensions
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• SUST 3003 - Sustainable People, Sustainable Planet [ENV] (3.0 cr)
• ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
• ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
• ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
• ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
• ESPM 3271 - Environmental Policy, Law, and Human Behavior [CIV, SOCS] (3.0 cr)

Taxonomy
Take 1 or more course(s) totaling 4 or more credit(s) from the following:
• FW 4101 - Herpetology (4.0 cr)
• EEB 4129 - Mammalogy (4.0 cr)
• EEB 4134 - Introduction to Ornithology (4.0 cr)
• FW 4136 - Ichthyology (4.0 cr)
• EEB 4839 - Field Studies in Mammalogy (4.0 cr)
• EEB 4844 - Field Ornithology (4.0 cr)

Advanced FW
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• FW 3108 - Field Methods in Research and Conservation of Vertebrate Populations (3.0 cr)
• FW 5051 - Analysis of Populations (4.0 cr)
• FW 5601 - Fisheries Population Analysis (3.0 cr)
• FW 5603W - Habitats and Regulation of Wildlife [WI] (3.0 cr)
• FW 5604W - Fisheries Ecology and Management [WI] (3.0 cr)
Twin Cities Campus

Food Science B.S.

Food Science & Nutrition

College of Food, Agricultural and Natural Resource Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 98 to 111
- No.
- Degree: Bachelor of Science

Food science applies chemistry, microbiology, and engineering to the science and technology of making foods.
Chemistry--because foods undergo chemical reactions when they are heated, frozen, mixed with each other, and stored.
Microbiology--because many foods are made by microorganisms (e.g., bread, cheese, yogurt, sauerkraut, tempeh), and because microorganisms cause extensive, rapid, and often dangerous spoilage.
Physics and engineering--because foods must be constructed, moved through the factory, made safe, and distributed intact to the consumer.
Food science involves creating new food products and making current products more stable, nutritious, convenient, reliable, and safe.
The food science program is offered through the College of Food, Agricultural and Natural Resource Sciences.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All major requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C- or better.

Foundation Courses
Students must take either MATH 1142 or MATH 1271 & MATH 1272, as well as BIOC 3021 or BIOC 4331 & BIOC 4332.

- BIOL 1009 - General Biology [BIOL] (4.0 cr)
- CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
- CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
- CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
- CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
- PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
- STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
- MATH 1142 - Short Calculus [MATH] (4.0 cr)
  or MATH 1271 - Calculus I [MATH] (4.0 cr)
- MATH 1272 - Calculus II (4.0 cr)

Students in both tracks must take BIOC 3021 or approved equivalent

- BIOC 3021 - Biochemistry (3.0 cr)
- BIOC 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
- BIOC 4332 - Biochemistry II: Molecular Mechanisms of Signal Transduction and Gene Expression (4.0 cr)

Interdisciplinary Learning
Core coursework which fulfills the CFANS requirement for an interdisciplinary course.

FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)

Experiential Learning
Course which fulfills the CFANS requirements for an Experiential Learning course

**FSCN 4349 - Food Science Capstone (2.0 cr)**

**Upper-division Writing Intensive within the major**

Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
- FSCN 4312W - Food Analysis [WI] (4.0 cr)
- WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

**Program Sub-plans**

Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

**Food Science Track A**

Food Science Track A complies with the Core Competencies Student Learning Objectives of the Institute of Food Technologists (IFT): the professional organization in Food Science that provides approval to undergraduate programs. Students default into the Track A sub-plan. Students must meet with an adviser in order to declare the Track B sub-plan.

**Additional Foundation Courses - Chemistry**
- CHEM 2301 - Organic Chemistry I (3.0 cr)
- CHEM 2302 - Organic Chemistry II (3.0 cr)
- CHEM 2311 - Organic Lab (4.0 cr)

**Professional Courses**
- BBE 4744 - Engineering Principles for Biological Scientists (4.0 cr)
- FSCN 1112 - Principles of Nutrition (3.0 cr)
- FSCN 3102 - Introduction to Food Science (3.0 cr)
- FSCN 4121 - Food Microbiology (3.0 cr)
- FSCN 4122 - Food Fermentations and Biotechnology (2.0 cr)
- FSCN 4123 - Molecular Biology for Applied Scientists (1.0 cr)
- FSCN 4131 - Food Quality (3.0 cr)
- FSCN 4312W - Food Analysis [WI] (4.0 cr)
- FSCN 4332 - Food Processing Operations (3.0 cr)
- FSCN 4311 - Chemical Reactions in Food Systems (2.0 cr)
- FSCN 4112 - Food Chemistry and Functional Foods (3.0 cr)
- FSCN 4481 - Sensory Evaluation of Food Quality (1.0 cr)

**Communication**
- WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

**Public Speaking/Professional Communication**
- COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
  - or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
  - or AFEE 2421 - Professional Communication for Agriculture, Food, and the Environment (3.0 cr)

**Additional Foundation Courses - Microbiology**
- FSCN 2021 - Introductory Microbiology (4.0 cr)
  - or VBS 2032 - General Microbiology With Laboratory (5.0 cr)
  - or MICB 3301 - Biology of Microorganisms (5.0 cr)

**Food Science Track B**

Food Science Track B offers a plan of study with over 21 free electives, high impact experiential learning, and an interdisciplinary course. Track B provides students with the freedom to choose between five Areas of Emphasis that will prepare them to be competitive as they enter the workforce. The Areas of Emphasis are: 1) Advanced Food Technology 2) Nutrition (which includes enough coursework to add a Nutrition minor) 3) Chemistry 4) Microbiology 5) Biochemistry (which includes enough coursework to add a Biochemistry minor).

Students must meet with an adviser in order to declare Track B.

**Additional Foundation Courses - Chemistry**
- CHEM 2301 - Organic Chemistry I (3.0 cr)
  - or BIOC 2331 - Chemical Mechanisms in Biology (3.0 cr)

**Professional Courses**
- BBE 4744 - Engineering Principles for Biological Scientists (4.0 cr)
FSCN 1112 - Principles of Nutrition (3.0 cr)
FSCN 3102 - Introduction to Food Science (3.0 cr)
FSCN 4121 - Food Microbiology (3.0 cr)
FSCN 4122 - Food Fermentations and Biotechnology (2.0 cr)
FSCN 4123 - Molecular Biology for Applied Scientists (1.0 cr)
FSCN 4131 - Food Quality (3.0 cr)
FSCN 4132W - Food Analysis [WI] (4.0 cr)
FSCN 4312W - Food Processing Operations (3.0 cr)
FSCN 4112 - Food Chemistry and Functional Foods (3.0 cr)
FSCN 4481 - Sensory Evaluation of Food Quality (1.0 cr)

Communication
WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Microbiology
FSCN 2021 - Introductory Microbiology (4.0 cr)
or VBS 2032 - General Microbiology With Laboratory (5.0 cr)
Twin Cities Campus

Food Science Minor

Food Science & Nutrition

College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 20 to 28

See major description for more information.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Many courses in the minor have prerequisites that do not count towards the 20 credits.

Minor Courses

Take 20 or more credit(s) from the following:

- BBE 4744 - Engineering Principles for Biological Scientists (4.0 cr)
- FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
- FSCN 3102 - Introduction to Food Science (3.0 cr)
- FSCN 4112 - Food Chemistry and Functional Foods (3.0 cr)
- FSCN 4121 - Food Microbiology (3.0 cr)
- FSCN 4122 - Food Fermentations and Biotechnology (2.0 cr)
- FSCN 4312W - Food Analysis [WI] (4.0 cr)
- FSCN 4332 - Food Processing Operations (3.0 cr)
- FSCN 4349 - Food Science Capstone (2.0 cr)
Twin Cities Campus

Food Systems and the Environment Minor
College of Food, Agri & Natural Resource Sciences
College of Food, Agricultural and Natural Resource Sciences

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 15

This interdisciplinary minor, based in CFANS, serves students from other colleges who have an interest in and a desire to acquire some breadth about food systems and the environment. Students completing this minor will be better prepared to understand the complexity of modern global food systems, interdependence of rural and urban societies, and environmental impact of consumer driven food systems choices; manage natural resources used for food and fiber for the benefit of society; and make more responsible personal and public decisions impacting food systems and the environment.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
This minor is limited to non-CFANS majors. Interested students should contact the minor adviser at 612-625-6754 or the CFANS Student Services Office at 612-624-6768.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements

Minor Courses
Students may only choose one course from each designator, in consultation with the minor adviser.
Take 15 or more credit(s) from the following:
• CFAN 1501 - Biotechnology, People, and the Environment [TS] (3.0 cr)
• CFAN 3001 - Pests and Crop Protection (3.0 cr)
• CFAN 3500 - International Field Studies Seminar (1.0 - 3.0 cr)
• AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)
• ANSC 1011 - Animals and Society [CIV] (3.0 cr)
• ANSC 1101 - Introductory Animal Science (4.0 cr)
• APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
• BBE 5203 - Environmental Impacts of Food Production (3.0 cr)
• ENT 4015 - Ornamentals and Turf Entomology (3.0 cr)
• ESPM 3221 - Soil Conservation and Land-Use Management (3.0 cr)
• FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
• FSCN 1112 - Principles of Nutrition (3.0 cr)
• WRIT 3315 - Writing on Issues of Land and the Environment [AH, DSJ] (3.0 cr)
• SOIL 1125 - The Soil Resource [ENV] (4.0 cr)
• AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
or ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• AGRO 4103 - World Food Problems [GP] (3.0 cr)
or APEC 4103 - World Food Problems [GP] (3.0 cr)
Twin Cities Campus
Food Systems B.S.
Agronomy & Plant Genetics, Animal Science, Entomology, Food Science & Nutrition, Horticultural Science
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 74 to 80
- This program requires summer terms.
- none
- Degree: Bachelor of Science

The food system is an interconnected set of biological, technological, economic, and social activities that nourish human populations. The activities include farming, food processing and manufacturing, food distribution and retailing, food consumption, and managing post-consumption food waste. The Food Systems major offers graduates the knowledge, problem-solving skills and leadership ability to address complex and often controversial challenges and opportunities in food systems, guided by a desire to create systems that are increasingly sustainable in environmental, economic and social terms, in diverse contexts and at different scales.

The core courses in the Food Systems major begin with an orientation to food systems followed by a three-course core sequence that provides a basic understanding of the structure and interactions within food systems, introduces techniques for life cycle analysis of the outcomes, impacts and sustainability of food systems and explores conventional, sustainable and organic examples of production systems for food plants. The core course sequence culminates in a capstone experience aimed at solving real-world problems in local community food systems, and involvement in future systems design and visioning.

Students will choose from one of three existing tracks of required courses, or in collaboration with an advisor, will develop an individually tailored coursework track.

Flexibility in course sequence and required courses has been incorporated into the major so that students can transfer into the program and still graduate in a timely fashion. This flexibility will also make it attractive to students who wish to pursue a dual major with Foods Systems as one of those majors.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of Only one of the four tracks, International and Intercultural Food Systems.

All major requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C-.

Integrated Food Systems Core Courses
AGRO 1660W - First-Year Colloquium/Experience in Agroecosystems Analysis [WI] (2.0 cr)
FDSY 2101 - Plant Production Systems (3.0 cr)
BBE 3201 - Sustainability of Food Systems: A Life Cycle Perspective [GP] (3.0 cr)
APEC 3202 - An Introduction to the Food System: Analysis, Management and Design (3.0 cr)
FDSY 4101 - Holistic Approaches to Improving Food Systems Sustainability (3.0 cr)

Communications
WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
AFEE 2421 - Professional Communication for Agriculture, Food, and the Environment (3.0 cr)
or COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)

Physical and Biological Sciences
FSCN 1112 - Principles of Nutrition (3.0 cr)
AGRO 1101 - Biology of Plant Food Systems [BIOL] (4.0 cr)
or HORT 1001 - Plant Propagation [BIOL] (4.0 cr)
or BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
or BIOL 1009 - General Biology [BIOL] (4.0 cr)
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)
or CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)

Mathematical Thinking
MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
or MATH 1051 - Precalculus I [MATH] (3.0 cr)

Social Sciences
APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)

Historical Perspectives
HIST 3417 - Food in History [HIS, ENV] (3.0 cr)

Interdisciplinary Learning
APEC 3202 also meets Integrated Food Systems Core Course

Experiential Learning
CFAN 3096 - Making the Most of your Internship (1.0 cr)
or CFAN 2201 - Secure & Succeed in Internships (2.0 cr)
or HORT 4096W - Professional Experience Program: Internship [WI] (2.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• APEC 4451W - Food Marketing Economics [CIV, WI] (3.0 cr)
• APEC 4821W - Business Economics and Strategy [WI] (3.0 cr)
• HORT 3005W - Environmental Effects on Horticultural Crops [WI] (4.0 cr)
• HORT 4071W - Applications of Biotechnology to Plant Improvement [WI] (4.0 cr)
• HORT 4096W - Professional Experience Program: Internship [WI] (2.0 cr)
• HORT 4141W - Plant Production I [WI] (4.0 cr)
• WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Agroecology
Students in this track will be prepared for jobs emerging in managing the relationship between agricultural production systems and surrounding resource systems, including landscapes, waterways, and food and energy systems. Positions are rapidly emerging with government at multiple levels, non-profits, and private sector consulting and engineering firms, etc. Students will also be solidly prepared for advanced scientific study in graduate school in a range of fields related to the ecology of agricultural systems.

Required Courses
ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)
   or SOIL 1125 - The Soil Resource [ENV] (4.0 cr)
HORT 2100 - Agricultural Biochemistry (3.0 cr)
   or BIOC 3021 - Biochemistry (3.0 cr)
AGRO 4005 - Applied Crop Physiology and Development (4.0 cr)
   or HORT 3005W - Environmental Effects on Horticultural Crops [WI] (4.0 cr)

Track Electives
Choose at least 16 credits from the following of which at least 9 credits must be upper division
Take 16 or more credit(s) from the following:
• AGRO 2501 - Plant Identification for Urban and Rural Landscapes (2.0 cr)
• AGRO 4505 - Biology, Ecology, and Management of Invasive Plants (3.0 cr)
• AGRO 4888 - Issues in Sustainable Agriculture (2.0 cr)
• CHEM 2301 - Organic Chemistry I (3.0 cr)
• CFAN 3333 - Insects, Microbes and Plants [TS] (3.0 cr)
• ENT 5341 - Biological Control of Insects and Weeds (3.0 - 4.0 cr)
• HORT 1014 - Edible Landscape [TS] (3.0 cr)
• HORT 5071 - Ecological Restoration (4.0 cr)

Consumer and Markets
Students in this track will study aspects of the food system that extend beyond primary food production, including processing, wholesale and retail distribution, consumer choice, and human nutrition. This track will prepare students for careers in these aspects of the food system.

Track Electives
Select at least 30 credits from the following, of which at least 16 must be upper division (3XXX or above)
Take 30 or more credit(s) from the following:
• ANSC 1511 - Food Animal Products for Consumers (3.0 cr)
• APEC 3071 - Agriculture and Economic Growth in Developing Countries (3.0 cr)
• APEC 3411 - Commodity Marketing (3.0 cr)
• APEC 3501 - Agribusiness Finance (3.0 cr)
• APEC 4103 - World Food Problems [GP] (3.0 cr)
• APEC 4451W - Food Marketing Economics [CIV, WI] (3.0 cr)
• HORT 4461 - Horticultural Marketing (3.0 cr)
• APEC 4481 - Futures and Options Markets (3.0 cr)
• APEC 4821W - Business Economics and Strategy [WI] (3.0 cr)
• APEC 5811 - Cooperative Organization (3.0 cr)
• FSCN 1011 - Science of Food and Cooking [PHYS] (4.0 cr)
• FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
• FSCN 2001 - Healthy Foods, Healthy Lives: A Food System Approach to Cooking (3.0 cr)
• FSCN 2021 - Introductory Microbiology (4.0 cr)
• FSCN 3102 - Introduction to Food Science (3.0 cr)
• FSCN 3612 - Life Cycle Nutrition (3.0 cr)
• FSCN 3615 - Sociocultural Aspects of Food, Nutrition, and Health [GP] (3.0 cr)
• FSCN 4131 - Food Quality (3.0 cr)
• HORT 1031 - Vines and Wines: Introduction to Viticulture and Enology (3.0 cr)
• APEC 3551 - Entrepreneurship Fundamentals for Value-Added Rural Businesses (3.0 cr)
• APEC 3811 - Principles of Farm Management (3.0 cr)

Organic and Local Food Production
In this track, students will pursue advanced coursework in horticultural science and organic production. This course of study will prepare them for advanced scientific study in graduate school, science-focused career paths, and preparation to become a producer or grower.

Required Courses
APS 4072 - What Does It Mean to Be Green? (3.0 cr)
HORT 2100 - Agricultural Biochemistry (3.0 cr)
HORT 3005W - Environmental Effects on Horticultural Crops [WI] (4.0 cr)
CFAN 3333 - Insects, Microbes and Plants [TS] (3.0 cr)
HORT 3131 - Student Organic Farm Planning, Growing, and Marketing (3.0 cr)
HORT 1001 - Plant Propagation [BIOL] (4.0 cr)
SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)
   or SOIL 1125 - The Soil Resource [ENV] (4.0 cr)

Track Electives
Choose at least 9 credits from the following list
Take 9 or more credit(s) from the following:
• HORT 1015 - Woody and Herbaceous Plants (4.0 cr)
• HORT 4015 - Advanced Woody and Herbaceous Plant Topics (1.0 cr)
• HORT 4141W - Plant Production I [WI] (4.0 cr)
• HORT 4401 - Plant Genetics and Breeding (4.0 cr)
• HORT 4071W - Applications of Biotechnology to Plant Improvement [WI] (4.0 cr)
• HORT 4461 - Horticultural Marketing (3.0 cr)
• HORT 5031 - Fruit Production and Viticulture for Local and Organic Markets (3.0 cr)
• HORT 5032 - Organic Vegetable Production (3.0 cr)
• HORT 5051 - Plant Production II (4.0 cr)
• ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
• ESPM 3656 - Composting and Organics Utilization (3.0 cr)
• SOIL 3416 - Plant Nutrients in the Environment (3.0 cr)
• FDSY 2102 - Diversity of Agricultural Production Systems (3.0 cr)

Individualized
Students choosing to follow this track will identify, in consultation and with the approval of a faculty advisor, a track made up of a minimum of 30 credits where at least 16 credits are upper division (3xxx or higher). The track will address the interests and ambitions of the student and will be consistent with the learning outcomes of the Food Systems major.
Twin Cities Campus
Forest and Natural Resource Management B.S.
Forest Resources
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 75 to 87
- This program requires summer terms.
- Degree: Bachelor of Science

The Forest and Natural Resource Management curriculum prepares students to plan, implement, and research the management, protection, and sustainable use of forest and related natural resources and environments, including vegetation, timber, water, wildlife, recreation, and aesthetic resources. The curriculum provides a unique integration of the physical, biological, and social sciences with managerial sciences and policy, field skill development, and technologies for measuring and monitoring natural resources for ecological, economic, and social benefits. Students are also trained in problem solving approaches to address specific local, regional, and global issues. Students select one of three tracks: 1) forest ecosystem management and conservation, 2) park and protected area management, or 3) urban and community forestry. Students should choose one of these tracks early in their college careers. Minors are also available for each track.

Graduates find positions as foresters; forest, park, river or wilderness rangers; urban foresters; land and water managers; protected area managers; habitat managers; resource-based tourism providers; specialists in forest fire protection, ecology, ecosystem health, harvesting and silviculture; nursery managers; geographic information specialists; resource analysts/consultants; environment and natural resource planners; environmental and natural resource planners; outdoor recreation planners; heritage preservation specialists; conservationists; and educators and researchers. Principal employers are federal, state and local forestry, wildlife, parks, wilderness, conservation and related natural resource management agencies; forest products industry and related natural resource firms; landowner organizations; consulting firms; nongovernmental conservation organizations and international development agencies.

Additionally, the curriculum provides excellent preparation in the fundamental and applied sciences that is essential for graduate study and careers in research and teaching. Opportunities for experiential learning through internships and field courses, as well as international study abroad programs, are available.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All major requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C- or better.

Communication Skills
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
or AFEE 2421 - Professional Communication for Agriculture, Food, and the Environment (3.0 cr)

Physical and Biological Sciences
BIOL 2022 - General Botany (3.0 cr)
BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
or BIOL 1009 - General Biology [BIOL] (4.0 cr)
SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)
or SOIL 1125 - The Soil Resource [ENV] (4.0 cr)

Chemistry
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)
or CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)

Economics and Policy
ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)

Professional Courses
FNRM 1001 - Orientation and Information Systems (1.0 cr)
FNRM 1101 - Dendrology: Identifying Forest Trees and Shrubs (3.0 cr)
FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)
FNRM 4232W - Managing Recreational Lands [WI] (4.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
• ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
• ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
• FNRM 4232W - Managing Recreational Lands [WI] (4.0 cr)
• HORT 4141W - Plant Production I [WI] (4.0 cr)
• URBS 3001W - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Forest Ecosystem Management and Conservation Track
Students pursuing the Forest Ecosystem Management and Conservation track learn the principles, practices, and techniques of forestry and related natural resource management. The track prepares students to become directly involved in forest ecosystem management or further specializations, such as resource analysis, conservation planning, timber harvesting, forest protection, or policy analysis. Principal employers are federal, state and county forestry, wildlife, and conservation agencies; forest products companies; consulting firms; international agencies; and nongovernmental conservation organizations. This track is accredited by the Society of American Foresters. Further, successful completion of track course work qualifies a student for the Society of American Foresters' Candidate Certified Forester program.

All required courses in this track must be taken A-F and completed with a grade of at least C-.

Mathematical Thinking
ESPM 3012 - Statistical Methods for Environmental Scientists and Managers [MATH] (4.0 cr)
or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
MATH 1151 - Precalculus II [MATH] (3.0 cr)
or MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)

Forest Ecosystem Management and Conservation Core
FNRM 3104 - Forest Ecology (4.0 cr)
FNRM 3114 - Hydrology and Watershed Management (3.0 cr)
FNRM 3218 - Measuring and Modeling Forests (3.0 cr)
FNRM 3262 - Remote Sensing of Natural Resources and Environment (3.0 cr)
FNRM 3411 - Managing Forest Ecosystems: Silviculture (3.0 cr)
FNRM 3431 - Timber Harvesting and Road Planning (2.0 cr)
FNRM 3471 - Forest Planning and Management (3.0 cr)
FNRM 5413 - Managing Forest Ecosystems: Silviculture Lab (1.0 cr)
ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
ENT 4251 - Forest and Shade Tree Entomology (3.0 cr)
or PLPA 3003 - Diseases of Forest and Shade Trees (3.0 cr)
FW 2001W - Introduction to Fisheries, Wildlife, and Conservation Biology [ENV, WI] (3.0 cr)
or FW 4102 - Principles of Conservation Biology [ENV] (3.0 cr)
or FW 4103 - Principles of Wildlife Management (3.0 cr)

**Field Training in the Biology and Assessment of Forests**
Courses are taught at the Cloquet Forestry Center
FNRM 2101 - Identifying Forest Plants (1.0 cr)
with FNRM 2102 - Northern Forests: Field Ecology (2.0 cr)
with FNRM 2104 - Measuring Forest Resources (1.0 cr)

**Advanced Field Training in the Assessment and Management of Forests**
Courses are taught at the Cloquet Forestry Center
A minimum of 2 courses required:
Take 2 - 3 course(s) from the following:
• FNRM 4511 - Field Silviculture (2.0 cr)
• FNRM 4515 - Field Remote Sensing and Resource Survey (2.0 cr)
• FNRM 4521 - Field Timber Harvesting and Road Planning (2.0 cr)

**Experiential Learning**
FNRM 4232W Managing Recreational Lands,
FNRM 2102 Northern Forest Field Ecology,
or one course approved by the Major Coordinator.

**Interdisciplinary Learning**
FW 2001W Introduction to Fisheries, Wildlife, and Conservation Biology or one course approved by the Major Coordinator.

**Park and Protected Area Management Track**
The Park and Protected Area Management track prepares students to plan for and manage natural resources, especially protected areas such as parks, forests, wildlands and water resources, for multiple benefits including those attained by visitors, resource-dependent communities, and society as a whole. The curriculum emphasizes natural and managed protected areas; natural resource-oriented recreation programs in public and private sector; social science aspects of natural resource use; and skills in communication, planning, and management. Graduates often serve as park, river or wilderness rangers; protected area managers; resource-based tourism providers; heritage preservation specialists; and outdoor educators. Typical employers include protected area management and planning agencies within federal, state, and local parks; forestry; wildlife; nature conservation; and related non-governmental organizations. Additionally, this curriculum provides excellent preparation for graduate training in the human dimensions of natural resources. A minor is also available. Students may also apply credits toward the International Ecotourism Certificate.

All required courses in this track must be taken A-F and completed with a grade of at least C-.

**Mathematical Thinking**
ESPM 3012 - Statistical Methods for Environmental Scientists and Managers [MATH] (4.0 cr)
or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
or MATH 1051 - Precalculus I [MATH] (3.0 cr)

**Social Sciences**
PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
or SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)
PSY 3201 - Introduction to Social Psychology (3.0 cr)
or SOC 3721 - Principles of Social Psychology (3.0 cr)

**Management of Biophysical Resources**
FNRM 3104 - Forest Ecology (4.0 cr)
or FNRM 3411 - Managing Forest Ecosystems: Silviculture (3.0 cr)
or ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
FNRM 3114 - Hydrology and Watershed Management (3.0 cr)
or ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
FW 2001W - Introduction to Fisheries, Wildlife, and Conservation Biology [ENV, WI] (3.0 cr)
or ESPM 3101 - Conservation of Plant Biodiversity (3.0 cr)
or FW 4102 - Principles of Conservation Biology [ENV] (3.0 cr)
or FW 4103 - Principles of Wildlife Management (3.0 cr)

**Park and Protected Area Management Core**
FNRM 3101 - Park and Protected Area Tourism (3.0 cr)
FNRM 5259 - Visitor Behavior Analysis (3.0 cr)
ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
ESPM 4811 - Environmental Interpretation (3.0 cr)

**Experiential Learning**
FNRM 4232W Managing Recreational Lands or one course approved by the Major Coordinator.
Interdisciplinary Learning
FW 2001W Introduction to Fisheries, Wildlife, and Conservation Biology or one course approved by the Major Coordinator.

Urban & Community Forestry Track
The Urban and Community Forestry track prepares students for planning and managing vegetation and related natural resources in or near urban communities, and for specializations, such as urban planning and environmental education. Urban forests include areas along streets, in parks, private lands, greenbelts, and open spaces. Graduates help plan, design, and protect these forests including supervision of tree selection, planting, and plant health care programs. Employers include city government, tree care/arboricultural firms, state and federal forestry agencies, nurseries, and utility companies. Graduates may also qualify for traditional forestry positions. This track is also accredited by the Society of American Foresters.

All required courses in this track must be taken A-F and completed with a grade of at least C-.

Mathematical Thinking
- ESPM 3012 - Statistical Methods for Environmental Scientists and Managers [MATH] (4.0 cr)
  or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
- MATH 1151 - Precalculus II [MATH] (3.0 cr)
  or MATH 1142 - Short Calculus [MATH] (4.0 cr)
  or MATH 1271 - Calculus I [MATH] (4.0 cr)

Urban and Community Forestry Core
- FNRM 3501 - Arboriculture: Selection and Maintenance of Trees (3.0 cr)
- HORT 1015 - Woody and Herbaceous Plants (4.0 cr)
- HORT 4141W - Plant Production I [WI] (4.0 cr)
- FNRM 4501 - Urban Forest Management: Managing Greenspaces for People (3.0 cr)
- ENT 4251 - Forest and Shade Tree Entomology (3.0 cr)
- PLPA 3003 - Diseases of Forest and Shade Trees (3.0 cr)
- FNRM 3104 - Forest Ecology (4.0 cr)
- FNRM 3411 - Managing Forest Ecosystems: Silviculture (3.0 cr)
- BIOL 3002 - Plant Biology: Function (2.0 cr)
- FNRM 3218 - Measuring and Modeling Forests (3.0 cr)
  or ESPM 3211 - Survey, Measurement, and Modeling for Environmental Analysis (3.0 cr)
- FNRM 3114 - Hydrology and Watershed Management (3.0 cr)
  or ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
- URBS 1001W - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)
  or URBS 3001W - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)

Field Training in the Biology and Assessment of Forests
Courses are taught at the Cloquet Forestry Center
- FNRM 2101 - Identifying Forest Plants (1.0 cr)
  with FNRM 2102 - Northern Forests: Field Ecology (2.0 cr)
  with FNRM 2104 - Measuring Forest Resources (1.0 cr)

Experiential Learning
FNRM 4232W Managing Recreational Lands,
FW 2102 Northern Forests Field Ecology,
or one course approved by the Major Coordinator.

Interdisciplinary Learning
FW 2001W Introduction to Fisheries, Wildlife, and Conservation Biology or one course approved by the Major Coordinator.
Twin Cities Campus
Forest Ecosystem Management and Conservation Minor
Forest Resources
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

The forest resources minor helps students in natural resources and other areas gain deeper understanding of the scientific foundations of forestry, the management of forest resources, and the importance of forest resources to society. Students select from an array of courses in forest assessment, forest biology and management, and forest economics and policy. Students may include a three-week, hands-on field session at the Cloquet Forestry Center as part of their minor. Students interested in the minor should contact the CFANS Student Services Office.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
The sequence of courses in the Introductory Field Session at the Cloquet Forestry Center may be used either to meet the minor courses requirement or as an elective, but they cannot be used to satisfy both requirements.

Core Courses
FNRM 3104 - Forest Ecology (4.0 cr)
FNRM 3411 - Managing Forest Ecosystems: Silviculture (3.0 cr)
Take one of the following field experiences.
FNRM 1101 - Dendrology: Identifying Forest Trees and Shrubs (3.0 cr)
or Introductory Field Session at the Cloquet Forestry Center
FNRM 2101 - Identifying Forest Plants (1.0 cr)
with FNRM 2102 - Northern Forests: Field Ecology (2.0 cr)
with FNRM 2104 - Measuring Forest Resources (1.0 cr)

Electives
Take 8 or more credit(s) from the following:
Forest Policy, Management, and Planning
If student takes the Introductory Field Session at the Cloquet Forestry Center, only 7 credits are required.
Take 3 or more credit(s) from the following:
• ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
• ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
• FNRM 3471 - Forest Planning and Management (3.0 cr)
• FNRM 4501 - Urban Forest Management: Managing Greenspaces for People (3.0 cr)
• FNRM 4232W - Managing Recreational Lands [WI] (4.0 cr)

Resource Assessment
Take 0 or more credit(s) from the following:
• FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)
• FNRM 3218 - Measuring and Modeling Forests (3.0 cr)
• FNRM 3262 - Remote Sensing of Natural Resources and Environment (3.0 cr)

Management of Vegetation, Wildlife, Water and Soil Resources
Take 0 or more credit(s) from the following:
• ESPM 3703 - Agroforestry in Watershed Management (3.0 cr)
• ENT 4251 - Forest and Shade Tree Entomology (3.0 cr)
• FNRM 3501 - Arboriculture: Selection and Maintenance of Trees (3.0 cr)
• FNRM 3114 - Hydrology and Watershed Management (3.0 cr)
• FNRM 3431 - Timber Harvesting and Road Planning (2.0 cr)
• FNRM 5413 - Managing Forest Ecosystems: Silviculture Lab (1.0 cr)
• PLPA 3003 - Diseases of Forest and Shade Trees (3.0 cr)
• Introductory Field Session at the Cloquet Forestry Center
• FNRM 2101 - Identifying Forest Plants (1.0 cr)
with FNRM 2102 - Northern Forests: Field Ecology (2.0 cr)
with FNRM 2104 - Measuring Forest Resources (1.0 cr)
Twin Cities Campus
Horticulture Minor
Horticultural Science
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

Plants provide many practical and recreational benefits to society—whether it is the food we eat, the parks we play in, or the gardens we enjoy admiring. The horticulture minor is geared toward students who want to learn more about plants and their many, diverse uses in the landscape. Coursework is flexible and can easily be tailored to specific horticultural interests, including floriculture and nursery production, turfgrass science, landscape design and maintenance, fruit and vegetable production, sustainable and organic production practices, therapeutic horticulture, plant physiology, and genetics. Students wishing to complete a minor in horticulture should contact the Department of Horticultural Science, 305 Alderman Hall for assistance.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Course
HORT 1001 - Plant Propagation [BIOL] (4.0 cr)

Electives
At least 14 credits (6 credits must be taken at UMTC) from courses with a HORT designator, of which one horticulture related elective course may be substituted (such as AGRO, SOILS, ENT, PLPA, and BIOL). At least two HORT courses must be at the 4XXX or 5XXX level. A maximum of 3 credits of HORT 3090—Directed Studies may be applied.
**Twin Cities Campus**

**Integrated Pest Management in Cropping Systems Minor**

**Agronomy & Plant Genetics**

**College of Food, Agricultural and Natural Resource Sciences**

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 21 to 25
- This program requires summer terms.

Students selecting this interdisciplinary minor learn how the environment and cropping systems interact with the biology of the major agronomic or horticultural crop pests. Students also learn to select and apply efficient, environmentally sound pest management procedures. Courses come from agronomy and plant genetics, entomology, horticultural science, plant pathology, and soil, water, and climate.

The minor provides sufficient knowledge and skills for employment in agricultural crop protection, product development and sales, crop management consultation, pest regulation, research, or application of agricultural crop protection materials. Students must complete at least 20 credits for this minor.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Minor Requirements**

**Minor Courses**

AGRO 2501 - Plant Identification for Urban and Rural Landscapes (2.0 cr)
AGRO 4505 - Biology, Ecology, and Management of Invasive Plants (3.0 cr)
ENT 1005 - Insect Biology [BIOL] (4.0 cr)
PLPA 2001 - Introductory Plant Pathology (3.0 cr)
AGRO 4005 - Applied Crop Physiology and Development (4.0 cr)
  or BIOL 3002 - Plant Biology: Function (2.0 cr)
  HORT 3005W - Environmental Effects on Horticultural Crops [WI] (4.0 cr)

**Management**

AGRO 4605 - Strategies for Agricultural Production and Management (3.0 cr)
  or ENT 5211 *(Inactive)* (3.0 cr)
  or HORT 4061W - Turfgrass Management [WI] (3.0 cr)
  or HORT 5032 - Organic Vegetable Production (3.0 cr)
  or ENT 5341 - Biological Control of Insects and Weeds (3.0 - 4.0 cr)

**Applied Courses**

AGRO 4603 *(Inactive)* (3.0 cr)
  or AGRO 4888 - Issues in Sustainable Agriculture (2.0 cr)
  or ESPM 3612W - Soil and Environmental Biology [WI] (3.0 cr)
  or PLPA 5202 - Field Plant Pathology (2.0 cr)
Twin Cities Campus
International Agriculture Minor
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

Due to the international nature of food and agricultural systems, and the interdependence of environmental systems, CFANS students are strongly encouraged to incorporate an international experience into their academic degree program. Students with a particular interest in international agriculture can minor in international agriculture and choose between a self-contained block of courses or a series of courses integrated into the degree program. The minor is structured to include a general overview of international agriculture, followed by area, culture, or language studies; expanded coursework in agriculture; and an international experience. Students are required to travel outside the United States for a minimum two-week academic experience.

The program for a minor in international agriculture must be developed in coordination with International Programs in the college. Students must complete 18 credits with a minimum GPA of 2.00.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
International Opportunities:

The University of Minnesota is partnering with a number of universities to provide short term and semester study abroad opportunities taught in English. Courses can include: agricultural economics, tropical agriculture, organic food chain management, and environmental and agricultural food production.

Additional international practical or internship experiences may qualify for the minor. Arrangements can be made through MAST International or Career and Internship Services on the St. Paul campus.

Travel grants for overseas experience are available through the Academic Enrichment Program. Students are also eligible for scholarships through the Learning Abroad Center.

Minor Courses
Take 6 credits 3xxx or 4xxx area culture or language studies
Take 2 or more credit(s) from the following:
- CFAN 3000 - Directed Studies in International Agriculture (2.0 - 4.0 cr)
Take 3 or more credit(s) from the following:
- CFAN 3500 - International Field Studies Seminar (1.0 - 3.0 cr)
- CFAN 3501 - Costa Rica--Sustainable Development [GP] (3.0 cr)
- CFAN 3502 - Bahamas--Tropical Marine Biology and Shark Ecology (2.0 cr)
- CFAN 3503 - Switzerland--Mountain Agriculture [GP] (3.0 cr)
- CFAN 3504 - Vertebrate Research Design and Field Survey Techniques [GP] (3.0 cr)
- CFAN 3505 - French Language and Culture (1.0 cr)
- CFAN 3508 - Europe--Global Environmental Leadership [GP] (3.0 cr)
- CFAN 3509 - South Africa: One Country, Two Food Systems [GP] (3.0 cr)
- CFAN 3512 - Sustainable Food Chains [GP] (3.0 cr)
- CFAN 3513 - The Natural History of Norway [GP] (3.0 cr)
Take 7 or more credit(s) from the following:
- AEEF 5361 - World Development Problems (3.0 cr)
- AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
- APEC 3071 - Applied Macroeconomics: Policy, Trade, and Development [GP] (3.0 cr)
- APEC 3071 - Agriculture and Economic Growth in Developing Countries (3.0 cr)
- APEC 5751 - Global Trade and Policy (3.0 cr)
- FSCN 3615 - Sociocultural Aspects of Food, Nutrition, and Health [GP] (3.0 cr)
- COMM 3676W - Communicating Terrorism [GP, WI] (3.0 cr)
• AGRO 4103 - World Food Problems [GP] (3.0 cr)
or APEC 4103 - World Food Problems [GP] (3.0 cr)
Twin Cities Campus
Native American Environmental Knowledge Minor
College of Food, Agri & Natural Resource Sciences
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 17

This minor allows students to study Native American perspectives on the environment and natural resource systems from an interdisciplinary, culturally informed perspective, including coursework, practical experience, and community service. Required courses emphasize understanding the unique perspective of Native American approaches to science as it is applied to natural resources and the environment.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Introduction to Cultural Systems
CFAN 1902 - Topics: Freshman Seminar [DSJ] (3.0 cr)

Introduction to Cultural Systems Additional Requirement
Students taking CFAN 1902 must take an additional topic from the one above.
CFAN 1902 - Topics: Freshman Seminar [DSJ] (3.0 cr)
or AMIN 1902 - Freshman Seminar [DSJ] (3.0 cr)
or AMIN 1001 - American Indian Peoples in the United States [DSJ] (3.0 cr)
or AMIN 1002 - Indigenous Peoples in Global Perspective [GP] (3.0 cr)
or AMIN 1003 - American Indians in Minnesota [HIS, DSJ] (3.0 cr)

American Indian Studies
Take 3 or more credit(s) from the following:
- AMIN 3xxx
- AMIN 4xxx
- AMIN 5xxx

Integrating Project
Two credits under appropriate departmentally-housed directed studies, independent studies, or special topics designators.

Additional Credits
Three additional credits approved by the minor program coordinator (must be 3xxx, 4xxx, or 5xxx).

Service Learning Project
Students are expected to become familiar with community interests and needs. This is accomplished by completing a 3 credit service-learning project in community.
CFAN 4293 - Directed Study (1.0 - 5.0 cr)
Twin Cities Campus
Nutrition B.S.
Food Science & Nutrition
College of Food, Agricultural and Natural Resource Sciences

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 74 to 102
• Degree: Bachelor of Science

The nutrition major explores how nutrients and the foods from which they are derived aid the body in health, growth, and development. With major national and international concerns for how food and nutrition affect health and disease, registered dietitians and nutritionists have many career opportunities. Students choose one of three options: 1) nutrition studies, 2) the Didactic Program in Dietetics, or 3) nutritional science.

Students expecting to apply to an internship or graduate school should maintain a GPA of at least 3.00. A cumulative GPA of at least 3.30 is highly recommended.

The Didactic Program in Dietetics (DPD) is currently granted Accreditation by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, Phone: 800-877-1600, Website: www.eatright.org.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All major requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C- or better.

Foundation Courses
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
BIOC 3021 - Biochemistry (3.0 cr)
WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
or AFEE 2421 - Professional Communication for Agriculture, Food, and the Environment (3.0 cr)
BIOL 1009 - General Biology [BIOL] (4.0 cr)
or PSTL 1131 - Principles of Biological Science [BIOL] (4.0 cr)
ANSC 3301 - Human and Animal Physiology (3.0 cr)
or PHSL 3051 - Human Physiology (4.0 cr)
or BIOL 3211 - Physiology of Humans and Other Animals (3.0 cr)
VBS 2032 - General Microbiology With Laboratory (5.0 cr)
or MICB 3301 - Biology of Microorganisms (5.0 cr)
or FSCN 2021 - Introductory Microbiology (4.0 cr)
STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
Core Courses
All nutrition major students are required to complete these core nutrition-related courses.
- FSCN 1112 - Principles of Nutrition (3.0 cr)
- FSCN 3102 - Introduction to Food Science (3.0 cr)
- FSCN 3612 - Life Cycle Nutrition (3.0 cr)
- FSCN 4612 - Advanced Human Nutrition (4.0 cr)
- FSCN 4613 - Experimental Nutrition (2.0 cr)
- FSCN 4614 - Community Nutrition [SOCS, DSJ] (3.0 cr)
- FSCN 4621W - Nutrition and Metabolism [WI] (4.0 cr)

Interdisciplinary Learning
Course in the core curriculum which satisfy requirements for Interdisciplinary Learning
- FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)

Experiential Learning
Course that fulfills the requirement for Experiential Learning.
- CFAN 3096 - Making the Most of your Internship (1.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
- FSCN 4621W - Nutrition and Metabolism [WI] (4.0 cr)
- WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Didactic Program in Dietetics
The Didactic Program in Dietetics (DPD) provides excellent undergraduate preparation to meet the knowledge requirements delineated by the American Dietetic Association (ADA) for entry-level dietitians. The DPD training includes a strong science component of biological sciences, chemistry, and biochemistry courses appropriate for admission to graduate school. A liberal arts core and specialized courses in nutrition, nutritional biochemistry, clinical nutrition, food chemistry, menu planning, and food service management provide depth and breadth. The mission of the University of Minnesota DPD is to prepare students for entry into and successful completion of a dietetic internship, a variety of employment opportunities related to food and nutrition, or graduate/professional programs.

Students who plan to become registered dietitians must apply to the DPD according to specified criteria. There is no difference in the required courses; however, only those students who are accepted into the DPD will receive a Verification Statement, which is needed to enter into a dietetic internship.

Didactic Program in Dietetics Courses
- FSCN 3614 - Nutrition Education and Counseling (3.0 cr)
- FSCN 3615 - Sociocultural Aspects of Food, Nutrition, and Health [GP] (3.0 cr)
- FSCN 3731 - Food Service Operations Management Laboratory (2.0 cr)
- FSCN 3732 - Food Service Operations Management (3.0 cr)
- FSCN 4665 - Medical Nutrition Therapy I (3.0 cr)
- FSCN 4666 - Medical Nutrition Therapy II (3.0 cr)
- FSCN 4667 - Senior Seminar for the Didactic Program in Dietetics (2.0 cr)
- FSCN 4732 - Food and Nutrition Management (3.0 cr)
- MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)

Students must select one 4xxx or above FSCN or NUTR course of at least 3 credits. Students cannot select a course that is already required for the program.

Nutritional Science
The nutritional science option is for students planning to do graduate work in nutrition, related sciences, or professional programs such as medicine or dentistry.

Nutritional Science Courses
CHEM 2311 - Organic Lab (4.0 cr)
PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
PHYS 1202W - Introductory Physics for Biology and Pre-medicine II [PHYS, WI] (5.0 cr)
FSCN 4622 - Nutritional Toxicology, the basic science of diet-related toxicants (3.0 cr)
BIOL 4003 - Genetics (3.0 cr)
  or GCD 3022 - Genetics (3.0 cr)
MATH 1142 - Short Calculus [MATH] (4.0 cr)
  or MATH 1271 - Calculus I [MATH] (4.0 cr)
  MATH 1272 - Calculus II (4.0 cr)
FSCN 4112 - Food Chemistry and Functional Foods (3.0 cr)
  or FSCN 4121 - Food Microbiology (3.0 cr)
  or NUTR 5622 - Vitamin and Mineral Biochemistry (3.0 cr)
  or NUTR 5624 - Nutrition and Genetics (2.0 cr)
Organic Chemistry II
  Organic Chemistry II options for students in the Nutrition Science sub plan
  CHEM 2302 - Organic Chemistry II (3.0 cr)
  or CHEM 2304 - Organic Chemistry II for the Life Sciences (3.0 cr)
Nutrition Studies
Nutrition major students who do not select either the DPD or Nutritional Science sub-plan may utilize the remainder of the 120 credits needed to graduate by specializing in an area of their choosing. Specialization can include regulatory nutrition, entrepreneurial nutrition, health/wellness/medicine, nutrition communications, and existing minor. Contact your academic adviser to discuss recommended course options.

Mathematics
  MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
  or MATH 1142 - Short Calculus [MATH] (4.0 cr)
  MATH 1271 - Calculus I [MATH] (4.0 cr)
  or MATH 1272 - Calculus II (4.0 cr)
Nutrition Studies Specialization Area
Nutrition studies students may utilize the remainder of the 120 credits needed to graduate by specializing in an area of their choosing. Contact your academic adviser to discuss recommended course options.
Upper Division Food Science and Nutrition Courses
Students must complete at least 9 credits of 3000-level or above FScN or NUTR designated courses. Students cannot select a course that is already required for the program.

Honors UHP
This is an honors sub-plan.

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.

Current departmental honors course offerings are listed at:

Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or an honors directed studies, or an honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.

As part of their honors program, CFANS students complete CFAN 3100H; they must submit their project for this faculty-mentored honors experience to the honors committee for approval prior to registration.
Nutrition Minor

College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14 to 16

The nutrition minor gives students a basic understanding of human nutritional needs through three required core courses. Based on the elective courses chosen, students then have the ability to focus in a specific area, such as metabolism or foods.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Some of the courses listed in the minor have prerequisites that do not count toward the 14-16 credits.

Minor Courses
- FSCN 1112 - Principles of Nutrition (3.0 cr)
- FSCN 3612 - Life Cycle Nutrition (3.0 cr)
- FSCN 4612 - Advanced Human Nutrition (4.0 cr)

Take 2 or more course(s) from the following:
- FSCN 3614 - Nutrition Education and Counseling (3.0 cr)
- FSCN 3615 - Sociocultural Aspects of Food, Nutrition, and Health [GP] (3.0 cr)
- FSCN 4613 - Experimental Nutrition (2.0 cr)
- FSCN 4614 - Community Nutrition [SOCS, DSJ] (3.0 cr)
- FSCN 4621W - Nutrition and Metabolism [WI] (4.0 cr)
- FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
- FSCN 3102 - Introduction to Food Science (3.0 cr)
- FSCN 5601 - Management of Eating Disorders (3.0 cr)
Twin Cities Campus
Park and Protected Area Management Minor
Forest Resources
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 19 to 20

Students may pursue a Park and Protected Area Management (PPAM) minor per the requirements and options listed below.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Core Courses
FNRM 4232W - Managing Recreational Lands [WI] (4.0 cr)
FNRM 3101 - Park and Protected Area Tourism (3.0 cr)
FNRM 5259 - Visitor Behavior Analysis (3.0 cr)

Park and Protected Area Management Minor Options
Park and Protected Area Management Option
Take 3 or more course(s) from the following:
- ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
- ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
- FNRM 3104 - Forest Ecology (4.0 cr)
- ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
- ESPM 4811 - Environmental Interpretation (3.0 cr)

- OR -

Resource Based Tourism Option
Take 3 or more course(s) from the following:
- FNRM 3201 - Introduction to Travel and Tourism (3.0 cr)
- FNRM 3301 {inactive} (3.0 cr)
- ESPM 3251 - Natural Resources in Sustainable International Development [GP] (3.0 cr)
- ANTH 3980 - Topics in Anthropology (3.0 cr)
- ANTH 5990 - Topics in Archaeology (3.0 cr)
- CFAN 3500 - International Field Studies Seminar (1.0 - 3.0 cr)

-OR-

International Tourism (Partner Institute) Option
Nine credits international tourism coursework at partner institute selected in consultation with and approved by minor adviser.

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Information current as of December 12, 2014
Twin Cities Campus
Plant Science B.S.
Agronomy & Plant Genetics, Entomology, Horticultural Science, Plant Pathology
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 70 to 73
- No degree
- Degree: Bachelor of Science

The Plant Science major provides a broad course of study in plant sciences, as well as options to concentrate more specifically within an area of individual interest. The major prepares students for rewarding careers in diverse areas, such as research and development (plant breeding/genetics or plant molecular biology); food and plant production (sustainable and organic production/floriculture and nursery production); plant use and function (restoration of damaged landscapes); and management of landscapes (agroecology/turfgrass management). Students gain experience in the use of plants to produce food and other useful products, alter environments, restore damaged landscapes, improve human health and well-being, educate people about science and agriculture, improve community environments, and provide recreational and practical benefits to the public.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
None

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All major requirements must be taken A-F (unless only offered S-N), and students must earn a grade of at least C-. At the onset of their enrollment at the University, Plant Science majors will be expected to submit a proposed course of study accompanied by a 500-word reflective paper outlining the goals, purpose, and rationale for their course of study. The course of study and rationale will be reviewed by the adviser and submitted for administrative approval.

Core Courses
All students will take a series of core courses - for a total of 45-47 credits.
AGRO 1660W - First-Year Colloquium/Experience in Agroecosystems Analysis [WI] (2.0 cr)
BIOL 1009 - General Biology [BIOL] (4.0 cr)
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
CFAN 3333 - Insects, Microbes and Plants [TS] (3.0 cr)
FDSY 2101 - Plant Production Systems (3.0 cr)
HORT 1015 - Woody and Herbaceous Plants (4.0 cr)
SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)

Mathematics
MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
or MATH 1051 - Precalculus I [MATH] (3.0 cr)
or MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1241 - Calculus and Dynamical Systems in Biology [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)

Plant Breeding
AGRO 3660 - Plant Genetic Resources: Identification, Conservation, and Utilization (3.0 cr)
or AGRO 4401 - Plant Genetics and Breeding (4.0 cr)
or HORT 4401 - Plant Genetics and Breeding (4.0 cr)
or HORT 4071W - Applications of Biotechnology to Plant Improvement [WI] (4.0 cr)

**Applied Crop Physiology and Development**
HORT 3005W - Environmental Effects on Horticultural Crops [WI] (4.0 cr)

**Biology or Plant Propagation**
Biol 2022 - General Botany (3.0 cr)
or HORT 1001 - Plant Propagation [BIOL] (4.0 cr)
HORT 4096W - Professional Experience Program: Internship [WI] (2.0 cr)

**Interdisciplinary Learning**
Select one 3 credit course from the list
AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
or AGRO 3305 - Agroecosystems of the world [GP] (3.0 cr)
or APEC 3202 - An Introduction to the Food System: Analysis, Management and Design (3.0 cr)
or AGRO 4103 - World Food Problems [GP] (3.0 cr)
or ESPM 1011 - Issues in the Environment [ENV] (3.0 cr)
or ESPM 3575 - Wetlands (3.0 cr)
or FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
or FW 2001W - Introduction to Fisheries, Wildlife, and Conservation Biology [ENV, WI] (3.0 cr)
or HORT 4850 - Pollinator Protection in Managed Landscapes (3.0 cr)
or PLPA 2003 - Plague, Famine, and Beer: The Impact of Microscopic Organisms on Human Civilization [HIS] (3.0 cr)
BIOC 3021 - Biochemistry (3.0 cr)
or HORT 2100 - Agricultural Biochemistry (3.0 cr)

**Upper-division Writing Intensive within the major**
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• HORT 3005W - Environmental Effects on Horticultural Crops [WI] (4.0 cr)
• HORT 4071W - Applications of Biotechnology to Plant Improvement [WI] (4.0 cr)
• HORT 4096W - Professional Experience Program: Internship [WI] (2.0 cr)

**Program of Study**

**Program of Study**
In consultation with their adviser, students develop a program of study consisting of at least 25 credits, with a minimum of 15 credits at the 3xxx-level or above. Of these 25 credits within the Program of Study, students need to take a minimum of 12 credits of Agro, Hort, PLPa or Ent designators. Within the 25 credits, one course must be writing intensive.
Take 25 or more credit(s) from the following:
• AGRO 4097 - Undergraduate Research Thesis (1.0 - 6.0 cr)
• AGRO 4505 - Biology, Ecology, and Management of Invasive Plants (3.0 cr)
• AGRO 4605 - Strategies for Agricultural Production and Management (3.0 cr)
• AGRO 4888 - Issues in Sustainable Agriculture (2.0 cr)
• CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
• CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
• CHEM 2301 - Organic Chemistry I (3.0 cr)
• ENT 1005 - Insect Biology [BIOL] (4.0 cr)
• ENT 3925 - Insects, Aquatic Habitats, and Pollution (3.0 cr)
• ENT 4015 - Ornamentals and Turf Entomolgy (3.0 cr)
• ENT 5341 - Biological Control of Insects and Weeds (3.0 - 4.0 cr)
• ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
• ESPM 3612W - Soil and Environmental Biology [WI] (3.0 cr)
• HORT 1014 - Edible Landscape [TS] (3.0 cr)
• HORT 3131 - Student Organic Farm Planning, Growing, and Marketing (3.0 cr)
• HORT 3480 - Topics in Turfgrass (1.0 - 4.0 cr)
• HORT 4015 - Advanced Woody and Herbaceous Plant Topics (1.0 cr)
• HORT 4061W - Turfgrass Management [WI] (3.0 cr)
• HORT 4062 - Turfgrass Weed and Disease Science (1.0 - 3.0 cr)
• HORT 4063 - Turfgrass Science (3.0 cr)
• HORT 4096W - Professional Experience Program: Internship [WI] (2.0 cr)
• HORT 4141W - Plant Production I [WI] (4.0 cr)
• HORT 4461 - Horticultural Marketing (3.0 cr)
• HORT 5007 - Advanced Plant Propagation (3.0 cr)
• HORT 5023 - Public Garden Management (2.0 cr)
• HORT 5031 - Fruit Production and Viticulture for Local and Organic Markets (3.0 cr)
• HORT 5051 - Plant Production II (4.0 cr)
• PLPA 2001 - Introductory Plant Pathology (3.0 cr)
• PLPA 3003 - Diseases of Forest and Shade Trees (3.0 cr)
• PLPA 5660 - Plant Disease Resistance and Applications (3.0 cr)
• SOIL 3416 - Plant Nutrients in the Environment (3.0 cr)
• STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
• AGRO 3660 - Plant Genetic Resources: Identification, Conservation, and Utilization (3.0 cr)
  or AGRO 4401 - Plant Genetics and Breeding (4.0 cr)
  or HORT 4071W - Applications of Biotechnology to Plant Improvement [WI] (4.0 cr)
Twin Cities Campus
Soil Science Minor
Soil, Water, & Climate
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 20

This minor provides a strong background in basic soil sciences, covering such topics as soil biology, conservation, contaminants, water movement, and land use. Students completing the minor meet the minimum requirements for employment with the Natural Resources Conservation Service as a soil conservationist. They are also prepared to take the Professional Soil Science Examination for geoscientists. Students must complete at least 20 credits for the minor.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
SOIL 3416 - Plant Nutrients in the Environment (3.0 cr)
SOIL 4511 - Field Study of Soils (2.0 cr)
ESPM 3221 - Soil Conservation and Land-Use Management (3.0 cr)
ESPM 3612W - Soil and Environmental Biology [WI] (3.0 cr)
ESPM 4601 - Soils and Pollution (3.0 cr)
SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)
  or SOIL 1125 - The Soil Resource [ENV] (4.0 cr)

Electives
LAAS 5515 - Soil Formation: Earth Surface Processes and Biogeochemistry (3.0 cr)
  or ESPM 4021W - Problem Solving: Environmental Review [WI] (4.0 cr)
  or ESPM 4216 - Contaminant Hydrology (3.0 cr)
  or ESPM 5555 - Wetland Soils (3.0 cr)
Twin Cities Campus
Sustainability Studies Minor
College of Food, Agriculture and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15 to 18
- NA

One of the greatest challenges facing the 21st-century world is jointly sustaining the environment, as well as human health and well-being. The sustainability studies minor provides students from across the University with a unique opportunity to address this sustainability challenge. Students will explore the fundamental ecological, social, ethical, political, and economic forces that influence the long-term quality and viability of human society and the natural environment. The introductory core course provides a conceptual overview of various models for understanding sustainability, and uses case studies to demonstrate the challenges of putting sustainability into practice. Additional electives are chosen from courses that explore multiple disciplinary perspectives related to sustainability. Finally, the capstone experience allows students to synthesize and apply their knowledge to real sustainability problems.

For this minor, students must complete 6 credits of required courses for the core and the capstone, and 9-12 restricted electives, for a total of 15-18 credits.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Core
- SUST 3003 - Sustainable People, Sustainable Planet [ENV] (3.0 cr)
- SUST 4004 - Sustainable Communities (3.0 cr)

Electives
Take three courses, not more than one from each of four categories. You may also petition for study abroad, summer, special topics, new, and other courses to count toward elective requirements.
Take 3 or more course(s) from the following:

Economics and Policy
Take no more than 1 course(s) from the following:
- AFEE 5361 - World Development Problems (3.0 cr)
- AFEE 3361 - World Development Problems [GP] (3.0 cr)
- APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
- APEC 5611 - Economic Aspects of Environmental Management (3.0 cr)
- CE 5212 - Transportation Policy, Planning, and Deployment (4.0 cr)
- CE 5214 - Transportation Systems Analysis (4.0 cr)
- EEB 5146 - Science and Policy of Global Environmental Change (3.0 cr)
- ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
- ESPM 3251 - Natural Resources in Sustainable International Development [GP] (3.0 cr)
- ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
- ESPM 3602 - Regulations and Corporate Environmental Management (3.0 cr)
- ESPM 3603 - Environmental Life Cycle Analysis (3.0 cr)
- ESPM 3604 - Environmental Management Systems and Strategy (3.0 cr)
- ESPM 4242 - Methods for Environmental and Natural Resource Policy Analysis (3.0 cr)
- FNRM 5146 - Science and Policy of Global Environmental Change (3.0 cr)
- ESPM 5602 - Regulations and Corporate Environmental Management (3.0 cr)
- MGMT 5019 - Business, Natural Environment, and Global Economy (2.0 cr)
- PA 5232 - Transportation Policy, Planning, and Deployment (4.0 cr)

Social Science and Humanities
Take no more than 1 course(s) from the following:
- ANTH 3041 - Ecological Anthropology (3.0 cr)
- ANTH 4053 - Economy, Culture, and Critique [SOCS, GP] (3.0 cr)
• ENGL 3501 - Public Discourse: Coming to Terms With the Environment [LITR, ENV] (3.0 cr)
• ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
• GEOG 3379 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
• GLOS 3303 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
• GLOS 3613W - Stuffed and Starved: The Politics of Eating [SOCS, GP, WI] (3.0 cr)
• GLOS 4305 - Environment & Society: An Enduring Conflict [ENV] (3.0 cr)
• GLOS 4311 - Race, Class, and the Politics of Nature (3.0 cr)
• HIST 3452 - African Conservation Histories (3.0 cr)
• HSCI 3244 - History of Ecology and Environmentalism [HIS, ENV] (3.0 cr)
• ID 3592 - HECUA Off-Campus Study Program: Environmental Sustainability: Dimensions of Environmental Change [SOCS] (4.0 cr)
• PHIL 3301 - Environmental Ethics [ENV] (4.0 cr)
• SOC 3613W - Stuffed and Starved: The Politics of Eating [SOCS, GP, WI] (3.0 cr)
• SOC 4305 - Environment & Society: An Enduring Conflict [ENV] (3.0 cr)
• SOC 4311 - Race, Class, and the Politics of Nature (3.0 cr)

• Biophysical Sciences
Take no more than 1 course(s) from the following:
• AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• AGRO 5321 - Ecology of Agricultural Systems (3.0 cr)
• ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• BIOL 3407 - Ecology (3.0 cr)
• BIOL 3408W - Ecology [WI] (3.0 cr)
• CHEM 4601 - Green Chemistry [ENV] (3.0 cr)
• EEB 3001 - Ecology and Society [ENV] (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• EESI 3005 - Earth Resources (3.0 cr)
• ESRI 3402 - Science and Politics of Global Warming [ENV] (3.0 cr)
• ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
• FW 4102 - Principles of Conservation Biology [ENV] (3.0 cr)
• GEOG 3401 - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
• HORT 3131 - Student Organic Farm Planning, Growing, and Marketing (3.0 cr)
• ID 3591 - HECUA Off-Campus Study Program: Environmental Sustainability: Adaptive Ecosystem Management [ENV] (4.0 cr)
• FNRM 3101 - Park and Protected Area Tourism (3.0 cr)

• Design and Technology
Take no more than 1 course(s) from the following:
• ARCH 4561 - Architecture and Ecology (3.0 cr)
• BBE 4733 - Renewable Energy Technologies [TS] (3.0 cr)
• CE 3501 - Environmental Engineering [ENV] (3.0 cr)
• CE 4561 - Solid Hazardous Wastes (3.0 cr)
• CHEN 5551 - Survey of Renewable Energy Technologies (3.0 cr)
• ESPM 3601 - Sustainable Housing—Community, Environment, and Technology [TS] (3.0 cr)
• HSG 3482 - Sustainable Housing: Community, Environment, and Technology [TS] (3.0 cr)
• LA 3003 - Case Studies in Sustainable Landscape Planning and Design (3.0 cr)
• LA 3004 - Regional Landscape Planning (3.0 cr)
• LA 3501 - Environmental Design and Its Biological and Physical Context [ENV] (3.0 cr)
• LA 3514 - Making the Mississippi [CIV] (3.0 cr)
• LA 4755 - Infrastructure, Natural Systems, and Space of Inhabited Landscapes [TS] (3.0 cr)
• URBS 3751 - Understanding the Urban Environment [ENV] (3.0 cr)
Twin Cities Campus

Sustainable Agriculture Minor
Agronomy & Plant Genetics, College of Food, Agri & Natural Resource Sciences
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 17
- This program requires summer terms.

This minor allows students to study the sustainability of agricultural food systems from an integrated perspective, including coursework, practical experience, and community reflection. Required courses and courses from the foundational clusters—land and public policy; agriculture, environment, and natural resources; and citizens, science, and society—define the student's minor curriculum. In addition, each student works with a minor adviser to design an individualized practical experience (e.g., internship, experiential learning opportunity) in some aspect of sustainable agriculture. Through the Issues in Sustainable Agriculture course, students synthesize their learning about sustainability for local, national, and global agricultural food systems. For this minor, students must complete 3-6 credits of required courses and 9-14 credits of foundational coursework, for a total of at least 17 credits.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
This minor requires that students complete a minimum of 17 credits from the courses listed below. Students should work with their academic advisers to make sure the courses they choose to take will meet this requirement.

Minor Courses
AGRO 4888 - Issues in Sustainable Agriculture (2.0 cr)
Take 1-3 credit(s) from the following:
  AGRO 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
  or ANSC 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
  or APEC 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
  or ENT 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
  or ESPM 4096 - Professional Experience Program: Internship (1.0 cr)
  or FSCN 4096 - Professional Experience Program: Internship (1.0 - 4.0 cr)
  or HORT 4096 - Professional Experience Program: Internship (1.0 cr)
  or PLPA 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
  or ID 3594 - HECUA Off-Campus Study Program: Environmental Sustainability, Internship [CIV] (4.0 cr)

Foundation Course Clusters
Select one course from each of the following clusters. Other courses may be substituted with approval of the minor adviser and coordinator.
Take 9 or more credit(s) including 3 or more sub-requirements(s) from the following:

Land and Public Policy
• AGRO 4103 - World Food Problems [GP] (3.0 cr)
  or APEC 4103 - World Food Problems [GP] (3.0 cr)
  or ESPM 3221 - Soil Conservation and Land-Use Management (3.0 cr)
  or ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
  or ESPM 3251 - Natural Resources in Sustainable International Development [GP] (3.0 cr)
  or GEOG 3361W - Geography and Public Policy [WI] (3.0 cr)
  or PA 5002 - Introduction to Policy Analysis (1.5 cr)
  or WRIT 3315 - Writing on Issues of Land and the Environment [AH, DSJ] (3.0 cr)

• Agriculture/Environment and Natural Resources
  • AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)
  or AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
  or AGRO 5999 - Special Topics: Workshop in Agronomy (1.0 - 6.0 cr)
  or AMIN 3312 - American Indian Environmental Issues and Ecological Perspectives [ENV] (3.0 cr)
  or AMIN 3314 - Natural Resource Management and Environmental Policy in Indian Country [ENV] (3.0 cr)
or ANSC 1101 - Introductory Animal Science (4.0 cr)
or ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
or APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
or APEC 3811 - Principles of Farm Management (3.0 cr)
or APS 4072 - What Does It Mean to Be Green? (3.0 cr)
or EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
or ENT 4021 - Honey Bees and Insect Societies (3.0 cr)
or ESPM 1011 - Issues in the Environment [ENV] (3.0 cr)
or ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
or ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
or GEOG 3401 - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
or GWSS 3290 - Topics (3.0 cr)
or HORT 1014 - Edible Landscape [TS] (3.0 cr)
or HORT 2031 - Organic Food: How to Grow It, Where to Buy It, Can it Feed the World? (3.0 cr)
or HORT 3131 - Student Organic Farm Planning, Growing, and Marketing (3.0 cr)
or HORT 5131 - Student Organic Farm Planning, Growing, and Marketing (3.0 cr)
or ID 3591 - HECUA Off-Campus Study Program: Environmental Sustainability: Adaptive Ecosystem Management [ENV] (4.0 cr)
or ID 3592 - HECUA Off-Campus Study Program: Environmental Sustainability: Dimensions of Environmental Change [SOCS] (4.0 cr)
or SUST 3003 - Sustainable People, Sustainable Planet [ENV] (3.0 cr)
or WRIT 3371W - Technology, Self, and Society [WI] (3.0 cr)
Twin Cities Campus

University Honors Program

College of Biological Sciences, College of Continuing Education, College of Design, College of Education and Human Development, College of Food, Agricultural and Natural Resource Sciences, College of Liberal Arts, Curtis L. Carlson School of Management, School of Nursing, College of Science and Engineering

- Program Type: Other
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 14 to 44
- This program is 8 terms (4 years) long.

The University Honors Program (UHP) assists high-achieving students in making the most of their undergraduate education. Our students are driven to excel both inside and outside the classroom, but we challenge them to go one step further.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, as well as degree program requirements. For any course required in a degree program, UHP students are expected to register for the honors version of courses associated with their discipline, when offered. These courses are designed to meet degree and UHP requirements.

To remain in the honors program, students must maintain a grade point average of 3.5 and complete a set number of Honors Experiences per year (May and summer sessions included).

Freshman Year

Students build a solid foundation of knowledge to serve them throughout their undergraduate career. Most students complete first-year Honors Experiences primarily through honors courses. Courses can be found here: http://www.honors.umn.edu/experiences/courses-and-tutoring/index.php

Two honors courses
- Two honors courses (honors seminars, departmental honors courses, or freshman seminars totalling at least six credits)

Two other Honors Experiences
- Two other Honors Experiences (courses or non-course experiences)

Sophomore Year

Students continue to take advantage of the curriculum while expanding their education beyond the classroom. Through non-course Honors Experiences they begin to apply their knowledge in the laboratory, studio, or community. Examples of these experiences can be found here: http://www.honors.umn.edu/experiences/non-course-experiences/index.php.

Two honors courses
- Two honors courses (totalling at least six credits)

Two other Honors Experiences
- Two other Honors Experiences (courses or non-course experiences)

Junior Year

Students engage in research, scholarship, or creative activity with a faculty mentor—an important step toward the development of a project for the honors thesis—while deepening and broadening their knowledge and skill base. The honors thesis guide can be found here: http://www.honors.umn.edu/latin-honors/thesis-guide/index.php.

One honors course
Two other Honors Experiences
Two other Honors Experiences (courses or non-course experiences)

Senior Year
The honors education culminates in the writing of an honors thesis. Through this thesis, students demonstrate mastery of their field of study, along with the ability to think creatively and independently.

One honors course
One additional Honors Experience
The Honors Thesis
Twin Cities Campus

Urban and Community Forestry Minor
Forest Resources
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

The urban and community forestry minor enables students in programs such as education, landscape architecture, horticultural sciences, natural resources, and related areas to understand the science and practice underlying the management of urban and community forests. The minor incorporates fundamental science, arboriculture, forest health, and resource management coursework. Students must complete 18 credits for this minor.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
ENT 4251 - Forest and Shade Tree Entomology (3.0 cr)
or PLPA 3003 - Diseases of Forest and Shade Trees (3.0 cr)
FNRM 3501 - Arboriculture: Selection and Maintenance of Trees (3.0 cr)
FNRM 4501 - Urban Forest Management: Managing Greenspaces for People (3.0 cr)

Electives
Take 9 or more credit(s) from the following:
- ESPM 3211 - Survey, Measurement, and Modeling for Environmental Analysis (3.0 cr)
- FNRM 3104 - Forest Ecology (4.0 cr)
- FNRM 3218 - Measuring and Modeling Forests (3.0 cr)
- HORT 1015 - Woody and Herbaceous Plants (4.0 cr)
- FNRM 4232W - Managing Recreational Lands [WI] (4.0 cr)
- Cloquet Program
  - FNRM 2101 - Identifying Forest Plants (1.0 cr)
    with FNRM 2102 - Northern Forests: Field Ecology (2.0 cr)
    with FNRM 2104 - Measuring Forest Resources (1.0 cr)
Twin Cities Campus

Water Science Minor

Soil, Water, & Climate

College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 20

The minor provides students the opportunity to broaden their expertise in the area of water science. Students interested in qualifying as a hydrologist should determine the exact requirements for the Minnesota civil service position by checking the Hydrologist I (Hydrogeology) and Hydrologist I (Water Resources) position descriptions.

Students must complete at least 20 credits for the minor.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
FNRM 3114 - Hydrology and Watershed Management (3.0 cr)
EEB 5601 - Limnology (3.0 cr)
or ESCI 4702 - General Hydrogeology (3.0 cr)
ESPM 5555 - Wetland Soils (3.0 cr)
or SOIL 5232 - Vadose Zone Hydrology (3.0 cr)

Electives
Courses used to fulfill requirements above cannot be chosen to fulfill electives.
Take 11 or more credit(s) from the following:
- CE 5541 - Environmental Water Chemistry (3.0 cr)
- EEB 5605 - Limnology Laboratory (2.0 cr)
- ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
- ESPM 4216 - Contaminant Hydrology (3.0 cr)
- GEOE 4351 - Groundwater Mechanics (3.0 cr)
- FNRM 5153 - Forest Hydrology & Watershed Biogeochemistry (3.0 cr)
or ESCI 4702 - General Hydrogeology (3.0 cr)
- ESPM 5555 - Wetland Soils (3.0 cr)
or SOIL 5232 - Vadose Zone Hydrology (3.0 cr)
Twin Cities Campus
Acting B.F.A.
Theatre Arts & Dance
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 84
- Degree: Bachelor of Fine Arts

The B.F.A. in acting is an intensive, individualized, actor training program that uses both faculty from theatre and dance, as well as the Guthrie Theater's professional artistic staff to provide selected students with the physical, vocal, emotional, and intellectual skills necessary to succeed as working performance artists. The degree is intended to prepare students for entry into advanced education at a conservatory and/or graduate school, or professional employment.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Entry into the B.F.A. acting program is by audition only, and students are admitted only in fall semester.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students may earn no more than one undergraduate degree from the theatre arts program: a B.A. in theatre arts, or a B.F.A. in acting, or a minor in theatre arts.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Freshman Courses
TH 1381 - New Voices (1.0 cr)
TH 1391 - BFA Acting I (3.0 cr)
TH 1392 - BFA Voice and Speech I (2.0 cr)
TH 1393 - BFA Movement I (2.0 cr)
TH 1501 - Introduction to Design and Technology for Live Performance (3.0 cr)
ENGL 1181W - Introduction to Shakespeare [LITR, WI] (4.0 cr)
TH 1395 - BFA Acting II (3.0 cr)
TH 1396 - BFA Voice and Speech II (2.0 cr)
TH 1397 - BFA Movement II (2.0 cr)

Take 1 or more course(s) from the following:
• TH 3521 - Introduction to Scenic Design for Theater and Performance (3.0 cr)
• TH 3531 - Introduction to Theatrical Costume Design (3.0 cr)
• TH 3541 - Introduction to Stage Lighting Design (3.0 cr)
• TH 3571 - Introduction to Stage Technology (3.0 cr)

Sophomore Courses
TH 2391 - BFA Acting III (3.0 cr)
TH 2392 - BFA Voice and Speech III (2.0 cr)
TH 2393 - BFA Movement III (2.0 cr)
TH 3171 - History of the Theatre: Ancient Greece Through Neo-Classicism (3.0 cr)
TH 2395 - BFA Acting IV (3.0 cr)
TH 2396 - BFA Voice and Speech IV (2.0 cr)
TH 2397 - BFA Movement IV (2.0 cr)
TH 3172 - History of the Theatre: Age of Enlightenment to Present (3.0 cr)

Junior Courses
Fall semester of the junior year is in the London Study Abroad program.
TH 3391 - BFA Acting V (3.0 cr)
TH 3392 - BFA Voice and Speech V (2.0 cr)
TH 3393 - BFA Movement V (2.0 cr)
Theatre Department Elective (3 cr.)
TH 3395 - BFA Intensive I (2.0 cr)
TH 3398 - BFA Rehearsal & Performance I (2.0 cr)
TH 3399 - BFA Rehearsal and Performance II (2.0 cr)
TH 4532 - Makeup for the Actor (2.0 cr)
Movement Elective (1 cr.)

Senior Courses
TH 4391 - BFA Intensive II (2.0 cr)
TH 4393 - BFA Rehearsal and Performance III (2.0 cr)
TH 4394 - BFA Rehearsal and Performance IV (2.0 cr)
Movement Elective (1 cr.)
TH 4395 - BFA Intensive III (2.0 cr)
TH 4398 - BFA Rehearsal and Performance V (2.0 cr)
TH 4399 - BFA Rehearsal and Performance VI (2.0 cr)
Movement Elective (1 cr.)
Theatre Department Elective (3 cr.)
TH 4177W - Survey of Dramatic Literature I: Strategic Interpretation [WI] (3.0 cr)
   or TH 4178W - Survey of Dramatic Literature II: Representation and its Effects [WI] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• TH 4177W - Survey of Dramatic Literature I: Strategic Interpretation [WI] (3.0 cr)
• TH 4178W - Survey of Dramatic Literature II: Representation and its Effects [WI] (3.0 cr)
Twin Cities Campus

African American and African Studies B.A.
Afr American/African Studies
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 30
- Degree: Bachelor of Arts

African American & African Studies (AA&AS) is a place to make connections across the complexities of Africa, Black America, and the African diaspora. Multidisciplinary in its approach to learning, AA&AS students are exposed to the pressing challenges of the modern world, as well as possibilities for transformations through the study of African American and African history, literature, and culture, and the study of Africa in global perspectives. The courses present students with the tools of inquiry from multiple liberal arts disciplines to make known tremendous diversities and overlapping histories and experiences within the wider black world. AA&AS also offers two African languages, Swahili (spoken throughout East, Central, and South Africa) and Somali, in its undergraduate curriculum. The major curriculum consists of three core courses and seven upper-division elective courses. Many AA&AS graduates have not only been accepted to professional and graduate schools, but have also cultivated their career paths in exciting directions including education, business, medicine, law, the arts, journalism, local and transnational advocacy work, and foreign affairs.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

At least 13 program credits must be completed at the University of Minnesota - Twin Cities campus. All major courses must be taken A-F, and grades of C- or better must be earned. At least one upper-division course in the major (AFRO 3xxx-5xxx) must be writing intensive. Students are encouraged to meet with the AA&AS departmental adviser at least once a year. Students who double major and choose to complete the senior project requirement in their other CLA major must take an additional AFRO upper-division elective in order to complete the minimum 30 credits required for graduation. Students may earn a B.A. or a minor in African American and African studies, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Core Courses
Take one AFRO 1xxx and AFRO 4105 for a total of six credits.
AFRO 1012 - Black Worlds in Global Perspective: Challenges and Changes [SOCS, GP] (3.0 cr)
or AFRO 1021 - Introduction to Africa [GP] (4.0 cr)
or AFRO 1023W - Introduction to African World Literature [GP, LITR, WI] (3.0 cr)
or AFRO 1201 - Racial Formation and Transformation in the United States [SOCS, DSJ] (3.0 cr)
or AFRO 1902 - Freshman Seminar [DSJ] (3.0 cr)
AFRO 4105 - Ways of Knowing in Africa and the African Diaspora (3.0 cr)

Electives
Take a minimum of 7 courses for 21 credits, including at least one gender-focused course.
Take 6 or more course(s) totaling 18 or more credit(s) from the following:
• AFRO 3xxx
• AFRO 4xxx
• AFRO 5xxx

Gender-focused Elective
Other courses that do not appear on this list may count with prior approval from the departmental adviser.
AFRO 3251W - Sociological Perspectives on Race, Class, and Gender [WI] (3.0 cr)
or AFRO 3592W - Introduction to Black Women Writers in the United States [WI] (3.0 cr)
or AFRO 3625W - Black Women Writers in the Diaspora [LITR, GP, WI] (3.0 cr)
or AFRO 3626 - Literature of African American Men: Sex, Family, and Relationships (3.0 cr)

Senior Capstone Course
The senior capstone consists of a research paper of 25-40 pages in length. Choose to complete this paper by enrolling in AFRO 4991W, or any AFRO 4xxx/5xxx course (excluding AFRO 4105) that is not being taken as an elective. Students who are interested in rigorous research and one-on-one work with department faculty should take AFRO 4991W. The senior capstone must be chosen in consultation with the director of undergraduate studies.
AFRO 4991W - Thesis Research and Writing [WI] (3.0 cr)
or AFRO 4xxx
or AFRO 5xxx
Twin Cities Campus

African American and African Studies Minor
African American/African Studies
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

The African American and African Studies (AA&AS) minor integrates the global study of African peoples by teaching students the tools of inquiry from the liberal arts disciplines. The minor is designed to be flexible and to meet the needs of students preparing for careers in both the public and private spheres.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students may earn a B.A. or a minor in African American and African studies, but not both.

Minor Courses
All courses must have the AFRO designator to count toward the minor.
Take 15 or more credit(s) from the following:
- AFRO 3xx
- AFRO 4xx
- AFRO 5xx
American Indian studies is dedicated to advancing awareness and understanding of the histories and contemporary experiences of American Indian people. The program focuses on the native peoples of the United States and Canada, but also draws on the experiences of indigenous peoples from other parts of the world. This multidisciplinary field looks at the histories, cultures, arts, languages, literatures, philosophies, religions, economies, politics, and legal status of indigenous peoples. The program also focuses on the many differences that have separated tribal nations as sovereign bodies and on the many similarities that unite them in common interests and causes. It gives special attention to the sovereignty of American Indian nations as this is expressed in all walks of life - from the preservation and revitalization of native languages to the protection and retention of native lands.
Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

General Track
The General track requires at least 33 credits of coursework, including AMIN 1001 & AMIN 4820W. It is intended for majors who do not wish to complete their second language requirement in Dakota or Ojibwe.

Major Courses
Take 27 or more credit(s) from the following:

Required Course
• AMIN 1002 - Indigenous Peoples in Global Perspective [GP] (3.0 cr)
or AMIN 1003 - American Indians in Minnesota [HIS, DSJ] (3.0 cr)
• Tribal Arts and Humanities (Group A)
Courses appearing in more than one group may only be used to satisfy one requirement, double-dipping is not allowed. AMIN 4990, 4991, 4994 & 4996 may be used to satisfy group requirements with the permission of the director of undergraduate studies.
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• AMIN 3201W - American Indian Literature [LITR, DSJ, WI] (3.0 cr)
• AMIN 3301 - American Indian Philosophies [AH, DSJ] (4.0 cr)
• AMIN 3601 - American Indian Oral Traditions (3.0 cr)
• AMIN 3402 - American Indians and the Cinema [AH, DSJ] (3.0 cr)
or AMIN 5402 - American Indians and the Cinema [AH, DSJ] (3.0 cr)
• AMIN 3303 - American Indians and Photography [AH, DSJ] (3.0 cr)
or AMIN 5303 - American Indians and Photography [AH, DSJ] (3.0 cr)

• Culture and History (Group B)
Courses appearing in more than one group may only be used to satisfy one requirement, double-dipping is not allowed. AMIN 4990, 4991, 4994 & 4996 may be used to satisfy group requirements with the permission of the director of undergraduate studies.
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• AMIN 3143 - Language in American Indian Culture and Society (3.0 cr)
• AMIN 3409 - American Indian Women: Ethnographic and Ethnohistorical Perspectives [HIS, DSJ] (3.0 cr)
• AMIN 3701 - Ojibwe Culture and History [HIS, DSJ] (3.0 cr)
• AMIN 3711 - Dakota Culture and History [HIS, DSJ] (3.0 cr)
• AMIN 3713 - Lands and Homelands in the American Indian Great Lakes [HIS, DSJ] (3.0 cr)
• AMIN 3870 - Topics in American Indian History (3.0 cr)
• AMIN 3871 - American Indian History: Pre-Contact to 1830 [HIS, DSJ] (3.0 cr)
• AMIN 3872 - American Indian History: 1830 to the Present (3.0 cr)
• AMIN 5409 - American Indian Women: Ethnographic and Ethnohistorical Perspectives (3.0 cr)

• Political, Social, and Policy Issues (Group C)
Courses appearing in more than one group may only be used to satisfy one requirement, double-dipping is not allowed. AMIN 4990, 4991, 4994 & 4996 may be used to satisfy group requirements with the permission of the director of undergraduate studies.
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• AMIN 3312 - American Indian Environmental Issues and Ecological Perspectives [ENV] (3.0 cr)
• AMIN 3501 - American Indian Tribal Governments and Politics [HIS, DSJ] (3.0 cr)
• AMIN 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans, & Chicanos in the U.S. (3.0 cr)
• AMIN 4501 - Law, Sovereignty, and Treaty Rights (3.0 cr)
• AMIN 4511 - American Indian Political Economy (3.0 cr)
• AMIN 4525W - Federal Indian Policy [WI] (3.0 cr)
or AMIN 3141 - American Indian Language Planning (3.0 cr)
• AMIN 5141 - American Indian Language Planning (3.0 cr)

• Electives
Take 15 or more credit(s) from the following:
• AMIN 3xxx
• AMIN 4xxx
• AMIN 5xxx
• DAKO 3xxx
• DAKO 4xxx
• DAKO 5xxx
• OJIB 3xxx
• OJIB 4xxx
• OJIB 5xxx

Language Track
The Language track requires at least 31 credits of coursework, including AMIN 1001 & AMIN 4820W. It is designed for students who wish to deepen their understanding of the field by completing two years of either Dakota or Ojibwe.
The required four semesters of Dakota or Ojibwe language study will satisfy the CLA second language requirement.

**Major Courses**
Take a minimum of 25 credits.

**Preparatory Language Coursework**
Note: these courses do not factor into the overall length in credits for the major.

**Dakota**
- DAKO 1121 - Beginning Dakota I (5.0 cr)
- DAKO 1122 - Beginning Dakota II (5.0 cr)

**or Ojibwe**
- OJIB 1101 - Beginning Ojibwe I (5.0 cr)
- OJIB 1102 - Beginning Ojibwe II (5.0 cr)

**Language Sequence**
Take 16 credits.

**Dakota**
- DAKO 3123 - Intermediate Dakota I (5.0 cr)
- DAKO 3124 - Intermediate Dakota II (5.0 cr)
- DAKO 5126 - Advanced Dakota Language I (3.0 cr)
- DAKO 5129 - Advanced Dakota Language II (3.0 cr)

**or Ojibwe**
- OJIB 3103 - Intermediate Ojibwe I (5.0 cr)
- OJIB 3104 - Intermediate Ojibwe II (5.0 cr)
- OJIB 5106 - Advanced Ojibwe Language I (3.0 cr)
- OJIB 5109 - Advanced Ojibwe Language II (3.0 cr)

**Advanced Level Language Course**
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- AMIN 3107 - Structure of Anishinaabemowin, the Ojibwe Language (3.0 cr)
- AMIN 3108 - History of Anishinaabemowin, the Ojibwe Language (3.0 cr)
- AMIN 3109 - Anishinaabe Literature (3.0 cr)
- AMIN 3141 - American Indian Language Planning (3.0 cr)
- AMIN 3143 - Language in American Indian Culture and Society (3.0 cr)
- AMIN 5107 - The Structure of Anishinaabemowin, the Ojibwe Language (3.0 cr)
- AMIN 5108 - History of Anishinaabemowin, the Ojibwe Language (3.0 cr)
- AMIN 5109 - Anishinaabe Literature (3.0 cr)
- AMIN 5141 - American Indian Language Planning (3.0 cr)
- DAKO 3125 - Introduction to Dakota Linguistics (3.0 cr)
- DAKO 3126 - Dakota Language for the Classroom (3.0 cr)
- DAKO 3127 - Dakota Language for Teachers (3.0 cr)
- OJIB 3127 - Ojibwe Language for Teachers (3.0 cr)

**Electives**
Take 6 or more credit(s) from the following:
- AMIN 3xxx
- AMIN 4xxx
- AMIN 5xxx
- DAKO 3xxx
- DAKO 4xxx
- DAKO 5xxx
- OJIB 3xxx
- OJIB 4xxx
- OJIB 5xxx
Twin Cities Campus
American Indian Studies Minor
American Indian Studies
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

American Indian Studies is dedicated to advancing awareness and understanding of the histories and contemporary experiences of American Indian people. The program focuses on the native peoples of the United States and Canada, but also draws on the experiences of indigenous peoples from other parts of the world.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students may earn a B.A. or a minor in American Indian studies, but not both.

Minor Courses
Foundation Course
AMIN 1001 - American Indian Peoples in the United States [DSJ] (3.0 cr)
or AMIN 1002 - Indigenous Peoples in Global Perspective [GP] (3.0 cr)
or AMIN 1003 - American Indians in Minnesota [HIS, DSJ] (3.0 cr)

Electives
Take 15 or more credit(s) from the following:
- AMIN 3xxx
- AMIN 4xxx
- AMIN 5xxx
Twin Cities Campus
American Studies B.A.
American Studies
College of Liberal Arts

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 33
• Degree: Bachelor of Arts

American studies is an interdisciplinary and comparative study of the United States as the outcome of migration, labor accumulation, land acquisition, cultural dissemination, the implantation of U.S. laws and policies, and identity formations around gender, sexuality, and race.

As an interdisciplinary field, American studies brings the social sciences and humanities together. Students and faculty interact in a variety of academic areas, including literature, history, sociology, anthropology, geography, cultural studies, art history, urban studies, political science, and women's studies.

In addition, the Department of American Studies includes a minor in Asian American studies and cooperates with the Departments of African-American and African Studies, American Indian Studies, Chicano Studies, and Indian Studies, which makes it possible for students to concentrate their studies in one of those cultural areas.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Students may earn a B.A. or a minor in American studies, but not both.

Preparatory Courses
Take 2 or more course(s) from the following:
• AMST 1xxx
• AMST 2xxx

Major Courses
Complete 7 upper-division courses for a minimum of 21 credits, including one course in world cultures. Up to three courses outside of AMST may be counted from the AMST-approved course list, or with consent from the director of undergraduate studies.

World Cultures Course
Course from AMST-approved Course List
or Take 6 or more course(s) from the following:
• AMST 3xxx
• AMST 4xxx
• AMST 5xxx

Proseminar Sequence
AMST 4961 - Proseminar I (3.0 cr)
AMST 4962W - Second Proseminar in American Studies [WI] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• AMST 4962W - Second Proseminar in American Studies [WI] (3.0 cr)
American Studies Minor

American Studies

College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

American studies is an interdisciplinary and comparative study of the United States as the outcome of migration, labor accumulation, land acquisition, cultural dissemination, the implantation of U.S. laws and policies, and identity formations around gender, sexuality, and race. As an interdisciplinary field, American studies brings the social sciences and humanities together.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Students may earn a B.A. or a minor in American studies, but not both.

Minor Courses

Take 15 or more credit(s) from the following:
- AMST 3xxx
- AMST 4xxx
- AMST 5xxx
Anthropology is the study of human beings and cultures throughout the world during the present and past. Said another way, it is the study of "who we are, and how we came to be that way." Anthropology is partly a natural science, partly a social science, and partly a humanistic study. Anthropology majors compare and contrast the biological, social, and cultural similarities and differences of humans and their societies across the globe and develop a sophisticated understanding of the biological unity of our species.

Students who major in the field are expected to take courses in the four sub-fields of anthropology. Students planning a professional career in anthropology generally specialize in one of the sub-fields: biological anthropology (the evolutionary history of human and nonhuman primates), archaeology (the study of prehistoric and historic societies through their material culture), sociocultural anthropology (the study of the behavior of recent peoples in settings that range from unindustrialized societies to modern urban centers), and linguistic anthropology (the comparative study of languages and communication). The Anthropology Department website (http://anthropology.umn.edu/undergrad/requirements.html) offers several examples of course sequences designed to provide training in particular sub-fields.

There are a variety of opportunities for graduates with degrees in anthropology. While some go on to graduate school in order to obtain a position in a university, most graduates find non-academic jobs in the private and public sectors. Private industry consulting, environmental firms, product development and marketing firms, as well as the nonprofit sector all employ anthropologists because of the unique observational and critical thinking skills they possess. Governmental agencies at the federal and state levels seek anthropologists for various positions. Biological anthropologists find employment as forensic scientists working for law enforcement. Archaeologists find jobs in cultural resource management (CRM) firms whose services are contracted by construction companies to ensure compliance with legislation pertaining to archaeological and historical preservation. An anthropology major is also excellent preparation for professional schools in medicine, public health, nursing, and law.

The U.S. Bureau of Labor Statistics' data (http://www.bls.gov/oco/ocos315.htm) indicate that anthropologist and archaeologist jobs are growing at a faster rate (26 percent by 2018) than other social sciences. Based on the Wall Street Journal's interactive graphic (http://graphicsweb.wsj.com/documents/NILF1111/#term=), the unemployment percentage for graduates with an anthropology major is also lower than many more popular majors, including psychology, architecture, sociology, and journalism. More important, an anthropology major offers a holistic education that, regardless of the job attained after graduation, provides a perspective on humanity that inspires a lifetime of engagement with the issues of importance to our globalized society.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

At least one upper-division course in the major (ANTH 3xxx-5xxx) must be writing intensive. Students may earn a B.A. or a minor in anthropology, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific
information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Preparatory Courses
ANTH 1001 - Human Evolution [BIOL] (4.0 cr)
ANTH 1003W - Understanding Cultures [SOCS, GP, WI] (4.0 cr)
or ANTH 1005W - Introduction to Cultural Diversity and the World System [SOCS, GP, WI] (4.0 cr)

Subfield Foundation Courses
Take at least one course from at least three of the four subfields: archeology; biological anthropology; sociocultural anthropology; linguistic anthropology.
Take 3 or more course(s) from the following:
• ANTH 3001 - Introduction to Archaeology [SOCS] (4.0 cr)
• ANTH 3002 - Sex, Evolution, and Behavior: Examining Human Evolutionary Biology (4.0 cr)
or ANTH 3401 - The Human Fossil Record (3.0 cr)
or ANTH 5401 - The Human Fossil Record (3.0 cr)
• ANTH 3003 - Cultural Anthropology (3.0 cr)
• ANTH 3005W - Language, Culture, and Power [SOCS, DSJ, WI] (4.0 cr)
or ANTH 3015W - Biology, Evolution, and cultural Development of Language [SOCS, WI] (3.0 cr)
or ANTH 3015W - Biology, Evolution, and Cultural Development of Language [SOCS, WI] (3.0 cr)

Upper-Division Training in Anthropology
Students must take five upper-division courses in anthropology, of which at least three must be 4xxx or 5xxx courses. Directed studies, reading, and research courses can be used to satisfy part of the upper-division training requirement (normally limited to a total of 6 credits). Special topics courses can be used to satisfy part of the upper-division training requirement.
Take 2 or more course(s) from the following:
• ANTH 3xxx
• ANTH 4xxx
• ANTH 5xxx
Take 3 or more course(s) from the following:
• ANTH 4xxx
• ANTH 5xxx

Senior Project
Choose one of the following two options to complete the senior project: Take ANTH 3913 and ANTH 4013. Enroll in ANTH 3913 at least one term before registering for ANTH 4013. Honors students should enroll in ANTH 4013H. Or, take 3 or more credits of ANTH 4xxx or ANTH 5xxx.
• ANTH 3913 - Senior Project Planning (1.0 cr)
• ANTH 4013 - Senior Project (3.0 cr)
or ANTH 4013H - Senior Honors Thesis Project (3.0 cr)
or Take 3 or more credit(s) from the following:
• ANTH 4xxx
• ANTH 5xxx
Twin Cities Campus
Anthropology Minor
Anthropology
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16

Anthropologists study human communities, near and far, past and present, and explore how seemingly unrelated aspects of a society are connected and how societies are linked to one another.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students may earn a B.A. or a minor in Anthropology, but not both.

Preparatory Courses
ANTH 1001 - Human Evolution [BIOL] (4.0 cr)
or ANTH 1003W - Understanding Cultures [SOCS, GP, WI] (4.0 cr)
or ANTH 1005W - Introduction to Cultural Diversity and the World System [SOCS, GP, WI] (4.0 cr)

Minor Courses
Take four 3-credit courses that have a common focus. Any ANTH 3xxx-5xxx course may count toward the minor, including special topics.
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
  + ANTH 3xx
  + ANTH 4xx
  + ANTH 5xx
Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 38
• Degree: Bachelor of Arts

The program provides instruction in the visual arts by emphasizing the development of visual awareness and expression through hands-on involvement in the creative process. In the preparatory studio courses, students become familiar with the various materials and concepts used to understand the nature of visual language. Students then choose additional courses from such areas as drawing, painting, ceramics, printmaking, photography, sculpture, and experimental and media arts.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Note: ARTS 2xxx courses are equivalent to ARTS 1xxx courses. ARTS 2xxx are recommended for those intending to major or minor in Art, or those who have already declared a major or minor in Art. Majors are required to complete at least 12 upper-division degree credits in residence at the University of Minnesota Twin Cities campus. At least one upper-division course in the major (ARTS 3xxx-5xxx) must be writing intensive. Students may earn no more than one degree from the Department of Art: a B.A. or a B.F.A. or a minor.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Preparatory Courses
Take at least 16 credits. Note: ARTS 2xxx courses are recommended for already-declared majors and minors, or those intending to major or minor.

ARTS 1001 - Introduction to Contemporary Art and Theory [AH, DSJ] (4.0 cr)
ARTS 1101 - Drawing [AH] (4.0 cr)
or ARTS 2101 - Drawing [AH] (4.0 cr)
ARTS 1301 - Sculpture [AH] (4.0 cr)
or ARTS 2301 - Sculpture [AH] (4.0 cr)
or ARTS 1801 - Ceramics [AH] (4.0 cr)
or ARTS 2801 - Ceramics [AH] (4.0 cr)
ARTS 1501 - Printmaking: Intaglio and Lithography [AH] (4.0 cr)
or ARTS 2501 - Printmaking: Intaglio and Lithography [AH] (4.0 cr)
or ARTS 1502 - Printmaking: Relief, Screen, and Digital Processes [AH] (4.0 cr)
or ARTS 2502 - Printmaking: Relief, Screen, Digital Processes [AH] (4.0 cr)
or ARTS 1601 - Experimental and Media Arts [AH] (4.0 cr)
or ARTS 2601 - Experimental and Media Arts [AH] (4.0 cr)
or ARTS 1701 - Photography [AH] (4.0 cr)
or ARTS 2701 - Photography [AH] (4.0 cr)
Major Courses
Take a minimum of four upper-division ARTS courses for at least 15 credits. Up to one ARTS 1xxx or 2xxx may count. One of the four upper-division ARTS courses should be taken concurrently with ARTS 3444 to fulfill the senior project. Take a minimum of two ARTH courses for at least 6 credits. Up to one ARTH 1xxx may count.
Take 4 or more course(s) totaling 15 or more credit(s) from the following:
  Take 0 - 1 course(s) from the following:
    • ARTS 1xxx
    • ARTS 2xxx
  Take 3 or more course(s) from the following:
    • ARTS 3xxx
    • ARTS 5xxx
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
  Take 0 - 1 course(s) from the following:
    • ARTH 1xxx
  Take 1 or more course(s) from the following:
    • ARTH 3xxx
    • ARTH 5xxx

Senior Project
The senior project is completed in the student's final year of coursework. Take ARTS 3444 concurrently with one of the four courses chosen to fulfill the Major Courses sub-requirement. This course must be an ARTS 3xxx or 5xxx and worth a minimum of 4 credits. Students who double-major and choose to complete the senior project in their other major are still responsible for taking 38 total ARTS credits.
ARTS 3444 - Major Project (1.0 cr)
**Twin Cities Campus**

**Art B.F.A.**

**Art**

**College of Liberal Arts**

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 67 to 69
- Degree: Bachelor of Fine Arts

The program provides in-depth instruction in the visual arts through a high concentration of coursework in the Department of Art. Admission is based on portfolio evaluation. The program is oriented toward professional practice or admission to a master's degree program.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

Students must complete 5 courses before admission to the program.

Art majors may apply to the B.F.A. degree program after completing the five preparatory core courses required in the major. Application is made by submitting a portfolio to a faculty committee for review. A faculty adviser is chosen upon admission to the B.F.A. program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

**Required prerequisites**

**Preparatory Courses**

Take a minimum of five courses (20 credits). Note: ARTS 2xxx courses are equivalent to ARTS 1xxx courses. ARTS 2xxx are recommended for those intending to major or minor in Art, or those who have already declared a major or minor in Art.

ARTS 1001 - Introduction to Contemporary Art and Theory [AH, DSJ] (4.0 cr)
ARTS 1101 - Drawing [AH] (4.0 cr)
ARTS 1301 - Sculpture [AH] (4.0 cr)
ARTS 1501 - Printmaking: Intaglio and Lithography [AH] (4.0 cr)
ARTS 1601 - Experimental and Media Arts [AH] (4.0 cr)
ARTS 1701 - Photography [AH] (4.0 cr)
ARTS 1801 - Ceramics [AH] (4.0 cr)
ARTS 2101 - Drawing [AH] (4.0 cr)
ARTS 2301 - Sculpture [AH] (4.0 cr)
ARTS 2501 - Printmaking: Intaglio and Lithography [AH] (4.0 cr)
ARTS 2601 - Experimental and Media Arts [AH] (4.0 cr)
ARTS 2701 - Photography [AH] (4.0 cr)
ARTS 2801 - Ceramics [AH] (4.0 cr)

Take at least 4 credits of ARTS 1xxx or ARTS 2xxx.

ARTS 1xxx

**General Requirements**

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

**Program Requirements**

Students are required to take 4 semester(s) of any second language.
Students who wish to apply credits from art courses taken outside the University of Minnesota should contact the department's undergraduate adviser. At least one upper-division (3xxx or above) course in the major must be writing intensive. Students may earn no more than one degree from the Department of Art: a B.A. or a B.F.A. or a minor.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

**Major Courses**

**Art Electives**
Take 30 or more credit(s) from the following:
- ARTS 3xxx
- ARTS 5xxx

**Art Internship**
Take either of the following courses for a minimum of one credit.
- ARTS 3496 - Internship in the Arts (1.0 - 3.0 cr)
- ARTS 3499 - Internship at Katherine E. Nash Gallery (3.0 cr)

**Critical Theory**
Take 3 or more credit(s) from the following:
- ARTH 3577 - Photo Nation: Photography in America [AH] (3.0 cr)
- ARTH 5417 - Twentieth Century Theory and Criticism (3.0 cr)
- ARTS 3401W - Critical Theories and Their Construction From a Studio Perspective [AH, CIV, WI] (3.0 cr)
- CSCL 1001 - Introduction to Cultural Studies: Rhetoric, Power, Desire [AH, DSJ] (4.0 cr)
- CSCL 1201 - Introduction to Cinema and Media Culture [AH] (4.0 cr)
- CSCL 1301W - Reading Culture: Theory and Practice [AH, WI] (4.0 cr)
- CSCL 3115 - Cinema and Ideology [AH] (4.0 cr)
- CSCL 3321W - Theories of Culture [AH, WI] (3.0 cr)
- CSCL 3456W - Sexuality and Culture [DSJ, WI] (3.0 cr)
- CSCL 3458W - The Body and the Politics of Representation [HIS, WI] (3.0 cr)
- CSCL 3458W - The Body and the Politics of Representation [HIS, WI] (3.0 cr)
- CSCL 3458W - The Body and the Politics of Representation [HIS, WI] (3.0 cr)
- CSDS 5301 (Inactive) (3.0 cr)
- CSDS 5302 (Inactive) (3.0 cr)
- PHIL 3502W - Introduction to Aesthetics [WI] (3.0 cr)

**Art History**
At least two of the three ARTH courses must be upper-division. The third ARTH course could be taken at the 1xxx, 3xxx or 5xxx levels.
Take 3 or more course(s) totaling 9 or more credit(s) from the following:

**Lower-division Courses**
Take 0 - 3 credit(s) from the following:
- ARTH 1xxx

**Upper-division Courses**
Take 6 or more credit(s) from the following:
- ARTH 3xxx
- ARTH 5xxx

**Seminar**
Note that ARTS 5400 is taken in the final year of the B.F.A. program.
- ARTS 5400 - Seminar: Concepts and Practices in Art (3.0 cr)

**Senior Project**
B.F.A. candidates register with their faculty adviser and participate in a solo or small group exhibition at an adviser-approved gallery or exhibition space during the final semester.
- ARTS 5444 - Bachelor of Fine Arts Exhibition (1.0 cr)
Twin Cities Campus
Art History B.A.
Art History
College of Liberal Arts

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 31 to 33
• Degree: Bachelor of Arts

Art History is the study of the visual world, both past and present. It looks closely at a wide array of images, objects, buildings, and sites in order to better understand human societies. Art History operates with the understanding that visual/material artifacts may speak more directly and deeply about a culture than its written record. Put another way, if a picture is worth a thousand words, then Art History equips students to read it. This is called "visual literacy" and it is an invaluable skill in our increasingly visual world.

Students in Art History learn to analyze a wide variety of artifacts from all geographic regions and historical eras, including our own. Not limited strictly to the so-called "fine arts," Art History seeks to understand visual and material culture more broadly: from paintings and sculpture, to architecture and urban design; from films and photographs, to ceramics and textiles; from scientific illustration and political posters, to performance art and street graffiti. Through engaging closely with these and other forms of visual expression, students of Art History become adept practitioners of the following skills: visual analysis and interpretation, original research and careful argumentation, image-based thinking and communication, and clear and persuasive writing in a variety of modes (e.g., analytical, creative, and journalistic).

Engaging visual approaches to learning and thinking, Art History prepares a diverse student body for a variety of professional tracks. Graduates from this major go on to enjoy careers in the following fields: visual arts (e.g., art criticism, art appraisal and sales, art therapy, fashion, interior design, museums, and conservation), the humanities (e.g., grant writing, historic preservation, and philanthropy), media and marketing (e.g., advertising, film, journalism, radio, and television), K-12 and post-secondary education (e.g., teaching and administration), information science and collections management (e.g., libraries and archives in public, non-profit, and corporate contexts), and medicine and law, two fields that have long prized Art History alumni for their analytical precision, skills at information mastery, and "right-brain/left-brain" balance. For these and other reasons, students of Art History go on to enjoy higher job satisfaction and lower unemployment rates over the course of their working lives than peers in vocational tracks.

Majors in Art History are required to fulfill a variety of distribution requirements across geographic regions and historical eras; one studio art class is also required for the major. Most classes have no prerequisites. The 30-unit credit for the major makes it an attractive option for double-majors and transfer students. Students considering pursuing graduate-level work in the discipline should aim to take more than the required two 5xxx-level courses, with as many professors in the department as possible; they should also strongly consider making French or German their chosen foreign language.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

The major consists of nine courses in Art History, one course in Art, and the senior project, for a minimum of 31 credits. All courses must be taken A-F. A minimum of 13 upper-division credits of major coursework must be taken at the University of Minnesota - Twin Cities campus. No more than three credits of ARTH 3975, 3993, 5993, or 5994 may be used to fulfill major requirements. Students who double-major and choose to complete the senior project in their other major are still responsible for taking 31 total ARTH credits. Students are encouraged to take courses from a variety of instructors to ensure exposure to various approaches and methods.
Students may earn a B.A. or a minor in art history, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

**Art History Foundation**

**ARTH 1001 - Introduction to Art History: Prehistoric to Contemporary [AH] (4.0 cr)**

*or ARTH 1002W - Why Art Matters [AH, GP, WI] (4.0 cr)*

*or ARTH 1004W - Introduction to Asian Art [HIS, WI] (3.0 cr)*

**Art Practice**

This course must be hands-on, and focused on the practice, rather than the history, of art. Other courses not on the list may fulfill this requirement, but only with prior approval from the undergraduate adviser or director of undergraduate studies.

Take 1 or more course(s) totaling 3 - 4 credit(s) from the following:

- ARTS 1101 - Drawing [AH] (4.0 cr)
- ARTS 1102 - Painting (4.0 cr)
- ARTS 1301 - Sculpture [AH] (4.0 cr)
- ARTS 1501 - Printmaking: Intaglio and Lithography [AH] (4.0 cr)
- ARTS 1502 - Printmaking: Relief, Screen, and Digital Processes [AH] (4.0 cr)
- ARTS 1505 - Papemaking (4.0 cr)
- ARTS 1601 - Experimental and Media Arts [AH] (4.0 cr)
- ARTS 1701 - Photography [AH] (4.0 cr)
- ARTS 1801 - Ceramics [AH] (4.0 cr)
- ARTS 1902 - Freshman Seminar (3.0 cr)
- ARTS 1905 - Freshman Seminar (3.0 cr)
- ARTS 1910W - Freshman Seminar [WI] (3.0 cr)
- ARTS 2101 - Drawing [AH] (4.0 cr)
- ARTS 2102 - Painting (4.0 cr)
- ARTS 2301 - Sculpture [AH] (4.0 cr)
- ARTS 2501 - Printmaking: Intaglio and Lithography [AH] (4.0 cr)
- ARTS 2502 - Printmaking: Relief, Screen, Digital Processes [AH] (4.0 cr)
- ARTS 2601 - Experimental and Media Arts [AH] (4.0 cr)
- ARTS 2701 - Photography [AH] (4.0 cr)
- ARTS 2801 - Ceramics [AH] (4.0 cr)

**Art History Electives**

Take 8 courses: six 3xxx and two 5xxx courses, spanning all 3 time periods and 2 geographic/cultural areas. One ARTH 1xxx may be substituted for an ARTH 3xxx course. Up to 3 credits of directed museum experience (ARTH 3975), or directed study (ARTH 3993/5993), or directed research (ARTH 5994) may count. Some courses span across time periods and geographic/cultural areas. Consult with the program adviser or director of undergraduate studies to determine which requirements these courses fulfill.

Take 8 or more course(s) totaling 24 or more credit(s) from the following:

**Era I: Ancient to ca. 1300**

Take 1 or more course(s) from the following:

- **Area: North America and Europe**
  
  Take 0 or more course(s) from the following:
  
  - ARTH 3009 - Medieval Art [AH] (3.0 cr)
  - ARTH 3152 - Art and Archaeology of Ancient Greece [HIS] (3.0 cr)
  - ARTH 3162 - Roman Art and Archaeology [HIS] (3.0 cr)
  - ARTH 5112 - Archaic and Classical Greek Art (3.0 cr)

- **Area: Middle East and/or Islamic World**
  
  Take 0 or more course(s) from the following:
  
  - ARTH 3182 - Egypt and Western Asia: Art and Archaeology of Ancient Egypt and Western Asia [AH, GP] (3.0 cr)
  - ARTH 5115 - Hellenistic and Iranian Asia: Art and Archaeology of Hellenistic, Scythian, Kushan, and Sogdian Asia (3.0 cr)
  - ARTH 5192 - Persia and the Ancient Iranian World: Art and Archaeology of Achaemenid to Sasanian Persia (3.0 cr)

- **South and/or East Asia**
  
  Take 0 or more course(s) from the following:
  
  - ARTH 5765 - Early Chinese Art (3.0 cr)
  - ARTH 5775 - Formation of Indian Art: 2500 BCE to 300 CE (3.0 cr)

**Era II: ca. 1300 to 1800**

Take 1 or more course(s) from the following:

- **Area: North America and Europe**
  
  Take 0 or more course(s) from the following:
  
  - ARTH 3309 - Renaissance Art in Europe [AH] (3.0 cr)
  - ARTH 3311 - Baroque Art in Seventeenth Century Europe [AH] (3.0 cr)
• ARTH 3312 - European Art of the Eighteenth Century: Rococo to Revolution [HIS] (3.0 cr)
• ARTH 3315 - The Age of Curiosity: Art and Knowledge in Europe, 1500-1800. [AH, TS] (3.0 cr)
• ARTH 3335 - Baroque Rome: Art and Politics in the Papal Capital [HIS] (3.0 cr)
• ARTH 5302 - Print Culture in Early Modern Europe (3.0 cr)
• ARTH 5323 - Art of the Italian Renaissance: 14th-16th Centuries (3.0 cr)
• ARTH 5324 - 15th-Century Painting (3.0 cr)
• ARTH 5335 - Baroque Rome: Art and Politics in the Papal Capital (3.0 cr)

• Latin America
  Take 0 or more course(s) from the following:
  • ARTH 5325 - Art of the Aztec Empire (3.0 cr)

• Era III: 1800 to Present
  Take 1 or more course(s) from the following:

  Area: North America and Europe
  Take 0 or more course(s) from the following:
  • ARTH 3005 - American Art [AH] (4.0 cr)
  • ARTH 3012 - 19th and 20th Century Art (3.0 cr)
  • ARTH 3422 - Off the Wall: History of Graphic Arts in Europe and America in the Modern Age (4.0 cr)
  • ARTH 3484 - The Art of Picasso and the Modern Movement (4.0 cr)
  • ARTH 3577 - Photo Nation: Photography in America [AH] (3.0 cr)
  • ARTH 3655 - African-American Cinema [AH, DSJ] (3.0 cr)
  • ARTH 5411 - Gender and Sexuality in Art Since 1863 (3.0 cr)
  • ARTH 5417 - Twentieth Century Theory and Criticism (3.0 cr)
  • ARTH 5454 - Design Reform in the Era of Art Nouveau (3.0 cr)
  • ARTH 5546 - American Architecture: 1840 to 1914 (3.0 cr)
  • ARTH 5575 - Boom to Bust: American Art from the Roaring Twenties to the Great Depression (3.0 cr)
  • ARTH 5577 - Art of the Harlem Renaissance (3.0 cr)
  • ARTH 5655 - African American Cinema (3.0 cr)

• Courses Spanning Across Time Periods and Areas: Consult with adviser.
  Take 0 or more course(s) from the following:
  • ARTH 1001 - Introduction to Art History: Prehistoric to Contemporary [AH] (4.0 cr)
  • ARTH 1002W - Why Art Matters [AH, GP, WI] (4.0 cr)
  • ARTH 1004W - Introduction to Asian Art [HIS, WI] (3.0 cr)
  • ARTH 1910W - Topics: Freshman Seminar [WI] (3.0 cr)
  • ARTH 3013 - Introduction to East Asian Art [GP] (3.0 cr)
  • ARTH 3014W - Art of India [AH, GP, WI] (4.0 cr)
  • ARTH 3015W - Art of Islam [AH, GP, WI] (4.0 cr)
  • ARTH 3017 - Islamic Culture [AH, GP] (4.0 cr)
  • ARTH 3205 - Introduction to Aztec, Maya, and Inka Art, from Ancient Times to the Colonial Period [AH] (3.0 cr)
  • ARTH 3208 - Mexico on My Mind [AH, GP] (3.0 cr)
  • ARTH 3401 - Art Now [AH, CIV] (3.0 cr)
  • ARTH 3422 - Off the Wall: History of Graphic Arts in Europe and America in the Modern Age (4.0 cr)
  • ARTH 3434 - Art and the Environment [AH, ENV] (3.0 cr)
  • ARTH 3464 - Art Since 1945 [HIS] (4.0 cr)
  • ARTH 3921W - Art of the Film [AH, WI] (4.0 cr)
  • ARTH 3930 - Junior-Senior Seminar (3.0 cr)
  • ARTH 3940 - Topics in Art History (1.0 - 4.0 cr)
  • ARTH 3975 - Directed Museum Experience (1.0 - 2.0 cr)
  • ARTH 3993 - Directed Study (1.0 - 4.0 cr)
  • ARTH 5301 - Visual Culture of the Atlantic World (3.0 cr)
  • ARTH 5325 - Art of the Aztec Empire (3.0 cr)
  • ARTH 5413 - Alternative Media: Video, Performance, Digital Art (3.0 cr)
  • ARTH 5422 - Off the Wall: History of Graphic Arts in Europe and America in the Modern Age (4.0 cr)
  • ARTH 5466 - Contemporary Art (3.0 cr)
  • ARTH 5766 - Chinese Painting (3.0 cr)
  • ARTH 5777 - The Diversity of Traditions: Indian Art 1200 to Present (3.0 cr)
  • ARTH 5781 - Age of Empire: The Mughals, Safavids, and Ottomans (3.0 cr)
  • ARTH 5785 - Art of Islamic Iran (3.0 cr)
  • ARTH 5801 - Spoken Word and Painted Texts in the Americas (200-1650 A.D.) (3.0 cr)
  • ARTH 5802 - Art of the Inka and their Ancestors (3.0 cr)
  • ARTH 5950 - Topics in Art History (3.0 cr)
  • ARTH 5993 - Directed Study (1.0 - 4.0 cr)

• ARTH 3971W (honors students should enroll in ARTH 3971V). With permission from the course instructor, students select a research paper previously written in an ARTH 5xxx course and develop it into their senior project. The department strongly
recommends that students complete the ARTH 5xxx course at least one semester prior to enrolling in ARTH 3971W/V. Concurrent registration in the ARTH 5xxx course and ARTH 3971W/V is permissible, however.

ARTH 3971W - Major Project [WI] (1.0 cr)
or ARTH 3971V - Honors: Major Project [WI] (1.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ARTH 3971W - Major Project [WI] (1.0 cr)
• ARTH 3971V - Honors: Major Project [WI] (1.0 cr)
Art History is the study of the visual world, both past and present. It looks closely at a wide array of images, objects, buildings, and sites in order to better understand human societies. Art History operates with the understanding that visual/material artifacts may speak more directly and deeply about a culture than its written record. Put another way, if a picture is worth a thousand words, then Art History equips students to read it. This is called "visual literacy" and it is an invaluable skill in our increasingly visual world. Students in Art History learn to analyze a wide variety of artifacts from all geographic regions and historical eras, including our own. Not limited strictly to the so-called "fine arts," Art History seeks to understand visual and material culture more broadly: from paintings and sculpture, to architecture and urban design; from films and photographs, to ceramics and textiles; from scientific illustration and political posters, to performance art and street graffiti. Through engaging closely with these and other forms of visual expression, students of Art History become adept practitioners of the following skills: visual analysis and interpretation, original research and careful argumentation, image-based thinking and communication, and clear and persuasive writing in a variety of modes (e.g., analytical, creative, and journalistic). Engaging visual approaches to learning and thinking, Art History prepares a diverse student body for a variety of professional tracks, including the visual arts (e.g., art criticism, art appraisal and sales, art therapy, fashion, interior design, museums, and conservation), the humanities (e.g., grant writing, historic preservation, and philanthropy), media and marketing (e.g., advertising, film, journalism, radio, and television), K-12 and post-secondary education (e.g., teaching and administration), information science and collections management (e.g., libraries and archives in public, non-profit, and corporate contexts), and medicine and law, two fields that have long prized Art History alumni for their analytical precision, skills at information mastery, and "right-brain/left-brain" balance. For these and other reasons, students of Art History go on to enjoy higher job satisfaction and lower unemployment rates over the course of their working lives than peers in vocational tracks.

Minor Requirements
The Art History minor consists of five upper-division ARTH courses for a minimum of 14 total credits. At least one course must be taken at the 5xxx-level. Students must take courses from at least two eras: Ancient to ca. 1300; ca. 1300 to 1800; and 1800 to present. Two of the required five courses must also be from different geographic or cultural areas: Europe/North America; South and/or East Asia; Middle East and/or Islamic World; and Latin America. Students are also encouraged to take courses from a variety of instructors to ensure exposure to various approaches and methods. No more than 3 credits of ARTH 3975, 3993, 5993, or 5994 may be used to fulfill minor requirements.

Students may earn a B.A. or a minor in art history, but not both.

Minor Courses
Some courses span across time periods and geographic or cultural areas. Consult the departmental adviser to determine which requirements these courses fulfill. At least one course must be taken at the 5xxx-level.

Take 5 or more course(s) totaling 14 or more credit(s) from the following:

**Era I: Ancient to ca. 1300**

Take 0 or more course(s) from the following:

**Area: North America and Europe**

Take 0 or more course(s) from the following:

- ARTH 3009 - Medieval Art [AH] (3.0 cr)
- ARTH 3152 - Art and Archaeology of Ancient Greece [HIS] (3.0 cr)
- ARTH 3162 - Roman Art and Archaeology [HIS] (3.0 cr)
- ARTH 5112 - Archaic and Classical Greek Art (3.0 cr)

**Area: Middle East and/or Islamic World**

Take 0 or more course(s) from the following:

**Area: South and/or East Asia**

Take 0 or more course(s) from the following:

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• ARTH 5765 - Early Chinese Art (3.0 cr)
• ARTH 5775 - Formation of Indian Art: 2500 BCE to 300 CE (3.0 cr)

**Era II: ca. 1300 to 1800**

Take 0 or more course(s) from the following:

**Area: North America and Europe**

Take 0 or more course(s) from the following:

• ARTH 3309 - Renaissance Art in Europe [AH] (3.0 cr)
• ARTH 3311 - Baroque Art in Seventeenth Century Europe [AH] (3.0 cr)
• ARTH 3312 - European Art of the Eighteenth Century: Rococo to Revolution [HIS] (3.0 cr)
• ARTH 3315 - The Age of Curiosity: Art and Knowledge in Europe, 1500-1800 [AH, TS] (3.0 cr)
• ARTH 3335 - Baroque Rome: Art and Politics in the Papal Capital [HIS] (3.0 cr)
• ARTH 5302 - Print Culture in Early Modern Europe (3.0 cr)
• ARTH 5324 - 15th-Century Painting (3.0 cr)
• ARTH 5335 - Baroque Rome: Art and Politics in the Papal Capital (3.0 cr)

**Era III: 1800 to Present**

Take 0 or more course(s) from the following:

**Area: North America and Europe**

Take 0 or more course(s) from the following:

• ARTH 3005 - American Art [AH] (4.0 cr)
• ARTH 3012 - 19th and 20th Century Art (3.0 cr)
• ARTH 3484 - The Art of Picasso and the Modern Movement (4.0 cr)
• ARTH 5411 - Gender and Sexuality in Art Since 1863 (3.0 cr)
• ARTH 5417 - Twentieth Century Theory and Criticism (3.0 cr)
• ARTH 5454 - Design Reform in the Era of Art Nouveau (3.0 cr)
• ARTH 5546 - American Architecture: 1840 to 1914 (3.0 cr)

**Courses Spanning Across Time Periods and Areas: Consult with adviser.**

Take 0 or more course(s) from the following:

• ARTH 1001 - Introduction to Art History: Prehistoric to Contemporary [AH] (4.0 cr)
• ARTH 1002W - Why Art Matters [AH, GP, WI] (4.0 cr)
• ARTH 1910W - Topics: Freshman Seminar [WI] (3.0 cr)
• ARTH 1921W - Introduction to Film Study [AH, WI] (4.0 cr)
• ARTH 3013 - Introduction to East Asian Art [GP] (3.0 cr)
• ARTH 3014W - Art of India [AH, GP, WI] (4.0 cr)
• ARTH 3015W - Art of Islam [AH, GP, WI] (4.0 cr)
• ARTH 3017 - Islamic Culture [AH, GP] (4.0 cr)
• ARTH 3401 - Art Now [AH, CIV] (3.0 cr)
• ARTH 3422 - Off the Wall: History of Graphic Arts in Europe and America in the Modern Age (4.0 cr)
• ARTH 3464 - Art Since 1945 [HIS] (4.0 cr)
• ARTH 3921W - Art of the Film [AH, WI] (4.0 cr)
• ARTH 3930 - Junior-Senior Seminar (3.0 cr)
• ARTH 3940 - Topics in Art History (1.0 - 4.0 cr)
• ARTH 3971W - Major Project [WI] (1.0 cr)
• ARTH 3975 - Directed Museum Experience (1.0 - 2.0 cr)
• ARTH 3993 - Directed Study (1.0 - 4.0 cr)
• ARTH 5301 - Visual Culture of the Atlantic World (3.0 cr)
• ARTH 5325 - Art of the Aztec Empire (3.0 cr)
• ARTH 5413 - Alternative Media: Video, Performance, Digital Art (3.0 cr)
• ARTH 5422 - Off the Wall: History of Graphic Arts in Europe and America in the Modern Age (4.0 cr)
• ARTH 5466 - Contemporary Art (3.0 cr)
• ARTH 5766 - Chinese Painting (3.0 cr)
• ARTH 5777 - The Diversity of Traditions: Indian Art 1200 to Present (3.0 cr)
• ARTH 5781 - Age of Empire: The Mughals, Safavids, and Ottomans (3.0 cr)
• ARTH 5785 - Art of Islamic Iran (3.0 cr)
• ARTH 5950 - Topics: Art History (3.0 cr)
• ARTH 5993 - Directed Study (1.0 - 4.0 cr)
Twin Cities Campus

Art Minor

Art
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 20 to 24

The minor introduces students to the creative process and visual thinking required in art.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Note: ARTS 2xxx courses are equivalent to ARTS 1xxx courses. ARTS 2xxx are recommended for those intending to major or minor in Art, or those who have already declared a major or minor in Art. Students may earn no more than one undergraduate degree in the Department of Art: a B.A. or a B.F.A. or a minor.

Concepts in Visual Arts
ARTS 1001 - Introduction to Contemporary Art and Theory [AH, DSJ] (4.0 cr)

Core Courses
Note: ARTS 2xxx are recommended for already-declared majors or minors, or those intending to major or minor.
Take 1 or more course(s) from the following:
- ARTS 1101 - Drawing [AH] (4.0 cr)
- ARTS 2101 - Drawing [AH] (4.0 cr)
- ARTS 1301 - Sculpture [AH] (4.0 cr)
- ARTS 2301 - Sculpture [AH] (4.0 cr)
- ARTS 1501 - Printmaking: Intaglio and Lithography [AH] (4.0 cr)
- ARTS 2501 - Printmaking: Intaglio and Lithography [AH] (4.0 cr)
- ARTS 1502 - Printmaking: Relief, Screen, and Digital Processes [AH] (4.0 cr)
- ARTS 2502 - Printmaking: Relief, Screen, Digital Processes [AH] (4.0 cr)
- ARTS 1601 - Experimental and Media Arts [AH] (4.0 cr)
- ARTS 2601 - Experimental and Media Arts [AH] (4.0 cr)
- ARTS 1701 - Photography [AH] (4.0 cr)
- ARTS 2701 - Photography [AH] (4.0 cr)
- ARTS 1801 - Ceramics [AH] (4.0 cr)
- ARTS 2801 - Ceramics [AH] (4.0 cr)

Art History
Take 1 or more course(s) from the following:
- ARTH 3xxx
- ARTH 4xxx
- ARTH 5xxx

Electives
Up to one ARTS 1xxx or 2xxx may count.
Take 3 or more course(s) from the following:
- ARTS 1xxx
- ARTS 2xxx
- ARTS 3xxx
- ARTS 5xxx
Asian American Studies Minor
College of Liberal Arts

Program Type: Undergraduate free-standing minor
Requirements for this program are current for Fall 2014
Required credits in this minor: 15

The minor focuses on the history, politics, and culture of Americans of Asian descent. Courses explore the diversity of Asian American communities, and the history and present conditions of racial formation in the United States and other parts of the Americas. The minor draws from courses in a number of disciplines and academic approaches and encourages social awareness, critical thinking, the development of new perspectives, and artistic appreciation. Courses included in the minor allow students to develop their knowledge of Asian American issues in many different contexts. Some courses emphasize an in-depth study of Asian American history, literature and culture, social issues, politics, and psychology. Others include significant attention to Asian American studies topics in the course of broader discussions.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students are urged to take AAS 1101 before declaring the minor.
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students complete at least 15 credits of 3xxx-5xxx coursework, including one core course. Students interested in the minor should make an appointment with the Asian American Studies director (778 Social Sciences Building, 612-626-9812). Students may request credit towards the minor for other courses with Asian American studies content by submitting a course syllabus and proof of completion to the Asian American Studies director.

Core Courses
Take 1 or more course(s) from the following:
• AAS 3001 - Contemporary Perspectives on Asian America [DSJ] (3.0 cr)
  or AMST 3001 - Contemporary Perspectives on Asian America [DSJ] (3.0 cr)
• AAS 3301 - Asian America Through Arts and Culture [AH, DSJ] (3.0 cr)
  or ENGL 3301 - Asian America Through Arts and Culture [AH, DSJ] (3.0 cr)
• AAS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
  or GWSS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
• AAS 3877 - Asian American History, 1850 to Present [HIS, DSJ] (3.0 cr)
  or HIST 3877 - Asian American History, 1850-Present [HIS, DSJ] (3.0 cr)
• AAS 4311 - Asian American Literature and Drama [LITR, DSJ] (3.0 cr)
  or ENGL 4311 - Asian American Literature and Drama [LITR, DSJ] (3.0 cr)

Elective Courses
In addition to the required core course, take 12 or more credits of any 3xxx, 4xxx, or 5xxx AAS course (or other adviser-approved courses).
Take 12 or more credit(s) from the following:
• AAS 3001 - Contemporary Perspectives on Asian America [DSJ] (3.0 cr)
• AMST 3001 - Contemporary Perspectives on Asian America [DSJ] (3.0 cr)
• AMST 3113W - America's Diverse Cultures [DSJ, WI] (3.0 cr)
• SOC 3211W - American Race Relations [DSJ, WI] (3.0 cr)
• AAS 3251W - Sociological Perspectives on Race, Class, and Gender [SOCS, DSJ, WI] (3.0 cr)
• SOC 3251W - Sociological Perspectives on Race, Class, and Gender [SOCS, DSJ, WI] (3.0 cr)
• AAS 3301 - Asian America Through Arts and Culture [AH, DSJ] (3.0 cr)
• ENGL 3301 - Asian America Through Arts and Culture [AH, DSJ] (3.0 cr)
• AAS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
• GWSS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
• AAS 3483 - Hmong History Across the Globe (3.0 cr)
• HIST 3483 - Hmong History Across the Globe (3.0 cr)
• DNCE 3495 - Dance and Global Tourism [GP] (3.0 cr)
• AAS 3875W - Comparative Race and Ethnicity in U.S. History [WI] (3.0 - 4.0 cr)
• HIST 3875W - Comparative Race and Ethnicity in US History [HIS, DSJ, WI] (4.0 cr)
• AAS 3877 - Asian American History, 1850 to Present [HIS, DSJ] (3.0 cr)
• HIST 3877 - Asian American History, 1850-Present [HIS, DSJ] (3.0 cr)
• AAS 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
• AFRO 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
• ENGL 4232 - American Drama by Writers of Color (3.0 cr)
• AAS 4311 - Asian American Literature and Drama [LITR, DSJ] (3.0 cr)
• ENGL 4311 - Asian American Literature and Drama [LITR, DSJ] (3.0 cr)
Twin Cities Campus
Asian Languages and Literatures B.A.
Asian Languages and Literatures
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 35
- Degree: Bachelor of Arts

Asia is an increasingly important part of world politics, economics, and culture. The program prepares students to interact with the people and cultures of Asia.

Students in this program study an Asian language - Chinese, Hindi and Urdu, Japanese, Korean, or Hmong - as well as methods of literary and cultural analysis. The language study provides advanced spoken and written skills that allow students direct access to the people and cultures of Asia, where more than half the world's population lives. The analytical courses give a theoretically sophisticated understanding of the rich literary and cultural texts, from the accepted literary canon to popular culture and film.

The major has five sub-plans based on language of concentration: Chinese, Hindi and Urdu, Japanese, Korean, Hmong. Each introduces a broad range of language, literary, and cultural texts. The deeper, concentrated study in upper-level courses leads to the senior project. Study abroad is strongly encouraged and can contribute credit to the major.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Complete the introductory 4-semester sequence (or its equivalent) of Chinese, or Hindi/Urdu, or Japanese, or Korean, or Hmong. Note: these credits do not factor into the overall length in credits of the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of Chinese, or Hindi/Urdu, or Japanese, or Korean, or Hmong.

Note: Students must elect a sub-plan based on their language of concentration. Each sub-plan requires a minimum of two courses of the same language at the advanced level (third year) or above. Students with advanced or native language ability may substitute ALL 3xxx-5xxx literature/culture courses in lieu of the major language requirement; see departmental adviser for final consent. All major coursework must be taken A-F. An overall GPA of 2.00 must be maintained across all major coursework. At least 18 of the total 35 credits required for the major must be completed in residence at the University of Minnesota - Twin Cities campus.

Students may earn a B.A. or a minor in Asian languages and literatures, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Reading Asian Cultures
ALL 3001 - Reading Asian Cultures (3.0 cr)

Asian Languages and Literatures (ALL) Courses
Transfer or study abroad credit may NOT be used to fulfill this sub-requirement.
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
ALL Modern and Classical Courses

Classical Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:

- ALL 3014W - Art of India [AH, GP, WI] (4.0 cr)
- ALL 3232W - "Short" Poetry in China and Japan [WI] (3.0 cr)
- ALL 3261W - Writing in East Asian Cultures: From Oracle Bones to Tattoos [AH, WI] (3.0 cr)
- ALL 3265W - The Fantastic in East Asia: Ghosts, Foxes, and the Alien [LITR, WI] (3.0 cr)
- ALL 3361W - Maps, Pictures, and Writing in the Representation of Taiwan [AH, GP, WI] (3.0 cr)
- ALL 3371 - History of Chinese Cities and Urban Life (3.0 - 4.0 cr)
- ALL 3373 - Religion and Society in Imperial China (3.0 cr)
- ALL 3433W - Traditional Japanese Literature in Translation [LITR, WI] (3.0 cr)
- ALL 3441W - Japanese Theater [AH, WI] (3.0 cr)
- ALL 3464 - Modern Japanese Literature in Translation (3.0 cr)
- ALL 3466 - Japanese Popular Culture in a Global Context (3.0 cr)
- CHN 5211 - Introductory Classical Chinese I (3.0 cr)
- CHN 5212 - Introductory Classical Chinese (3.0 cr)
- ALL 5261 - Work of Translation: Theory, Function, and Practice (3.0 cr)

Modern Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:

- ALL 3232W - "Short" Poetry in China and Japan [WI] (3.0 cr)
- ALL 3337 - Chinese Literature and Popular Culture Today [LITR, GP] (3.0 cr)
- ALL 3371 - History of Chinese Cities and Urban Life (3.0 - 4.0 cr)
- ALL 3436 - Postwar Japanese Literature in Translation (3.0 cr)
- ALL 3437 - Early 20th Century Japanese Literature in Translation (3.0 cr)
- ALL 3441W - Japanese Theater [AH, WI] (3.0 cr)
- ALL 3456 - Japanese Film [GP] (3.0 cr)
- ALL 3466 - Japanese Popular Culture in a Global Context (3.0 cr)
- ALL 3478 - Modern Japan, Meiji to the Present (1868-2000) [HIS] (3.0 cr)
- ALL 3536 - Modern Korean Literature [LITR, GP] (3.0 cr)
- ALL 3556 - Korean Film (3.0 cr)
- ALL 3637W - Modern South Asian Literature [WI] (3.0 cr)
- ALL 3671 - Hinduism (3.0 cr)
- ALL 3672 - Buddhism [GP] (3.0 cr)
- ALL 3676 - Culture and Society of India [GP, SOCS] (3.0 cr)
- ALL 3771 - History of Southeast Asia [GP] (3.0 cr)
- ALL 3920 - Topics in Asian Culture (3.0 cr)
- CHN 5211 - Introductory Classical Chinese I (3.0 cr)
- CHN 5212 - Introductory Classical Chinese (3.0 cr)
- ALL 5261 - Work of Translation: Theory, Function, and Practice (3.0 cr)
- ALL 5276 - Liberalism and its Critics: Global Perspectives (3.0 cr)
- ALL 5920 - Topics in Asian Culture (3.0 cr)

Major-related Electives
Take at least two major-related electives in the arts, humanities, or social sciences. Non-ALL, Asian language beyond the advanced level, study abroad or transfer courses may count with previous adviser approval. Note: up to one ALL 1xxx-level course may count toward the major.

Take 2 or more course(s) totaling 6 or more credit(s) from the following:

- ALL 1xxx
- ALL 3xxx
- ALL 5xxx

Other Electives
Take at least one other Asian language, literature, or culture course. Additional coursework may be needed to meet the minimum 35-credit requirement for graduation. Students may also count non-ALL, learning abroad, transfer, and 1- or 2-credit courses towards 'Other Electives.' See department adviser for final consent. Note: up to one ALL 1xxx course may count toward the major.

Take 1 or more course(s) totaling 1 or more credit(s) from the following:

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Information current as of December 12, 2014
Major Project
The major project is completed in ALL 4900W during the student's final year of coursework. Registrants must have senior status or instructor permission to enroll. Double majors who choose to complete the major project in their other major must still meet the minimum 35-credit requirement in ALL.

ALL 4900W - Major Project [WI] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
• ALL 4900W - Major Project [WI] (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Chinese
Chinese Language
Take a minimum of 2 courses (7 credits) of Chinese at the advanced level or above.
Take 2 or more course(s) from the following:
• CHN 3031 - Advanced Modern Chinese I (4.0 cr)
• CHN 3032 - Advanced Modern Chinese (4.0 cr)
• CHN 4041 - Advanced Readings in Modern Chinese I (4.0 cr)
• CHN 4042 - Advanced Readings in Modern Chinese (4.0 cr)
• CHN 5040 - Readings in Chinese Texts (3.0 cr)

Japanese
Japanese Language
Take a minimum of 2 courses (7 credits) of Japanese at the advanced level or above.
Take 2 or more course(s) from the following:
• JPN 3031 - Third Year Japanese I (4.0 cr)
• JPN 3032 - Third Year Japanese (4.0 cr)
• JPN 4041 - Advanced Japanese Conversation and Composition I (4.0 cr)
• JPN 4042 - Advanced Japanese Conversation and Composition (4.0 cr)
• JPN 5040 - Readings in Japanese Texts (3.0 cr)

Korean
Korean Language
Take a minimum of 2 courses (7 credits) of Korean at the advanced level or above.
Take 2 or more course(s) from the following:
• KOR 3031 - Third Year Korean I (4.0 cr)
• KOR 3032 - Third Year Korean (4.0 cr)
• KOR 4041 - Advanced Readings in Modern Korean I (4.0 cr)
• KOR 4042 - Advanced Readings in Modern Korean (4.0 cr)
• KOR 5140 - Readings in Sino-Korean Texts (3.0 cr)

Hindi-Urdu
Hindi & Urdu Languages
Take a minimum of 2 courses (7 credits) of Hindi-Urdu at the advanced level of above.
Take 2 or more course(s) from the following:
• HNUR 3031 - Advanced Hindi-Urdu I (4.0 cr)
• HNUR 3032 - Advanced Hindi-Urdu (4.0 cr)

Hmong
Hmong Language
Take a minimum of 2 courses (7 credits) of Hmong at the advanced level or above. Note: In order to fulfill this sub-requirement, HMNG 5040 must be taken for at least 3 credits.
Take 2 or more course(s) from the following:

• HMNG 3031 - Advanced Hmong I (4.0 cr)
• HMNG 3032 - Advanced Hmong (4.0 cr)
**Twin Cities Campus**

**Asian Languages and Literatures Minor**

**Asian Languages and Literatures**

**College of Liberal Arts**

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15 to 22

Asia is an increasingly important part of world politics, economics, and culture. The minor prepares students to interact with the people and cultures of Asia.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Minor Requirements**

Students are required to take 2 semester(s) of Chinese, or Hindi-Urdu, or Japanese, or Korean, or Hmong, or Arabic.

Note: Students must elect a sub-plan based on their language of concentration. Each sub-plan requires a minimum of two courses of the same language at the intermediate level (second year) or above. Students with advanced or native language ability may substitute ALL 3xxx-5xxx literature/culture courses in lieu of the minor language requirement; see departmental adviser for final consent. All required coursework must be taken A-F, and students must earn a grade of C- or better.

Students may earn a B.A. or a minor in Asian languages and literatures, but not both.

**Asian Languages and Literatures (ALL) Courses**

Transfer or study abroad credits may NOT be used to fulfill this sub-requirement.

Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- ALL 3xxx
- ALL 4xxx
- ALL 5xxx

**Other Minor Courses**

Eligible courses that fulfill the 'Other Minor Courses' sub-requirement include ALL 3xxx-5xxx, non-ALL, Asian language at the 3xxx-level or above, in the chosen sub-plan, transfer, or study abroad courses related to the minor. See departmental adviser or DUS for final approval. Note: 1xxx-level courses may NOT be counted toward the minor.

Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- ALL 3xxx
- ALL 5xxx

**Program Sub-plans**

Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

**Chinese**

**Chinese Language**

Take a minimum of 2 courses (7 credits) of Chinese at the intermediate level or above. These courses must be taken in residence at the University of Minnesota - Twin Cities campus.

Take 2 or more course(s) from the following:
- CHN 1016 - Accelerated Intermediate Modern Chinese (5.0 cr)
- CHN 3021 - Intermediate Modern Chinese I (5.0 cr)
- CHN 3022 - Intermediate Modern Chinese (5.0 cr)
- CHN 3031 - Advanced Modern Chinese I (4.0 cr)
- CHN 3032 - Advanced Modern Chinese (4.0 cr)
- CHN 4041 - Advanced Readings in Modern Chinese I (4.0 cr)
• CHN 4042 - Advanced Readings in Modern Chinese (4.0 cr)
• CHN 5040 - Readings in Chinese Texts (3.0 cr)

Japanese
Japanese Language
Take a minimum of 2 courses (7 credits) of Japanese at the intermediate level or above. These courses must be taken in residence at the University of Minnesota - Twin Cities campus.
Take 2 or more course(s) from the following:
• JPN 3021 - Intermediate Japanese I (5.0 cr)
• JPN 3022 - Intermediate Japanese (5.0 cr)
• JPN 3031 - Third Year Japanese I (4.0 cr)
• JPN 3032 - Third Year Japanese (4.0 cr)
• JPN 4041 - Advanced Japanese Conversation and Composition I (4.0 cr)
• JPN 4042 - Advanced Japanese Conversation and Composition (4.0 cr)
• JPN 5040 - Readings in Japanese Texts (3.0 cr)

Korean
Korean Language
Take a minimum of 2 courses (7 credits) of Korean at the intermediate level or above. These courses must be taken in residence at the University of Minnesota - Twin Cities campus.
Take 2 or more course(s) from the following:
• KOR 3021 - Intermediate Korean I (5.0 cr)
• KOR 3022 - Intermediate Korean (5.0 cr)
• KOR 3031 - Third Year Korean I (4.0 cr)
• KOR 3032 - Third Year Korean (4.0 cr)
• KOR 4041 - Advanced Readings in Modern Korean I (4.0 cr)
• KOR 4042 - Advanced Readings in Modern Korean (4.0 cr)
• KOR 5140 - Readings in Sino-Korean Texts (3.0 cr)

Hindi-Urdu
Hindi-Urdu Languages
Take a minimum of 2 courses (7 credits) of Hindi-Urdu at the intermediate level or above. These courses must be taken in residence at the University of Minnesota - Twin Cities campus.
HNUR 3021 - Intermediate Hindi-Urdu I (5.0 cr)
HNUR 3022 - Intermediate Hindi-Urdu (5.0 cr)
HNUR 3031 - Advanced Hindi-Urdu I (4.0 cr)
HNUR 3032 - Advanced Hindi-Urdu (4.0 cr)
HNUR 5040 (inactive) (3.0 cr)

Hmong
Hmong Language
Take a minimum of 2 courses (7 credits) of Hmong at the intermediate level or above. These courses must be taken in residence at the University of Minnesota - Twin Cities campus. Note: In order to fulfill this sub-requirement, HMNG 5040 must be taken for at least 3 credits.
Take 2 or more course(s) from the following:
• HMNG 1016 - Accelerated Intermediate Hmong (5.0 cr)
• HMNG 3021 - Intermediate Hmong I (5.0 cr)
• HMNG 3022 - Intermediate Hmong (5.0 cr)
• HMNG 3031 - Advanced Hmong I (4.0 cr)
• HMNG 3032 - Advanced Hmong (4.0 cr)
• HMNG 5040 (inactive) (2.0 - 4.0 cr)

Arabic
Arabic Language
Take a minimum of 2 courses (6 credits) of Arabic at the intermediate level or above. These courses must be taken in residence at the University of Minnesota - Twin Cities campus.
Take 2 or more course(s) from the following:
• ARAB 3101 - Intermediate Arabic I (5.0 cr)
• ARAB 3102 - Intermediate Arabic (5.0 cr)
• ARAB 5101 - Advanced Arabic I (3.0 cr)
• ARAB 5102 - Advanced Arabic (3.0 cr)
Twin Cities Campus
Astrophysics B.A.
Astrophysics, Minnesota Institute for
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 49 to 51
- Degree: Bachelor of Arts

The program in astrophysics develops the skills necessary to tackle complex and ill-defined problems within the physical sciences and prepares students for careers in several broad areas. The program is aimed primarily for students interested in secondary education in the physical sciences, science policy, and science and technical writing. The program can also prepare students for graduate study in astrophysics.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 7 courses before admission to the program.

Note: the following courses do not factor into the overall credit total for the major.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Mathematics
Complete one pair of courses from the following sequence.
- **Calculus Sequence I**
  - MATH 1271 - Calculus I [MATH] (4.0 cr)
  - MATH 1272 - Calculus II (4.0 cr)
- **Calculus Sequence II**
  - MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
  - MATH 1372 - CSE Calculus II (4.0 cr)
- **Calculus Honors Sequence**
  - MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
  - MATH 1572H - Honors Calculus II (4.0 cr)
Complete one pair of courses from the following sequence.
- **Linear Algebra & Multivariable Calculus Sequence I**
  - MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
  - MATH 2263 - Multivariable Calculus (4.0 cr)
- **Linear Algebra & Multivariable Calculus Sequence II**
  - MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
  - MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
- **Linear Algebra & Multivariable Calculus Honors Sequence**
  - MATH 2573H - Honors Calculus III (4.0 cr)
  - MATH 2574H - Honors Calculus IV (4.0 cr)

Preparatory Physics
Complete three courses from either physics sequence.
- **Physics Sequence**
  - PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
  - PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
  - PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)
- **Physics Honors Sequence**
  - PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
  - PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)
  - PHYS 2403H - Honors Physics III (4.0 cr)
General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

AST 1011H is recommended but not required. The number of credits in the major varies by area of interest, but requires at least 15 credits of AST courses.

Students may earn no more than one undergraduate degree from the Astrophysics program: a B.A. or a B.S. or a minor.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Courses
Each of the different areas of interest has the same core math, physics, and astrophysics requirements. Curriculum details for the different areas—secondary education, science writing, science policy, and scientist—are developed by the student in consultation with an adviser.

Astrophysics Requirement
AST 2001 - Introduction to Astrophysics (4.0 cr)
AST 4001 - Astrophysics I (4.0 cr)
AST 4002 - Astrophysics II (4.0 cr)

Physics Requirement
PHYS 2201 - Introductory Thermodynamics and Statistical Physics (3.0 cr)
PHYS 2601 - Quantum Physics (4.0 cr)
PHYS 2605 - Quantum Physics Laboratory (3.0 cr)
PHYS 4001 - Analytical Mechanics (4.0 cr)
PHYS 4002 - Electricity and Magnetism (4.0 cr)

Mathematics Requirement
Take a minimum of four credits.
MATH 3283W - Sequences, Series, and Foundations: Writing Intensive [WI] (4.0 cr)
or MATH 4xxx
or MATH 5xxx

Technical Electives
Take 12 or more credit(s) from the following:
• AST 4xxx
• AST 5xxx

Senior Project
This requirement can be met with directed research in astrophysics or a project tailored to the specific area of interest.
AST 4994W - Directed Research [WI] (3.0 - 5.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• AST 4994W - Directed Research [WI] (3.0 - 5.0 cr)
• MATH 3283W - Sequences, Series, and Foundations: Writing Intensive [WI] (4.0 cr)
Twin Cities Campus
Astrophysics Minor
Astrophysics, Minnesota Institute for
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 27 to 29

Students in the minor learn the physical principles underlying study of the solar system, stars, galaxy, and universe, as well as the methodology behind observations and conclusions.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students may complete no more than one degree in the Astrophysics program: a B.A. or a B.S. or a minor.

Math
MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)
or MATH 1372 - CSE Calculus II (4.0 cr)
or MATH 1572H - Honors Calculus II (4.0 cr)

Physics
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)
PHYS 2303 - Physics III: Physics of Matter (4.0 cr)
or PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)
or PHYS 2403H - Honors Physics III (4.0 cr)

Minor Courses
AST 2001 - Introduction to Astrophysics (4.0 cr)
Take 1 or more course(s) from the following:
* AEM 4301 - Orbital Mechanics (3.0 cr)
* AEM 4501 - Aerospace Structures (3.0 cr)
* PHYS 3022 - Introduction to Cosmology (3.0 cr)
* PHYS 4051 - Methods of Experimental Physics I (5.0 cr)
* EE 3601 - Transmission Lines, Fields, and Waves (3.0 cr)
* ESCI 3006 - Planets of the Solar System (3.0 cr)
* ESCI 3303W - Geochemical Principles [WI] (4.0 cr)
* MATH 3283W - Sequences, Series, and Foundations: Writing Intensive [WI] (4.0 cr)
* ME 3324 - Introduction to Thermal Science (3.0 cr)

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Information current as of December 12, 2014
Austrian and Central European Studies Minor

German, Scandinavian, & Dutch

The minor allows students to focus a group of electives on the study of Austrian and Central European culture, history, and society. Courses address specific social and political circumstances, cultural traditions, and shared history of Austria and other countries of Central Europe. The minor is supported by the Center for Austrian Studies, student exchange programs with universities in Vienna, Salzburg, and Graz, and visiting Austrian scholars sponsored by the Austrian-American Education Commission.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Beginning and Intermediate German
GER 1001, 1002, 1003 & 1004 are required pre-requisites for GER 3011W. These twenty credits do not factor into the overall length of credits in the minor.
GER 1001 - Beginning German (5.0 cr)
GER 1002 - Beginning German (5.0 cr)
GER 1003 - Intermediate German (5.0 cr)
GER 1004 - Intermediate German (5.0 cr)

Minor Requirements
Students are required to take 4 semester(s) of German.

The minor consists of a minimum of five courses and 16 credits. Students should take 3xxx, 4xxx (beyond 4004), and 5xxx courses with no more than one course being a directed or independent study. The four required semesters of a second language do not factor into the overall length of credits in the minor. All courses must be taken A-F and must be completed with a grade of C- or better. At least one course must be taken in the German program at the University of Minnesota - Twin Cities campus. Students with a German, Scandinavian, Dutch major may elect a minor in Austrian and Central European Studies (ACES), but no courses may count for both the major and the minor. The minor program must be approved by the director of undergraduate studies.

Minor Courses
GER 3011W - Conversation and Composition [WI] (4.0 cr)
GER 3520 - Topics in Austrian and Central European Culture (3.0 cr)
Two courses in the art, culture, or literature of Austria and Central Europe.
One course in the history, politics, and society of Austria and Central Europe.
Twin Cities Campus
Bachelor of Individualized Studies B.I.S.
College of Liberal Arts - Adm
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 50
- Degree: Bachelor of Individualized Studies

The B.I.S. provides flexibility in a student's degree program by allowing him or her to focus coursework on three areas, one of which may consist of courses outside CLA. The areas do not have to be related to each other, but the program proposal must explain how the areas of study connect to the student's overall educational goals.

Working closely with a B.I.S. adviser, students develop a written proposal and course list. The proposal must be approved by a committee and three faculty or department advisers with expertise in the areas of concentration. Some departments and colleges have prerequisite or required courses for concentrations based in those departments and colleges in their B.I.S. program.

For specific information on proposal procedures and on department and college guidelines, see the Individualized Degree Programs website http://idp.class.umn.edu.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For certain concentrations, prerequisite courses must be completed before submitting a program proposal. For certain concentrations, a minimum overall GPA or a minimum tool course GPA is required before a student can submit a program proposal.

Students can declare the degree after attending an information session (held two to three times a week) and preparing a preliminary course list. Students are not approved for the degree until they have submitted a program proposal (the submission deadline is once per semester) and the proposal has been approved by a committee and faculty or department advisers.

See a BIS adviser for more information.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students must complete at least 50 approved credits at or above 3xxx, distributed among the three concentrations. The concentrations may be departmental or thematic in composition, and each must include at least 15 credits. Up to 21 credits in the program may be from outside CLA. At least one upper-division (3xxx-level or above) course in the major must be writing intensive.

Students must have their program approved by a committee and three faculty or department advisers. At least 20 credits in the major must be completed after the program has been approved. No more than 12 credits of directed study may be applied toward the program. The CLA requirement of 18 credits at or above 3xxx outside the major does not apply.

Students are required to complete an analytic paper in one of their CLA areas of concentration.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html
Major Courses
First Concentration Area
Second Concentration Area
Third Concentration Area
Senior paper: 2,500-word analytic paper written in conjunction with a CLA course in the B.I.S. program.
**Twin Cities Campus**

**Biblical Studies B.A.**

**Classical & Near Eastern Studies**

**College of Liberal Arts**

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 32
- Degree: Bachelor of Arts

The Biblical Studies major is centered on the study of ancient Mediterranean religious thought and practice, extending from the second millennium BCE into Late Antiquity, encompassing the Hebrew Bible and its ancient Near Eastern contexts, Greco-Roman polytheism, and the classical contexts in which rabbinic Judaism and Christianity developed. The major is rooted in ancient texts; it concentrates on the Hebrew Bible, the New Testament, and related texts by studying them in the ancient languages and by situating them in their broad historical, intellectual, and religious contexts. This interdisciplinary program covers a diverse range of religious traditions, focusing on pivotal cultural encounters and interchanges in the ancient world. Students also have an exceptional opportunity to explore the vital relationships between past and present as they examine the ancient origins of modern religions. Students in this program gain a solid grounding in at least one relevant ancient language (Greek, Hebrew) and also study different methods of textual interpretation, both ancient and modern.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](http://www.class.umn.edu/degree_requirements/index.html).

**General Requirements**

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the [liberal education requirements](http://www.class.umn.edu/degree_requirements/index.html). Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

**Program Requirements**

Students are required to take 4 semester(s) of any second language.

No course may be used to fulfill more than one major requirement. Students who double major and choose to complete the senior project requirement in their other CLA major must take an appropriate 4-credit upper-division CNES elective in substitution for the CNES senior project course.

Beginning fall 2012, all incoming freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: [http://www.class.umn.edu/degree_requirements/index.html](http://www.class.umn.edu/degree_requirements/index.html).

**Preparatory Courses**

Note: these credits do not factor into the overall length in credits for the major.

- **CNES 1001** - World of the Bible: Religions, Empires, and Discourses of Power [AH] (3.0 cr)
- **or CNES 1082** - Jesus in History (3.0 cr)
- **or CNES 1201** - The Bible: Context and Interpretation [LITR] (3.0 cr)

**Major Courses**

- **GRK 3004** - Intermediate Greek Poetry: Homer (4.0 cr)
- **or HEBR 3102** - Intermediate Biblical Hebrew II (4.0 cr)

Take a minimum of 15 credits in at least two of the following three content areas: Hebrew Bible, New Testament and Early Christianity, and Early Judaism.

**Hebrew Bible**

Other courses in history, art history, medieval studies or other related departments may be used with pre-approval from the director of undergraduate studies. Note: GRK 5100 & 5200, HEBR 3200/5200, and LAT 5100 & 5200 may only count if an appropriate author or text is studied. Pre-approval from the director of undergraduate studies is required.
Take 0 or more credit(s) from the following:

- AKKA 5011 - Elementary Akkadian I (3.0 cr)
- AKKA 5012 - Elementary Akkadian II (3.0 cr)
- AKKA 5300 - Readings in Akkadian (3.0 cr)
- ARTH 5115 - Hellenistic and Iranian Asia: Art and Archaeology of Hellenistic, Scythian, Kushan, and Sogdian Asia (3.0 cr)
- CNES 3103 - Ancient Greece: Alexander and the East [HIS] (3.0 cr)
- CNES 3182 - Egypt and Western Asia: Art and Archaeology of Ancient Egypt and Western Asia [AH, GP] (3.0 cr)
- CNES 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
- CNES 3202 - Prophecy in Ancient Israel (3.0 cr)
- CNES 3203 - The Bible: Wisdom, Poetry, and Apocalyptic (3.0 cr)
- CNES 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
- CNES 5502 - Ancient Israel: From Conquest to Exile (3.0 cr)
- CNES 3503 - History and Development of Israelite Religion I (3.0 cr)
- CNES 5503 - History and Development of Israelite Religion I (3.0 cr)
- CNES 3535 - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
- CNES 5535 - Death and the Afterlife in the Ancient World (3.0 cr)
- CNES 5051 - Before Herodotus: History and Historiography of Mesopotamia and the Ancient Near East (3.0 cr)
- CNES 5713 - Introduction to Ugaritic (3.0 cr)
- GRK 5100 - Advanced Reading (3.0 cr)
- GRK 5200 - Biblical Greek (3.0 cr)
- HIST 3051 - Ancient Civilization: Near East and Egypt [HIS] (3.0 cr)
- LAT 5100 - Advanced Reading (3.0 cr)
- LAT 5200 - Advanced Reading in Later Latin (3.0 cr)
- RELS 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
- RELS 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
- RELS 3504 - Development of Israelite Religion II (3.0 cr)
- RELS 5504 - Development of Israelite Religion II (3.0 cr)
- CNES 3503 - History and Development of Israelite Religion I (3.0 cr)
- CNES 3535 - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
- CNES 5535 - Death and the Afterlife in the Ancient World (3.0 cr)

**New Testament and Early Christianity**

Other courses in history, art history, medieval studies or other related departments may be used with pre-approval from the director of undergraduate studies. Note: GRK 5100 & 5200 and LAT 5100 & 5200 may only count if an appropriate author or text is studied. Pre-approval from the director of undergraduate studies is required.

Take 0 or more credit(s) from the following:

- ARTH 5115 - Hellenistic and Iranian Asia: Art and Archaeology of Hellenistic, Scythian, Kushan, and Sogdian Asia (3.0 cr)
- CNES 3071 - Greek and Hellenistic Religions [HIS] (3.0 cr)
- CNES 5071 - Greek and Hellenistic Religions (3.0 cr)
- CNES 3072 - The New Testament (3.0 cr)
- CNES 5072 - The New Testament (3.0 cr)
- CNES 3073 - Roman Religion and Early Christianity (3.0 cr)
- CNES 5073 - Roman Religion and Early Christianity (3.0 cr)
- CNES 3106 - Ancient Rome: The Age of Nero (3.0 cr)
- CNES 3107 - Age of Constantine the Great (3.0 cr)
- CNES 3108 - Age of St. Augustine of Hippo (3.0 cr)
- CNES 3109 - The Age of Justinian and Muhammmad (c.500-c.700 A.D.) (3.0 cr)
- CNES 3182 - Egypt and Western Asia: Art and Archaeology of Ancient Egypt and Western Asia [AH, GP] (3.0 cr)
- CNES 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
- CNES 3203 - The Bible: Wisdom, Poetry, and Apocalyptic (3.0 cr)
- CNES 3535 - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
- CNES 5535 - Death and the Afterlife in the Ancient World (3.0 cr)
- CNES 3601 - Sexuality and Gender in Ancient Greece and Rome [AH] (3.0 cr)
- CNES 5601 - Sexuality and Gender in Ancient Greece and Rome (3.0 cr)
- CNES 5188 - Art and Archaeology of Early Christianity and the Late Roman Empire (3.0 cr)
- COPT 5001 - Elementary Coptic (3.0 cr)
- COPT 5002 - Elementary Coptic (3.0 cr)
- GRK 5100 - Advanced Reading (3.0 cr)
- GRK 5200 - Biblical Greek (3.0 cr)
- HIST 4073 - History of Rome: A.D. 117 to 641 (3.0 cr)
- LAT 5100 - Advanced Reading (3.0 cr)
- LAT 5200 - Advanced Reading in Later Latin (3.0 cr)

**Early Judaism**

Other courses in history, art history, medieval studies or other related departments may be used with pre-approval from the director of undergraduate studies. Note: GRK 5100 & 5200, HEBR 3200/5200 and LAT 5100 & 5200 may only count if an appropriate author or text is studied. Pre-approval from the director of undergraduate studies is required.

Take 0 or more credit(s) from the following:

- ARTH 5115 - Hellenistic and Iranian Asia: Art and Archaeology of Hellenistic, Scythian, Kushan, and Sogdian Asia (3.0 cr)
- CNES 3106 - Ancient Rome: The Age of Nero (3.0 cr)

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Information current as of December 12, 2014
• CNES 3182 - Egypt and Western Asia: Art and Archaeology of Ancient Egypt and Western Asia [AH, GP] (3.0 cr)
• CNES 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• CNES 3202 - The Bible: Wisdom, Poetry, and Apocalyptic (3.0 cr)
• CNES 3535 - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
• CNES 3535 - Death and the Afterlife in the Ancient World (3.0 cr)
• CNES 3601 - Sexuality and Gender in Ancient Greece and Rome [AH] (3.0 cr)
• CNES 3601 - Sexuality and Gender in Ancient Greece and Rome (3.0 cr)
• CNES 3188 - Art and Archaeology of Early Christianity and the Late Roman Empire (3.0 cr)
• GRK 5100 - Advanced Reading (3.0 cr)
• GRK 5200 - Biblical Greek (3.0 cr)
• HEBR 5300 - Post-Biblical Hebrew: Second Temple Period (3.0 cr)
• HIST 4073 - History of Rome: A.D. 117 to 641 (3.0 cr)
• LAT 5100 - Advanced Reading (3.0 cr)
• LAT 5200 - Advanced Reading in Later Latin (3.0 cr)
• RELS 3034 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
• RELS 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• RELS 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• RELS 3204 - Dead Sea Scrolls (3.0 cr)
• RELS 5204 - Dead Sea Scrolls (3.0 cr)

**CNES Core Courses**
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
• CNES 3072 - The New Testament (3.0 cr)
• CNES 3103 - Ancient Greece: Alexander and the East [HIS] (3.0 cr)
• CNES 3106 - Ancient Rome: The Age of Nero (3.0 cr)
• CNES 3107 - Age of Constantine the Great (3.0 cr)
• CNES 3108 - Age of St. Augustine of Hippo (3.0 cr)
• CNES 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• CNES 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• CNES 3535 - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
• CNES 3601 - Sexuality and Gender in Ancient Greece and Rome [AH] (3.0 cr)

**Senior Project**
CNES 3951W - Major Project [WI] (4.0 cr)

**Upper-division Writing Intensive within the major**
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• CNES 3951W - Major Project [WI] (4.0 cr)
Twin Cities Campus
Biblical Studies Minor
Classical & Near Eastern Studies
College of Liberal Arts

• Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 15

The academic study of the Bible is an extraordinarily broad interdisciplinary field. Research in the field can involve many disciplines, including a number of ancient and modern languages, archaeology, history, various social sciences (including comparative religion), and literary studies. Biblical studies focuses on the Hebrew Bible and the New Testament in terms of their formation, cultural settings, and the history of their interpretation. The minor lets students who might not have the linguistic foundation to read the biblical texts in their original languages pursue more advanced biblical studies.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 3 courses before admission to the program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Courses
Students must complete an introductory course, plus the first year of Greek or Hebrew before declaring the minor. Note: these courses do not factor into the overall length in credits of the minor.

Introductory Course
CNES 1001 - World of the Bible: Religions, Empires, and Discourses of Power [AH] (3.0 cr)
or CNES 1082 - Jesus in History (3.0 cr)
or CNES 1201 - The Bible: Context and Interpretation [LITR] (3.0 cr)

First-Year Greek or Hebrew
GRK 1001 - Beginning Classical Greek I (5.0 cr)
GRK 1002 - Beginning Classical Greek II (5.0 cr)
or HEBR 1101 - Beginning Biblical Hebrew I (5.0 cr)
HEBR 1102 - Beginning Biblical Hebrew II (5.0 cr)

Minor Requirements
Students are required to take 2 semester(s) of Greek or Hebrew.

Minor Courses
Take 15 credits (usually 5 courses) at the 3xxx- or 5xxx-level, representing at least two of the following areas: Hebrew Bible; New Testament and Early Christianity; Early Judaism.

Take 15 or more credit(s) from the following:

Hebrew Bible
Other courses in history, art history, medieval studies or other related departments may be used with pre-approval from the director of undergraduate studies. Note: GRK 5100 & 5200, HEBR 3200/5200, and LAT 5100 & 5200 may only count if an appropriate author or text is studied. Pre-approval from the director of undergraduate studies is required.

Take 0 or more course(s) from the following:
• AKKA 5011 - Elementary Akkadian I (3.0 cr)
• AKKA 5012 - Elementary Akkadian II (3.0 cr)
• AKKA 5300 - Readings in Akkadian (3.0 cr)
• ARTH 5115 - Hellenistic and Iranian Asia: Art and Archaeology of Hellenistic, Scythian, Kushan, and Sogdian Asia (3.0 cr)
• CNES 3103 - Ancient Greece: Alexander and the East [HIS] (3.0 cr)
• CNES 3182 - Egypt and Western Asia: Art and Archaeology of Ancient Egypt and Western Asia [AH, GP] (3.0 cr)
• CNES 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• CNES 3202 - Prophecy in Ancient Israel (3.0 cr)
• CNES 3203 - The Bible: Wisdom, Poetry, and Apocalyptic (3.0 cr)
• CNES 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• CNES 5502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• CNES 3503 - History and Development of Israelite Religion I (3.0 cr)
• CNES 5503 - History and Development of Israelite Religion I (3.0 cr)
• CNES 3535 - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
• CNES 5535 - Death and the Afterlife in the Ancient World (3.0 cr)
• CNES 5051 - Before Herodotus: History and Historiography of Mesopotamia and the Ancient Near East (3.0 cr)
• CNES 5701 [Inactive] (3.0 cr)
• CNES 5713 - Introduction to Ugaritic (3.0 cr)
• GRK 5100 - Advanced Reading (3.0 cr)
• GRK 5200 - Biblical Greek (3.0 cr)
• HEBR 3200 [Inactive] (3.0 cr)
• HEBR 5200 [Inactive] (3.0 cr)
• HIST 3051 - Ancient Civilization: Near East and Egypt [HIS] (3.0 cr)
• LAT 5100 - Advanced Reading (3.0 cr)
• LAT 5200 - Advanced Reading in Later Latin (3.0 cr)
• RELS 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• RELS 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• RELS 3504 - Development of Israelite Religion II (3.0 cr)
• RELS 5504 - Development of Israelite Religion II (3.0 cr)

**New Testament and Early Christianity**

Other courses in history, art history, medieval studies or other related departments may be used with pre-approval from the director of undergraduate studies. Note: GRK 5100 & 5200 and LAT 5100 & 5200 may only count if an appropriate author or text is studied. Pre-approval from the director of undergraduate studies is required.

Take 0 or more course(s) from the following:

• ARTH 5115 - Hellenistic and Iranian Asia: Art and Archaeology of Hellenistic, Scythian, Kushan, and Sogdian Asia (3.0 cr)
• CNES 3071 - Greek and Hellenistic Religions [HIS] (3.0 cr)
• CNES 5071 - Greek and Hellenistic Religions (3.0 cr)
• CNES 3072 - The New Testament (3.0 cr)
• CNES 5072 - The New Testament (3.0 cr)
• CNES 3073 - Roman Religion and Early Christianity (3.0 cr)
• CNES 5073 - Roman Religion and Early Christianity (3.0 cr)
• CNES 3106 - Ancient Rome: The Age of Nero (3.0 cr)
• CNES 3107 - Age of Constantine the Great (3.0 cr)
• CNES 3108 - Age of St. Augustine of Hippo (3.0 cr)
• CNES 3109 - The Age of Justinian and Muhammad (c.500-c.700 A.D.) (3.0 cr)
• CNES 3182 - Egypt and Western Asia: Art and Archaeology of Ancient Egypt and Western Asia [AH, GP] (3.0 cr)
• CNES 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• CNES 3203 - The Bible: Wisdom, Poetry, and Apocalyptic (3.0 cr)
• CNES 3535 - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
• CNES 5535 - Death and the Afterlife in the Ancient World (3.0 cr)
• CNES 3601 - Sexuality and Gender in Ancient Greece and Rome [AH] (3.0 cr)
• CNES 5601 - Sexuality and Gender in Ancient Greece and Rome (3.0 cr)
• CNES 5188 - Art and Archaeology of Early Christianity and the Late Roman Empire (3.0 cr)
• COPT 5001 - Elementary Coptic (3.0 cr)
• COPT 5002 - Elementary Coptic (3.0 cr)
• GRK 5100 - Advanced Reading (3.0 cr)
• GRK 5200 - Biblical Greek (3.0 cr)
• HIST 4072 [Inactive] (3.0 cr)
• HIST 4073 - History of Rome: A.D. 117 to 641 (3.0 cr)
• LAT 5100 - Advanced Reading (3.0 cr)
• LAT 5200 - Advanced Reading in Later Latin (3.0 cr)

**Early Judaism**

Other courses in history, art history, medieval studies or other related departments may be used with pre-approval from the director of undergraduate studies. Note: GRK 5100 & 5200, HEBR 3200/5200 and LAT 5100 & 5200 may only count if an appropriate author or text is studied. Pre-approval from the director of undergraduate studies is required.

Take 0 or more course(s) from the following:

• ARTH 5115 - Hellenistic and Iranian Asia: Art and Archaeology of Hellenistic, Scythian, Kushan, and Sogdian Asia (3.0 cr)
• CNES 3106 - Ancient Rome: The Age of Nero (3.0 cr)
• CNES 3182 - Egypt and Western Asia: Art and Archaeology of Ancient Egypt and Western Asia [AH, GP] (3.0 cr)
• CNES 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• CNES 3203 - The Bible: Wisdom, Poetry, and Apocalyptic (3.0 cr)
• CNES 3535 - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
• CNES 5535 - Death and the Afterlife in the Ancient World (3.0 cr)
• CNES 3601 - Sexuality and Gender in Ancient Greece and Rome [AH] (3.0 cr)
• CNES 5601 - Sexuality and Gender in Ancient Greece and Rome (3.0 cr)
• CNES 5188 - Art and Archaeology of Early Christianity and the Late Roman Empire (3.0 cr)
• GRK 5100 - Advanced Reading (3.0 cr)
• GRK 5200 - Biblical Greek (3.0 cr)
• HEBR 3200 (Inactive) (3.0 cr)
• HEBR 5200 (Inactive) (3.0 cr)
• HEBR 3300 (Inactive) (3.0 cr)
• HEBR 5300 - Post-Biblical Hebrew: Second Temple Period (3.0 cr)
• HEBR 3400 (Inactive) (3.0 cr)
• HEBR 5400 (Inactive) (3.0 cr)
• HIST 4072 (Inactive) (3.0 cr)
• HIST 4073 - History of Rome: A.D. 117 to 641 (3.0 cr)
• LAT 5100 - Advanced Reading (3.0 cr)
• LAT 5200 - Advanced Reading in Later Latin (3.0 cr)
• RELS 3034 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
• RELS 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• RELS 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• RELS 3204 - Dead Sea Scrolls (3.0 cr)
• RELS 5204 - Dead Sea Scrolls (3.0 cr)
Twin Cities Campus
Biology, Society, and Environment B.A.
Geography, Environment, Society
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 68 to 86
- Degree: Bachelor of Arts

Students in Biology, Society, and Environment (BSE) receive comprehensive training in biology combined with an in-depth examination of the relevance of biology to social and environmental problems. Students complete coursework in the biological sciences, social sciences, and the humanities.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

The major curriculum includes courses in biology, chemistry, physics, and mathematics. Note: A course may only be counted once to satisfy the major requirements. At least one upper-division (3xxx-level or above) course in the major must be writing intensive.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

BSE 3001
BSE 3001 - An Introduction to Biology, Society, and Environment (2.0 cr)

Core Courses
Students must take one course in two of three areas: Ethics, Scientific Thought and Inquiry, and Science in Society. No more than one course from any one area may count.

Take exactly 2 course(s) totaling 6 or more credit(s) including exactly 2 sub-requirements(s) from the following:

Ethics
Take no more than 1 course(s) from the following:
- BTHX 5325 - Biomedical Ethics (3.0 cr)
- ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
- HSCI 3401 - Ethics in Science and Technology [HIS, CIV] (3.0 cr)
- PHIL 3301 - Environmental Ethics [ENV] (4.0 cr)
- PHIL 3305 - Medical Ethics (4.0 cr)

Scientific Thought and Inquiry
Take no more than 1 course(s) from the following:
- PHIL 1005 - Scientific Reasoning (4.0 cr)
- PHIL 3601W - Scientific Thought [WI] (4.0 cr)
- PHIL 4607 - Philosophy of the Biological Sciences (3.0 cr)

Science in Society
Take no more than 1 course(s) from the following:
- GEOG 3361W - Geography and Public Policy [WI] (3.0 cr)
•HMED 3040 - Human Health, Disease, and the Environment in History [HIS] (3.0 cr)
•HMED 3075 - Technology and Medicine in Modern America [HIS, TS] (3.0 - 5.0 cr)
•HSCI 3331 - Technology and American Culture [HIS, TS] (3.0 cr)
•HSCI 3332 - Science and American Culture [HIS, DSJ] (3.0 cr)
•PHIL 3302W - Moral Problems of Contemporary Society [CIV, WI] (4.0 cr)
•PHIL 3602 - Science, Technology, and Society (3.0 cr)

General Biology
Take a minimum of 7 credits by completing BIOL 1009 and one of the following: (1) one course from the multidisciplinary science sequence, or (2) the 2-course animal biology sequence, or (3) the 2-course plant biology sequence.

BIOL 1009 - General Biology [BIOL] (4.0 cr)

Multidisciplinary Science
ANTH 1001 - Human Evolution [BIOL] (4.0 cr)
or BIOL 2012 - General Zoology (4.0 cr)
or BIOL 2022 - General Botany (3.0 cr)
or PHSL 3051 - Human Physiology (4.0 cr)
or VBS 2032 - General Microbiology With Laboratory (5.0 cr)
or Animal Biology
BIOL 2005 - Animal Diversity Laboratory (2.0 cr)
BIOL 3211 - Physiology of Humans and Other Animals (3.0 cr)
or Plant Biology
BIOL 3002 - Plant Biology: Function (2.0 cr)
BIOL 3005W - Plant Function Laboratory [WI] (2.0 cr)

Additional Science Requirements
Take eight courses for 22-23 credits.

BIOL 3021 - Biochemistry (3.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)

Chemistry I
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)

Chemistry II
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
or CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)

Calculus
MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)

Physics
PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)

Biology Concentration (Major Courses)
Take two courses from the upper-division biology core list and take two additional upper-level courses in biology, anthropology, geography, chemistry, or other discipline chosen in consultation with an adviser. Courses for the biology concentration should have a biology orientation and should fit with the intended theme. A total of 14 credits must be completed. Note: Many pre-health science programs require Organic Chemistry II and lab.

Upper-Division Biology Concentration
Take 2 or more course(s) from the following:
• GCD 3033 - Principles of Cell Biology (3.0 cr)
• Genetics
  • BIOL 4003 - Genetics (3.0 cr)
or GCD 3022 - Genetics (3.0 cr)
• Ecology
  • BIOL 3407 - Ecology (3.0 cr)
or BIOL 3408W - Ecology [WI] (3.0 cr)
or BIOL 3807 - Ecology (4.0 cr)

Sample Concentration Electives
Take 2 or more course(s) from the following:
• ANAT 3001 - Human Anatomy (3.0 cr)
• ANTH 3310 [inactive] (3.0 - 6.0 cr)
• BIOL 3409 - Evolution (3.0 cr)
• CHEM 2302 - Organic Chemistry II (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• GCD 3033 - Principles of Cell Biology (3.0 cr)
• GCD 4143 - Human Genetics (3.0 cr)
• GEOG 3401 - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
• MICB 3301 - Biology of Microorganisms (5.0 cr)
• PHSL 3051 - Human Physiology (4.0 cr)

• Organic Chemistry
  • CHEM 2311 - Organic Lab (4.0 cr)
  or
  • CHEM 2312H - Honors Organic Lab (5.0 cr)

• Ecology
  • BIOL 3407 - Ecology (3.0 cr)
  or
  • BIOL 3408W - Ecology [WI] (3.0 cr)

• GCD 3022 - Genetics (3.0 cr)
  or
  • BIOL 4003 - Genetics (3.0 cr)

Theme Requirements
Take five courses from the list below or substitute courses in consultation with a BSE adviser. Courses should serve to put "science into context" and should focus on a theme.

Some examples of thematic concentrations might be ethics, economics, and the politics of health care; the global environment; biology and the U.S. government; communicating biology to the public.

Take 5 or more course(s) totaling 15 or more credit(s) from the following:

• ANTH 3306W - Medical Anthropology [GP, WI] (3.0 cr)
• GEOG 3379 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
• GEOG 3381W - Population in an Interacting World [SOCS, GP, WI] (4.0 cr)
• GEOG 3411W - Geography of Health and Health Care [WI] (4.0 cr)
• GEOG 4121W [Inactive] [WI] (4.0 cr)
• GLOS 3305 - Life for Sale: Global Debates on Environment, Science, and Society (3.0 cr)
• HMED 3040 - Human Health, Disease, and the Environment in History [HIS] (3.0 cr)
• HMED 3075 - Technology and Medicine in Modern America [HIS, TS] (3.0 - 5.0 cr)
• HMED 5002 - Public Health Issues in Historical Perspective (3.0 cr)
• HSCI 3211 - Biology and Culture in the 19th and 20th Centuries [HIS, CIV] (3.0 cr)
• HSCI 3244 - History of Ecology and Environmentalism [HIS, ENV] (3.0 cr)
• HSCI 3331 - Technology and American Culture [HIS, TS] (3.0 cr)
• HSCI 3332 - Science and American Culture [HIS, DSJ] (3.0 cr)
• HSCI 3333V - Honors Course: Issues in American Science and Technology in the Past Century [HIS, CIV, WI] (3.0 cr)
• HSCI 3401 - Ethics in Science and Technology [HIS, CIV] (3.0 cr)
• HSCI 4060 [Inactive] (3.0 cr)
• JOUR 3745 - Mass Media and Popular Culture [AH, DSJ] (3.0 cr)
• PHIL 3301 - Environmental Ethics [ENV] (4.0 cr)
• PHIL 3302W - Moral Problems of Contemporary Society [CIV, WI] (4.0 cr)
• PHIL 3304 - Law and Morality (4.0 cr)
• PHIL 3305 - Medical Ethics (4.0 cr)
• PHIL 3601W - Scientific Thought [WI] (4.0 cr)
• PHIL 3602 - Science, Technology, and Society (3.0 cr)
• PHIL 3607 - Philosophy of Psychology (4.0 cr)
• PHIL 4607 - Philosophy of the Biological Sciences (3.0 cr)
• PSY 5137 - Introduction to Behavioral Genetics (3.0 cr)
• PUBH 3004 - Basic Concepts in Personal and Community Health (4.0 cr)
• STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
• URBS 3751 - Understanding the Urban Environment [ENV] (3.0 cr)
• WRIT 3152W - Writing on Issues of Science and Technology [WI] (4.0 cr)
• HMED 3001V - Health, Disease, and Healing I [HIS, WI] (4.0 cr)
  or
  • HMED 3001W - Health, Disease, and Healing I [HIS, WI] (4.0 cr)
  or
  • HMED 5200 - Early History of Medicine to 1700 (3.0 cr)
• HMED 3002W - Health Care in History II [HIS, WI] (3.0 cr)
  or
  • HMED 5201 - History of Medicine from 1700 to 1900 (3.0 cr)
• HMED 3055 - Women, Health, and History (3.0 cr)
  or
  • HMED 5055 - Women, Health, and History (3.0 cr)
• PSY 3604 - Introduction to Abnormal Psychology (3.0 cr)
• PSY 3061 - Introduction to Biological Psychology (3.0 cr)
• PSY 3135 - Introduction to Individual Differences (3.0 cr)
  or
  • PSY 5135 - Psychology of Individual Differences (3.0 cr)

Senior Project
In most cases, students complete the senior project one semester prior to graduating. Students are strongly advised to begin planning their senior project with potential faculty mentors and/or the departmental adviser at least two semesters prior to registering for academic credit. Note that most options require prior approval by the potential faculty mentor and some options may be limited during any specific semester.

**Option 1**
Register for 3-4 credits of directed research. Honors students should register for the honors section, BSE 3996H.
- **BSE 3996** - Senior Project Directed Research (3.0 - 4.0 cr)
- **or BSE 3996H** - Honors: Senior Project Directed Research (3.0 - 4.0 cr)

**Option 2**
Register for 2 additional credits of BSE 3997/3997H. Note that enrollment in BSE 3997/3997H requires concurrent registration in a "Core Courses" or "Theme Courses" course related to chosen area of specialization. Honors students should register for the honors section, BSE 3997H.
- **BSE 3997** - Senior Project (2.0 cr)
- **or BSE 3997H** - Honors: Senior Project (2.0 cr)

**Option 3**
Register for 3-4 credits in a senior seminar course. Honors students should register for the honors section, GEOG 3985V.
- **GEOG 3985W** - Senior Project Seminar [WI] (4.0 cr)
- **or GEOG 3985V** - Honors Senior Project Seminar [WI] (4.0 cr)
- **or HMED 4960** - Senior Research Topics in Medical History (3.0 - 4.0 cr)
**Twin Cities Campus**

**Chemistry B.A.**

**Chemistry**

**College of Liberal Arts**

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 59 to 67
- Degree: Bachelor of Arts

An active, modern program of chemical education at the undergraduate level must do more than simply train professional chemists. Chemistry, the central science, is an important component of many disciplines and should be accessible to all students seeking a liberal education. The chemistry department contributes actively to increasing the level of scientific literacy of all students. The program also serves students by recognizing different needs, interests, and career goals.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](http://www.umn.edu/admissions).

**General Requirements**

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the [liberal education requirements](http://umn.edu/college/requirements). Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

**Program Requirements**

Students are required to take 4 semester(s) of any second language.

Students may receive no more than one degree from the Department of Chemistry: a B.A. or a B.S. or a minor.

Beginning fall 2012, all incoming CLA freshman must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: [http://class.umn.edu/degree_requirements/index.html](http://class.umn.edu/degree_requirements/index.html)

**Mathematics**

Take 3 courses for 12 credits.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1271</td>
<td>Calculus I [MATH]</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>or MATH 1371</td>
<td>CSE Calculus I [MATH]</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>or MATH 1571H</td>
<td>Honors Calculus I [MATH]</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>MATH 1272</td>
<td>Calculus II</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>or MATH 1372</td>
<td>CSE Calculus II</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>or MATH 1572H</td>
<td>Honors Calculus II</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>MATH 2263</td>
<td>Multivariable Calculus</td>
<td>4.0 cr</td>
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<tr>
<td>or MATH 2374</td>
<td>CSE Multivariable Calculus and Vector Analysis</td>
<td>4.0 cr</td>
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<tr>
<td>or MATH 2573H</td>
<td>Honors Calculus III</td>
<td>4.0 cr</td>
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</tbody>
</table>

**Physics**

Take 2 courses for 8-10 credits.

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 1201W</td>
<td>Introductory Physics for Biology and Pre-medicine</td>
<td>5.0 cr</td>
</tr>
<tr>
<td>or PHYS 1301W</td>
<td>Introductory Physics for Science and Engineering</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>or PHYS 1401V</td>
<td>Honors Physics I</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>PHYS 1202W</td>
<td>Introductory Physics for Biology and Pre-medicine II</td>
<td>5.0 cr</td>
</tr>
<tr>
<td>or PHYS 1302W</td>
<td>Introductory Physics for Science and Engineering II</td>
<td>4.0 cr</td>
</tr>
<tr>
<td>or PHYS 1402V</td>
<td>Honors Physics II</td>
<td>4.0 cr</td>
</tr>
</tbody>
</table>

**Preparatory Courses**
Take 6 courses for 13 credits.
CHEM 2101 - Introductory Analytical Chemistry Lecture (3.0 cr)
CHEM 2111 - Introductory Analytical Chemistry Lab (2.0 cr)
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
or CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)

Major Courses
Take 6 courses for 19-20 credits.
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2302 - Organic Chemistry II (3.0 cr)
CHEM 4501 - Introduction to Thermodynamics, Kinetics, and Statistical Mechanics (3.0 cr)
CHEM 4502 - Introduction to Quantum Mechanics and Spectroscopy (3.0 cr)
CHEM 4701 - Inorganic Chemistry (3.0 cr)
CHEM 2311 - Organic Lab (4.0 cr)
or CHEM 2312H - Honors Organic Lab (5.0 cr)

Advanced Chemistry Laboratory Electives or Research
Take two advanced chemistry electives for a total of 4-9 credits. Only one directed study may count (CHEM 2094 or 4094W or 4094V), and must be taken for a minimum of 2 credits. If directed study is chosen, honors students should enroll in 4094V.
Take 2 or more course(s) from the following:
• CHEM 4311W - Advanced Organic Chemistry Lab [WI] (2.0 cr)
• CHEM 4511W - Advanced Physical Chemistry Lab [WI] (3.0 cr)
• CHEM 4711W - Advanced Inorganic Chemistry Lab [WI] (3.0 cr)
• CHEM 4223W - Polymer Laboratory [WI] (2.0 cr)
• CHEM 2094 - Directed Research (1.0 - 3.0 cr)
• CHEM 4094W - Directed Research [WI] (1.0 - 5.0 cr)
• CHEM 4094V - Directed Research [WI] (1.0 - 5.0 cr)

Electives
Take at least 3 credits of 3xxx-5xxx courses in chemistry, biology, biochemistry, genetics, cell biology, chemical engineering, materials science, math, physics, public health, or statistics.
Twin Cities Campus
Chemistry Minor
Chemistry
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

Chemistry probes the fundamental concepts of nature and helps us understand the world around us. It deals with all substances at the molecular level: their composition, their properties, and how they are transformed into new substances. Chemistry is a central science of great importance to society. It provides a broad range of opportunities in many specialized fields, including biotechnology, polymer chemistry, environmental chemistry, materials chemistry, and medicine.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Credits from seminars or special topics courses may not be applied toward the minor. A maximum of two credits of directed study may be applied. At least five credits (two courses) must be completed at the University of Minnesota - Twin Cities campus.

Students may complete no more than one degree in the Chemistry program: a B.A. or a B.S. or a minor.

Minor Courses
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2302 - Organic Chemistry II (3.0 cr)
CHEM 2311 - Organic Lab (4.0 cr)
Take 5 or more credit(s) from the following:
- CHEM 2xxx
- CHEM 3xxx
- CHEM 4xxx
- CHEM 5xxx
Twin Cities Campus
Chicano-Latino Studies B.A.
Chicano & Latino Studies
College of Liberal Arts

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 36
• Degree: Bachelor of Arts

The program’s curriculum explores the dimensions of race, ethnicity, culture and identity, gender, and class in the United States, both historically and in contemporary times. Chicano-Latino studies majors take courses offered in two broadly defined fields of study, humanities and social science. Humanities content includes courses designed to increase awareness of Chicana/o culture, as well as intellectual, aesthetic, literary, historical, ethical, and human values. Social science content includes courses that analyze social institutions and how they affect the individual, as well as emphasize contemporary Chicana/o issues as they relate to the larger society. Areas of study include political science, anthropology, economics, sociology, and history. The bachelor of arts degree in Chicano-Latino studies is designed to meet the needs of students preparing for careers serving Chicana/o-Latina/o constituencies and to prepare students for graduate and advanced professional study in programs in which a minority affairs focus would be an asset. The program allows students the flexibility of Pursuing work in related fields, such as Latin American studies, Spanish studies, Women's studies, and American studies. Double-majors are encouraged.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and College requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of Spanish (preferred).

Students should confer with faculty and their major adviser to select courses intended to meet their professional goals and intellectual interests. With approval of the department chair, up to 9 upper-division credits (3 courses) related to the discipline may be taken outside the department and counted toward the major. CHIC 1112 is foundational and should be completed during the first or second year. Courses at 3xxx offer more focused opportunities to examine history, society, culture, literature, and gender. Majors must also complete a senior paper.

Students may earn a B.A. and a minor in Chicano-Latino studies, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Core Requirements
Take at least five courses for a total of 15 credits.
CHIC 1112 - Introduction to Chicana/o Studies: Critical Paradigms [DSJ] (3.0 cr)
CHIC 3212 - Chicana Studies: La Chicana in Contemporary Society [AH, DSJ] (3.0 cr)
CHIC 3275 - Service Learning in the Chicano/ Latino Community [CIV] (3.0 cr)
or CHIC 3374 - Migrant Farmworkers in the United States: Families, Work, and Advocacy [CIV] (4.0 cr)
or CHIC 5374 - Migrant Farmworkers in the U.S.: Families, Work, and Advocacy [CIV] (4.0 cr)
CHIC 3213 - Chicano Music and Art [AH, DSJ] (3.0 cr)
or CHIC 3507W - Introduction to Chicana/o Literature [LITR, DSJ, WI] (3.0 cr)
CHIC 3444 - Chicana and Chicano History: 1821-1945 [HIS, DSJ] (3.0 cr)

or CHIC 3446 - Chicana/o History II: WWII, El Movimiento, and the New Millennium [HIS, DSJ] (3.0 cr)

**Electives**

Take a total of 18 elective credits, of which at least 15 must be taken at the 3xxx-level or above. Up to 9 upper-division credits related to the discipline may be taken outside the major, previous approval from departmental chair is required. Any course taken in fulfillment of the Core sub-requirement may not count toward the Electives sub-requirement.

Take 18 or more credit(s) from the following:

- CHIC 1102 - Latinos in the United States: Culture and Citizenship [HIS, DSJ] (3.0 cr)
- CHIC 3213 - Chicano Music and Art [AH, DSJ] (3.0 cr)
- CHIC 3221 - Introduction to Chicana/o Cultural Studies: Barrio Culture and the Aesthetics of Everyday Life [AH, DSJ] (3.0 cr)
- CHIC 3223 - Chicana/o and Latina/o Representation in Film [AH, DSJ] (3.0 cr)
- CHIC 3275 - Service Learning in the Chicano/Latino Community [CIV] (3.0 cr)
- CHIC 3352 - Transnational Chicana/o Theory: Global Views/Borderland Spaces (3.0 cr)
- CHIC 3375 - Folktale of Greater Mexico [DSJ] (3.0 cr)
- CHIC 3452 - Xicana/Indigena Studies: History, Culture, and Politics [DSJ] (3.0 cr)
- CHIC 3507W - Introduction to Chicana/o Literature [LITR, DSJ, WI] (3.0 cr)
- CHIC 3672 - Chicana/o Experience in the Midwest [DSJ] (3.0 cr)
- CHIC 3752 - Chicanas and Chicanos in Contemporary Society [DSJ] (3.0 cr)
- CHIC 3771 - Latino Social Power and Social Movements in the U.S. (3.0 cr)
- CHIC 3852 - Chicana/o Politics [SOCS, DSJ] (3.0 cr)
- CHIC 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
- CHIC 4232 - Chicanas/o - Latina/o Gender and Sexuality Studies [AH, DSJ] (3.0 cr)
- CHIC 4275 - Theory in Action: Community Engagement in a Social Justice Framework [CIV] (3.0 cr)
- CHIC 4401 - Chicana/Latina Cultural Studies (3.0 cr)
- CHIC 3374 - Migrant Farmworkers in the United States: Families, Work, and Advocacy [CIV] (4.0 cr)
- CHIC 3574 - Migrant Farmworkers in the U.S.: Families, Work, and Advocacy [CIV] (4.0 cr)
- CHIC 3993 - Directed Studies (1.0 - 9.0 cr)
  or CHIC 5993 - Directed Studies (1.0 - 3.0 cr)

**Senior Project**

CHIC 4901W - Senior Paper [WI] (3.0 cr)

**Upper-division Writing Intensive within the major**

Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:

- CHIC 4901W - Senior Paper [WI] (3.0 cr)
- CHIC 3507W - Introduction to Chicana/o Literature [LITR, DSJ, WI] (3.0 cr)
Twin Cities Campus
Chicano-Latino Studies Minor
Chicano & Latino Studies
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

The program focuses on the social, historical, and cultural experience of the Mexican and Latino populations in the United States. Courses in the curriculum examine the culture, literature, and history of Chicana/os and Latina/os in the United States.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students may earn a B.A. or a minor in Chicano-Latino studies, but not both.

Minor Requirements
Take 18 or more credit(s) from the following:
- CHIC 3xxx
- CHIC 4xxx
- CHIC 5xxx
Twin Cities Campus
Child Psychology B.A.
Institute of Child Development
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 37 to 43
- Degree: Bachelor of Arts

Child psychology deals with behavioral development from the prenatal period to maturity in the areas of cognition, ethology, genetics, language, learning, perception, and social behavior. The Institute of Child Development, housed in the College of Education and Human Development, offers a bachelor of arts, a bachelor of science, and a minor in child psychology through the College of Liberal Arts. All undergraduate child psychology courses are considered CLA courses and count toward the CLA graduation requirements. Majors may not receive a second major or baccalaureate degree in psychology nor apply psychology, educational psychology, or child and adolescent psychiatry credits to the minimum 18 upper-level credits required outside the major. These credits fall neither inside or outside the major.

The B.A. program places a stronger emphasis on the applied aspects of Child Psychology. Emphasizing a more applied approach to Child Psychology, the B.A. requires field study participation (or directed research experience), allowing students to gain practical experience in the field of Child Psychology. Students have the opportunity to take a course in Social Work, Youth Studies, Early Childhood Education, Public Health, or Cultural Anthropology. With a combination of intensive training in developmental psychology and a field study experience, the program prepares students for careers and additional training in such areas as early childhood education, counseling, and human service programs. Students are required to meet the second language requirement as determined by CLA.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 2 courses before admission to the program.

An introduction to psychology course must be completed before admission into the major. Students may formally declare the major with CPSY 2301 in progress.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Courses
- PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
- or PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
- CPSY 2301 - Introductory Child Psychology (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students may earn no more than one undergraduate degree in child psychology: a B.A. or a B.S. or a minor. Students may combine the B.A. in child psychology with the minor in psychology.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html
Foundational Courses
Take two courses for a total of 7-8 credits.
CPSY 3308W - Introduction to Research Methods in Child Psychology [WI] (4.0 cr)
EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)
or SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)
or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)

Core Courses
Take a minimum of six courses and 18 credits. Note: other courses may count toward the ANTH 3003/CPSY 4993/PUBH 3004/SW 1001 requirement only with previous adviser approval.
CPSY 4331 - Social and Personality Development (3.0 cr)
Take 1 or more course(s) from the following:
• ANTH 3003 - Cultural Anthropology (3.0 cr)
• CPSY 4993 - Directed Experiences in Early Childhood Education (3.0 cr)
• PUBH 3004 - Basic Concepts in Personal and Community Health (4.0 cr)
• SW 1001 - Introduction to the World of Social Work: A Global Perspective (3.0 cr)
Take 1 or more course(s) from the following:
• CPSY 4302 - Infant Development (3.0 cr)
• CPSY 4303 - Adolescent Psychology (3.0 cr)
• CPSY 4334W - Children, Youth in Society [WI] (3.0 cr)
• CPSY 4336W - Development and Interpersonal Relations [WI] (4.0 cr)
Take 1 or more course(s) from the following:
• CPSY 4311 - Behavioral and Emotional Problems of Children (3.0 cr)
• CPSY 4313W - Disabilities and Development [WI] (4.0 cr)
Take 2 or more course(s) from the following:
• CPSY 4311 - Perceptual Development (3.0 cr)
• CPSY 4343 - Cognitive Development (3.0 cr)
• CPSY 4345 - Language Development and Communication (3.0 cr)

Field Study or Directed Research
Take a minimum of 2 credits.
CPSY 4996 - Field Study in Child Psychology (1.0 - 4.0 cr)
or CPSY 4994 - Directed Research in Child Psychology (1.0 - 4.0 cr)

Senior Project
Honors students should consult the Honors UHP Program Sub-plan for senior project requirements.
CPSY 4347W - Senior Project [WI] (2.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• CPSY 4347W - Senior Project [WI] (2.0 cr)
• CPSY 3308W - Introduction to Research Methods in Child Psychology [WI] (4.0 cr)
• CPSY 4334W - Children, Youth in Society [WI] (3.0 cr)
• CPSY 4336W - Development and Interpersonal Relations [WI] (4.0 cr)
• CPSY 4313W - Disabilities and Development [WI] (4.0 cr)
Child psychology deals with behavioral development from the prenatal period to maturity in the areas of cognition, ethology, genetics, language, learning, perception, and social behavior. The Institute of Child Development, housed in the College of Education and Human Development, offers a bachelor of arts, a bachelor of science, and a minor in child psychology through the College of Liberal Arts. All undergraduate child psychology courses are considered CLA courses and count toward the CLA graduation requirements. Majors may not receive a second major or baccalaureate degree in psychology.

The B.S. program places a stronger emphasis on research in the field of developmental psychology. With a combination of intensive training in developmental psychology and in-depth directed research, the program prepares students for graduate study in psychology, education, medicine, law, sociology, and other behavioral sciences.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 2 courses before admission to the program.

An introduction to psychology course must be completed before admission into the major. Students may formally declare the major with CPSY 2301 in progress.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Courses
Introduction to Psychology
PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
or PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
Introduction to Child Psychology
CPSY 2301 - Introductory Child Psychology (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students may earn no more than one undergraduate degree in child psychology: a B.A. or a B.S. or a minor. Students may combine the B.S. in child psychology with the minor in psychology.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Foundational Courses
Take two courses for a total of 7-8 credits.
CPSY 3308W - Introduction to Research Methods in Child Psychology [WI] (4.0 cr)
EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)
or SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)
or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)

Core Courses
Take a minimum of 9 courses and 27 credits. Take CPSY 4310 for a minimum of three credits.
CPSY 4310 - Special Topics in Child Development (1.0 - 4.0 cr)
CPSY 4331 - Social and Personality Development (3.0 cr)
CPSY 4329 - Biological Foundations of Development (3.0 cr)
Take 1 or more course(s) from the following:
• CPSY 4311 - Behavioral and Emotional Problems of Children (3.0 cr)
• CPSY 4313W - Disabilities and Development [WI] (4.0 cr)
Take 2 or more course(s) from the following:
• CPSY 4341 - Perceptual Development (3.0 cr)
• CPSY 4343 - Cognitive Development (3.0 cr)
• CPSY 4345 - Language Development and Communication (3.0 cr)
Note: CPSY 4996 may be taken for a maximum of three credits.
Take 3 or more course(s) from the following:
• CPSY 4302 - Infant Development (3.0 cr)
• CPSY 4303 - Adolescent Psychology (3.0 cr)
• CPSY 4334W - Children, Youth in Society [WI] (3.0 cr)
• CPSY 4336W - Development and Interpersonal Relations [WI] (4.0 cr)
• CPSY 4996 - Field Study in Child Psychology (1.0 - 4.0 cr)

Directed Research
Take a minimum of 6 credits of CPSY 4994.
CPSY 4994 - Directed Research in Child Psychology (1.0 - 4.0 cr)

Senior Project
Honors students should consult the Honors UHP Program Sub-plan for their senior project requirements.
CPSY 4347W - Senior Project [WI] (2.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• CPSY 3308W - Introduction to Research Methods in Child Psychology [WI] (4.0 cr)
• CPSY 4313W - Disabilities and Development [WI] (4.0 cr)
• CPSY 4334W - Children, Youth in Society [WI] (3.0 cr)
• CPSY 4336W - Development and Interpersonal Relations [WI] (4.0 cr)
• CPSY 4347W - Senior Project [WI] (2.0 cr)
Child Psychology Minor

College of Liberal Arts - Adm

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 20 to 21

Child psychology deals with behavioral development from the prenatal period to maturity in the areas of cognition, ethology, genetics, language, learning, perception, and social behavior.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Students must complete 1 courses before admission to the program.

Students may formally declare the major with CPSY 2301 in progress. Note: CPSY 2301 carries a 4-credit introduction to psychology pre-requisite (PSY 1001 or PSTL 1281).

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](https://www.umn.edu/admissions).

Required prerequisites

Preparatory Course

CPSY 2301 - Introductory Child Psychology (4.0 cr)

Minor Requirements

Students may earn no more than one undergraduate degree in child psychology: a B.A. or a B.S. or a minor. Students may combine the child psychology minor with the B.A. or the B.S. in psychology, but not both.

Foundational Course

CPSY 3308W - Introduction to Research Methods in Child Psychology [WI] (4.0 cr)

Core Courses

Take 4 courses for 12-13 credits.

CPSY 4331 - Social and Personality Development (3.0 cr)
CPSY 4343 - Cognitive Development (3.0 cr)

Take 1 or more course(s) from the following:
- CPSY 4303 - Adolescent Psychology (3.0 cr)
- CPSY 4311 - Behavioral and Emotional Problems of Children (3.0 cr)
- CPSY 4313W - Disabilities and Development [WI] (4.0 cr)
- CPSY 4334W - Children, Youth in Society [WI] (3.0 cr)
- CPSY 4336W - Development and Interpersonal Relations [WI] (4.0 cr)

Take 1 or more course(s) from the following:
- CPSY 4302 - Infant Development (3.0 cr)
- CPSY 4329 - Biological Foundations of Development (3.0 cr)
- CPSY 4341 - Perceptual Development (3.0 cr)
- CPSY 4345 - Language Development and Communication (3.0 cr)
Twin Cities Campus
Classical and Near Eastern Archaeology Minor
Classical & Near Eastern Studies
College of Liberal Arts

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 16 to 17

The minor allows students to concentrate their studies on the material remains from the ancient civilizations of Greece, Rome, Egypt, and Biblical lands from ca. 3000 B.C.E through 650 C.E. The minor includes courses from the Departments of Classical and Near Eastern Studies, Anthropology, Art History, Geography, Geology, and History.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
Preparatory Courses
CNES 1043 (inactive)(4.0 cr)
or CNES 3008 (inactive)(4.0 cr)

Minor Courses
Take at least four courses, with one course each from groups 1-3. The remaining course may be selected from those in groups 1-3 not used to fulfill the three-course requirement, selected courses in anthropology or history, or any 3xxx-5xxx course in CNES or RELA. Course selections are subject to the approval of the director of undergraduate studies. Take 4 or more course(s) totaling 12 or more credit(s) from the following:

Group 1 - The Classical World
Take 1 or more course(s) from the following:
• CNES 5108 (inactive)(3.0 cr)
• CNES 5172 (inactive)(3.0 cr)

• Group 2 - The Near East
Take 1 or more course(s) from the following:
• CNES 3142 (inactive)(4.0 cr)
• CNES 3172 (inactive)(3.0 cr)

• Group 3 - Field/Lab Work
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• DUS-approved course or directed studies

• Electives
Take 0 - 1 course(s) from the following:
• ANTH 3009 - Rise of Civilization [HIS] (3.0 cr)
• ANTH 3027W - Archaeology of Prehistoric Europe [HIS, WI] (3.0 cr)
• ANTH 3028 - Introduction to Historical Archaeology (3.0 cr)
• ANTH 5027W - Archaeology of Prehistoric Europe [HIS, WI] (3.0 cr)
• CNES 3xx
• CNES 4xx
• CNES 5xx
• RELA 3xx
• RELA 4xx
• RELA 5xx
Twin Cities Campus
Classical Civilization Minor
Classical & Near Eastern Studies
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

This interdisciplinary program encompasses the study of Greek and Roman cultures and their influence on Western civilization, and it encourages study of related or parallel cultures, such as those of Islam and the Indian subcontinent.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 3 courses before admission to the program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Courses
Students must complete an introductory course, plus the first year of Greek or Latin before declaring the minor. Note: these courses do not factor into the overall length in credits of the minor.

Introductory Course
- CNES 1002 - World of Greece [HIS] (3.0 cr)
- or CNES 1003 - World of Rome [HIS] (3.0 cr)
- or CNES 1042 - Greek and Roman Mythology [AH] (4.0 cr)

First-Year Greek or Latin
- GRK 1001 - Beginning Classical Greek I (5.0 cr)
- GRK 1002 - Beginning Classical Greek II (5.0 cr)
- or LAT 1001 - Beginning Latin I (5.0 cr)
- LAT 1002 - Beginning Latin II (5.0 cr)

Minor Requirements
Students are required to take 2 semester(s) of Greek or Latin.

Students may earn a B.A. or a minor in classical civilization, but not both.

Minor Courses
Take a minimum of five courses and 15 credits, including at least one course (of at least 3 credits) from each of the following content areas: (1) Language and Literature, (2) Art and Material Culture, (3) History, Philosophy and Religion.

Language and Literature
Courses in history, art history, medieval studies, and other departments may be used with DUS approval.
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- CNES 3081W - Classical Epic in Translation [LITR, WI] (3.0 cr)
- CNES 5081W [Inactive] [WI] (3.0 cr)
- CNES 3082W - Greek Tragedy in Translation [LITR, WI] (3.0 cr)
- CNES 3083W - Ancient Comedy [WI] (3.0 cr)
- CNES 3103 - Ancient Greece: Alexander and the East [HIS] (3.0 cr)
- CNES 3106 - Ancient Rome: The Age of Nero (3.0 cr)
- CNES 3107 - Age of Constantine the Great (3.0 cr)
- CNES 3108 - Age of St. Augustine of Hippo (3.0 cr)
- CNES 3109 - The Age of Justinian and Muhammad (c.500-c.700 A.D.) (3.0 cr)
- ENGL 3007 - Shakespeare [LITR] (3.0 cr)
- ENGL 3122 - Shakespeare II: The Major Themes (3.0 cr)
- ENGL 3132 - The King James Bible as Literature (3.0 cr)
•ENGL 3133  (Inactive) (3.0 cr)
•ENGL 3134 - Milton and Rebellion (3.0 cr)
•ENGL 3141 - The Restoration and the Eighteenth Century (3.0 cr)
•GRK 5100 - Advanced Reading (3.0 cr)
•GRK 5200 - Biblical Greek (3.0 cr)
•GRK 5701 - Prose Composition (3.0 cr)
•GRK 5702 - Text Criticism (3.0 cr)
•GRK 5704 - Greek Paleography (3.0 cr)
•GRK 5705 - Introduction to the Historical-Comparative Grammar of Greek and Latin (3.0 cr)
•GRK 5706  (Inactive) (3.0 cr)
•LAT 5100 - Advanced Reading (3.0 cr)
•LAT 5200 - Advanced Reading in Later Latin (3.0 cr)
•LAT 5701 - Latin Prose Composition (3.0 cr)
•LAT 5702 - Text Criticism (3.0 cr)
•LAT 5703 - Epigraphy (3.0 cr)
•LAT 5705 - Introduction to the Historical-Comparative Grammar of Greek and Latin (3.0 cr)
•LAT 5706  (Inactive) (3.0 cr)

Art and Material Culture
Courses in history, art history, medieval studies, and other departments may be used with DUS approval.
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
•ARTH 5115 - Hellenistic and Iranian Asia: Art and Archaeology of Hellenistic, Scythian, Kushan, and Sogdian Asia (3.0 cr)
•CNES 3008  (Inactive) (4.0 cr)
•CNES 3035  (Inactive) (4.0 cr)
•CNES 3103 - Ancient Greece: Alexander and the East [HIS] (3.0 cr)
•CNES 3106 - Ancient Rome: The Age of Nero (3.0 cr)
•CNES 3107 - Age of Constantine the Great (3.0 cr)
•CNES 3108 - Age of St. Augustine of Hippo (3.0 cr)
•CNES 3109 - The Age of Justinian and Muhammad (c.500-c.700 A.D.) (3.0 cr)
•CNES 3152 - Art and Archaeology of Ancient Greece [HIS] (3.0 cr)
•CNES 3156  (Inactive) [AH] (3.0 cr)
•CNES 3162 - Roman Art and Archaeology [HIS] (3.0 cr)
•CNES 5108  (Inactive) (3.0 cr)
•CNES 5172  (Inactive) (3.0 cr)
•CNES 5188 - Art and Archaeology of Early Christianity and the Late Roman Empire (3.0 cr)

History, Philosophy and Religion
Courses in history, art history, medieval studies, and other departments may be used with DUS approval.
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
•CNES 3071 - Greek and Hellenistic Religions [HIS] (3.0 cr)
•CNES 5071 - Greek and Hellenistic Religions (3.0 cr)
•CNES 3072 - The New Testament (3.0 cr)
•CNES 5072 - The New Testament (3.0 cr)
•CNES 3073 - Roman Religion and Early Christianity (3.0 cr)
•CNES 5073 - Roman Religion and Early Christianity (3.0 cr)
•CNES 3103 - Ancient Greece: Alexander and the East [HIS] (3.0 cr)
•CNES 3106 - Ancient Rome: The Age of Nero (3.0 cr)
•CNES 3107 - Age of Constantine the Great (3.0 cr)
•CNES 3108 - Age of St. Augustine of Hippo (3.0 cr)
•CNES 3109 - The Age of Justinian and Muhammad (c.500-c.700 A.D.) (3.0 cr)
•CNES 3535 - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
•CNES 5535 - Death and the Afterlife in the Ancient World (3.0 cr)
•CNES 3601 - Sexuality and Gender in Ancient Greece and Rome [AH] (3.0 cr)
•CNES 5601 - Sexuality and Gender in Ancient Greece and Rome (3.0 cr)
•CNES 5013 - Introduction to Roman Law (3.0 cr)
•CNES 5051 - Before Herodotus: History and Historiography of Mesopotamia and the Ancient Near East (3.0 cr)
•HIST 3052 - Ancient Civilization: Greece (3.0 cr)
•HIST 3053 - Ancient Civilization: Rome [HIS] (3.0 cr)
•HIST 3061 - "Bread and Circuses": Spectacles and Mass Culture in Antiquity (3.0 cr)
•HIST 4071 - History of Rome to 78 B.C. (3.0 cr)
•HIST 4072  (Inactive) (3.0 cr)
•HIST 4073 - History of Rome: A.D. 117 to 641 (3.0 cr)
•HIST 5053 - Doing Roman History: Sources, Methods, and Trends (3.0 cr)
Twin Cities Campus
Classics B.A.
Classical & Near Eastern Studies
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 32 to 33
- No
- Degree: Bachelor of Arts

The field of Classics encompasses the study of ancient Greek and Roman cultures and their political, social, artistic, and intellectual legacies. With its broadly conceived chronological (the Bronze age through late antiquity) and geographical (ancient Mediterranean and Near East) boundaries, the Classics program involves the study of cultural contact and hybridization, as well as the exploration of the dynamic relationships between past and present. With its wide range of courses in language, literature, religion, social and political history, as well as art and archaeology, the program enables students to investigate ancient cultures from different perspectives and become acquainted with the aims and methods of several disciplines. Four degree sub-plans (Greek; Latin; Greek and Latin; Classical Civilization) are designed to accommodate students' specific interests and needs.

Greek is the Western language with the longest continuous history, from the poetry of Homer in the first millennium BCE to the present. The Greek sub-plan focuses on literature, philosophy, religion, archaeology, and art associated with the Greek language from its earliest appearance through the rise of the Greek city-state in the 5th century BCE and into the Roman Empire.

The Latin sub-plan allows students to explore a large range of literature written over more than a millennium and a half. It is concerned with the language and literature of the Roman Republic and Empire and later Latin literature from the Middle Ages to the Renaissance, as well as with Roman religion, history, archaeology, and art. Modern "Romance" languages (French, Italian, Spanish, and Portuguese) are derived from Latin.

The Greek and Latin sub-plan offers the most comprehensive and comparative approach to Greco-Roman antiquity with its broad focus on the languages and literature of both ancient Greece and Rome. Students explore a wide range of ancient texts and gain a heightened awareness of inter-cultural appropriation and interpretation. Majors interested in graduate work in classics are encouraged to consider this sub-plan as it offers especially strong preparation for advanced academic training in the field.

The Classical Civilization sub-plan offers students the opportunity to explore the art, literature, religion, and social and political history of ancient Greece and Rome from interdisciplinary perspectives with less required work in the ancient languages. This sub-plan is also an attractive option as a double major for students studying in fields engaged with the reception of the classical past, like English, Art History, French, Italian, German, History, and Philosophy.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Refer to your chosen sub-plan for more information on what preparatory courses you must complete.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students are required to complete a sub-plan for the major.

No course may be used to fulfill more than one major requirement. Students who double major and choose to complete the senior
project requirement in their other major must take an additional four credits of appropriate electives coursework in order to satisfy the minimum 32 credits required for the major.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://www.class.umn.edu/degree_requirements/index.html.

CNES Core Courses
Take 3 or more course(s) totaling 9 or more credit(s) from the following:

- **CNES 3072** - The New Testament (3.0 cr)
- **CNES 3103** - Ancient Greece: Alexander and the East [HIS] (3.0 cr)
- **CNES 3106** - Ancient Rome: The Age of Nero (3.0 cr)
- **CNES 3107** - Age of Constantine the Great (3.0 cr)
- **CNES 3108** - Age of St. Augustine of Hippo (3.0 cr)
- **CNES 3201** - The Bible: Context and Interpretation [LITR] (3.0 cr)
- **CNES 3502** - Ancient Israel: From Conquest to Exile (3.0 cr)
- **CNES 3535** - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
- **CNES 3601** - Sexuality and Gender in Ancient Greece and Rome [AH] (3.0 cr)
- CNES 3xxx

Senior Project
**CNES 3951W** - Major Project [WI] (4.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:

- **CNES 3951W** - Major Project [WI] (4.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Classical Civilization
The Classical Civilization track requires at least 32 total credits of coursework, including nine credits of core courses and the senior project.

Preparatory Courses
Note: these credits do not factor into the overall length in credits for the major.
**CNES 1002** - World of Greece [HIS] (3.0 cr)
**CNES 1003** - World of Rome [HIS] (3.0 cr)
**CNES 1042** - Greek and Roman Mythology [AH] (4.0 cr)

Major Courses
**Greek or Latin Language**
- **GRK 3004** - Intermediate Greek Poetry: Homer (4.0 cr)
- **LAT 3004** - Intermediate Latin Poetry: Vergil (4.0 cr)

Electives
Take a minimum of five courses and 15 credits, including at least one course (3 credits) from each of the following content areas: (1) Language and Literature, (2) Art and Material Culture, (3) History, Philosophy and Religion.

Language and Literature
Courses in history, art history, medieval studies, and other departments may be used with DUS approval.
Take 1 or more course(s) totaling 3 or more credit(s) from the following:

- **CNES 3081W** - Classical Epic in Translation [LITR, WI] (3.0 cr)
- **CNES 3082W** - Greek Tragedy in Translation [LITR, WI] (3.0 cr)
- **CNES 3083W** - Ancient Comedy [WI] (3.0 cr)
- **CNES 5083** - Ancient Comedy (3.0 cr)
- **CNES 3103** - Ancient Greece: Alexander and the East [HIS] (3.0 cr)
- **CNES 3106** - Ancient Rome: The Age of Nero (3.0 cr)
- **CNES 3107** - Age of Constantine the Great (3.0 cr)
- **CNES 3108** - Age of St. Augustine of Hippo (3.0 cr)
- **CNES 3109** - The Age of Justinian and Muhammad (c.500-c.700 A.D.) (3.0 cr)
- **ENGL 3007** - Shakespeare [LITR] (3.0 cr)
**ENGL 3122** - Shakespeare II: The Major Themes (3.0 cr)
**ENGL 3132** - The King James Bible as Literature (3.0 cr)
**ENGL 3134** - Milton and Rebellion (3.0 cr)
**ENGL 3141** - The Restoration and the Eighteenth Century (3.0 cr)
**GRK 5100** - Advanced Reading (3.0 cr)
**GRK 5200** - Biblical Greek (3.0 cr)
**GRK 5701** - Prose Composition (3.0 cr)
**GRK 5702** - Text Criticism (3.0 cr)
**GRK 5704** - Greek Paleography (3.0 cr)
**GRK 5705** - Introduction to the Historical-Comparative Grammar of Greek and Latin (3.0 cr)
**LAT 5100** - Advanced Reading (3.0 cr)
**LAT 5200** - Advanced Reading in Later Latin (3.0 cr)
**LAT 5701** - Latin Prose Composition (3.0 cr)
**LAT 5702** - Text Criticism (3.0 cr)
**LAT 5703** - Epigraphy (3.0 cr)
**LAT 5705** - Introduction to the Historical-Comparative Grammar of Greek and Latin (3.0 cr)

**Art and Material Culture**
Courses in history, art history, medieval studies, and other departments may be used with DUS approval.
Take 1 or more course(s) totaling 3 or more credit(s) from the following:

**ARTH 5115** - Hellenistic and Iranian Asia: Art and Archaeology of Hellenistic, Scythian, Kushan, and Sogdian Asia (3.0 cr)
**CNES 3103** - Ancient Greece: Alexander and the East [HIS] (3.0 cr)
**CNES 3106** - Ancient Rome: The Age of Nero (3.0 cr)
**CNES 3107** - Age of Constantine the Great (3.0 cr)
**CNES 3108** - Age of St. Augustine of Hippo (3.0 cr)
**CNES 3109** - The Age of Justinian and Muhammad (c.500-c.700 A.D.) (3.0 cr)
**CNES 3152** - Art and Archaeology of Ancient Greece [HIS] (3.0 cr)
**CNES 3182** - Roman Art and Archaeology [HIS] (3.0 cr)
**CNES 5188** - Art and Archaeology of Early Christianity and the Late Roman Empire (3.0 cr)

**History, Philosophy and Religion**
Courses in history, art history, medieval studies, and other departments may be used with DUS approval.
Take 1 or more course(s) totaling 3 or more credit(s) from the following:

**CNES 3071** - Greek and Hellenistic Religions [HIS] (3.0 cr)
**CNES 3072** - The New Testament (3.0 cr)
**CNES 3073** - Roman Religion and Early Christianity (3.0 cr)
**CNES 3074** - Roman Religion and Early Christianity (3.0 cr)
**CNES 3103** - Ancient Greece: Alexander and the East [HIS] (3.0 cr)
**CNES 3106** - Ancient Rome: The Age of Nero (3.0 cr)
**CNES 3107** - Age of Constantine the Great (3.0 cr)
**CNES 3108** - Age of St. Augustine of Hippo (3.0 cr)
**CNES 3109** - The Age of Justinian and Muhammad (c.500-c.700 A.D.) (3.0 cr)
**CNES 3535** - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
**CNES 3601** - Sexuality and Gender in Ancient Greece and Rome [AH] (3.0 cr)
**CNES 5013** - Introduction to Roman Law (3.0 cr)
**CNES 5051** - Before Herodotus: History and Historiography of Mesopotamia and the Ancient Near East (3.0 cr)
**HIST 3052** - Ancient Civilization: Greece (3.0 cr)
**HIST 3053** - Ancient Civilization: Rome [HIS] (3.0 cr)
**HIST 3061** - "Bread and Circuses": Spectacles and Mass Culture in Antiquity (3.0 cr)
**HIST 4071** - History of Rome to 78 B.C. (3.0 cr)
**HIST 4073** - History of Rome: A.D. 117 to 641 (3.0 cr)
**HIST 5053** - Doing Roman History: Sources, Methods, and Trends (3.0 cr)

**Greek**
The Greek track requires at least 32 total credits of coursework, including nine credits of core courses and the senior project.

**Preparatory Courses**
Note: these credits do not factor into the overall length in credits for the major.
**CNES 1002** - World of Greece [HIS] (3.0 cr)
**or CNES 1042** - Greek and Roman Mythology [AH] (4.0 cr)

**Major Courses**
Take 10 or more credit(s) from the following:

**GRK 3004** - Intermediate Greek Poetry: Homer (4.0 cr)
Electives Courses
Courses in history, art history, medieval studies, and other departments may be used with DUS approval.
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
• CNES 3074 - Greek and Hellenistic Religions [HIS] (3.0 cr)
• CNES 3075 - Greek and Hellenistic Religions (3.0 cr)
• CNES 3076 - The New Testament (3.0 cr)
• CNES 3077 - The New Testament (3.0 cr)
• CNES 3081W - Classical Epic in Translation [LITR, WI] (3.0 cr)
• CNES 3082W - Greek Tragedy in Translation [LITR, WI] (3.0 cr)
• CNES 3083W - Ancient Comedy [WI] (3.0 cr)
• CNES 3084W - Ancient Comedy (3.0 cr)
• CNES 3103 - Ancient Greece: Alexander and the East [HIS] (3.0 cr)
• CNES 3152 - Art and Archaeology of Ancient Greece [HIS] (3.0 cr)
• CNES 3153 - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
• CNES 3154 - Death and the Afterlife in the Ancient World (3.0 cr)
• CNES 3601 - Sexuality and Gender in Ancient Greece and Rome [AH] (3.0 cr)
• CNES 3601 - Sexuality and Gender in Ancient Greece and Rome (3.0 cr)
• GRK 5100 - Advanced Reading (3.0 cr)
• GRK 5200 - Biblical Greek (3.0 cr)
• GRK 5701 - Prose Composition (3.0 cr)
• GRK 5702 - Text Criticism (3.0 cr)
• GRK 5704 - Greek Paleography (3.0 cr)
• GRK 5705 - Introduction to the Historical-Comparative Grammar of Greek and Latin (3.0 cr)
• HIST 3052 - Ancient Civilization: Greece (3.0 cr)
• HIST 3051 - "Bread and Circuses": Spectacles and Mass Culture in Antiquity (3.0 cr)

Greek and Latin
The Greek and Latin track requires at least 33 total credits of coursework, including nine credits of core courses and the senior project.

Preparatory Courses
Note: these credits do not factor into the overall length in credits for the major.
CNES 1002 - World of Greece [HIS] (3.0 cr)
or CNES 1003 - World of Rome [HIS] (3.0 cr)
or CNES 1042 - Greek and Roman Mythology [AH] (4.0 cr)

Major Courses
Greek Emphasis
LAT 3004 - Intermediate Latin Poetry: Vergil (4.0 cr)
Take 10 or more credit(s) from the following:
• GRK 3004 - Intermediate Greek Poetry: Homer (4.0 cr)
• GRK 5100 - Advanced Reading (3.0 cr)
• GRK 5200 - Biblical Greek (3.0 cr)
• GRK 57xx

or Latin Emphasis
GRK 3004 - Intermediate Greek Poetry: Homer (4.0 cr)
Take 10 or more credit(s) from the following:
• LAT 3004 - Intermediate Latin Poetry: Vergil (4.0 cr)
• LAT 5100 - Advanced Reading (3.0 cr)
• LAT 5200 - Advanced Reading in Later Latin (3.0 cr)
• GRK 57xx

Electives Courses
Courses in history, art history, medieval studies, and other departments may be used with DUS approval.
Take 6 or more credit(s) from the following:
• CNES 3074 - Greek and Hellenistic Religions [HIS] (3.0 cr)
• CNES 3075 - Greek and Hellenistic Religions (3.0 cr)
• CNES 3076 - The New Testament (3.0 cr)
• CNES 3077 - The New Testament (3.0 cr)
• CNES 3078 - Roman Religion and Early Christianity (3.0 cr)
• CNES 5073 - Roman Religion and Early Christianity (3.0 cr)
• CNES 3081W - Classical Epic in Translation [LITR, WI] (3.0 cr)
• CNES 3082W - Greek Tragedy in Translation [LITR, WI] (3.0 cr)
• CNES 3083W - Ancient Comedy [WI] (3.0 cr)
• CNES 3084W - Ancient Comedy (3.0 cr)
Latin
The Latin track requires at least 32 total credits of coursework, including nine credits of core courses and the senior project.

Preparatory Courses
Note: these credits do not factor into the overall length in credits for the major.

CNES 1003 - World of Rome [HIS] (3.0 cr) or CNES 1042 - Greek and Roman Mythology [AH] (4.0 cr)

Major Courses
Take 10 or more credit(s) from the following:

- LAT 3004 - Intermediate Latin Poetry: Vergil (4.0 cr)
- LAT 5100 - Advanced Reading (3.0 cr)
- LAT 5200 - Advanced Reading in Later Latin (3.0 cr)
- LAT 57xx

Electives Courses
Courses in history, art history, medieval studies, and other departments may be used with DUS approval. Take 3 or more course(s) totaling 9 or more credit(s) from the following:

- CNES 3072 - The New Testament (3.0 cr)
- CNES 5072 - The New Testament (3.0 cr)
- CNES 3073 - Roman Religion and Early Christianity (3.0 cr)
- CNES 5073 - Roman Religion and Early Christianity (3.0 cr)
- CNES 3081W - Classical Epic in Translation [LITR, WI] (3.0 cr)
- CNES 3083W - Ancient Comedy [WI] (3.0 cr)
- CNES 5083 - Ancient Comedy (3.0 cr)
- CNES 3106 - Ancient Rome: The Age of Nero (3.0 cr)
- CNES 3107 - Age of Constantine the Great (3.0 cr)
- CNES 3108 - Age of St. Augustine of Hippo (3.0 cr)
- CNES 3109 - The Age of Justinian and Muhammad (c.500-c.700 A.D.) (3.0 cr)
- CNES 3162 - Roman Art and Archaeology [HIS] (3.0 cr)
- CNES 3535 - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
- CNES 5535 - Death and the Afterlife in the Ancient World (3.0 cr)
- CNES 3601 - Sexuality and Gender in Ancient Greece and Rome [AH] (3.0 cr)
- CNES 5601 - Sexuality and Gender in Ancient Greece and Rome (3.0 cr)
- CNES 5013 - Introduction to Roman Law (3.0 cr)
- CNES 5188 - Art and Archaeology of Early Christianity and the Late Roman Empire (3.0 cr)
- GRK 5100 - Advanced Reading (3.0 cr)
- GRK 5200 - Biblical Greek (3.0 cr)
- GRK 5701 - Prose Composition (3.0 cr)
- GRK 5702 - Text Criticism (3.0 cr)
- GRK 5704 - Greek Paleography (3.0 cr)
- GRK 5705 - Introduction to the Historical-Comparative Grammar of Greek and Latin (3.0 cr)
- LAT 3004 - Intermediate Latin Poetry: Vergil (4.0 cr)
- LAT 5100 - Advanced Reading (3.0 cr)
- LAT 5200 - Advanced Reading in Later Latin (3.0 cr)
- LAT 5701 - Latin Prose Composition (3.0 cr)
- LAT 5702 - Text Criticism (3.0 cr)
- LAT 5703 - Epigraphy (3.0 cr)
- LAT 5705 - Introduction to the Historical-Comparative Grammar of Greek and Latin (3.0 cr)

- HIST 3052 - Ancient Civilization: Greece (3.0 cr)
- HIST 3053 - Ancient Civilization: Rome [HIS] (3.0 cr)
- HIST 3061 - "Bread and Circuses": Spectacles and Mass Culture in Antiquity (3.0 cr)
- HIST 4071 - History of Rome to 78 B.C. (3.0 cr)
- HIST 4073 - History of Rome: A.D. 117 to 641 (3.0 cr)
- HIST 5053 - Doing Roman History: Sources, Methods, and Trends (3.0 cr)
• CNES 5188 - Art and Archaeology of Early Christianity and the Late Roman Empire (3.0 cr)
• HIST 3053 - Ancient Civilization: Rome [HIS] (3.0 cr)
• HIST 3061 - "Bread and Circuses": Spectacles and Mass Culture in Antiquity (3.0 cr)
• HIST 4071 - History of Rome to 78 B.C. (3.0 cr)
• HIST 4073 - History of Rome: A.D. 117 to 641 (3.0 cr)
• HIST 5053 - Doing Roman History: Sources, Methods, and Trends (3.0 cr)
Twin Cities Campus
Communication Studies B.A.
Communication Studies
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 34
- Degree: Bachelor of Arts

This program examines human communication using humanistic and social scientific methods. Fields of study include speech writing, rhetorical criticism, ethics, interpersonal, small group, organizational, intercultural, and electronic (broadcasting, cable, satellite, internet) forms of communication. Students are strongly encouraged to declare their major during the first or second year. Students intending to declare a communication studies major must first meet with an a communication studies adviser in 274 Ford Hall.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students may earn a B.A. or a minor in communication studies, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Introductory Courses
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
COMM 1313W - Analysis of Argument [WI] (3.0 cr)

Core Courses
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
• COMM 3211 - Introduction to U.S. Electronic Media (3.0 cr)
• COMM 3401 - Introduction to Communication Theory (3.0 cr)
• COMM 3601 - Introduction to Rhetorical Theory [WI] (3.0 cr)

Performative Electives
Required Performance Elective
Take at least one of the following courses for a minimum of 3 credits. Note: in order for COMM 3990 to count as a performative elective, it must be taken for at least 3 credits.
COMM 3201 - Introduction to Electronic Media Production (3.0 - 4.0 cr)
or COMM 3411 - Introduction to Small Group Communication (3.0 cr)
or COMM 3422 - Interviewing and Communication (3.0 cr)
or COMM 3605W - Persuasive Speaking and Speech Writing [WI] (3.0 cr)
or COMM 3990 - Research Practicum (1.0 - 3.0 cr)

Upper-division Elective
Take 1 or more course(s) from the following:
• COMM 4xxx
• COMM 5xxx

**Additional Communications Studies Electives**
In addition to the above requirements and the senior project, take as many COMM 3xxx-5xxx credits as needed to reach the 34-credit graduation requirement.
Take 0 or more course(s) from the following:
- COMM 3xxx
- COMM 4xxx
- COMM 5xxx

**Senior Project**
The senior project is fulfilled by completing a senior paper. The senior paper can be written in any COMM 4xxx or 5xxx course. COMM 3995W, an S-N only, senior paper course, must be taken during the same semester in which the senior paper is written.
**COMM 3995W - Major Project [WI] (1.0 - 3.0 cr)**

**Upper-division Writing Intensive within the major**
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
- **COMM 3995W - Major Project [WI] (1.0 - 3.0 cr)**
- **COMM 3605W - Persuasive Speaking and Speech Writing [WI] (3.0 cr)**
Twin Cities Campus
Communication Studies Minor
Communication Studies
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

Courses examine human communication, using humanistic and social scientific methods. Fields of study include speechmaking, rhetorical criticism, ethics, and interpersonal, small group, organizational, intercultural, and electronic (broadcasting, cable, satellite, Internet) forms of communication. Students intending to declare a minor must meet with a communication studies adviser in 274 Ford Hall.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students may earn a B.A. or a minor in communication studies, but not both.

Minor Courses
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)  
or COMM 1313W - Analysis of Argument [WI] (3.0 cr)  
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- COMM 3211 - Introduction to U.S. Electronic Media (3.0 cr)  
- COMM 3401 - Introduction to Communication Theory (3.0 cr)  
- COMM 3601 - Introduction to Rhetorical Theory [WI] (3.0 cr)  

Electives
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
Take no more than 2 course(s) from the following:
- COMM 3xxx  
- Take 1 or more course(s) from the following:
  - COMM 4xxx  
  - COMM 5xxx
Twin Cities Campus

Comparative U.S. Race and Ethnicity Minor
Afr American/African Studies, American Indian Studies, American Studies, Chicano & Latino Studies

College of Liberal Arts

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

This minor exposes students to key content, methodologies, and theories in the comparative study of African Americans, American Indians, Asian Americans, Chicanos, and Latinos in the United States. Students explore various methodologies and core concepts within the social sciences and humanities. Students develop a general knowledge of how diverse racial and ethnic individuals and groups have historically interacted with one another and might redefine themselves today. This minor draws from courses in a number of disciplines and academic approaches, and encourages social awareness, critical thinking, the development of new perspectives, and artistic appreciation.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Prospective minors are urged to enroll in 1xxx-level introductory courses offered under the AFRO, AMIN, AAS, and CHIC designators before officially declaring.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements

Core Course
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- AFRO 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
- AMST 3113W - America's Diverse Cultures [DSJ, WI] (3.0 cr)
- ANTH 4047 - Anthropology of American Culture [SOCS] (3.0 cr)
- GWSS 3002W - Gender, Race, and Class in the U.S. [DSJ, WI] (3.0 cr)
- GWSS 3203W - Blood, Bodies and Science [TS, SOCS, WI] (3.0 cr)
- GWSS 3303W - Writing Differences: Literature by U.S. Women of Color [LITR, DSJ, WI] (3.0 cr)
- HIST 3875W - Comparative Race and Ethnicity in US History [HIS, DSJ, WI] (4.0 cr)
- SOC 3211W - American Race Relations [DSJ, WI] (3.0 cr)

Electives
Take 12 or more credit(s) from the following:
- AAS 3301 - Asian America Through Arts and Culture [AH, DSJ] (3.0 cr)
- AAS 4311 - Asian American Literature and Drama [LITR, DSJ] (3.0 cr)
- AFRO 3112 - In the Heart of the Beat: the Poetry of Rap (3.0 cr)
- AFRO 3251W - Sociological Perspectives on Race, Class, and Gender [WI] (3.0 cr)
- AFRO 3597W - Introduction to African American Literature and Culture I [LITR, WI] (4.0 cr)
- AFRO 3598W - Introduction to African American Literature and Culture II [LITR, WI] (4.0 cr)
- AFRO 3864 - African American History: 1619 to 1865 (3.0 - 4.0 cr)
- AFRO 3865 - African American History: 1865 to the Present (3.0 - 4.0 cr)
- AFRO 3866 - The Civil Rights and Black Power Movement, 1954-1984 (3.0 cr)
- AMIN 3201W - American Indian Literature [LITR, DSJ, WI] (3.0 cr)
- AMIN 3301 - American Indian Philosophies [AH, DSJ] (4.0 cr)
- AMIN 3409 - American Indian Women: Ethnographic and Ethnohistorical Perspectives [HIS, DSJ] (3.0 cr)
- AMIN 3501 - American Indian Tribal Governments and Politics [HIS, DSJ] (3.0 cr)
- AMIN 3601 - American Indian Oral Traditions (3.0 cr)
- AMIN 3871 - American Indian History: Pre-Contact to 1830 [HIS, DSJ] (3.0 cr)
- AMIN 3872 - American Indian History: 1830 to the Present (3.0 cr)
- AMST 3001 - Contemporary Perspectives on Asian America [DSJ] (3.0 cr)
- AMST 3117 - Latinos in America's Global Cities [SOCS, DSJ] (3.0 cr)
- CHIC 3212 - Chicana Studies: La Chicana in Contemporary Society [AH, DSJ] (3.0 cr)
• CHIC 3223 - Chicana/o and Latina/o Representation in Film [AH, DSJ] (3.0 cr)
• CHIC 3444 - Chicana and Chicano History: 1821-1945 [HIS, DSJ] (3.0 cr)
• CHIC 3446 - Chicana/o History II: WWII, El Movimiento, and the New Millennium [HIS, DSJ] (3.0 cr)
• CHIC 3452 - Xicana/Indigena Studies: History, Culture, and Politics [DSJ] (3.0 cr)
• CHIC 3507W - Introduction to Chicana/o Literature [LITR, DSJ, WI] (3.0 cr)
• CHIC 3752 - Chicanas and Chicanos in Contemporary Society [DSJ] (3.0 cr)
• GWSS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
• GWSS 4401 - Chicana/Latina Cultural Studies [AH, DSJ] (3.0 cr)
• HIST 3877 - Asian American History, 1850-Present [HIS, DSJ] (3.0 cr)
Twin Cities Campus

Computer Science B.A.
Computer Science and Engineering
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 55
- Degree: Bachelor of Arts

Computer science concerns the study of the hardware, software, and theoretical aspects of high-speed computing devices and the application of these devices to a broad spectrum of scientific, technological, and business problems. The curriculum gives students a basic understanding of computer science. After completing a required set of fundamental courses, students can arrange their subsequent work around one of several emphases within computer science. The program prepares students for a variety of industrial, governmental, and business positions involving the use of computers, or for graduate work in the field.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Students must complete 5 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major.

There are two entry sequences for introductory computer science: [CSCI 1133 & CSCI 1933], or [(CSCI 1103 or CSCI 1113) & CSCI 1913]. Students who intend to major in Computer Science should take the 1133-1933 sequence. Students who have AP credit in computer science will receive credit for CSCI 1103 and must take CSCI 1913. Students who are in other majors and would like to transfer to the computer science program may choose either sequence. Please note that the sequences cannot be mixed and matched. Students who take CSCI 1133 must take CSCI 1933, and students who take either CSCI 1103 or CSCI 1113 must take CSCI 1913.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Mathematics and Computer Science

Take a total of five courses for 20 credits. CSCI 1133 & 1933 is the recommended sequence. Sequences cannot be mixed and matched. See above note for more information.

Mathematics Core

MATH 1271 - Calculus I [MATH] (4.0 cr)
  or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
  or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)
  or MATH 1372 - CSE Calculus II (4.0 cr)
  or MATH 1572H - Honors Calculus II (4.0 cr)
CSCI 2011 - Discrete Structures of Computer Science (4.0 cr)

Computer Science Introductory Core

Option 1

CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)
CSCI 1933 - Introduction to Algorithms and Data Structures (4.0 cr)

or Option 2

CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)
  or CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
CSCI 1913 - Introduction to Algorithms, Data Structures, and Program Development (4.0 cr)

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).
Program Requirements

Students are required to take 4 semester(s) of any second language.

Students may complete no more than one degree in the computer science program: a B.A. or a B.S. or a minor.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Courses

It is recommended that the following courses be taken in sequence.

- **STAT 3021** - Introduction to Probability and Statistics (3.0 cr)
- **CSCI 2021** - Machine Architecture and Organization (4.0 cr)
- **CSCI 2033** - Elementary Computational Linear Algebra (4.0 cr)
- **CSCI 2041** - Advanced Programming Principles (4.0 cr)
- **CSCI 4041** - Algorithms and Data Structures (4.0 cr)
- **CSCI 4061** - Introduction to Operating Systems (4.0 cr)

Electives

No more than 3 credits from CSCI 4970 or 59xx courses may count toward the elective requirement.

Take 8 or more credit(s) from the following:

- CSCI 4xxx
- CSCI 5xxx

Senior Project

**CSCI 3081W** - Program Design and Development [WI] (4.0 cr)

Upper-division Writing Intensive within the major

Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:

- **CSCI 3081W** - Program Design and Development [WI] (4.0 cr)
Twin Cities Campus
Computer Science Minor
College of Liberal Arts - Adm
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 17 to 20

The Computer Science minor is for students who want to take a basic core of computer science courses to enhance or supplement their major programs. Knowledge of computing is useful for students majoring in engineering, the physical, biological and social sciences, business, design and the visual arts, just to name a few. The minor increases job opportunities and provides a base for more advanced studies and independent learning.

The minor teaches problem solving and computational thinking skills, as well as fundamental programming concepts, practical knowledge of computer programming languages, data structures, and algorithmic development techniques that are essential to modern computing. Students have flexibility in choosing courses to meet the minor requirements. Advanced courses provide detailed knowledge in specific topics, such as databases, networks, internet programming, or game design.

To succeed, students in the minor must have solid analytical and abstraction skills. Students who are not planning on taking Calculus should plan to take at least one other math course before starting the minor, such as MATH 1031 or MATH 1051.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students who wish to complete the minor should consult with the Computer Science adviser in 4-192 Keller Hall to discuss course choices and finalize the declaration process. All minor coursework must be taken A-F; only courses with a grade of C- or better may be counted toward the minor. At least three courses must be taken in residence at the University of Minnesota - Twin Cities campus. Students may earn no more than one undergraduate degree in computer science: a B.A. or a B.S. or a minor. Additionally, students who earn a B.Comp.E. in computer engineering may not minor in computer science. Other coursework may be accepted with prior adviser approval.

The Computer Science minor consists of 5 three- or four-credit, adviser-approved CSCI courses.

Introductory Sequence
Choose one two-course sequence from the following three options: CSCI 1133 & 1933 or CSCI 1103 & 1913 or CSCI 1113 & 1913.
- CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)
- CSCI 1933 - Introduction to Algorithms and Data Structures (4.0 cr)
- or CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)
- CSCI 1913 - Introduction to Algorithms, Data Structures, and Program Development (4.0 cr)
- or CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
- CSCI 1913 - Introduction to Algorithms, Data Structures, and Program Development (4.0 cr)

CSCI Electives
Take three additional CSCI courses, two of which must be CSCI 2xxx or higher and the other of which must be CSCI 4xxx or higher. All CSCI courses may count, except CSCI 2980, 3003, 3921W, 3970, 3980 & 4921. CSCI 49xx & 59xx courses may be accepted, but only with prior adviser approval.

Take 2 or more course(s) from the following:
- CSCI 2xxx
- CSCI 3xxx
- CSCI 4xxx
- CSCI 5xxx
Take 1 or more course(s) from the following:
- CSCI 4xxx
- CSCI 5xxx
Twin Cities Campus

Cultural Studies and Comparative Literature B.A.

Cultural Studies & Comparative Literature

College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 32
- Degree: Bachelor of Arts

Courses in the Department of Cultural Studies and Comparative Literature (CSCL) pursue questions and ways of knowing that cross traditional disciplinary boundaries. Students study culture as a set of complex connections and interrelations: between texts and everyday life, ideas and the material world, discourse and power.

The CSCL major strives for a broad, international scope, ranging widely across history and geography. The central focus is on the cultural mechanisms through which a society's ways of knowing, value systems, and individual and collective identities are generated, disseminated, challenged, and reinvented. The goal of the program is to produce critical and self-critical readers prepared to actively participate in the intellectual conversations and social struggles that shape global culture in our time.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Students are required to take 4 semester(s) of any second language.

Students must complete a minimum of 10 courses for the major: 2 introductory (1xxx) courses, plus 7 upper-division courses. To allow for flexibility, the tenth course may be taken at any level. At least one upper-division course in the major must be writing intensive.

Note for CSCL/CL/CSDS topics courses (3910, 5910), directed studies (3993, 4993, 5993), and internships: students may count a maximum of 3 toward the major, with no more than two in any one category (two topics courses; two directed studies/internships). Such courses may count as electives without prior approval, or as major courses with prior written approval from the CSCL undergraduate adviser or director of undergraduate studies. For both internships and directed studies, students work with a faculty member of their choice to complete and submit a Faculty/Student Contract outlining the goals and scope of coursework. The course number of the internship or directed study should be selected appropriate to the home department (3993, 4993, or 5993).

In exceptional cases, courses from other units may be substituted for department major courses if approved by the undergraduate adviser or the director of undergraduate studies. All major coursework must be taken A-F.

Students may earn a B.A. or a minor in cultural studies and comparative literature, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Preparatory Courses

CSCL 1001 - Introduction to Cultural Studies: Rhetoric, Power, Desire [AH, DSJ] (4.0 cr)
or CSCL 1101 - Literature [LITR] (4.0 cr)
or CSCL 1301W - Reading Culture: Theory and Practice [AH, WI] (4.0 cr)
or CSCL 1401W - Reading Literature: Theory and Practice [LITR, WI] (4.0 cr)
CSCL 1201 - Introduction to Cinema and Media Culture [AH] (4.0 cr)
or CSCL 1501W - Reading History: Theory and Practice [HIS, WI] (4.0 cr)
or CSCL 1921W - Introduction to Film Study [AH, WI] (4.0 cr)

Major Courses
Take at least one course from at least three of the four sub-fields: Discursive Practices and Genres, Subjectivity and History, Ideologies and Disciplines, and Critical Theories and Methods. The remaining two courses can be taken in the sub-fields, or in any CSCL 3xxx. Note: some students may have to take additional electives to reach the minimum 32 credits required for graduation. Take 5 or more course(s) from the following:

The Subfields
Take 3 - 5 course(s) from the following:

Discursive Practices and Genres
Take 0 or more course(s) from the following:
• CSCL 3172 - Music as Discourse [AH] (3.0 cr)
• CSCL 3173W - The Rhetoric of Everyday Life [CIV, WI] (3.0 cr)
• CSCL 3174 - Poetry as Cultural Critique (3.0 cr)
• CSCL 3175 - Comedy: Text and Theory [AH] (3.0 cr)
• CSCL 3177 - On Television [CIV] (4.0 cr)
• CSCL 3178W - Documentary Cinema: History and Politics [WI] (4.0 cr)
• CSCL 3179 - Reading Literary Movements [LITR] (3.0 cr)

Subjectivity and History
Take 0 or more course(s) from the following:
• CSCL 3456W - Sexuality and Culture [DSJ, WI] (3.0 cr)
• CSCL 3458W - The Body and the Politics of Representation [HIS, WI] (3.0 cr)
• CSCL 3461 - Monsters, Robots, Cyborgs [LITR] (3.0 cr)
• CSCL 3465 - Aliens [DSJ] (3.0 cr)
• CSCL 3472 - Gay Men and Homophobia in American Culture [DSJ] (3.0 cr)
• CSCL 3621W - Colonial and Postcolonial Literatures and Theory: 1700 to the Present [LITR, GP, WI] (3.0 cr)

Ideologies and Disciplines
Take 0 or more course(s) from the following:
• CSCL 3115 - Cinema and Ideology [AH] (4.0 cr)
• CSCL 3176 - Oppositional Cinemas [GP] (4.0 cr)
• CSCL 3361 - Visions of Nature: The Natural World and Political Thought [ENV] (3.0 cr)
• CSCL 3979 - Issues in Cultural Pluralism [DSJ] (3.0 cr)

Critical Theories and Methods
Take 0 or more course(s) from the following:
• CSCL 3321W - Theories of Culture [AH, WI] (3.0 cr)
• CSCL 3331 - Science and Culture [AH] (3.0 cr)
• CSCL 3412W [Inactive] [WI] (3.0 cr)
• CSCL 3413W - Psychoanalysis and Literature Part II: Post Freudian Criticism [WI] (3.0 cr)
• CSCL 3557W - Close Reading [LITR, WI] (3.0 cr)
• CSCL 3771 - Basic Concepts of Literary Study (3.0 cr)

Remaining Coursework
Take 0 - 2 course(s) from the following:
• CSCL 3xxx
• Take additional courses from the subfields.

Electives
Take 1 or more course(s) from the following:
• CSCL 1xxx
• CSCL 2xxx
• CSCL 3xxx
• CSCL 4xxx
• CSCL 5xxx
Take 2 or more course(s) from the following:
• CSCL 4xxx
• CSCL 5xxx

Senior Project
The senior project requirement is fulfilled by completing one of the following options as part of the 32-credit graduation minimum:

1. Completion of a project within a directed study (CSCL 3993, 4993, 5993)
2. Completion of a project within a 3xxx or 4xxx course (arrangement with instructor)
3. Completion of coursework, including substantial writing, in any CSCL 5xxx course
4. Completion of an Honors thesis or project
Twin Cities Campus

Cultural Studies and Comparative Literature Minor

Cultural Studies & Comparative Literature

College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

Courses in the Department of Cultural Studies and Comparative Literature (CSCL) pursue questions and ways of knowing that cross traditional disciplinary boundaries. Students study culture as a set of complex connections and interrelations: between texts and everyday life, ideas and the material world, and discourse and power.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Students may earn a B.A. or a minor in cultural studies and comparative literature, but not both.

Preparatory Courses

- CSCL 1001 - Introduction to Cultural Studies: Rhetoric, Power, Desire [AH, DSJ] (4.0 cr)
- or CSCL 1101 - Literature [LITR] (4.0 cr)
- or CSCL 1201 - Introduction to Cinema and Media Culture [AH] (4.0 cr)
- or CSCL 1301W - Reading Culture: Theory and Practice [AH, WI] (4.0 cr)
- or CSCL 1401W - Reading Literature: Theory and Practice [LITR, WI] (4.0 cr)
- or CSCL 1501W - Reading History: Theory and Practice [HIS, WI] (4.0 cr)
- or CSCL 1921W - Introduction to Film Study [AH, WI] (4.0 cr)

Minor Courses

Take 14 or more credit(s) from the following:
- CSCL 3xxx
- CSCL 4xxx
- CSCL 5xxx
Twin Cities Campus

Dance B.A.

Theatre Arts & Dance
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 45
- Degree: Bachelor of Arts

The B.A. in dance emphasizes general studies of contemporary dance in a global context. This degree prepares the student for further studies in such areas of dance as performance, choreography, dance theory, teaching, arts management, movement therapy, and kinesiology.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Admission into the B.A. program is by audition only.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students who double-major and choose to complete the senior project in their other major are still responsible for taking a minimum of 45 program credits. Students may earn a B.A. or a B.F.A. in dance, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Core
Dance Composition
- DNCE 1601 - Dance Improvisation (1.0 cr)
- DNCE 3601 - Dance Composition 1 (3.0 cr)
- DNCE 3602 - Dance Composition 2 (3.0 cr)
- DNCE 4601 - Dance Composition 3 (3.0 cr)

Dance Technique
- DNCE 3010 - Modern Dance Technique 5 (2.0 cr)
- DNCE 3020 - Modern Dance Technique 6 (2.0 cr)

Dance Studies
- DNCE 3401W - Dance History 1 [GP, WI] (3.0 cr)
- DNCE 3402W - Dance History 2 [WI] (3.0 cr)
- DNCE 4443 - Theorizing Dancing Bodies (3.0 cr)
- DNCE 1626 - Music for Dance [AH] (3.0 cr)
- DNCE 3901 - Survival Strategies in Dance (3.0 cr)

Dance Performance
Please note that DNCE 3701 may only be counted once. Both DNCE 3700 & 5700 may be counted more than once. Take 2 or more course(s) totaling 2 or more credit(s) from the following:
- DNCE 3700 - Performance (1.0 cr)
- DNCE 3701 - Summer Dance Intensive (1.0 - 3.0 cr)
Electives
Take at least 9 credits of Academic electives and 3 credits of Technique electives for a total of at least 12 credits. At least nine credits must be 3xxx or above. This is not an exhaustive list. Other courses in dance or in fields related to dance may count here, but must be chosen in consultation with a Dance faculty adviser and approved by the director of dance.

Academic Electives
Take 9 or more credit(s) from the following:
- • AAS 3251W - Sociological Perspectives on Race, Class, and Gender [SOCS, DSJ, WI] (3.0 cr)
- • AFRO 3112 - In the Heart of the Beat: the Poetry of Rap (3.0 cr)
- • AFRO 3251W - Sociological Perspectives on Race, Class, and Gender [WI] (3.0 cr)
- • AFRO 3301 - The Music of Black Americans [AH, DSJ] (3.0 cr)
- • AMST 2021 - Bodies and Their Discontents (3.0 cr)
- • AMST 3113W - America's Diverse Cultures [DSJ, WI] (3.0 cr)
- • AMST 3114 - America in International Perspective [DSJ] (3.0 cr)
- • AMST 3253W - American Popular Culture and Politics: 1940 to the Present [HIS, CIV, WI] (4.0 cr)
- • AMST 4101 - Gender, Sexuality, and Politics in America [HIS, DSJ] (3.0 cr)
- • ANAT 3001 - Human Anatomy (3.0 cr)
- • ANTH 3003 - Cultural Anthropology (3.0 cr)
- • ANTH 3036 - The Body in Society (3.0 cr)
- • ANTH 3043 - Art, Aesthetics and Anthropology (3.0 cr)
- • ARTH 3464 - Art Since 1945 [HIS] (4.0 cr)
- • CHIC 3213 - Chicano Music and Art [AH, DSJ] (3.0 cr)
- • CSCL 3321W - Theories of Culture [AH, WI] (3.0 cr)
- • CSCL 3456W - Sexuality and Culture [DSJ, WI] (3.0 cr)
- • CSCL 3458W - The Body and the Politics of Representation [HIS, WI] (3.0 cr)
- • DNCE 3334 - Introduction to Dance/Movement Therapy (2.0 cr)
- • DNCE 3337 - Body Mind Centering (2.0 cr)
- • DNCE 3341 - Dance and Popular Culture: Choreographing Race, Class, and Gender [DSJ] (3.0 cr)
- • DNCE 3433 - Articulate Body (3.0 cr)
- • DNCE 3443 - Nutrition and Body Maintenance for Movement Artists (2.0 cr)
- • DNCE 3487W - Dance and Citizenship: Land, Migration, and Diaspora [WI] (3.0 cr)
- • DNCE 3495 - Dance and Global Tourism [GP] (3.0 cr)
- • DNCE 3621 - Dance Production I (2.0 cr)
- • DNCE 3622 - Dance Production II (2.0 cr)
- • DNCE 4454W - (Re)Writing the Dancing Body [WI] (3.0 cr)
- • DNCE 5334 - Introduction to Dance/Movement Therapy (2.0 cr)
- • DNCE 5493 - Corporealities, Movement, and Social Justice: Staging "Equitable" Choreographies (3.0 cr)
- • DNCE 5495 - Dance and Global Tourism (3.0 cr)
- • DNCE 5858 - Teaching Dance (4.0 cr)
- • GLOS 3144 - Knowledge, Power, and the Politics of Representation in Global Studies (4.0 cr)
- • GLOS 3145 - Theoretical Approaches to Global Studies (4.0 cr)
- • GLOS 3602 - Other Worlds: Globalization and Culture (3.0 cr)
- • GWSS 3003 - Gender and Global Politics [SOCS, GP] (3.0 cr)
- • GWSS 3302 - Women and the Arts [AH, DSJ] (3.0 cr)
- • GWSS 4103 - Transnational Feminist Theories [GP] (3.0 cr)
- • GWSS 4403 - Queering Theory (3.0 cr)
- • GWSS 4415 - Body Politics: A History [HIS] (3.0 cr)
- • KIN 3001 - Lifetime Health and Wellness [SOCS] (3.0 cr)
- • KIN 3027 - Human Anatomy for Kinesiology Students (3.0 cr)
- • MUS 5950 - Topics in Music (1.0 - 4.0 cr)
- • PA 4101 - Nonprofit Management and Governance (3.0 cr)
- • SOC 3251W - Sociological Perspectives on Race, Class, and Gender [SOCS, DSJ, WI] (3.0 cr)
- • TH 3716 - Stage Management (4.0 cr)
- • TH 5117 - Performance and Social Change (3.0 cr)

Technique Electives
Take 3 or more credit(s) from the following:
- • DNCE 1030 - Men's Modern Dance Technique (1.0 cr)
- • DNCE 1040 - Modern Dance Partnering Technique (1.0 cr)
- • DNCE 1301 - Tap Technique 1 (1.0 cr)
- • DNCE 1302 - Tap Technique 2 (1.0 cr)
- • DNCE 1313 - African Based Movement (1.0 cr)
- • DNCE 1315 - Flamenco (1.0 cr)
- • DNCE 1323 - Swing Dance (1.0 cr)
- • DNCE 1327 - Argentine Tango (1.0 cr)
• DNCE 1331 - Yoga (1.0 cr)
• DNCE 1335 - T'ai Chi Ch'uan (1.0 cr)
• DNCE 1343 - Hip Hop Movement (1.0 cr)
• DNCE 1347 - Pilates Conditioning (1.0 cr)
• DNCE 1349 - Contact Improvisation (1.0 cr)
• DNCE 1351 - African Diasporic Movement 1 (1.0 cr)
• DNCE 1352 - African Diasporic Movement 2 (1.0 cr)
• DNCE 1353 - African Diasporic Movement 3 (1.0 cr)
• DNCE 1354 - African Diasporic Movement 4 (1.0 cr)
• DNCE 3110 - Ballet Technique 5 (2.0 cr)
• DNCE 3120 - Ballet Technique 6 (2.0 cr)
• DNCE 3210 - Jazz Technique 5 (1.0 cr)
• DNCE 3220 - Jazz Technique 6 (1.0 cr)
• DNCE 3301 - Tap Technique 3 (1.0 cr)
• DNCE 3302 - Tap Technique 4 (1.0 cr)
• DNCE 3311 - Contemporary Indian Dance 1 (1.0 cr)
• DNCE 3312 - Contemporary Indian Dance 2 (1.0 cr)
• DNCE 3351 - African Diasporic Movement 5 (1.0 cr)
• DNCE 3352 - African Diasporic Movement 6 (1.0 cr)
• DNCE 5010 - Modern Dance Technique 7 (2.0 cr)
• DNCE 5020 - Modern Dance Technique 8 (2.0 cr)
• DNCE 5110 - Ballet Technique 7 (1.0 cr)
• DNCE 5120 - Ballet Technique 8 (1.0 cr)

Senior Seminar
DNCE 4901 - Senior Seminar (2.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• DNCE 3401W - Dance History 1 [GP, WI] (3.0 cr)
• DNCE 3402W - Dance History 2 [WI] (3.0 cr)
Twin Cities Campus

Dance B.F.A.
Theatre Arts & Dance
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 78
- Degree: Bachelor of Fine Arts

Founded in the context of global contemporary dance, the B.F.A. in dance emphasizes excellence in technique, composition, performance, and dance studies. The program accepts students through a rigorous audition and prepares them through subsequent training designed to support professional careers in performance, creative or discursive work, or further studies.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Admission into the B.F.A. program is by audition only.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
The Dance B.F.A. does not have a second language requirement, but students may choose to complete a second language sequence. Consult the director of dance to find out how this will change your electives requirement. Students may earn a B.A. or a B.F.A. in dance, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html.

Dance Composition
DNCE 1601 - Dance Improvisation (1.0 cr)
DNCE 3601 - Dance Composition 1 (3.0 cr)
DNCE 3602 - Dance Composition 2 (3.0 cr)
DNCE 4601 - Dance Composition 3 (3.0 cr)
DNCE 4602 - Dance Composition 4 (3.0 cr)
DNCE 5601 - Dance Composition 5 (1.0 cr)

Dance Technique
Complete the Modern and Ballet sequences and choose to complete either the Jazz or African Diasporic Movement sequence.

Modern Dance & Ballet Techniques
DNCE 3010 - Modern Dance Technique 5 (2.0 cr)
DNCE 3020 - Modern Dance Technique 6 (2.0 cr)
DNCE 3110 - Ballet Technique 5 (2.0 cr)
DNCE 3120 - Ballet Technique 6 (2.0 cr)
DNCE 5010 - Modern Dance Technique 7 (2.0 cr)
DNCE 5020 - Modern Dance Technique 8 (2.0 cr)

Jazz Technique
DNCE 3210 - Jazz Technique 5 (1.0 cr)
DNCE 3220 - Jazz Technique 6 (1.0 cr)
or African Diasporic Movement
DNCE 3351 - African Diasporic Movement 5 (1.0 cr)
DNCE 3352 - African Diasporic Movement 6 (1.0 cr)

Dance Studies
DNCE 3401W - Dance History 1 [GP, WI] (3.0 cr)
DNCE 3402W - Dance History 2 [WI] (3.0 cr)
DNCE 4443 - Theorizing Dancing Bodies (3.0 cr)
DNCE 1626 - Music for Dance [AH] (3.0 cr)
DNCE 3433 - Articulate Body (3.0 cr)
DNCE 3621 - Dance Production I (2.0 cr)
DNCE 3622 - Dance Production II (2.0 cr)
DNCE 3901 - Survival Strategies in Dance (3.0 cr)
DNCE 5858 - Teaching Dance (4.0 cr)

Dance Performance
Performance credits should be spread throughout four years of coursework. DNCE 3700 & 5700 are repeatable up to four times each. Please note that DNCE 3701 may only be counted once.
Take 4 or more course(s) totaling 4 or more credit(s) from the following:
- DNCE 3700 - Performance (1.0 cr)
- DNCE 3701 - Summer Dance Intensive (1.0 - 3.0 cr)
- DNCE 5700 - Performance (1.0 cr)

Electives
Take at least 12 credits of Academic electives and 6 credits of Technique electives for a total of at least 18 credits. At least 12 credits must be 3xxx or above. This is not an exhaustive list. Other courses in dance or fields related to dance may count here, but must be chosen in consultation with a Dance faculty adviser and approved by the director of dance.

Academic Electives
Take a minimum of 12 credits.

General Academic Electives
Take 9 or more credit(s) from the following:
- AAS 3251W - Sociological Perspectives on Race, Class, and Gender [SOCS, DSJ, WI] (3.0 cr)
- AFRO 3112 - In the Heart of the Beat: the Poetry of Rap (3.0 cr)
- AFRO 3251W - Sociological Perspectives on Race, Class, and Gender [WI] (3.0 cr)
- AFRO 3301 - The Music of Black Americans [AH, DSJ] (3.0 cr)
- AMST 2021 - Bodies and Their Discontents (3.0 cr)
- AMST 3113W - America's Diverse Cultures [DSJ, WI] (3.0 cr)
- ANAT 3001 - Human Anatomy (3.0 cr)
- ANTH 3003 - Cultural Anthropology (3.0 cr)
- ANTH 3036 - The Body in Society (3.0 cr)
- ANTH 3043 - Art, Aesthetics and Anthropology (3.0 cr)
- ARTH 3401 - Art Now [AH, CIV] (3.0 cr)
- ARTH 3464 - Art Since 1945 [HIS] (4.0 cr)
- CHIC 3213 - Chicano Music and Art [AH, DSJ] (3.0 cr)
- CSCL 3321W - Theories of Culture [AH, WI] (3.0 cr)
- CSCL 3458W - Sexuality and Culture [DSJ, WI] (3.0 cr)
- CSCL 3459W - The Body and the Politics of Representation [HIS, WI] (3.0 cr)
- DNCE 3334 - Introduction to Dance/Movement Therapy (2.0 cr)
- DNCE 3337 - Body Mind Centering (2.0 cr)
- DNCE 3411 - Dance and Popular Culture: Choreographing Race, Class, and Gender [DSJ] (3.0 cr)
- DNCE 3434 - Nutrition and Body Maintenance for Movement Artists (2.0 cr)
- DNCE 4454W - (Re)Writing the Dancing Body [WI] (3.0 cr)
- DNCE 5334 - Introduction to Dance/Movement Therapy (2.0 cr)
- DNCE 5493 - Corporealities, Movement, and Social Justice: Staging "Equitable" Choreographies (3.0 cr)
- GLOS 3144 - Knowledge, Power, and the Politics of Representation in Global Studies (4.0 cr)
- GLOS 3145 - Theoretical Approaches to Global Studies (4.0 cr)
- GLOS 3602 - Other Worlds: Globalization and Culture (3.0 cr)
- GWSS 3003 - Gender and Global Politics [SOCS, GP] (3.0 cr)
- GWSS 4103 - Transnational Feminist Theories [GP] (3.0 cr)
- GWSS 4403 - Queering Theory (3.0 cr)
- GWSS 4415 - Body Politics: A History [HIS] (3.0 cr)
- KIN 3001 - Lifetime Health and Wellness [SOCS] (3.0 cr)
- KIN 3027 - Human Anatomy for Kinesiology Students (3.0 cr)
- MUS 5950 - Topics in Music (1.0 - 4.0 cr)
- PA 4101 - Nonprofit Management and Governance (3.0 cr)
• SOC 3251W - Sociological Perspectives on Race, Class, and Gender [SOCS, DSJ, WI] (3.0 cr)
• TH 3716 - Stage Management (4.0 cr)
• TH 5117 - Performance and Social Change (3.0 cr)

**Dance Ethnology Elective**

Take 3 credit(s) from the following:

- DNCE 3487W - Dance and Citizenship: Land, Migration, and Diaspora [WI] (3.0 cr)
- or DNCE 3495 - Dance and Global Tourism [GP] (3.0 cr)

**Technique Electives**

Take a minimum of 6 credits.

**General Technique Electives**

Take 0 - 4 credit(s) from the following:

- DNCE 1030 - Men's Modern Dance Technique (1.0 cr)
- DNCE 1040 - Modern Dance Partnering Technique (1.0 cr)
- DNCE 1301 - Tap Technique 1 (1.0 cr)
- DNCE 1302 - Tap Technique 2 (1.0 cr)
- DNCE 1323 - Swing Dance (1.0 cr)
- DNCE 1343 - Hip Hop Movement (1.0 cr)
- DNCE 1347 - Pilates Conditioning (1.0 cr)
- DNCE 1349 - Contact Improvisation (1.0 cr)
- DNCE 3301 - Tap Technique 3 (1.0 cr)
- DNCE 3302 - Tap Technique 4 (1.0 cr)
- DNCE 5110 - Ballet Technique 7 (1.0 cr)
- DNCE 5120 - Ballet Technique 8 (1.0 cr)

**World Dance Technique**

Please note that DNCE 1313, 1351, 1352, 1353, 1354, 3351 & 3352 may not be counted if you have already completed African Diasporic Movement as part of the Dance Technique sub-requirement.

Take 2 - 6 credit(s) from the following:

- DNCE 1313 - African Based Movement (1.0 cr)
- DNCE 1315 - Flamenco (1.0 cr)
- DNCE 1327 - Argentine Tango (1.0 cr)
- DNCE 1331 - Yoga (1.0 cr)
- DNCE 1335 - T'ai Chi Ch'uan (1.0 cr)
- DNCE 1351 - African Diasporic Movement 1 (1.0 cr)
- DNCE 1352 - African Diasporic Movement 2 (1.0 cr)
- DNCE 1353 - African Diasporic Movement 3 (1.0 cr)
- DNCE 1354 - African Diasporic Movement 4 (1.0 cr)
- DNCE 3311 - Contemporary Indian Dance 1 (1.0 cr)
- DNCE 3312 - Contemporary Indian Dance 2 (1.0 cr)
- DNCE 3351 - African Diasporic Movement 5 (1.0 cr)
- DNCE 3352 - African Diasporic Movement 6 (1.0 cr)

**Senior Seminar**

DNCE 4901 - Senior Seminar (2.0 cr)

**Upper-division Writing Intensive within the major**

Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:

- DNCE 3401W - Dance History 1 [GP, WI] (3.0 cr)
- DNCE 3402W - Dance History 2 [WI] (3.0 cr)
Twin Cities Campus
Danish Minor
German, Scandinavian, & Dutch
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16

The minor includes the study of the spoken language, literature, culture, and civilization.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Complete the introductory 4-semester Danish language sequence or its equivalent. Note: these credits do not factor into the overall length in credits of the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students are required to take 4 semester(s) of Danish.

The minor consists of a minimum of 16 credits in 3xxx, 4xxx (beyond 4004), and 5xxx courses with no more than one course being a directed or independent study. The four required semesters of a second language do not factor into the overall length of credits in the minor. All courses must be taken A-F and must be completed with a grade of C- or better. At least one course must be taken in the Scandinavian program at the University of Minnesota - Twin Cities campus. Students with a German, Scandinavian, Dutch major may elect a minor in Danish, but no courses may count for both the major and the minor. The program must be approved by the director of undergraduate studies.

Minor Courses
SCAN 3011W - Readings in Scandinavian Languages [WI] (4.0 cr)
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
- SCAN 3xxx
- SCAN 4xxx
- SCAN 5xxx
Twin Cities Campus
Dutch Studies Minor
German, Scandinavian, & Dutch
College of Liberal Arts

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 15

The minor includes study of the spoken language, literature, culture, and civilization.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Complete the introductory 4-semester Dutch language sequence or its equivalent. Note: these credits do not factor into the overall length in credits of the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students are required to take 4 semester(s) of Dutch.

The minor consists of a minimum of 15 credits in 3xxx, 4xxx (beyond 4004), and 5xxx courses with no more than one course being directed or independent study. The four required semesters of a second language do not factor into the overall length of credits in the minor. All courses must be taken A-F and must be completed with a grade of C- or better. At least one course must be taken in the Dutch Studies program at the University of Minnesota - Twin Cities campus. Students with a German, Scandinavian, Dutch major may elect a minor in Dutch Studies, but no courses may count for both the major and the minor. The program must be approved by the director of undergraduate studies.

Minor Courses
Up to two electives from other departments may be applied to the Dutch studies minor after consultation with the director of undergraduate studies.
DTCH 3011W - Conversation and Composition [WI] (3.0 cr)
DTCH 3012 - Conversation and Composition (3.0 cr)
Take 9 or more credit(s) from the following:
• DTCH 3xxx
• DTCH 4xxx
• DTCH 5xxx
Twin Cities Campus
Earth Sciences B.A.
Department of Earth Sciences
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 41
- This program requires summer terms.
- Degree: Bachelor of Arts

Earth Sciences is the study of the composition, structure, and history of the Earth, as well as the processes that operate on and within it. Emphasis on the crust, oceans, and atmosphere. The B.A. prepares students for graduate study or professional employment.

Earth scientists are employed in a wide range of fields, including exploration for and development of natural resources, environmental science, urban planning, education, oceanography, and other areas related to natural science. Potential employers include the oil, gas, and minerals industries, environmental consultants, federal and private research institutions, universities, schools, and government agencies. An advanced degree is usually required for a career in research or teaching.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
A GPA above 2.0 is preferred for the following:
- 2.50 transferring from outside the University

Students interested in Earth Sciences as a major may want to consider taking ESCI 1001 or another ESCI 1xxx course.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students may earn a B.A. or a minor in earth sciences, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Mathematics
Take one of the calculus sequences (two courses), or the honors sequence (two courses). Note: these courses do not count toward the overall length in credits of the major.
- MATH 1271 - Calculus I [MATH] (4.0 cr)
- MATH 1272 - Calculus II (4.0 cr)
- or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
- MATH 1372 - CSE Calculus II (4.0 cr)
- or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
- MATH 1572H - Honors Calculus II (4.0 cr)

Physics
Note: these courses do not count toward the overall length in credits of the major.
- PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

Chemistry
Take a total of four courses for eight credits. Note: these courses do not count toward the overall length in credits of the major.

Chemical Principles I
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)

Chemical Principles II
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
or CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)

Major Courses
ESCI 2201 - Solid Earth Dynamics (4.0 cr)
ESCI 2202 - Earth History (4.0 cr)
ESCI 2203 - Earth Surface Dynamics (4.0 cr)
ESCI 2301 - Mineralogy (3.0 cr)
ESCI 3202 - Fluid Earth Dynamics (4.0 cr)
ESCI 3303W - Geochemical Principles [WI] (4.0 cr)
ESCI 3891 - Field Methods (2.0 cr)

Field Courses
ESCI 3911 - Introductory Field Geology (4.0 cr)
ESCI 4911 - Advanced Field Geology (4.0 cr)
or ESCI 4971W - Field Hydrogeology [WI] (4.0 cr)

Electives
Take 8 or more credit(s) from the following:
• ESCI 2302 - Petrology (3.0 cr)
• ESCI 4501 - Structural Geology (3.0 cr)
• ESCI 4602 - Sedimentology and Stratigraphy (3.0 cr)
• ESCI 2xx
• ESCI 3xx
• ESCI 4xx
• ESCI 5xx

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ESCI 3303W - Geochemical Principles [WI] (4.0 cr)
• ESCI 4971W - Field Hydrogeology [WI] (4.0 cr)
Twin Cities Campus
Earth Sciences Minor
College of Liberal Arts - Adm
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

Earth science is the study of the composition, structure, and history of the Earth and of the processes that operate on and within it, with emphasis on the crust, oceans, and atmosphere.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students may complete no more than one degree in the Earth Sciences program: a B.A. or a B.S. or a minor.

Minor Courses
- ESCI 1001 - Earth and Its Environments [PHYS, ENV] (4.0 cr)
Take 14 or more credit(s) from the following:
- ESCI 2xxx
- ESCI 3xxx
- ESCI 4xxx
- ESCI 5xxx
Program Type: Baccalaureate
Requirements for this program are current for Fall 2014
Required credits to graduate with this degree: 120
Required credits within the major: 35 to 37
Degree: Bachelor of Arts

Economics emphasizes critical thinking and the understanding of basic economic principles. The B.A. - Quantitative Emphasis adds basic quantitative training (in calculus, linear algebra, and econometrics) and best suits students considering graduate work in business administration.

Students choose from courses in comparative economic systems; economic theory; econometrics; economic development; game theory; industrial organization; cost-benefit analysis; environmental, financial, international, mathematical, monetary, public, and labor economics.

For more information, visit www.econ.umn.edu.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 4 courses before admission to the program.

ECON 1101, ECON 1102, MATH 1271 & MATH 1272 are basic pre-requisites for the B.A. in Economics - Quantitative Emphasis. These twelve credits do not factor into the overall length in credits of the major.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Coursework
ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
ECON 1102 - Principles of Macroeconomics (4.0 cr)
MATH 1271 - Calculus I [MATH] (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

All major coursework must be taken A-F. Up to 3 credits of independent study (ECON 3991) may count toward the major. Supporting work in computer science, mathematics, and statistics is recommended. Only one country/area study course (ECON 3960, 4311, 4313, or 4315) or DUS-approved study-abroad course may count toward the electives requirement. All study-abroad or transfer courses must be approved by the director of undergraduate studies in the Department of Economics. Students must complete at least 12 credits of upper-division coursework (ECON 4xxx-5xxx) in residence at the University of Minnesota - Twin Cities campus. Students must take at least one writing intensive course in the major, or take ECON 4100W concurrently with ECON 4831, or an honors course.

Students may receive no more than one undergraduate degree from the Department of Economics: a B.A. or a B.S. or a minor.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this college requirement can be found at: http://class.umn.edu/degree_requirements/index.html
Major Requirements
ECON 3101 - Intermediate Microeconomics (4.0 cr)
ECON 3102 - Intermediate Macroeconomics (4.0 cr)
ECON 4211 - Principles of Econometrics (4.0 cr)
MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
STAT 3021 - Introduction to Probability and Statistics (3.0 cr)
STAT 3022 - Data Analysis (4.0 cr)

Electives
At least one 3xxx-5xxx course must be writing intensive.

Students may substitute selected 5xxx APEC courses for one of the six required elective courses, with the prior approval of the director of undergraduate studies.

ECON 4431W, 4631, 4721, 4731, and 4751 are also offered as four-credit honors courses open to all students.

Take 4 or more course(s) totaling 12 or more credit(s) from the following:
• ECON 3960 - Topics in Economics (3.0 cr)
• ECON 4109H - Honors Course: Game Theory and Applications (4.0 cr)
• ECON 4113 - Introduction to Mathematical Economics (4.0 cr)
• ECON 4171 - History of Economic Thought (3.0 cr)
• ECON 4311 - Economy of Latin America (3.0 cr)
• ECON 4313 - The Russian Economy (3.0 cr)
• ECON 4315 - The Japanese Economy (3.0 cr)
• ECON 4311W - Economic Development [WI] (3.0 cr)
• ECON 4337 - Comparative Economic Systems (3.0 cr)
• ECON 4421W - Economic Integration of the Americas [WI] (3.0 cr)
• ECON 4431W - International Trade [GP, WI] (3.0 cr)
• ECON 4432W - International Finance [WI] (3.0 cr)
• ECON 4531 - Labor Economics (3.0 cr)
• ECON 4621 - Urban Economics (3.0 cr)
• ECON 4621H - Honors Course: Urban Economics (4.0 cr)
• ECON 4631 - Industrial Organization and Antitrust Policy (3.0 cr)
• ECON 4721 - Money and Banking (3.0 cr)
• ECON 4731 - Macroeconomic Policy (3.0 cr)
• ECON 4751 - Financial Economics (3.0 cr)
• ECON 4821 - Public Economics (3.0 cr)
• ECON 4831 - Cost-Benefit Analysis (3.0 cr)
• ECON 4960 - Topics in Economics (3.0 cr)
• ECON 5890 - Economics of the Health-Care System (3.0 cr)

Senior Project
This requirement may be waived if a senior project has been completed in another CLA department.
ECON 3951 - Major Project Seminar (2.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ECON 4100W - Undergraduate Writing in Economics [WI] (1.0 cr)
• ECON 4311W - Economic Development [WI] (3.0 cr)
• ECON 4421W - Economic Integration of the Americas [WI] (3.0 cr)
• ECON 4431W - International Trade [GP, WI] (3.0 cr)
• ECON 4432W - International Finance [WI] (3.0 cr)
Twin Cities Campus
Economics B.A.
Economics
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 34 to 44
- Degree: Bachelor of Arts

Economics emphasizes critical thinking and the understanding of basic economic principles. The B.A. gives students a solid background in economics, is the least quantitative of the three economics majors, and provides excellent preparation for students interested in working immediately after graduation or considering law school.

Students choose from courses in comparative economic systems, economic theory, econometrics, economic development, game theory, industrial organization, cost-benefit analysis, environmental, financial, international, mathematical, monetary, public, and labor economics.

For more information, visit www.econ.umn.edu.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 3 courses before admission to the program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Coursework
Note: these courses do not factor into the overall length in credits of the major.
MATH 1271 - Calculus I [MATH] (4.0 cr)
ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
ECON 1102 - Principles of Macroeconomics (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

All major coursework must be taken A-F. Up to 3 credits of independent study (ECON 3991) may count toward the major. Supporting work in computer science, mathematics, and statistics is recommended. Only one country/area study course (ECON 3960, 4311, 4313, or 4315) or DUS-approved study-abroad course may count toward the electives requirement. All study-abroad or transfer courses must be approved by the director of undergraduate studies in the Department of Economics. Students must complete at least 12 credits of upper-division coursework (ECON 4xxx-5xxx) in residence at the University of Minnesota - Twin Cities campus. Students must take at least one writing intensive course in the major, or take ECON 4100W concurrently with ECON 4831, or an honors course. Students may receive no more than one undergraduate degree from the Department of Economics: a B.A. or a B.S. or a minor.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Requirements
ECON 3101 - Intermediate Microeconomics (4.0 cr)
ECON 3102 - Intermediate Macroeconomics (4.0 cr)
STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
STAT 3022 - Data Analysis (4.0 cr)

Electives
At least one 4xxx-5xxx course must be writing intensive.

Students may substitute ACCT 5100 and other selected 5xxx APEC courses for one of the six required elective courses, with the prior approval of the director of undergraduate studies.

ECON 4431W, 4631, 4721, 4731, 4741, and 4751 are also offered as four-credit honors courses open to all students.

Take 6 or more course(s) totaling 18 or more credit(s) from the following:
• ECON 3960 - Topics in Economics (3.0 cr)
• ECON 4109H - Honors Course: Game Theory and Applications (4.0 cr)
• ECON 4113 - Introduction to Mathematical Economics (4.0 cr)
• ECON 4171 - History of Economic Thought (3.0 cr)
• ECON 4211 - Principles of Econometrics (4.0 cr)
• ECON 4311 - Economy of Latin America (3.0 cr)
• ECON 4313 - The Russian Economy (3.0 cr)
• ECON 4315 - The Japanese Economy (3.0 cr)
• ECON 431W - Economic Development [WI] (3.0 cr)
• ECON 4337 - Comparative Economic Systems (3.0 cr)
• ECON 4421W - Economic Integration of the Americas [WI] (3.0 cr)
• ECON 4431W - International Trade [GP, WI] (3.0 cr)
• ECON 4432W - International Finance [WI] (3.0 cr)
• ECON 4451 - Labor Economics (3.0 cr)
• ECON 4621 - Urban Economics (3.0 cr)
• ECON 4621H - Honors Course: Urban Economics (4.0 cr)
• ECON 4631 - Industrial Organization and Antitrust Policy (3.0 cr)
• ECON 4721 - Money and Banking (3.0 cr)
• ECON 4751 - Financial Economics (3.0 cr)
• ECON 4821 - Public Economics (3.0 cr)
• ECON 4831 - Cost-Benefit Analysis (3.0 cr)
• ECON 4960 - Topics in Economics (3.0 cr)
• ECON 5890 - Economics of the Health-Care System (3.0 cr)

Senior Project
This requirement may be waived if a senior project has been completed in another CLA department.
ECON 3951 - Major Project Seminar (2.0 cr)
or ECON 3991 - Independent Study (1.0 - 3.0 cr)
or A term paper from an upper-division writing intensive course with a minimum grade of A-.
or Honors project or thesis (up to 6 credits).

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ECON 4100W - Undergraduate Writing in Economics [WI] (1.0 cr)
• ECON 4331W - Economic Development [WI] (3.0 cr)
• ECON 4421W - Economic Integration of the Americas [WI] (3.0 cr)
• ECON 4431W - International Trade [GP, WI] (3.0 cr)
• ECON 4432W - International Finance [WI] (3.0 cr)
Twin Cities Campus
Economics B.S.
Economics
College of Liberal Arts

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 48
• Degree: Bachelor of Science

Economics emphasizes critical thinking and the understanding of basic economic principles. The B.S. is for students interested in graduate study in economics or in a career where quantitative economic analysis plays a significant role. The strong quantitative component in this degree emphasizes multivariate calculus, linear algebra, and econometrics.

Students choose from courses in comparative economic systems, economic theory, econometrics, economic development, game theory, industrial organization, cost-benefit analysis, environmental, financial, international, mathematical, monetary, public, and labor economics.

For more information, visit www.econ.umn.edu.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 4 courses before admission to the program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Coursework
Note: these courses do not factor into the overall length in credits of the major.
- ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- ECON 1102 - Principles of Macroeconomics (4.0 cr)
- MATH 1271 - Calculus I [MATH] (4.0 cr)
- MATH 1272 - Calculus II (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All major coursework must be taken A-F. Up to 3 credits of independent study (ECON 3991) may count toward the major. Supporting work in computer science, mathematics, and statistics is recommended. Only one country/area study course (ECON 3960, 4311, 4313, or 4315) or DUS-approved study-abroad course may count toward the electives requirement. All study-abroad or transfer courses must be approved by the director of undergraduate studies in the Department of Economics. Students must complete at least 12 credits of upper-division coursework (ECON 4xxx-5xxx) in residence at the University of Minnesota - Twin Cities campus. Students must take at least one writing intensive course in the major, or take ECON 4100W concurrently with ECON 4831, or an honors course. Students may receive no more than one undergraduate degree from the Department of Economics: a B.A. or a B.S. or a minor.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Requirements
- ECON 3101 - Intermediate Microeconomics (4.0 cr)
ECON 3102 - Intermediate Macroeconomics (4.0 cr)
ECON 4261 - Introduction to Econometrics (4.0 cr)
MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
MATH 2263 - Multivariable Calculus (4.0 cr)
Take one of the following course pairs:
  STAT 4101 - Theory of Statistics I (4.0 cr)
  STAT 4102 - Theory of Statistics II (4.0 cr)
  or STAT 5101 - Theory of Statistics I (4.0 cr)
  STAT 5102 - Theory of Statistics II (4.0 cr)

Electives
Take a total of six courses for twenty credits. At least one 4xxx-5xxx course must be writing intensive. Students may substitute selected 5xxx APEC courses for one of the six required elective courses, with the prior approval of the director of undergraduate studies. ECON 4431W, 4631, 4721, 4731, 4741, and 4751 are also offered as four-credit honors courses open to all students.
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
- ECON 3960 - Topics in Economics (3.0 cr)
- ECON 4171 - History of Economic Thought (3.0 cr)
- ECON 4311 - Economy of Latin America (3.0 cr)
- ECON 4313 - The Russian Economy (3.0 cr)
- ECON 4315 - The Japanese Economy (3.0 cr)
- ECON 4331W - Economic Development [WI] (3.0 cr)
- ECON 4337 - Comparative Economic Systems (3.0 cr)
- ECON 4421W - Economic Integration of the Americas [WI] (3.0 cr)
- ECON 4432W - International Finance [WI] (3.0 cr)
- ECON 4531 - Labor Economics (3.0 cr)
- ECON 4621 - Urban Economics (3.0 cr)
- ECON 4711H - Honors: Quantitative Analysis of the Macroeconomy (4.0 cr)
- ECON 4821 - Public Economics (3.0 cr)
- ECON 4831 - Cost-Benefit Analysis (3.0 cr)
- ECON 4960 - Topics in Economics (3.0 cr)
- ECON 5890 - Economics of the Health-Care System (3.0 cr)
- ECON 4431W - International Trade [GP, WI] (3.0 cr)
  or ECON 4431V - Honors Course: International Trade [GP, WI] (4.0 cr)
- ECON 4631 - Industrial Organization and Antitrust Policy (3.0 cr)
  or ECON 4631H - Honors Course: Industrial Organization and Antitrust Policy (4.0 cr)
- ECON 4721 - Money and Banking (3.0 cr)
  or ECON 4721H - Honors Course: Money and Banking (4.0 cr)
- ECON 4731 - Macroeconomic Policy (3.0 cr)
  or ECON 4731H - Honors Course: Macroeconomic Policy (4.0 cr)
- ECON 4751 - Financial Economics (3.0 cr)
  or ECON 4751H - Honors Course: Financial Economics (4.0 cr)

May use one of the courses below with major adviser approval.
Take 0 - 1 course(s) from the following:
- MATH 4065 - Theory of Interest (4.0 cr)
- MATH 4606 - Advanced Calculus (4.0 cr)

Take 2 or more course(s) totaling 8 or more credit(s) from the following:
- ECON 4109H - Honors Course: Game Theory and Applications (4.0 cr)
- ECON 4113 - Introduction to Mathematical Economics (4.0 cr)
- ECON 4431V - Honors Course: International Trade [GP, WI] (4.0 cr)
- ECON 4621H - Honors Course: Urban Economics (4.0 cr)
- ECON 4631H - Honors Course: Industrial Organization and Antitrust Policy (4.0 cr)
- ECON 4721H - Honors Course: Money and Banking (4.0 cr)
- ECON 4731H - Honors Course: Macroeconomic Policy (4.0 cr)
- ECON 4741H - Honors: Quantitative Analysis of the Macroeconomy (4.0 cr)
- ECON 4751H - Honors Course: Financial Economics (4.0 cr)
- ECON 4161 - Microeconomic Analysis (2.0 cr)
- ECON 4162 - Microeconomic Analysis (2.0 cr)
- ECON 4163 - Microeconomic Analysis (2.0 cr)
- ECON 4164 - Microeconomic Analysis (2.0 cr)
- ECON 4165 - Macroeconomic Theory (2.0 cr)
- ECON 4166 - Macroeconomic Theory (2.0 cr)
- ECON 4167 - Macroeconomic Theory (2.0 cr)
- ECON 4168 - Macroeconomic Theory (2.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:

- ECON 4100W - Undergraduate Writing in Economics [WI] (1.0 cr)
- ECON 4331W - Economic Development [WI] (3.0 cr)
- ECON 4421W - Economic Integration of the Americas [WI] (3.0 cr)
- ECON 4431V - Honors Course: International Trade [GP, WI] (4.0 cr)
- ECON 4431W - International Trade [GP, WI] (3.0 cr)
- ECON 4432W - International Finance [WI] (3.0 cr)
**Twin Cities Campus**  
**Economics Minor**  
*Economics*  
**College of Liberal Arts**

- **Program Type:** Undergraduate minor related to major  
- **Requirements for this program are current for Fall 2014**  
- **Required credits in this minor:** 17 to 35

Economics is a useful minor for students majoring in business, engineering, statistics, computer science, mathematics, and all of the social sciences. Minors are available in six subfields: general, economic theory, econometrics, international trade and development, applied microeconomics and monetary theory. All subfields are designed to complement study in other academic disciplines.

**Program Delivery**  
This program is available:  
- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**  
ECON 1101 & 1102 are basic pre-requisites for all upper-division ECON coursework. These eight credits do not factor into the overall length in credits of the minor.

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](#).

**Required prerequisites**  
**Preparatory Courses**  
- **ECON 1101 - Principles of Microeconomics** [SOCS, GP] (4.0 cr)  
- **ECON 1102 - Principles of Macroeconomics** (4.0 cr)

**Minor Requirements**  
The minor consists of 17-35 credits of upper-division coursework, dependent on the chosen subfield. This includes a minimum of 3 upper-division ECON courses and supporting work in mathematics and/or statistics, where applicable. At least 9 upper-division ECON credits must be taken in residency at the University of Minnesota - Twin Cities campus.

Students may receive no more than one undergraduate degree from the Department of Economics: a B.A. or a B.S. or a minor.

**Program Sub-plans**  
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

**General**  
Take a total of 17 credits. No substitutions are permitted. All minor coursework must be taken A-F. Only one country/area course may count toward the minor. Successful completion of the courses listed here constitutes satisfaction of the requirements for a minor in general economics.

**General Requirements**  
**Calculus**  
- **MATH 1142 - Short Calculus** [MATH] (4.0 cr)  
- **MATH 1271 - Calculus I** [MATH] (4.0 cr)

**Microeconomics**  
- **ECON 3101 - Intermediate Microeconomics** (4.0 cr)

**Electives**  
Take 3 or more course(s) totaling 9 or more credit(s) from the following:  
- ECON 3xxx  
- ECON 4xxx
Economic Theory
Take a total of 27-28 credits. No substitutions are permitted. All minor coursework must be taken A-F. Only one country/area course may count toward the minor. Successful completion of the courses listed here constitutes satisfaction of the requirements for a minor in economic theory.

Economic Theory Requirements
- MATH 1271 - Calculus I [MATH] (4.0 cr)
- MATH 1272 - Calculus II (4.0 cr)
- MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
- MATH 2263 - Multivariable Calculus (4.0 cr)
- ECON 3101 - Intermediate Microeconomics (4.0 cr)
- ECON 3102 - Intermediate Macroeconomics (4.0 cr)

Economics 4xxx-level
- ECON 4109H - Honors Course: Game Theory and Applications (4.0 cr)
- or ECON 4113 - Introduction to Mathematical Economics (4.0 cr)
- or ECON 4731 - Macroeconomic Policy (3.0 cr)

Econometrics
Take a total of 35 credits. No substitutions are permitted. All minor coursework must be taken A-F. Only one country/area course may count toward the minor. Successful completion of the courses listed here constitutes satisfaction of the requirements for a minor in econometrics.

Econometrics Requirements
- MATH 1271 - Calculus I [MATH] (4.0 cr)
- MATH 1272 - Calculus II (4.0 cr)
- MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
- ECON 3101 - Intermediate Microeconomics (4.0 cr)
- ECON 3102 - Intermediate Macroeconomics (4.0 cr)
- ECON 4261 - Introduction to Econometrics (4.0 cr)

Theory of Statistics
Take one of the following course pairs:
- STAT 4101 - Theory of Statistics I (4.0 cr)
- STAT 4102 - Theory of Statistics II (4.0 cr)
- or STAT 5101 - Theory of Statistics I (4.0 cr)
- or STAT 5102 - Theory of Statistics II (4.0 cr)

Directed Study
Take exactly 3 credit(s) from the following:
- ECON 3993 - Directed Studies (1.0 - 3.0 cr)

International Trade and Development
Take a total of 20-23 credits. No substitutions are permitted. All minor coursework must be taken A-F. Only one country/area course may count toward the minor. Successful completion of the courses listed here constitutes satisfaction of the requirements for a minor in international trade and development.

International Trade and Development Requirements
- ECON 3101 - Intermediate Microeconomics (4.0 cr)
- Calculus
  - MATH 1142 - Short Calculus [MATH] (4.0 cr)
  - or MATH 1271 - Calculus I [MATH] (4.0 cr)
- Economic Development
  - ECON 4301 - Economic Development [WI] (3.0 cr)
  - or ECON 4331W - Economic Development [WI] (3.0 cr)
- Comparative Economic Systems
  - ECON 4307 - Comparative Economic Systems (3.0 cr)
  - or ECON 4337 - Comparative Economic Systems (3.0 cr)
- International Economics Area of Focus
  - ECON 3960 - Topics in Economics (3.0 cr)
  - or ECON 4311 - Economy of Latin America (3.0 cr)
  - or ECON 4313 - The Russian Economy (3.0 cr)
  - or ECON 4315 - The Japanese Economy (3.0 cr)
  - or Study-abroad Course Approved by ECON Director of Undergraduate Studies
- International Economics
Take the following course or course pair:
- ECON 4401 - International Economics [GP] (3.0 cr)
- or Trade & Finance

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Information current as of December 12, 2014
ECON 4431W - International Trade [GP, WI] (3.0 cr)
ECON 4432W - International Finance [WI] (3.0 cr)

Applied Microeconomics
Take a total of 20 credits. No substitutions are permitted. All minor coursework must be taken A-F. Only one country/area course may count toward the minor. Successful completion of the courses listed here constitutes satisfaction of the requirements for a minor in applied microeconomics.

Applied Microeconomics Requirements
ECON 4211 is recommended, but not required,
ECON 3101 - Intermediate Microeconomics (4.0 cr)
ECON 4531 - Labor Economics (3.0 cr)
ECON 4631 - Industrial Organization and Antitrust Policy (3.0 cr)
Additional ECON Major Course
MATH 1271 - Calculus I [MATH] (4.0 cr)
Electives
ECON 3801 - Elements of Public Economics (3.0 cr)
or ECON 4821 - Public Economics (3.0 cr)
or ECON 4831 - Cost-Benefit Analysis (3.0 cr)

Monetary Theory
Take a total of 25 credits. No substitutions are permitted. All minor coursework must be taken A-F. Only one country/area course may count toward the minor. Successful completion of the courses listed here constitutes satisfaction of the requirements for a minor in monetary theory.

Monetary Theory Requirements
ECON 3101 - Intermediate Microeconomics (4.0 cr)
ECON 3102 - Intermediate Macroeconomics (4.0 cr)
ECON 4731 - Macroeconomic Policy (3.0 cr)
ECON 4751 - Financial Economics (3.0 cr)
STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
Money and Banking
ECON 3701 - Money and Banking (3.0 cr)
or ECON 4721 - Money and Banking (3.0 cr)
Calculus
MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
Twin Cities Campus

English B.A.

English Language & Literature

College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 35
- Degree: Bachelor of Arts

Students who major in English study literature and other forms of verbal expression, literary history and criticism, critical theory, linguistics, and creative writing. Courses offered by the department explore a wide range of discourses written in English, including poetry, drama, fiction, film, popular culture, and electronic media. Students examine the cultural, social, political, and economic contexts that condition a variety of texts. Majors write extensively and learn to express themselves effectively, both orally and in writing. They gain practical insight into the words that they speak, read, and write.

The English department supports an engaged, civic-oriented curriculum and teaches the critical skills of reading and writing in the context of community involvement and real public spheres by incorporating community and service-learning components into literature and composition classes.

Students can work as interns at local organizations, neighborhood houses, alternative schools, after-school programs, and in the grassroots/nonprofit sector of the greater Twin Cities area. While underscoring the relevance of literary studies to contemporary life, these hands-on experiences prepare students not only for careers and professions, but also for an ongoing engagement in the civic life of their communities. Students can learn more from the University of Minnesota Literacy Lab Web site and from their major adviser.

Students transferring courses from other colleges and universities must complete five University of Minnesota three- or four-credit English courses in residence. These courses must include ENGL 3960W, ENGW 3960W, or ENGL 3883V (the senior project course), and at least four other upper-division courses (3xxx or higher).

Students wishing to transfer English courses from outside the University of Minnesota and apply them to the English major requirements should discuss this with the undergraduate adviser. Note: All English courses completed at two-year community colleges are accepted as equivalent to University lower-division (1xxx) courses, regardless of content. Advanced Placement (AP) and International Baccalaureate (IB) credits are not included in the major.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Prospective majors are encouraged to complete an introductory course in literature, creative writing, and/or English language, chosen from ENGL 1001-1701 and ENGW 1101-1104, before officially declaring the major. To declare a major, a student schedules an appointment with the Undergraduate Studies Office (227 Lind Hall; 612-625-4592; englmaj@umn.edu), and completes a Major Program form which is filed in CLA, the department, and with the student. Advisers recommend that students declare the major during the second semester of the freshman year.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Students are required to take 4 semester(s) of any second language.

The major is fulfilled by a minimum of 35 credits and 10 courses. At least 32 of these 35 credits must be upper-division (3xxx or higher). Students may count one ENGL 1xxx course toward the electives sub-requirement. Independent study is limited to 12 credits of directed study, directed instruction, or independent and distance learning (IDL) courses. Students may earn a B.A. or a minor in English, but not both.
English majors are encouraged to study in other countries before their senior year, to increase understanding of English language and literatures from diverse cultural perspectives. Advanced planning facilitates academic success and progress. See the Learning Abroad Center Web site at www.UMabroad.umn.edu for more information.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Textual Analysis
The methods course provides skills in close and critical reading, background in history and culture, and multiple approaches to literary works.

ENGL 3001W - Textual Analysis: Methods [WI] (4.0 cr)
or ENGL 3001V - Honors: Textual Analysis, Methods [WI] (4.0 cr)

Shakespeare
A 3xxx Shakespeare course, together with the required historical literature courses, situates literary works in historical, cultural, and theoretical perspectives.

ENGL 3007 - Shakespeare [LITR] (3.0 cr)
or ENGL 3007H - Honors: Shakespeare [LITR] (3.0 cr)
or A department-approved 3xxx Shakespeare in London course.

American/British Surveys and Historically-oriented Literature
The surveys and historically-oriented literature courses, together with a 3xxx Shakespeare course, situate literary works in historical, cultural, and theoretical perspectives. A third survey may be used to satisfy the historically-oriented literature requirement. A course used to satisfy the historically-oriented literature requirement may not also satisfy an elective requirement.

Option I
ENGL 3003W - Historical Survey of British Literatures I [HIS, WI] (4.0 cr)
ENGL 3006W - Survey of American Literatures and Cultures II [LITR, DSJ, WI] (4.0 cr)
or Option II
ENGL 3004W - Historical Survey of British Literatures II [HIS, WI] (4.0 cr)
ENGL 3005W - Survey of American Literatures and Cultures I [LITR, DSJ, WI] (4.0 cr)

Historically-oriented Literature
Take 1 or more course(s) from the following:
• AMIN 3201W - American Indian Literature [LITR, DSJ, WI] (3.0 cr)
• CHIC 3507W - Introduction to Chicana/o Literature [LITR, DSJ, WI] (3.0 cr)
• ENGL 3003W - Historical Survey of British Literatures I [HIS, WI] (4.0 cr)
• ENGL 3004W - Historical Survey of British Literatures II [HIS, WI] (4.0 cr)
• ENGL 3006W - Survey of American Literatures and Cultures II [LITR, DSJ, WI] (4.0 cr)
• ENGL 3101 - Survey of Medieval English Literature (3.0 cr)
• ENGL 3102 - Chaucer (3.0 cr)
• ENGL 3132 - The King James Bible as Literature (3.0 cr)
• ENGL 3133 - Victorian Literatures and Cultures (3.0 cr)
• ENGL 3141 - The Restoration and the Eighteenth Century (3.0 cr)
• ENGL 3151H - Romantic Literatures and Cultures (3.0 cr)
• ENGL 3151H - Honors: Romantic Literatures and Cultures (3.0 cr)
• ENGL 3161 - Victorian Literatures and Cultures (3.0 cr)
• ENGL 3161H - Honors: Victorian Literatures and Cultures (3.0 cr)
• ENGL 3175 - 20th-Century British Literatures and Cultures I (3.0 cr)
• ENGL 3211 - American Poetry from 1900 (3.0 cr)
• ENGL 3212 - American Poetry to 1900 (3.0 cr)
• ENGL 3221 - American Novel to 1900 (3.0 cr)
• ENGL 3222 - American Novel from 1900 (3.0 cr)
• ENGL 3231 - American Drama (3.0 cr)
• ENGL 3231H - American Drama (3.0 cr)
• ENGL 3597W - Introduction to African American Literature and Culture I [LITR, WI] (4.0 cr)
• ENGL 3598W - Introduction to African American Literature and Culture II [LITR, WI] (4.0 cr)
• ENGL 4152 - Nineteenth Century British Novel (3.0 cr)
• ENGL 4232 - American Drama by Writers of Color (3.0 cr)
• ENGL 4233 - Modern and Contemporary Drama (3.0 cr)
• ENGL 4311 - Asian American Literature and Drama [LITR, DSJ] (3.0 cr)
• ENGL 4593 - The African-American Novel (3.0 cr)
• ENGL 3005W - Survey of American Literatures and Cultures I [LITR, DSJ, WI] (4.0 cr)
English Language or Literary Theory
Take one course for a minimum of 3 credits. This requirement allows students to deepen their understanding of the English language or to concentrate on theoretical questions that shape readers’ understanding of texts.
ENGL 3002 - Modern Literary Criticism and Theory (3.0 cr)
or ENGL 3601 - Analysis of the English Language (4.0 cr)
or ENGL 3741 - Literacy and American Cultural Diversity [DSJ] (4.0 cr)
or ENGL 4003 - History of Literary Theory (3.0 cr)
or ENGL 4602W [Inactive][WI] (4.0 cr)
or ENGL 4603W - World Englishes [WI] (4.0 cr)
or ENGL 4605 [Inactive] (4.0 cr)
or ENGL 4612 - Old English I (3.0 cr)
or ENGL 4613 - Old English II (3.0 cr)
or ENGL 4722 - Alphabet to Internet: History of Writing Technologies (4.0 cr)
or Take both of the following internship courses.
   ENGL 3505 - Community Learning Internships I (3.0 cr)
   ENGL 3506 - Learning Internships II (4.0 cr)

Electives
Electives are devoted to in-depth study of particular authors, topics, periods, or genres. Any ENGL/W 3xxx-5xxx not used to fulfill other major requirements may be used as an elective. A course used as an elective may not be used to satisfy the historically-oriented literature requirement. Note: some students may have to take more than three electives to satisfy the 35-credit requirement for graduation.
Take 3 or more course(s) totaling 9 or more credit(s) from the following:

Lower-division Elective
Students may, but are not required to, count one ENGL/W 1xxx toward the major.
Take 0 - 1 course(s) from the following:
• ENGL 1001V - Introduction to Literature: Poetry, Drama, Narrative [LITR, WI] (4.0 cr)
• ENGL 1001W - Introduction to Literature: Poetry, Drama, Narrative [LITR, WI] (4.0 cr)
• ENGL 1181V [Inactive] [WI] (4.0 cr)
• ENGL 1181W - Introduction to Shakespeare [LITR, WI] (4.0 cr)
• ENGL 1201V [Inactive] [WI] (4.0 cr)
• ENGL 1201W - Contemporary American Literature [LITR, WI] (4.0 cr)
• ENGL 1301V [Inactive] [WI] (4.0 cr)
• ENGL 1301W - Introduction to Multicultural Literatures of the United States [LITR, DSJ, WI] (4.0 cr)
• ENGL 1401V - Honors: Introduction to "Third World" Literatures in English [LITR, GP, WI] (4.0 cr)
• ENGL 1401W - Introduction to "Third World" Literatures in English [LITR, GP, WI] (4.0 cr)
• ENGL 1501W - Literature of Public Life [LITR, CiV, WI] (4.0 cr)
• ENGL 1601W [Inactive] [WI] (4.0 cr)
• ENGL 1701 - Modern Fiction [LITR] (3.0 cr)
• ENGL 1701H [Inactive] [LITR] (3.0 cr)
• ENGL 1905 - Topics: Freshman Seminar (3.0 cr)
• ENGL 1910W - Topics: Freshman Seminar [WI] (3.0 cr)
• ENGW 1101W - Introduction to Creative Writing [LITR, WI] (4.0 cr)
• ENGW 1102 - Fiction Writing (Intro) (3.0 cr)
• ENGW 1103 - Poetry Writing (Intro) (3.0 cr)
• ENGW 1104 - Journal, Essay, Memoir Writing (Introduction) (3.0 cr)

Upper-division Electives
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
• AMIN 3201W - American Indian Literature [LITR, DSJ, WI] (3.0 cr)
• CHIC 3507W - Introduction to Chicana/o Literature [LITR, DSJ, WI] (3.0 cr)
• ENGL 3010 - Studies In Poetry (3.0 cr)
• ENGL 3010H - Honors: Studies in Poetry (3.0 cr)
• ENGL 3020 - Studies in Narrative (3.0 cr)
• ENGL 3020H - Honors: Studies in Narrative (3.0 cr)
• ENGL 3027W - The Essay [WI] (4.0 cr)
• ENGL 3030 - Studies in Drama (3.0 cr)
• ENGL 3030H [Inactive] (3.0 cr)
• ENGL 3040 - Studies in Film (3.0 cr)
• ENGL 3040H [Inactive] (3.0 cr)
• ENGL 3060 - Studies in Literature and the Other Arts (3.0 cr)
• ENGL 3070 - Studies in Literary and Cultural Modes (3.0 cr)
• ENGL 3090 - General Topics (3.0 cr)
• ENGL 3090H [Inactive] (3.0 cr)
• ENGL 3101 - Survey of Medieval English Literature (3.0 cr)
• ENGL 3102 - Chaucer (3.0 cr)
• ENGL 3110 - Medieval Literatures and Cultures: Intro to Medieval Studies (3.0 cr)
• ENGL 3122 - Shakespeare II: The Major Themes (3.0 cr)
• ENGL 3132 - The King James Bible as Literature (3.0 cr)
• ENGL 3133 (inactive) (3.0 cr)
• ENGL 3134 - Milton and Rebellion (3.0 cr)
• ENGL 3141 - The Restoration and the Eighteenth Century (3.0 cr)
• ENGL 3151H - Romantic Literatures and Cultures (3.0 cr)
• ENGL 3161 - Victorian Literatures and Cultures (3.0 cr)
• ENGL 3161H - Honors: Victorian Literatures and Cultures (3.0 cr)
• ENGL 3171 (inactive) (3.0 cr)
• ENGL 3175 - 20th-Century British Literatures and Cultures I (3.0 cr)
• ENGL 3180 - Contemporary Literatures and Cultures (3.0 cr)
• ENGL 3180H (inactive) (3.0 cr)
• ENGL 3211 (inactive) (3.0 cr)
• ENGL 3212 - American Poetry from 1900 (3.0 cr)
• ENGL 3221 - American Novel to 1900 (3.0 cr)
• ENGL 3222 - American Novel from 1900 (3.0 cr)
• ENGL 3231 - American Drama (3.0 cr)
• ENGL 3231H (inactive) (3.0 cr)
• ENGL 3300 (inactive) (3.0 cr)
• ENGL 3300H (inactive) (3.0 cr)
• ENGL 3330 - Gay, Lesbian, Bisexual, and Transgendered Literature (3.0 cr)
• ENGL 3350 (inactive) (3.0 cr)
• ENGL 3350H - Honors: Women Writers (3.0 cr)
• ENGL 3351W (inactive) [AH, GP, WI] (4.0 cr)
• ENGL 3400 (inactive) (3.0 cr)
• ENGL 3401 - Public Discourse: Coming to Terms With the Environment [LITR, ENV] (3.0 cr)
• ENGL 3592W - Introduction to Black Women Writers in the United States [WI] (3.0 cr)
• ENGL 3597W - Introduction to African American Literature and Culture I [LITR, WI] (4.0 cr)
• ENGL 3598W - Introduction to African American Literature and Culture II [LITR, WI] (4.0 cr)
• ENGL 3711 - Literary Magazine Production Lab I (4.0 cr)
• ENGL 3870 (inactive) (3.0 cr)
• ENGL 3881 - London Seminar (3.0 cr)
• ENGL 3993 - Directed Study (1.0 - 4.0 cr)
• ENGL 4041 (inactive) (3.0 cr)
• ENGL 4090 - General Topics (1.0 - 4.0 cr)
• ENGL 4152 - Nineteenth Century British Novel (3.0 cr)
• ENGL 4232 - American Drama by Writers of Color (3.0 cr)
• ENGL 4233 - Modern and Contemporary Drama (3.0 cr)
• ENGL 4311 - Asian American Literature and Drama [LITR, DSJ] (3.0 cr)
• ENGL 4593 - The African-American Novel (3.0 cr)
• ENGL 5711 - Introduction to Editing (4.0 cr)
• ENGL 5712 (inactive) (4.0 cr)
• ENGW 3102 - Fiction Writing (Intermediate) (3.0 cr)
• ENGW 3104 - Poetry Writing (Intermediate) (3.0 cr)
• ENGW 3106 - Journal, Essay, Memoir Writing (Intermediate) (3.0 cr)
• ENGW 3110 - Topics in Creative Writing (3.0 cr)
• ENGW 5205 - Screenwriting (4.0 cr)
• ENGW 5207 (inactive) (4.0 cr)

Senior Project
The program of study culminates in a writing project (4 credits), completed either in a rigorous and intensive seminar in which students produce an extended, scholarly essay (ENGL 3960W), or in an advanced creative writing workshop (ENGW 3960W) in which students produce a substantial manuscript of poetry, literary fiction, or literary nonfiction, or in a 2-semester, 4-credit honors thesis (ENGL 3883V).
ENGL 3883V - Honors Thesis [WI] (1.0 - 4.0 cr)
or ENGL 3960W - Senior Seminar [WI] (4.0 cr)
or ENGW 3960W - Writing Workshop for Majors [WI] (4.0 cr)
Twin Cities Campus
English Minor
English Language & Literature
College of Liberal Arts

• Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 16 to 19

Students who minor in English study literature and other forms of verbal expression, literary history and criticism, critical theory, linguistics, and creative writing. Courses offered by the department explore a wide range of discourses written in English—from around the globe, as well as from Britain and America—including poetry, drama, fiction, film, popular culture, and electronic media.

Students begin their studies, ideally in their sophomore year, with the department's methods course (ENGL 3001W), then progress to taking Shakespeare (ENGL 3007 or a department-approved Shakespeare course) and a historical foundation course. In addition, students choose at least two English elective courses (6 to 8 credits of 3xxx or higher in ENGL or ENGW). The methods course--ENGL 3001W--provides minors with skills in close and critical reading, the background in history and culture, and multiple approaches to literary works that will guide their continued studies. Shakespeare and the historical foundation course situate literary works in historical, cultural, and theoretical perspective.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
Take five three- or four-credit ENGL or ENGW courses at the 3xxx-level or above for a minimum of 16 credits. All minor courses must be graded C- or higher. Up to one independent study course (or equivalent) may count toward the minor. Coursework completed outside of the Department of English may be counted, but only with prior departmental approval. At least two courses must be taken at the University of Minnesota - Twin Cities campus.

Students may earn a B.A. or a minor in English, but not both.

Textual Analysis
ENGL 3001W - Textual Analysis: Methods [WI] (4.0 cr)
or ENGL 3001V - Honors: Textual Analysis, Methods [WI] (4.0 cr)

Shakespeare
ENGL 3007 - Shakespeare [LITR] (3.0 cr)
or ENGL 3007H - Honors: Shakespeare [LITR] (3.0 cr)
or Department-approved Shakespeare course at the 3xxx-level

Historical Foundation Courses
Take 1 or more course(s) totaling 3 - 4 credit(s) from the following:
• AMIN 3201W - American Indian Literature [LITR, DSJ, WI] (3.0 cr)
• CHIC 3507W - Introduction to Chicana/o Literature [LITR, DSJ, WI] (3.0 cr)
• ENGL 3003W - Historical Survey of British Literatures I [HIS, WI] (4.0 cr)
• ENGL 3004W - Historical Survey of British Literatures II [HIS, WI] (4.0 cr)
• ENGL 3005W - Survey of American Literatures and Cultures I [LITR, DSJ, WI] (4.0 cr)
• ENGL 3006W - Survey of American Literatures and Cultures II [LITR, DSJ, WI] (4.0 cr)
• ENGL 3025 - The End of the World in Literature and History [HIS] (3.0 cr)
• ENGL 3101 - Survey of Medieval English Literature (3.0 cr)
• ENGL 3102 - Chaucer (3.0 cr)
• ENGL 3132 - The King James Bible as Literature (3.0 cr)
• ENGL 3133 (Inactive)(3.0 cr)
• ENGL 3134 - Milton and Rebellion (3.0 cr)
• ENGL 3141 - The Restoration and the Eighteenth Century (3.0 cr)
• ENGL 3151H - Romantic Literatures and Cultures (3.0 cr)
• ENGL 3161 - Victorian Literatures and Cultures (3.0 cr)
• ENGL 3161H - Honors: Victorian Literatures and Cultures (3.0 cr)
• ENGL 3175 - 20th-Century British Literatures and Cultures I (3.0 cr)
• ENGL 3211 (Inactive) (3.0 cr)
• ENGL 3212 - American Poetry from 1900 (3.0 cr)
• ENGL 3221 - American Novel to 1900 (3.0 cr)
• ENGL 3222 - American Novel from 1900 (3.0 cr)
• ENGL 3231 - American Drama (3.0 cr)
• ENGL 3231H (Inactive) (3.0 cr)
• ENGL 3597W - Introduction to African American Literature and Culture I [LITR, WI] (4.0 cr)
• ENGL 3598W - Introduction to African American Literature and Culture II [LITR, WI] (4.0 cr)
• ENGL 4152 - Nineteenth Century British Novel (3.0 cr)
• ENGL 4232 - American Drama by Writers of Color (3.0 cr)
• ENGL 4233 - Modern and Contemporary Drama (3.0 cr)
• ENGL 4311 - Asian American Literature and Drama [LITR, DSJ] (3.0 cr)
• ENGL 4593 - The African-American Novel (3.0 cr)

Electives
Take 2 or more course(s) totaling 6 - 8 credit(s) from the following:
• ENGL 3xxx
• ENGL 4xxx
• ENGL 5xxx
• ENGW 3xxx
• ENGW 5xxx
Environmental Geosciences Minor
College of Liberal Arts - Adm

Twin Cities Campus
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

The minor is offered in cooperation with the Department of Earth Sciences.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students must complete ESCI 1001 or 3001.

Preparatory Courses
- ESCI 1001 - Earth and Its Environments [PHYS, ENV] (4.0 cr)
  or ESCI 1011 - Volcanoes of the Earth (4.0 cr)
  or PSTL 1171 - Earth Systems and Environments [PHYS, ENV] (4.0 cr)
  or ESCI 2201 - Solid Earth Dynamics (4.0 cr)

Minor Courses
Higher level courses such as ESCI 4631, ESCI 4701, or ESCI 5701 can be substituted with approval from the undergraduate adviser. The adviser may also approve courses from other departments (e.g., ANTH 3041, ECON 3611, GEOG 5441, SOC 4305).

Take 14 or more credit(s) from the following:
- ESCI 3001 - Earth Materials (3.0 cr)
- ESCI 3002 - Climate Change and Human History [ENV] (3.0 cr)
- ESCI 3004 - Water and Society (3.0 cr)
- ESCI 3005 - Earth Resources (3.0 cr)
- ESCI 3006 - Planets of the Solar System (3.0 cr)
Finnish Minor

German, Scandinavian, & Dutch

College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

The minor includes the study of the spoken language, literature, culture, and civilization.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Complete the introductory 4-semester Finnish language sequence or its equivalent. Note: these credits do not factor into the overall length in credits of the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements

Students are required to take 4 semester(s) of Finnish.

The minor consists of a minimum of 15 credits in 3xxx, 4xxx (beyond 4004), and 5xxx courses with no more than one course being a directed or independent study. The four required semesters of a second language do not factor into the overall length of credits in the minor. All courses must be taken A-F and must be completed with a grade of C- or better. At least one course must be taken in the Scandinavian program at the University of Minnesota - Twin Cities campus. Students with a German, Scandinavian, Dutch major may elect a minor in Finnish, but no courses may count for both the major and the minor. The program must be approved by the director of undergraduate studies.

Minor Courses

FIN 3011 - Advanced Finnish (3.0 cr)
FIN 3012 - Advanced Finnish (3.0 cr)
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
- FIN 3xxx
- FIN 5xxx
- SCAN 3xxx
- SCAN 4xxx
- SCAN 5xxx
Twin Cities Campus

French and Italian Studies B.A.

French & Italian
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 33 to 34
- Degree: Bachelor of Arts

The French and Italian studies major allows students interested in both cultures and languages to pursue a combined major. Students study specific works in each nation's literature while also exploring the interrelations and cross-cultural exchanges that have contributed to Italian and French literature and culture. This comparative perspective introduces students to a broad range of issues and cultural practices.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Complete the introductory 4-semester French and Italian sequences, or their equivalents. Note: these credits do not factor into the overall length in credits of the major. Students must formally declare a major within the department before completing the majority of the major elective requirements.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Students are required to take 4 semester(s) of French and Italian.

The four required semesters of a second language do not factor into the overall length of credits in the major.

Majors complete a minimum of 10 upper-division FREN, FRIT and ITAL courses for 32 credits, plus a senior project. At least 4 of the 10 upper-division FREN, FRIT and ITAL courses (not counting the senior project) must be taken in the Department of French and Italian at the University of Minnesota - Twin Cities campus.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Courses

Take all of the following.
- FREN 3015 - Advanced French Grammar and Communication (3.0 cr)
- FREN 3016 - Advanced French Composition and Communication (3.0 cr)
- FREN 3101W - Methods in French and Francophone Studies [LITR, WI] (4.0 cr)
- ITAL 3015 - Reading, Conversation, and Composition (4.0 cr)

Upper-Division French Courses

Take at least 1 additional upper-division French course at the 3xxx-5xxx level for at least 3 credits. FREN 30xx and 37xx courses do NOT fulfill the upper-division French courses sub-requirement.

FREN 3xxx
or FREN 4xxx
or FREN 5xxx
Upper-division Italian Courses
Take 9 or more credit(s) from the following:
• ITAL 3xxx
• ITAL 4xxx
• ITAL 5xxx

Upper-division French & Italian Courses
FRIT 5999 does NOT fulfill the upper-division French & Italian courses sub-requirement.
Take 6 or more credit(s) from the following:
• FRIT 3xxx
• FRIT 5xxx

Senior Project
The senior project is completed in FREN 4109W or ITAL 3459W in the last or next-to-last semester before graduation. Honors students should consult the Honors UHP Program Sub-plan for their senior project requirements. Research topics must be approved by course instructor. Papers are written in consultation with course instructor or other appropriate faculty member. Double majors can complete the senior project in their other CLA major, but are still responsible for taking 32 major credits.
FREN 4109W - Senior Project in French and Francophone Studies [WI] (1.0 cr)
or ITAL 3459W - Senior Project [WI] (1.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• FREN 3101W - Methods in French and Francophone Studies [LITR, WI] (4.0 cr)
• FREN 4109W - Senior Project in French and Francophone Studies [WI] (1.0 cr)
• ITAL 3459W - Senior Project [WI] (1.0 cr)
Twin Cities Campus
French Studies B.A.
French & Italian
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 34 to 36
- Degree: Bachelor of Arts

The French studies major includes courses in three areas of concentration: linguistics, literature, and culture. Courses in language and linguistics include history of the French language, structure of the language, sociolinguistics, phonetics, conversation, and business French. Courses in literature and culture focus on topics and problems in three broad historical periods: the Middle Ages and Renaissance, early modern France, and modern and contemporary France. A number of courses focus on Francophone literature from Africa, the Caribbean, and Quebec. Courses in French cinema are also offered.

Many students combine a French studies major with another major. The department offers selected courses in English for students who have not mastered French but want to study France and the French-speaking world.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Complete the introductory 4-semester French language sequence or its equivalent. Note: these credits do not factor into the overall length in credits of the major. Students must formally declare a major within the department before completing the majority of the major elective requirements.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of French.

The four required semesters of a second language do not factor into the overall number of credits in the major.

Majors must complete a minimum of 11 upper-division FREN courses for 34 credits, plus a senior project. At least 4 of the 11 upper-division FREN courses (not counting the senior project) must be taken in the Department of French at the University of Minnesota - Twin Cities campus.

Students may earn a B.A. or a minor in French, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Courses
Take the following three courses in sequential order.
FREN 3015 - Advanced French Grammar and Communication (3.0 cr)
FREN 3016 - Advanced French Composition and Communication (3.0 cr)
FREN 3101W - Methods in French and Francophone Studies [LITR, WI] (4.0 cr)

Upper-Division French Courses
All courses are worth 3 credits. FREN 37xx courses do NOT fulfill the upper-division French courses sub-requirement. No more than three of the eight courses may be numbered FREN 37xx. FREN 3010 is repeatable up to three times for a total of 9 credits. Note:
most FREN linguistics courses require LING 3001 or FREN 3500 as a pre-requisite.
Take 8 or more course(s) totaling 24 or more credit(s) from the following:
• FREN 3xxx
• FREN 4xxx
• FREN 5xxx

Senior Project
The senior project is completed in FREN 4109W or 4110V in the last or next-to-last semester before graduation. Honors students should consult the Honors UHP Program Sub-plan for their senior project requirements. Research topics must be approved by course instructor. Papers are written in consultation with course instructor or other appropriate faculty. Double majors can complete the senior project in their other CLA major, but are still responsible for taking a minimum of 34 FREN credits.
FREN 4109W - Senior Project in French and Francophone Studies [WI] (1.0 cr)
or FREN 4110V - Honors Thesis [WI] (1.0 - 2.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• FREN 3101W - Methods in French and Francophone Studies [LITR, WI] (4.0 cr)
• FREN 4109W - Senior Project in French and Francophone Studies [WI] (1.0 cr)
• FREN 4110V - Honors Thesis [WI] (1.0 - 2.0 cr)
**Twin Cities Campus**

**French Studies Minor**

*French & Italian*

**College of Liberal Arts**

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15 to 16

The French studies minor includes the study of French language, and French and Francophone literature, culture and linguistics.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

Complete the introductory 4-semester French language sequence or its equivalent. Note: these credits do not factor into the overall length in credits of the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

**Minor Requirements**

Students are required to take 4 semester(s) of French.

The four required semesters of a second language do not factor into the overall length of credits in the minor.

The minor is fulfilled by completing a minimum of 5 courses and 15 credits. At least 2 upper-division FREN courses must be taken in the Department of French at the University of Minnesota - Twin Cities campus.

Students may earn a B.A. or a minor in French, but not both.

**Minor Courses**

Take all of the following.

- **FREN 3015** - Advanced French Grammar and Communication (3.0 cr)
- **FREN 3016** - Advanced French Composition and Communication (3.0 cr)
- **FREN 3101W** - Methods in French and Francophone Studies [LITR, WI] (4.0 cr)

**Upper-Division French Courses**

All courses are worth 3 credits, except FREN 3014 (2 cr). FREN 37xx courses do NOT fulfill the upper-division French courses sub-requirement. Up to one FREN 30xx will count toward the upper-division French courses sub-requirement. Note: most FREN linguistics courses require LING 3001 or FREN 3500 as a prerequisite.

Take 2 or more course(s) totaling 5 or more credit(s) from the following:

- FREN 3xxx
- FREN 4xxx
- FREN 5xxx
**Twin Cities Campus**

**Gay, Lesbian, Bisexual, Transgender Minor**

*Gender, Women and Sexuality*

**College of Liberal Arts**

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

The minor focuses on the history, politics, and cultures of gay, lesbian, bisexual, and transgendered persons. Courses explore the diversity of GLBT communities, the history and present conditions of sexual identity formation, and the functioning and institutionalization of ideologies of sexuality in a democratic society. Core courses focus on issues related to the history, culture, social, and political formations; experiences of GLBT people; and GLBT/queer theory. Elective courses are drawn from lists of GLBT-focused courses (emphasizing GLBT issues/experiences) and of GLBT-component courses (having at least one-quarter of their content related to GLBT/queer theory or the history, culture, social, political formations, and experiences of GLBT people).

**Program Delivery**

This program is available:

- via classroom (the majority of instruction is face-to-face)

**Minor Requirements**

**Minor Courses**

- **GLBT 1001** - Introduction to GLBT Studies [DSJ, SOCS] (3.0 cr)
- **GLBT 3301** - Gay, Lesbian, Bisexual, and Transgender Social Movements in the United States (3.0 cr)
- **CSCL 3456W** - Sexuality and Culture [DSJ, WI] (3.0 cr)
  - or **GWSS 3404** - Transnational Sexualities [GP] (3.0 cr)
  - or **GWSS 4403** - Queering Theory (3.0 cr)
  - or **CSCL 3472** - Gay Men and Homophobia in American Culture [DSJ] (3.0 cr)
  - or **GLBT 3472** - Gay Men and Homophobia in American Culture (3.0 cr)

**Electives**

Other courses may be used to meet this requirement with permission from the department. SOC 4090 meets the requirement only if the topic is sociology of sexuality.

Take 3 or more course(s) from the following:

- **AMST 4101** - Gender, Sexuality, and Politics in America [HIS, DSJ] (3.0 cr)
- **ENGL 3330** - Gay, Lesbian, Bisexual, and Transgendered Literature (3.0 cr)
- **FSOS 4152** - Gay, Lesbian, and Bisexual People in Families (3.0 cr)
- **GLBT 3610** - Topics in GLBT Studies (3.0 cr)
- **HIST 3212** - Dissident Sexualities in U.S. History (3.0 cr)
- **SOC 4090** - Topics in Sociology (3.0 cr)
- **SOC 4521** - Love, Sex, & Marriage (3.0 cr)
Twin Cities Campus

Gender, Women and Sexuality Studies B.A.

Gender, Women and Sexuality

College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 34 to 35
- Degree: Bachelor of Arts

The Department of Gender, Women, and Sexuality Studies at the University of Minnesota is committed to an inclusive study of gender and sexuality, informed by differences such as class, ethnicity, citizenship, disability, race and age. Our intellectual goals for students include learning from and engaging with interdisciplinary scholarship on gender, women, and sexuality; understanding the intersections among race, gender, class, and sexuality, both in the United States and globally; developing critical and analytical skills by bringing together the methods of a range of disciplines; enhancing research skills and creative talents and developing new ideas and theories about gender and sexuality that challenge assumptions and contribute to social change.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the [liberal education requirements](#). Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Students are required to take 4 semester(s) of any second language.

Students may earn a B.A. or a minor in gender, women and sexuality studies, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: [http://class.umn.edu/degree_requirements/index.html](http://class.umn.edu/degree_requirements/index.html)

Preparatory Courses

Take 1 or more course(s) from the following:
- **GWSS 1002** - Politics of Sex [SOCS, DSJ] (3.0 - 4.0 cr)
- **GWSS 1003W** - Women Write the World [LITR, GP, WI] (3.0 cr)
- **GWSS 1004** - Screening Sex: Visual and Popular Culture [AH] (3.0 cr)
- **GWSS 1005** - Engaging Justice [CIV] (3.0 cr)
- **GWSS 1006** - Skin, Sex, and Genes [SOCS, TS] (3.0 cr)
- **GLBT 1001** - Introduction to GLBT Studies [DSJ, SOCS] (3.0 cr)
  - or **GWSS 1007** - Introduction to GLBT Studies [DSJ, SOCS] (3.0 cr)

Major Course

**GWSS 3102W** - Feminist Thought and Theory. [AH, CIV, WI] (3.0 cr)

Electives

At least 3 electives courses must be at the 4xxx or 5xxx level.

Take 8 or more course(s) totaling 24 or more credit(s) from the following:
- **GWSS 3xxx**
- **GWSS 4xxx**
- **GWSS 5xxx**
Senior Project

GWSS 4108 - Senior Seminar: Writing (1.0 cr)

with Take exactly 3 credit(s) from the following:
• GWSS 3xxx
• GWSS 4xxx
• GWSS 5xxx

Upper-division Writing Intensive within the major

Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
• GWSS 3102W - Feminist Thought and Theory. [AH, CIV, WI] (3.0 cr)
**Twin Cities Campus**

**Gender, Women and Sexuality Studies Minor**

*Gender, Women and Sexuality*

**College of Liberal Arts**

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18 to 19

Gender, women, and sexuality studies offers an interdisciplinary curriculum that looks at issues of gender and sexuality in the United States and around the world, taking into account the intersections and interrelations of generation, economic status, race, geographic location, and other social and historical variables. Gender, women, and sexuality studies also seeks to transform traditional fields of study by incorporating new data, methods, theories, and frameworks developed by feminist scholars.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Minor Requirements**

Students may earn a B.A. or a minor in gender, women and sexuality studies, but not both.

**Required Course**

Take one of the following courses.

- **GLBT 1001** - Introduction to GLBT Studies [DSJ, SOCS] (3.0 cr)
- or **GWSS 1002** - Politics of Sex [SOCS, DSJ] (3.0 - 4.0 cr)
- or **GWSS 1003W** - Women Write the World [LITR, GP, WI] (3.0 cr)
- or **GWSS 1004** - Screening Sex: Visual and Popular Culture [AH] (3.0 cr)
- or **GWSS 1005** - Engaging Justice [CIV] (3.0 cr)
- or **GWSS 1006** - Skin, Sex, and Genes [SOCS, TS] (3.0 cr)

**Upper-Division Electives**

Take 15 or more credit(s) from the following:

- GWSS 3xxx
- GWSS 4xxx
- GWSS 5xxx
Twin Cities Campus

Geographic Information Science Minor

Geography, Environment, Society

College of Liberal Arts

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16

The interdisciplinary undergraduate minor in geographic information science examines geospatial technologies and their underlying principles, applications, and societal dimensions. Examples of geospatial technologies and research include internet mapping, in-vehicle navigation systems, digital cartography, imagery taken by airplanes and satellites, spatial analysis and modeling of social and natural processes, and visualization and data mining of complex information.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Several of the courses for the minor have prerequisites that must be satisfied first. Admission to the minor does not imply automatic enrollment in individual courses.

Core Courses

- GEOG 5563 - Advanced Geographic Information Science (3.0 cr)
- GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
- or FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)

Electives

- No more than two courses with the same designator may be used to fulfill the requirement.
- Take 3 or more course(s) totaling 9 or more credit(s) from the following:
  - HSG 5464 - Understanding Housing: Assessment and Analysis (3.0 cr)
  - ESPM 3031 - Applied Global Positioning Systems for Geographic Information Systems (3.0 cr)
  - ESPM 4295W - GIS in Environmental Science and Management [WI] (4.0 cr)
  - FNRM 3262 - Remote Sensing of Natural Resources and Environment (3.0 cr)
  - FNRM 5412 - Digital Remote Sensing (3.0 cr)
  - GIS 5571 - ArcGIS I (3.0 cr)
  - GIS 5572 - ArcGIS II (3.0 cr)
  - SOIL 4111 - Introduction to Precision Agriculture (3.0 cr)

- Take no more than 2 course(s) from the following:
  - CSCI 4041 - Algorithms and Data Structures (4.0 cr)
  - CSCI 4107 [Inactive] (3.0 cr)
  - CSCI 4707 - Practice of Database Systems (3.0 cr)
  - CSCI 5115 - User Interface Design, Implementation and Evaluation (3.0 cr)

- Take no more than 2 course(s) from the following:
  - GEOG 3511 - Principles of Cartography (4.0 cr)
  - GEOG 3531 - Numerical Spatial Analysis (4.0 cr)
  - GEOG 5564 - Urban Geographic Information Science and Analysis (3.0 cr)
  - GEOG 5565 - Geographical Analysis of Human-Environment Systems (3.0 cr)
Twin Cities Campus
Geography B.A.

Geography, Environment, Society

College of Liberal Arts

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 32 to 39
• Degree: Bachelor of Arts

The Geography major focuses on the integrated study of our globalizing world, as made by human and non-human forces alike. The major is unparalleled in the University. It embraces and synthesizes approaches widely used in the humanities and social, biophysical, and information sciences. It is uniquely able to study combinations of social, political, economic, and ecological processes - especially the role of space, place, and geographic networks in shaping these processes and their interactions. Geography attempts to interpret not just these phenomena, but also, in many instances, how they are perceived and what meanings they hold. Such an integrative perspective on global, regional, and local change provides students with a singular understanding of today’s complex world. Geographers prize the world’s diversity and offer insight into many of the most pressing challenges of the day, from climate change and social-environmental justice, to the uneven effects of globalization and urban transformation, to the skillful and responsible use of geographic information.

Depending on their specific interests, geographers will employ one or more of a variety of research techniques, including field observation, legal and archival analysis, participant observation, interviewing, textual analysis, ethnography, mapping, and spatial statistics and modeling. Many geographers are interested in the intersections of science, technology, and information, such as the impact of geographic information science on decision-making.

There are a variety of opportunities for graduates who have degrees in Geography. Federal, regional and local governmental agencies seek geographers for city and regional planning, park service, law enforcement, and transportation department positions. Private industry consulting, environmental and marketing firms, the non-profit sector, and local, national and transnational non-governmental organizations also seek geographic skills. Many Geography undergraduate majors obtain careers in education and many go on to graduate school.

Both the B.S. and the B.A. offer a solid foundation in the theories and practice of geography. The B.S. offers a greater emphasis on quantitative analysis while the B.A. focuses more on qualitative analysis, but students can tailor their programs to meet their needs and goals.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Special Policies on Counting Courses:
1. Qualifying students may substitute a 5xxx course for a 3xxx course with which it is cross-listed. Students who register for 5xxx-level courses should expect to complete additional work.
2. Courses counting toward the electives requirements must be worth three or four credits each. In some circumstances, students may substitute 2 two-credit courses for one of the electives course requirements.
3. Any given course can only be used to satisfy one requirement for the major.

See major adviser for final approval of individual program.
A note about the senior project: students who double-major and choose to complete the senior project in their other major are still responsible for taking a minimum of 32 total credits within the major.

At least 14 upper-division credits in the major must be taken in residence at the University of Minnesota - Twin Cities campus. At least one upper-division (3xxx-level or above) course in the major must be writing intensive.

Students may earn up to one undergraduate degree in the geography program: a B.A. or a B.S. or a minor in geography. Students may pursue additional degrees in the department's public health, urban studies and/or GIS programs alongside their geography degree.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Breadth Requirement
Breadth courses expose students to significant parts of the field. Students may count up to one 1xxx course toward this requirement.

Human Geography
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- GEOG 1301W - Our Globalizing World [SOCS, GP, WI] (3.0 cr)
- GEOG 1973 - Geography of the Twin Cities [SOCS] (3.0 cr)
- GEOG 3101 - Geography of the United States and Canada [SOCS, TS] (4.0 cr)
- GEOG 3331 - Geography of the World Economy [SOCS, GP] (3.0 cr)
- GEOG 3361W - Geography and Public Policy [WI] (3.0 cr)
- GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
- GEOG 3373 - Changing Form of the City [HIS, GP] (3.0 cr)
- GEOG 3379 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
- GEOG 3381W - Population in an Interacting World [SOCS, GP, WI] (4.0 cr)
- GEOG 3973 - Geography of the Twin Cities [SOCS] (3.0 cr)

Environmental Geography
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- GEOG 1403 - Biogeography of the Global Garden [BIOL, ENV] (4.0 cr)
- GEOG 1425 - Introduction to Meteorology [PHYS, ENV] (4.0 cr)
- GEOG 3401 - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
- GEOG 3431 - Plant and Animal Geography (3.0 cr)
- GEOG 3839 - Introduction to Dendrochronology (3.0 cr)

Geographic Information Science
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- GEOG 1502 - Mapping Our World [TS, SOCS] (3.0 cr)
- GEOG 3511 - Principles of Cartography (4.0 cr)
- GEOG 3521 - Digital Planet: Understanding Your World in the Information Age [TS] (3.0 cr)
- GEOG 3523 - Digital Mapping: Introduction to Making Online Maps for the Humanities and Sciences (3.0 cr)
- GEOG 3531 - Numerical Spatial Analysis (4.0 cr)
- GEOG 3561 - Principles of Geographic Information Science (4.0 cr)

Ways of Knowing
The Ways of Knowing requirement provides a theory-intensive overview of the discipline. Students are encouraged to take 3-5 of their breadth and electives courses before taking their Ways of Knowing course.
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- GEOG 4001 - Modes of Geographic Inquiry (4.0 cr)
- GEOG 4002W - Environmental Thought and Practice [WI] (3.0 cr)

Electives
Students should work with the departmental adviser to develop a coherent set of electives that meet specific educational goals. See above for special policies on counting courses that apply to this electives requirement. Note that the following Urban Studies (URBS) courses may not be used to satisfy the electives requirement: URBS 1001W, 3001W, 3201, 3202 & 3500.
Take 5 or more course(s) totaling 15 or more credit(s) from the following:
- GEOG 3xx
- GEOG 4xx
- GEOG 5xx
- URBS 3xx
- URBS 5xx

Senior Project
Take at least two credits by choosing one of the following options. Honors students should enroll in the honors version of each option. [Note: enrollment in GEOG 3997/3997H requires concurrent registration in a breadth or elective course.] Students should begin to plan their senior project with potential faculty mentors and/or the dept adviser at least one semester before registering for credit. Students must submit a copy of their thesis and the senior project tracking form before graduating.
Option 1: Senior Project Seminar Course
  GEOG 3985W - Senior Project Seminar [WI] (4.0 cr)
  or GEOG 3985V - Honors Senior Project Seminar [WI] (4.0 cr)

Option 2: Directed Research Project in Geography
  Note: this option requires instructor consent prior to the first day of classes.
  GEOG 3996 - Senior Project Directed Research (3.0 - 4.0 cr)
  or GEOG 3996H - Honors: Senior Project Directed Research (3.0 - 4.0 cr)

Option 3: Extra-credit Project
  Note: this option requires instructor consent prior to the first day of classes and concurrent registration in a breadth or elective course.
  GEOG 3997 - Senior Project (2.0 cr)
  or GEOG 3997H - Honors: Senior Project (2.0 cr)
Twin Cities Campus

Geography B.S.
Geography, Environment, Society
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 44 to 59
- Degree: Bachelor of Science

The Geography major focuses on the integrated study of our globalizing world, as made by human and non-human forces alike. The major is unparalleled in the University. It embraces and synthesizes approaches widely used in the humanities and social, biophysical, and information sciences. It is uniquely able to study combinations of social, political, economic, and ecological processes - especially the role of space, place, and geographic networks in shaping these processes and their interactions. Geography attempts to interpret not just these phenomena, but also, in many instances, how they are perceived and what meanings they hold. Such an integrative perspective on global, regional, and local change provides students with a singular understanding of today's complex world. Geographers prize the world's diversity and offer insight into many of the most pressing challenges of the day, from climate change and social-environmental justice, to the uneven effects of globalization and urban transformation, to the skillful and responsible use of geographic information.

Depending on their specific interests, geographers will employ one or more of a variety of research techniques, including field observation, legal and archival analysis, participant observation, interviewing, textual analysis, ethnography, mapping, and spatial statistics and modeling. Many geographers are interested in the intersections of science, technology, and information, such as the impact of geographic information science on decision-making.

There are a variety of opportunities for graduates who have degrees in Geography. Federal, regional and local governmental agencies seek geographers for city and regional planning, park service, law enforcement, and transportation department positions. Private industry consulting, environmental and marketing firms, the non-profit sector, and local, national and transnational non-governmental organizations also seek geographic skills. Many Geography undergraduate majors obtain careers in education and many go on to graduate school.

Both the B.S. and the B.A. offer a solid foundation in the theories and practice of geography. The B.S. offers a greater emphasis on quantitative analysis while the B.A. focuses more on qualitative analysis, but students can tailor their programs to meet their needs and goals.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Special Policies on Counting Courses:
1. Qualifying students may substitute a 5xxx course for a 3xxx course with which is cross-listed. Students who register for 5xxx-level courses should expect to complete additional work.
2. Courses counting toward the electives requirements must be worth three or four credits each. In some circumstances, students may substitute 2 two-credit courses for one of the electives course requirements.
3. Any given course can only be used to satisfy one requirement for the major.

See major adviser for final approval of individual program.

A note about the senior project: students who double major and choose to complete the senior project in their other major are still
responsible for taking a minimum of 44 total credits within the major.

At least 14 upper-division credits in the major must be taken at the University of Minnesota - Twin Cities campus. At least one upper-division (3xxx-level or above) course in the major must be writing intensive.

Students may earn up to one undergraduate degree in the geography program: a B.A. or a B.S. or a minor in geography. Students may pursue additional degrees in the department's public health, urban studies and/or GIS programs alongside their geography degree.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

**Breadth Requirement**

Breadth courses expose students to significant parts of the field. Students may count up to one 1xxx course toward this requirement.

**Human Geography**

Take 1 or more course(s) totaling 3 or more credit(s) from the following:

- GEOG 1301W - Our Globalizing World [SOCS, GP, WI] (3.0 cr)
- GEOG 1973 - Geography of the Twin Cities [SOCS] (3.0 cr)
- GEOG 3101 - Geography of the United States and Canada [SOCS, TS] (4.0 cr)
- GEOG 3331 - Geography of the World Economy [SOCS, GP] (3.0 cr)
- GEOG 3361W - Geography and Public Policy [WI] (3.0 cr)
- GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
- GEOG 3373 - Changing Form of the City [HIS, GP] (3.0 cr)
- GEOG 3379 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
- GEOG 3381W - Population in an Interacting World [SOCS, GP, WI] (4.0 cr)
- GEOG 3973 - Geography of the Twin Cities [SOCS] (3.0 cr)

**Environmental Geography**

Take 1 or more course(s) totaling 3 or more credit(s) from the following:

- GEOG 1403 - Biogeography of the Global Garden [BIOL, ENV] (4.0 cr)
- GEOG 1425 - Introduction to Meteorology [PHYS, ENV] (4.0 cr)
- GEOG 3401 - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
- GEOG 3431 - Plant and Animal Geography (3.0 cr)
- GEOG 3839 - Introduction to Dendrochronology (3.0 cr)

**Geographic Information Science**

Take 2 or more course(s) totaling 6 or more credit(s) from the following:

- GEOG 1502 - Mapping Our World [TS, SOCS] (3.0 cr)
- GEOG 3511 - Principles of Cartography (4.0 cr)
- GEOG 3521 - Digital Planet: Understanding Your World in the Information Age [TS] (3.0 cr)
- GEOG 3523 - Digital Mapping: Introduction to Making Online Maps for the Humanities and Sciences (3.0 cr)
- GEOG 3531 - Numerical Spatial Analysis (4.0 cr)
- GEOG 3561 - Principles of Geographic Information Science (4.0 cr)

**Ways of Knowing**

The Ways of Knowing requirement provides a theory-intensive overview of the discipline. Students are encouraged to take 3-5 of their breadth and electives courses before taking their Ways of Knowing course.

Take 1 or more course(s) totaling 3 or more credit(s) from the following:

- GEOG 4001 - Modes of Geographic Inquiry (4.0 cr)
- GEOG 4002W - Environmental Thought and Practice [WI] (3.0 cr)

**Electives**

Students should work with the departmental adviser to develop a coherent set of electives that meet specific educational goals. See above for special policies on counting courses that apply to this electives requirement. Note that the following Urban Studies (URBS) courses may not be used to satisfy the electives requirement: URBS 1001W, 3001W, 3201, 3202 & 3500.

Take 5 or more course(s) totaling 15 or more credit(s) from the following:

- GEOG 3xxx
- GEOG 4xxx
- GEOG 5xxx
- URBS 3xxx
- URBS 5xxx

**Supporting Courses**

Note: some courses require pre-requisites. Consult the university catalog, or contact the department directly, for more information.

Take 4 or more course(s) totaling 12 or more credit(s) from the following:

**Mathematics**

Take 0 - 3 course(s) from the following:

- MATH 1151 - Precalculus II [MATH] (3.0 cr)
- or MATH 1155 - Intensive Precalculus [MATH] (5.0 cr)
•MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
•MATH 1272 - Calculus II (4.0 cr)
or MATH 1372 - CSE Calculus II (4.0 cr)
•MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
or MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)

•Basic Statistics
Take 0 - 1 course(s) from the following:
•BIOL 3272 - Applied Biostatistics (3.0 cr)
•EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)
•EPSY 5261 - Introductory Statistical Methods (3.0 cr)
•GEOG 3531 - Numerical Spatial Analysis (4.0 cr)
•SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)
•STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
•STAT 3021 - Introduction to Probability and Statistics (3.0 cr)

•Intermediate & Advanced Statistics
Take 0 - 3 course(s) from the following:
•ESPM 3012 - Statistical Methods for Environmental Scientists and Managers [MATH] (4.0 cr)
•STAT 3022 - Data Analysis (4.0 cr)
•STAT 4101 - Theory of Statistics I (4.0 cr)
•STAT 4102 - Theory of Statistics II (4.0 cr)
•STAT 5201 - Sampling Methodology in Finite Populations (3.0 cr)
•STAT 5302 - Applied Regression Analysis (4.0 cr)
•STAT 5421 - Analysis of Categorical Data (3.0 cr)

•Physical Sciences
Take 0 - 3 course(s) from the following:
•BIOC 3021 - Biochemistry (3.0 cr)
•CHEM 2301 - Organic Chemistry I (3.0 cr)
•CHEM 2302 - Organic Chemistry II (3.0 cr)
•CHEM 2311 - Organic Lab (4.0 cr)
•CHEM 2312H - Honors Organic Lab (5.0 cr)
•PHYS 1202W - Introductory Physics for Biology and Pre-medicine II [PHYS, WI] (5.0 cr)
•PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
•PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)
•CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
•CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
•CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
•CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)
•PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
or PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)

•Earth Sciences
Take 0 - 3 course(s) from the following:
•ESCI 2201 - Solid Earth Dynamics (4.0 cr)
•ESCI 2202 - Earth History (4.0 cr)
•ESCI 2203 - Earth Surface Dynamics (4.0 cr)
•ESCI 2301 - Mineralogy (3.0 cr)
•ESCI 3002 - Climate Change and Human History [ENV] (3.0 cr)
•ESCI 3402 - Science and Politics of Global Warming [ENV] (3.0 cr)
•GEOG 1425 - Introduction to Meteorology [PHYS, ENV] (4.0 cr)
•ESCI 1001 - Earth and Its Environments [PHYS, ENV] (4.0 cr)
or ESCI 1101 - Introduction to Geology [ENV] (3.0 cr)
•ESCI 1006 - Oceanography [PHYS, ENV] (4.0 cr)
or ESCI 1106 - Oceanography [ENV] (3.0 cr)
•SOIL 1125 - The Soil Resource [ENV] (4.0 cr)
or SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)

•Biological & Environmental Sciences
Take 0 - 3 course(s) from the following:
•ANTH 1001 - Human Evolution [BIOL] (4.0 cr)
ANTH 1001H - Honors: Human Evolution [BIOL] (4.0 cr)

BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)

BIOL 1001H - Introductory Biology I: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)

BIOL 1009 - General Biology [BIOL] (4.0 cr)

BIOL 1009H - Honors: General Biology [BIOL] (4.0 cr)

BIOL 3409 - Evolution (3.0 cr)

BIOL 3411 - Introduction to Animal Behavior (3.0 cr)

BIOL 4003 - Genetics (3.0 cr)

BIOL 4004 - Cell Biology (3.0 cr)

EEB 4068 - Plant Physiological Ecology (3.0 cr)

EEB 4329 - Primate Ecology and Social Behavior (3.0 cr)

EEB 4611 - Biogeochemical Processes (3.0 cr)

GCD 3022 - Genetics (3.0 cr)

GCD 3033 - Principles of Cell Biology (3.0 cr)

GEOG 1403 - Biogeography of the Global Garden [BIOL, ENV] (4.0 cr)

ANTH 3002 - Sex, Evolution, and Behavior: Examining Human Evolutionary Biology (4.0 cr)

or EEB 3002 - Sex, Evolution, and Behavior: Examining Human Evolutionary Biology (4.0 cr)

BIOL 3407 - Ecology (3.0 cr)

or BIOL 3408W - Ecology [WI] (3.0 cr)

or BIOL 3807 - Ecology (4.0 cr)

BIOL 3411 - Introduction to Animal Behavior (3.0 cr)

or BIOL 3811 - Introduction to Animal Behavior (4.0 cr)

• Programming & Logic
Take 0 - 3 course(s) from the following:

PHIL 1001 - Introduction to Logic [MATH] (4.0 cr)

PHIL 1005 - Scientific Reasoning (4.0 cr)

PHIL 5201 - Symbolic Logic I (4.0 cr)

PHIL 5202 - Symbolic Logic II (4.0 cr)

CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)

or CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)

or CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)

CSCI 1913 - Introduction to Algorithms, Data Structures, and Program Development (4.0 cr)

or CSCI 1933 - Introduction to Algorithms and Data Structures (4.0 cr)

Senior Project
Take at least two credits by choosing one of the following options. Honors students should enroll in the honors version of each option. [Note: enrollment in GEOG 3997/3997H requires concurrent registration in a breadth or elective course.] Students should begin to plan their senior project with potential faculty mentors and/or the dept adviser at least one semester before registering for credit. Students must submit a copy of their thesis and the senior project tracking form before graduating.

Option 1: Senior Project Seminar Course

GEOG 3985W - Senior Project Seminar [WI] (4.0 cr)

or GEOG 3985V - Honors Senior Project Seminar [WI] (4.0 cr)

or Option 2: Directed Research Project in Geography

Note: this option requires instructor consent prior to the first day of classes.

GEOG 3996 - Senior Project Directed Research (3.0 - 4.0 cr)

or GEOG 3996H - Honors: Senior Project Directed Research (3.0 - 4.0 cr)

or Option 3: Extra-credit Project

Note: this option requires instructor consent prior to the first day of classes and concurrent registration in a breadth or elective course.

GEOG 3997 - Senior Project (2.0 cr)

or GEOG 3997H - Honors: Senior Project (2.0 cr)
Twin Cities Campus

Geography Minor
Geography, Environment, Society
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14

Geography is an academic and practical field that studies the manner in which human-made places and natural systems interact and change. Geographers study these interactions at all scales: neighborhoods and cities, regions and nations, single or multiple biophysical systems, and even the world as a whole.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students may complete no more than one degree in geography: a B.A. or a B.S. or a minor.

Minor Courses
Take 14 or more credit(s) from the following:
- GEOG 3xxx
- GEOG 4xxx
- GEOG 5xxx
Twin Cities Campus
German Minor
German, Scandinavian, & Dutch
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16

The minor in German includes the study of the spoken language, as well as the literature, philology, and culture of Germany, Austria, and Switzerland.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Complete the introductory 4-semester German language sequence or its equivalent. Note: these credits do not factor into the overall length in credits of the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students are required to take 4 semester(s) of German.

The minor consists of a minimum of 16 credits in 3xx, 4xx (beyond 4004), and 5xx courses with no more than one course being a directed or independent study. Courses that are taught in English may be used for the minor if substantial work is done in German, as directed by the instructor of the courses or by the director of undergraduate studies. The four required semesters of a second language do not factor into the overall length of credits in the minor. All courses must be taken A-F and must be completed with a grade of C- or better. At least one course must be taken in the German program at the University of Minnesota - Twin Cities campus. Students with a German, Scandinavian, Dutch major may elect a minor in German, but no courses may count for both the major and the minor. The program must be approved by the director of undergraduate studies.

Minor Core
GER 3011W - Conversation and Composition [WI] (4.0 cr)
GER 3104W - Reading and Analysis of German Literature [LITR, WI] (3.0 cr)

Take 9 or more credit(s) from the following:
- GER 3xxx
- GER 4xxx
- GER 5xxx
Twin Cities Campus

German, Scandinavian, Dutch B.A.

College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 33 to 34
- Degree: Bachelor of Arts

The Department of German, Scandinavian, and Dutch offers a major, several minors, and a broad range of courses in the languages, literatures, intellectual history, media, cultures of Germany, the Scandinavian countries, Finland, Austria, Switzerland, and the Netherlands.

The German, Scandinavian, Dutch (GSD) major gives students the flexibility either to combine coursework in any of the languages and literatures of the department or to designate an emphasis in German or in Scandinavian and Finnish. Many of our students also have majors in such fields as business, computer science, biology, English, history, linguistics, or political science, or have interdisciplinary concentrations like global, media, and sustainability studies. In the GSD major, students develop advanced language competency, come to understand changing cultural and social contexts in relation to various forms of media (from oral and manuscript traditions to book culture, film, and hypermedia), and deepen their interdisciplinary understanding of other cultures. A major in GSD is ideally suited for students wishing to work in public, private, and non-profit organization fields, especially in areas where multilingual and transcultural knowledge is essential. The department recommends study abroad in the target language for at least six months to strengthen cultural familiarity and language fluency. Students may apply appropriate study abroad coursework to the major or minors. Minors are available in Dutch, German, Finnish, Norwegian, Swedish, and Austrian & Central European Studies.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Complete the introductory 4-semester language sequence (or its equivalent) in Dutch, or Finnish, or German, or Norwegian, or Swedish. Note: these credits do not factor into the overall length in credits of the major.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Students are required to take 4 semester(s) of Dutch, or Finnish, or German, or Norwegian, or Swedish.

The German, Scandinavian, Dutch (GSD) major consists of a minimum of 33 upper-division (3xxx-5xxx) credits, of which 17 credits must be taken at the University of Minnesota - Twin Cities campus. All major coursework must be taken A-F and completed with a C- or better. The four required semesters of a second language do not factor into the overall length of credits in the major. Students who take courses that are taught in English will integrate work in the language of emphasis, as directed by the course instructor or the director of undergraduate studies. Courses can be counted only once for the major. The major program must be approved by the director of undergraduate studies.

The GSD major allows students to combine coursework across all the department's designators, or to concentrate on one area by declaring an emphasis (either German or Scandinavian & Finnish). Students complete two core courses; one course in each of 3 competencies (Advanced Language; Language & Textual Analysis; Critical Literacy & Global Understanding); 15 elective credits (usually five courses); and a senior capstone course. In order to add a German or Scandinavian & Finnish emphasis to your transcript, the courses in the competencies, and 3 of the 5 electives must be in the appropriate designator(s).

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at http://class.umn.edu/degree_requirements/index.html.
Core Courses
GSD 3511W - Vikings, Knights, and Reformers: German and European Culture and Controversies to 1700 [WI] (3.0 cr)
GSD 3512W - Imagined Communities: German and European Culture and Controversies, 1700 to Present [WI] (3.0 cr)

Advanced Language
Take one of the following for 3-4 credits.
DTCH 3011W - Conversation and Composition [WI] (3.0 cr)
or FIN 3011 - Advanced Finnish (3.0 cr)
or GER 3011W - Conversation and Composition [WI] (4.0 cr)
or SCAN 3011W - Readings in Scandinavian Languages [WI] (4.0 cr)

Language & Textual Analysis
Take one of the following for a minimum of 3 credits.
30xx in any language offered by the Department
or DTCH 3310 - Studies in Dutch Literature (3.0 cr)
or GER 3104W - Reading and Analysis of German Literature [LITR, WI] (3.0 cr)
or GER 34xx
or GER 37xx
or GER 57xx
or SCAN 3505 - Scandinavian Fiction From 1890 to Present [LITR] (3.0 cr)
or SCAN 3601 - Great Literary Works of Scandinavia [LITR] (3.0 cr)
or SCAN 3602 - The Literary Fairy Tale in Scandinavia [LITR] (3.0 cr)
or SCAN 3605 - The Scandinavian Short Story [LITR] (3.0 cr)
or SCAN 3613 - Children's Literature in Scandinavia [LITR] (3.0 cr)
or SCAN 57xx

Critical Literacy & Global Understanding
Take one of the following for a minimum of 3 credits.
Study abroad course (requires prior approval from the Director of Undergraduate Studies)
or GER 3501 - Contemporary Germany (3.0 cr)
or GER 3601 - German Medieval Literature [LITR, GP] (3.0 cr)
or GER 3641 - German Folklore [LITR, GP] (3.0 cr)
or GER 3604W - Introduction to German Cinema [AH, GP, WI] (3.0 cr)
or SCAN 3502 - Scandinavian Myths [LITR, GP] (3.0 cr)
or SCAN 3503 - Scandinavian Folklore [LITR, GP] (3.0 cr)
or SCAN 3634 - Scandinavian Women Writers [LITR, GP] (3.0 cr)

Electives
A maximum of two 400x courses (4 credits) in Dutch, Finnish, Norwegian or Swedish may be counted as electives. Students may not count 400x courses in their chosen target language. Up to one elective may be taken outside of the GSD department, but must be pre-approved by the departmental adviser or director of undergraduate studies.
Take 15 or more credit(s) from the following:
• DTCH 3xxx
• DTCH 4001 - Beginning Dutch (2.0 cr)
• DTCH 4002 - Beginning Dutch (2.0 cr)
• DTCH 4003 - Intermediate Dutch (2.0 cr)
• DTCH 4004 - Intermediate Dutch (2.0 cr)
• FIN 3xxx
• FIN 4001 - Beginning Finnish (2.0 cr)
• FIN 4002 - Beginning Finnish (2.0 cr)
• FIN 4003 - Intermediate Finnish (2.0 cr)
• FIN 4004 - Intermediate Finnish (2.0 cr)
• GER 3xxx
• GER 4xxx
• GER 5xxx
• NOR 4001 - Beginning Norwegian (2.0 cr)
• NOR 4002 - Beginning Norwegian (2.0 cr)
• NOR 4003 - Intermediate Norwegian (2.0 cr)
• NOR 4004 - Intermediate Norwegian (2.0 cr)
• SCAN 3xxx
• SCAN 4xxx
• SCAN 5xxx
• SWED 4001 - Beginning Swedish (2.0 cr)
• SWED 4002 - Beginning Swedish (2.0 cr)
SWED 4003 - Intermediate Swedish (2.0 cr)
SWED 4004 - Intermediate Swedish (2.0 cr)

Senior Capstone Course
For the senior capstone course, students take a GER 5xxx course (except GER 5011) or a SCAN 5xxx course or the Major Project Seminar, GSD 3451W/V. Students who choose to complete a German emphasis or Scandinavian & Finnish emphasis should complete their senior capstone course under the corresponding designator.

GER 5xxx
or SCAN 5xxx
or GSD 3451V - Honors Major Project Seminar [WI] (3.0 cr)
or GSD 3451W - Major Project Seminar [WI] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• DTCH 3011W - Conversation and Composition [WI] (3.0 cr)
• GER 3011W - Conversation and Composition [WI] (4.0 cr)
• GER 3104W - Reading and Analysis of German Literature [LITR, WI] (3.0 cr)
• GER 3604W - Introduction to German Cinema [AH, GP, WI] (3.0 cr)
• GSD 3451V - Honors Major Project Seminar [WI] (3.0 cr)
• GSD 3451W - Major Project Seminar [WI] (3.0 cr)
• GSD 3511W - Vikings, Knights, and Reformers: German and European Culture and Controversies to 1700 [WI] (3.0 cr)
• GSD 3512W - Imagined Communities: German and European, Culture and Controversies, 1700 to Present [WI] (3.0 cr)
• SCAN 3011W - Readings in Scandinavian Languages [WI] (4.0 cr)

Program Sub-plans
A sub-plan is not required for this program.

German Emphasis
Students who choose to complete the German emphasis must fulfill all three competencies (Advanced Language; Language & Textual Analysis; Critical Literacy & Global Understanding) with GER courses. Additionally, at least 3 of the 5 required electives must also be GER. If a 5xxx course is chosen as the senior capstone, it must be a GER 5xxx. The major program must be approved by the director of undergraduate studies.

Scandinavian & Finnish
Students who choose to complete the Scandinavian & Finnish emphasis must fulfill all three competencies by choosing from the following:
Advanced Language (SCAN 3011 or FIN 3011)
Language & Textual Analysis (one SCAN 3xxx/4xxx/5xxx course)
Critical Literacy & Global Understanding (one SCAN 3xxx/4xxx/5xxx course)

Additionally, at least 9 credits, or 3 of the required 5 electives, must carry one of the Scandinavian designators (SCAN, FIN, NOR or SWED 3xxx or 4xxx; SCAN 5xxx). If a 5xxx course is chosen as the senior capstone, it must be a SCAN 5xxx course. The major program must be approved by the director of undergraduate studies.
Twin Cities Campus
Global Studies B.A.
Institute for Global Studies
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 35 to 38
- Degree: Bachelor of Arts

This program offers students the opportunity to study the interrelated processes shaping today’s increasingly interdependent world. Students examine political, economic, cultural, and social processes of local communities, nation states, transnational businesses, and social movements around the globe. The program requires students to integrate theoretical knowledge about broad global processes with regionally focused detailed knowledge of social and cultural systems and language. Students complete a common set of core courses providing a broad overview of issues and approaches to global studies. Each student then chooses a thematic and regional concentration. Coursework is completed by selecting from relevant courses offered by a broad range of departments.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
As preparation for the major, students are encouraged to take 6 credits of related coursework as shown in "Preparatory Courses" listed in the program requirements and take at least one year of foreign language at the college level. Students must formally enroll in the major at the advising office, 206 Social Sciences Building. Students must meet with an adviser to develop a program that meets major guidelines.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of a language appropriate to their chosen regional concentration.

Students must complete two sub-plans: one thematic and one regional concentration. Detailed information about concentrations is available in the Global Studies handbook. Four semesters of second-language study are required - regardless of demonstrated proficiency - in a language appropriate to the chosen region of concentration. Majors must take at least five courses (15 credits) in order to complete the thematic concentration, and at least four courses (12 credits) to complete the regional concentration. Courses may not be used to fulfill both the theme and the region, and courses taken for the thematic concentration may not focus on the chosen region.

All major coursework, excluding the second-language requirement, must be taken A-F. Second-language courses may be taken S-N only upon approval by a Global Studies adviser. Major courses must be completed with a C- or better.

Majors are required to take a minimum of four upper-division courses in the GLOS designator. At least 14 upper-division credits in the major must be taken at the University of Minnesota - Twin Cities campus. Students who double major and choose to complete the senior project in their other major are expected to complete a minimum of 35 approved credits in the Global Studies major. Students may earn a B.A. or a minor in global studies, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html.

Preparatory Courses
Note: these courses do not factor into the overall length in credits for the major.
Take 6 or more credit(s) from the following:
• CSCL 1001 - Introduction to Cultural Studies: Rhetoric, Power, Desire [AH, DSJ] (4.0 cr)
• CSCL 1301W - Reading Culture: Theory and Practice [AH, WI] (4.0 cr)
• GEOG 1301W - Our Globalizing World [SOCS, GP, WI] (3.0 cr)
• GLOS 1015W - Globalization: Issues and Challenges [GP, WI] (4.0 cr)
• GLOS 1112 - Globalization and Social Justice (3.0 cr)
• HIST 1012W - The Age of Global Contact [HIS, GP, WI] (4.0 cr)
• HIST 1018 (inactive) (3.0 cr)
• POL 1025 - Global Politics [SOCS, GP] (4.0 cr)

Major Courses
GLOS 3144 - Knowledge, Power, and the Politics of Representation in Global Studies (4.0 cr)
GLOS 3145 - Theoretical Approaches to Global Studies (4.0 cr)

Experiential Learning
Students must participate in a relevant experiential learning opportunity through study abroad, an internship, or a service learning experience. Work completed in meeting these requirements may count toward the thematic or regional concentrations. Prior approval by a Global Studies adviser is required.

Senior Project
Students must complete a senior project that integrates their regional and thematic concentrations.
GLOS 3981W - Major Project Seminar [WI] (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Environment and Sustainable Development
Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Courses must be chosen in consultation with a Global Studies adviser. The following course lists are not exhaustive. Students should consult the list of courses approved by the Global Studies adviser each semester to view additional options. Please note that extra Breadth courses for a specific region or theme may count toward the Electives requirement for the same specific region or theme.

Environment and Sustainable Development is a thematic concentration. It must be paired with a regional concentration of your choice.

Breadth Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• GLOS 3301 - Environment & Empire (3.0 cr)
• GLOS 3302 - Debating "Development": Contested Visions (3.0 cr)
• GLOS 3303 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
• GLOS 3305 - Life for Sale: Global Debates on Environment, Science, and Society (3.0 cr)
• GLOS 4311 - Race, Class, and the Politics of Nature (3.0 cr)

Ways of Knowing Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)
• GEOG 3531 - Numerical Spatial Analysis (4.0 cr)
• GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
• GEOG 4001 - Modes of Geographic Inquiry (4.0 cr)
• PA 4101 - Nonprofit Management and Governance (3.0 cr)
• STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
• SW 3501 - Theories and Practices of Social Change Organizing (4.0 cr)

Electives Courses
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
• AGRO 4103 - World Food Problems [GP] (3.0 cr)
• APEC 4103 - World Food Problems [GP] (3.0 cr)
• APEC 3071 - Agriculture and Economic Growth in Developing Countries (3.0 cr)
• CFAN 3900 - Topics in International Agriculture (1.0 - 4.0 cr)
• EEB 3001 - Ecology and Society [ENV] (3.0 cr)
• ESPM 3251 - Natural Resources in Sustainable International Development [GP] (3.0 cr)
• ESPM 3271 - Environmental Policy, Law, and Human Behavior [CIV, SOCS] (3.0 cr)
• GEOG 4002W - Environmental Thought and Practice [WI] (3.0 cr)
• GLOS 3301 - Environment & Empire (3.0 cr)
• GLOS 3302 - Debating "Development": Contested Visions (3.0 cr)
• GLOS 3303 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
• GLOS 3305 - Life for Sale: Global Debates on Environment, Science, and Society (3.0 cr)
• GLOS 4311 - Race, Class, and the Politics of Nature (3.0 cr)
• GLOS 3304 [Inactive] (3.0 cr)

Global and Cultural Analysis

Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Courses must be chosen in consultation with a Global Studies adviser. The following course lists are not exhaustive. Students should consult the list of courses approved by the Global Studies adviser each semester to view additional options. Please note that extra Breadth courses for a specific region or theme may count toward the Electives requirement for the same specific region or theme.

Global and Cultural Analysis is a thematic concentration. It must be paired with a regional concentration of your choice.

Breadth Courses

Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• AMST 3114 - America in International Perspective [DSJ] (3.0 cr)
• GLOS 3143 - Living in the Global (3.0 cr)
• GLOS 3602 - Other Worlds: Globalization and Culture (3.0 cr)
• GLOS 3605 - From Printing Press to Internet: Media, Communications, and History (3.0 cr)
• GLOS 3613W - Stuffed and Starved: The Politics of Eating [SOCS, GP, WI] (3.0 cr)
• GLOS 4221 - Globalize This! Understanding Globalization Through Sociology [GP] (3.0 cr)

Ways of Knowing Courses

Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• ANTH 3003 - Cultural Anthropology (3.0 cr)
• CSCL 3321W - Theories of Culture [AH, WI] (3.0 cr)
• CSCL 5301 [Inactive] (3.0 cr)
• CSDS 5301 [Inactive] (3.0 cr)
• ENGL 3001W - Textual Analysis: Methods [WI] (4.0 cr)
• ENGL 3001V - Honors: Textual Analysis, Methods [WI] (4.0 cr)
• TRIN 3001 - Introduction to Translation (3.0 cr)

Electives Courses

Take 3 or more course(s) totaling 9 or more credit(s) from the following:
• AMST 3114 - America in International Perspective [DSJ] (3.0 cr)
• ANTH 4053 - Economy, Culture, and Critique [SOCS, GP] (3.0 cr)
• COMM 3451W - Intercultural Communication: Theory and Practice [WI] (3.0 cr)
• CSCL 3621W - Colonial and Postcolonial Literatures and Theory: 1700 to the Present [LITR, GP, WI] (3.0 cr)
• GLBT 3404 - Transnational Sexualities (3.0 cr)
• GWSS 3404 - Transnational Sexualities [GP] (3.0 cr)
• GLOS 3613W - Stuffed and Starved: The Politics of Eating [SOCS, GP, WI] (3.0 cr)
• GLOS 3143 - Living in the Global (3.0 cr)
• GLOS 3602 - Other Worlds: Globalization and Culture (3.0 cr)
• GLOS 3605 - From Printing Press to Internet: Media, Communications, and History (3.0 cr)
• GLOS 4221 - Globalize This! Understanding Globalization Through Sociology [GP] (3.0 cr)
• GWSS 4103 - Transnational Feminist Theories [GP] (3.0 cr)
• HIST 3417 - Food in History [HIS, ENV] (3.0 cr)
• JOUR 3552 - Internet and Global Society [GP] (3.0 cr)
• LING 3101W - Languages of the World [WI] (3.0 cr)

Global Political Economy

Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Courses must be chosen in consultation with a Global Studies adviser. The following course lists are not exhaustive. Students should consult the list of courses approved by the Global Studies adviser each semester to view additional options. Please note that extra Breadth courses for a specific region or theme may count toward the Electives requirement for the same specific region or theme.

Global Political Economy is a thematic concentration. It must be paired with a regional concentration of your choice.

Breadth Courses

Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• ECON 4401 - International Economics [GP] (3.0 cr)
• GEOG 3331 - Geography of the World Economy [SOCS, GP] (3.0 cr)
• GLOS 3219 - History of Capitalism: Uneven Development Since 1500 (3.0 cr)
• GLOS 3302 - Debating "Development": Contested Visions (3.0 cr)
• GLOS 3415 - Global Institutions of Power: World Bank, International Monetary Fund, and World Trade Organization (3.0 cr)
• GLOS 4221 - Globalize This! Understanding Globalization Through Sociology [GP] (3.0 cr)
• POL 3833 - The United States and the Global Economy (3.0 cr)
Ways of Knowing Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• ECON 3101 - Intermediate Microeconomics (4.0 cr)
• ECON 3101H (Inactive) (4.0 cr)
• ECON 3102 - Intermediate Macroeconomics (4.0 cr)
• POL 3085 - Quantitative Analysis in Political Science [MATH] (4.0 cr)
• STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)

Electives Courses
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
• AMST 4301 - Workers and Consumers in the Global Economy [DSJ] (3.0 cr)
• APEC 3007 - Applied Macroeconomics: Policy, Trade, and Development [GP] (3.0 cr)
• ECON 4331W - Economic Development (3.0 cr)
• ECON 4337 - Comparative Economic Systems (3.0 cr)
• ECON 4401 - International Economics [GP] (3.0 cr)
• ECON 4431W - International Trade [GP, WI] (3.0 cr)
• GEOG 3331 - Geography of the World Economy [SOCS, GP] (3.0 cr)
• GLOS 3219 - History of Capitalism: Uneven Development Since 1500 (3.0 cr)
• GLOS 3302 - Debating "Development": Contested Visions (3.0 cr)
• GLOS 3415 - Global Institutions of Power: World Bank, International Monetary Fund, and World Trade Organization (3.0 cr)
• GLOS 4221 - Globalize This! Understanding Globalization Through Sociology [GP] (3.0 cr)
• GWSS 3406 - Gender, Labor, and Politics [SOCS, GP] (3.0 cr)
• POL 3477 - Political Economy of Development [SOCS, GP] (3.0 - 4.0 cr)
• POL 4481 - Governments and Markets (3.0 - 4.0 cr)

Human Rights and Justice
Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Courses must be chosen in consultation with a Global Studies adviser. The following course lists are not exhaustive. Students should consult the list of courses approved by the Global Studies adviser each semester to view additional options. Please note that extra Breadth courses for a specific region or theme may count toward the Electives requirement for the same specific region or theme.

Human Rights and Justice is a thematic concentration. It must be paired with a regional concentration of your choice.

Breadth Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• GLOS 3401 - International Human Rights Law (3.0 cr)
• GLOS 4104 - Crime and Human Rights (3.0 cr)
• HIST 3728 - Human Rights and Crimes Against Humanity (3.0 cr)
• POL 4485 - Human Rights and Democracy in the World [CIV] (3.0 cr)
• GLOS 5403 - Human Rights Advocacy (3.0 cr)

Ways of Knowing Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• ANTH 3003 - Cultural Anthropology (3.0 cr)
• POL 3085 - Quantitative Analysis in Political Science [MATH] (4.0 cr)
• POL 3835 - International Relations [SOCS, GP] (3.0 cr)
• POL 4887 - Thinking Strategically in International Politics [MATH] (3.0 cr)
• PA 4101 - Nonprofit Management and Governance (3.0 cr)
• SW 3501 - Theories and Practices of Social Change Organizing (4.0 cr)
• STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)

Electives Courses
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
• AFRO 3866 - The Civil Rights and Black Power Movement, 1954-1984 (3.0 cr)
• HIST 3856 - The Civil Rights and Black Power Movement, 1954-1984 (3.0 cr)
• AMIN 4501 - Law, Sovereignty, and Treaty Rights (3.0 cr)
• ANTH 4031W - Anthropology and Social Justice [CIV, WI] (4.0 cr)
• GLOS 3401 - International Human Rights Law (3.0 cr)
• GLOS 402 - Human Rights Internship (3.0 cr)
• GLOS 4104 - Crime and Human Rights (3.0 cr)
• GLOS 4406 - Sociology of International Law [GP] (3.0 cr)
• GLOS 5403 - Human Rights Advocacy (3.0 cr)
• GWSS 3003 - Gender and Global Politics [SOCS, GP] (3.0 cr)
• GWSS 4103 - Transnational Feminist Theories [GP] (3.0 cr)
• HIST 3728 - Human Rights and Crimes Against Humanity (3.0 cr)
• POL 4485 - Human Rights and Democracy in the World [CIV] (3.0 cr)
Population, Migration, Identity

Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Courses must be chosen in consultation with a Global Studies adviser. The following course lists are not exhaustive. Students should consult the list of courses approved by the Global Studies adviser each semester to view additional options. Please note that extra Breadth courses for a specific region or theme may count toward the Electives requirement for the same specific region or theme.

Population, Migration, Identity is a thematic concentration. It must be paired with a regional concentration of your choice.

Breadth Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
- GLOS 3143 - Living in the Global (3.0 cr)
- GLOS 3701W - Population in an Interacting World [SOCS, GP, WI] (4.0 cr)
- HIST 3415 - Migrations in Modern Global History [HIS, GP] (3.0 cr)
- HIST 3797 - History of Population [SOCS, GP] (3.0 cr)
- SOC 3511 - World Population Problems [GP] (3.0 cr)

Ways of Knowing Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- GEOG 3531 - Numerical Spatial Analysis (4.0 cr)
- GEOG 5531 - Numerical Spatial Analysis (4.0 cr)
- GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
- PA 4101 - Nonprofit Management and Governance (3.0 cr)
- PA 5301 - Population Methods & Issues for the United States & Global South (3.0 cr)
- STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)

Electives Courses
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
- CI 5647 - Teaching Middle and Secondary Immigrant and Refugee Students With Limited Formal Schooling (3.0 cr)
- DNCE 3487W - Dance and Citizenship: Land, Migration, and Diaspora [WI] (3.0 cr)
- GLOS 3970 - Topics in African Area Studies (3.0 cr)
- GWSS 3404 - Transnational Sexualities (3.0 cr)
- GLO 3143 - Living in the Global (3.0 cr)
- GLBT 3404 - Transnational Sexualities (3.0 cr)
- GWSS 3404 - Transnational Sexualities [GP] (3.0 cr)
- GLOS 3701W - Population in an Interacting World [SOCS, GP, WI] (4.0 cr)
- HIST 3415 - Migrations in Modern Global History [HIS, GP] (3.0 cr)
- HIST 3797 - History of Population [SOCS, GP] (3.0 cr)
- AAS 3862 - American Immigration History [HIS, DSJ] (3.0 - 4.0 cr)
- CHIC 3862 - American Immigration History [HIS, DSJ] (3.0 cr)
- HIST 3862 - American Immigration History [HIS, DSJ] (3.0 - 4.0 cr)
- PA 5451 - Immigrant Health Issues (3.0 - 4.0 cr)
- PA 5452 - Immigration and Public Policy (3.0 cr)
- SOC 3511 - World Population Problems [GP] (3.0 cr)

Africa

Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Courses must be chosen in consultation with a Global Studies adviser. The following course lists are not exhaustive. Students should consult the list of courses approved by the Global Studies adviser each semester to view additional options. Please note that extra Breadth courses for a specific region or theme may count toward the Electives requirement for the same specific region or theme.

Africa is a regional concentration. It must be paired with a thematic concentration of your choice.

Breadth Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- AFRO 3432 - Modern Africa in a Changing World [HIS, GP] (3.0 - 4.0 cr)
- HIST 3432 - Modern Africa in a Changing World [HIS, GP] (3.0 - 4.0 cr)
- AFRO 3141 - Africa (3.0 cr)
- GEOG 3141 - Africa (3.0 cr)
- GLOS 3970 - Topics in African Area Studies (3.0 cr)

Electives Courses
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
- AFRO 3002 - West African History: 1800 to Present [GP] (3.0 cr)
- HIST 3455 - West African History: 1800 to Present [GP] (3.0 cr)
- AFRO 3431 - Early Africa and Its Global Connections [HIS, GP] (3.0 - 4.0 cr)
- HIST 3431 - Early Africa and Its Global Connections [HIS, GP] (3.0 - 4.0 cr)
- AFRO 3432 - Modern Africa in a Changing World [HIS, GP] (3.0 - 4.0 cr)
HIST 3432 - Modern Africa in a Changing World [HIS, GP] (3.0 - 4.0 cr)
AFRO 3601W - African Literature [LITR, GP, WI] (3.0 cr)
APEC 3061 - Economic Development in Contemporary Africa [GP, SOCS] (3.0 cr)
AFRO 3433 - Economic Development in Contemporary Africa [SOCS, GP] (3.0 cr)
GEOG 3141 - Africa (3.0 cr)
AFRO 3435 - History of South Africa from 1910 (3.0 cr)
AFRO 3205 - History of South Africa from 1910 (3.0 cr)
GLOS 3970 - Topics in African Area Studies (3.0 cr)
HIST 3435 - History of South Africa from 1910 (3.0 cr)
AFRO 3141 - Africa (3.0 cr)
GEOG 3141 - Africa (3.0 cr)

East Asia

Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Courses must be chosen in consultation with a Global Studies adviser. The following course lists are not exhaustive. Students should consult the list of courses approved by the Global Studies adviser each semester to view additional options. Please note that extra Breadth courses for a specific region or theme may count toward the Electives requirement for the same specific region or theme.

East Asia is a regional concentration. It must be paired with a thematic concentration of your choice.

Breadth Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- EAS 3461 - Introduction to East Asia I: The Imperial Age (3.0 - 4.0 cr)
- HIST 3461 - Introduction to East Asia I: The Imperial Age (3.0 - 4.0 cr)
- EAS 3462 - From Subjects to Citizens: The History of East Asia From 1500 to the Present [HIS, GP] (3.0 - 4.0 cr)
- HIST 3462 - From Subjects to Citizens: The History of East Asia From 1500 to the Present [HIS, GP] (3.0 - 4.0 cr)
- GLOS 3910 - Topics in East Asian Studies (1.0 - 3.0 cr)

Electives Courses
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
- ALL 3265W - The Fantastic in East Asia: Ghosts, Foxes, and the Alien [LITR, WI] (3.0 cr)
- EAS 3461 - Introduction to East Asia I: The Imperial Age (3.0 - 4.0 cr)
- HIST 3461 - Introduction to East Asia I: The Imperial Age (3.0 - 4.0 cr)
- EAS 3462 - From Subjects to Citizens: The History of East Asia From 1500 to the Present [HIS, GP] (3.0 - 4.0 cr)
- HIST 3462 - From Subjects to Citizens: The History of East Asia From 1500 to the Present [HIS, GP] (3.0 - 4.0 cr)
- ALL 3456 - Japanese Film [GP] (3.0 cr)
- ARTH 3013 - Introduction to East Asian Art [GP] (3.0 cr)
- EAS 3461 - Introduction to East Asia I: The Imperial Age (3.0 - 4.0 cr)
- HIST 3461 - Introduction to East Asia I: The Imperial Age (3.0 - 4.0 cr)
- EAS 3462 - From Subjects to Citizens: The History of East Asia From 1500 to the Present [HIS, GP] (3.0 - 4.0 cr)
- HIST 3462 - From Subjects to Citizens: The History of East Asia From 1500 to the Present [HIS, GP] (3.0 - 4.0 cr)
- ALL 3478 - Modern Japan, Meiji to the Present (1868-2000) [HIS] (3.0 cr)
- EAS 3471 - Modern Japan, Meiji to the Present (1868-2000) [HIS] (3.0 cr)
- HIST 3471 - Modern Japan, Meiji to the Present (1868-2000) [HIS] (3.0 cr)
- ECON 4315 - The Japanese Economy (3.0 cr)
- GLOS 3910 - Topics in East Asian Studies (1.0 - 3.0 cr)
- HIST 3487 - The Vietnam Wars: French Colonialism and U.S. Intervention in Indochina (3.0 cr)
- POL 4465 - Southeast Asian Politics [GP] (3.0 cr)
- EAS 4473W - Chinese Politics [GP, WI] (3.0 cr)
- ECON 4315 - The Japanese Economy (3.0 cr)
- GLOS 3910 - Topics in East Asian Studies (1.0 - 3.0 cr)

Europe

Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Courses must be chosen in consultation with a Global Studies adviser. The following course lists are not exhaustive. Students should consult the list of courses approved by the Global Studies adviser each semester to view additional options. Please note that extra Breadth courses for a specific region or theme may count toward the Electives requirement for the same specific region or theme.

Europe is a regional concentration. It must be paired with a thematic concentration of your choice.

Breadth Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- GLOS 3422 - 20th-Century Europe From the End of World War II to the End of the Cold War: 1945-91 (3.0 cr)
- GLOS 3920 - Topics in European Studies (3.0 cr)
- GLOS 3921 - Europe: A Geographic Perspective (3.0 cr)
- GLOS 4344 - Europe and its Margins (3.0 cr)
- HIST 3721 - Studies in 20th-Century Europe From the Turn of the Century to the End of World War II: 1900-45 (3.0 cr)
- POL 3451W - Politics and Society in the New Europe [GP, WI] (3.0 cr)
- POL 4461W - European Government and Politics [GP, WI] (4.0 cr)

Electives Courses
Take 3 or more course(s) totaling 9 or more credit(s) from the following:

- GER 3501 - Contemporary Germany (3.0 cr)
- GER 3531 - Selected Writings in German Intellectual History (3.0 cr)
- GLOS 3422 - 20th-Century Europe From the End of World War II to the End of the Cold War: 1945-91 (3.0 cr)
- GLOS 3920 - Topics in European Studies (3.0 cr)
- GLOS 3921 - Europe: A Geographic Perspective (3.0 cr)
- GLOS 4344 - Europe and Its Margins (3.0 cr)
- GLOS 3211 - History of Sexuality in Europe (3.0 cr)
- HIST 3211 - History of Sexuality in Europe (3.0 cr)
- HIST 3244 - History of Eastern Europe [HIS, GP] (3.0 cr)
- HIST 3691W - The British Empire [WI] (3.0 cr)
- HIST 3721 - Studies in 20th-Century Europe From the Turn of the Century to the End of World War II: 1900-45 (3.0 cr)
- HIST 3727 - History of the Holocaust (3.0 cr)
- HIST 3727W - History of the Holocaust [WI] (3.0 cr)
- JWST 3520 - History of the Holocaust (3.0 cr)
- JWST 3521W - History of the Holocaust [WI] (3.0 cr)
- RELS 3520 - History of the Holocaust (3.0 cr)
- RELS 3521W - History of the Holocaust [WI] (3.0 cr)
- POL 4461W - European Government and Politics [GP, WI] (4.0 cr)
- SCAN 3504 - The Immigrant Experience [HIS] (3.0 cr)
- SPAN 3212 - Discourses of Modern and Contemporary Spain, 1800-Present (3.0 cr)

Islamic World

Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Courses must be chosen in consultation with a Global Studies adviser. The following course lists are not exhaustive. Students should consult the list of courses approved by the Global Studies adviser each semester to view additional options. Please note that extra Breadth courses for a specific region or theme may count toward the Electives requirement for the same specific region or theme.

Islamic World is a regional concentration. It must be paired with a thematic concentration of your choice.

Breadth Courses

Take 1 or more course(s) totaling 3 or more credit(s) from the following:

- GLOS 3643 - Islam and the West (3.0 cr)
- GLOS 3681 - Gender and the Family in the Islamic World (3.0 cr)
- GLOS 3940 - Topics in Middle Eastern Studies (4.0 cr)

Electives Courses

Take 3 or more course(s) totaling 9 or more credit(s) from the following:

- ARTH 3015W - Art of Islam [AH, GP, WI] (4.0 cr)
- ARTH 3017 - Islamic Culture [AH, GP] (4.0 cr)
- GLOS 3643 - Islam and the West (3.0 cr)
- GLOS 3681 - Gender and the Family in the Islamic World (3.0 cr)
- GLOS 3940 - Topics in Middle Eastern Studies (4.0 cr)
- ALL 3871 - Islam: Religion and Culture (3.0 cr)
- HIST 3493 - Islam: Religion and Culture (3.0 cr)
- RELS 3712 - Islam: Religion and Culture (3.0 cr)
- ALL 3876 - Survey of the Modern Middle East [GP] (3.0 cr)
- HIST 3505 - Survey of the Modern Middle East [GP] (3.0 cr)
- HIST 3507 - History of Modern Egypt (3.0 cr)
- HIST 3511 - Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa since 1700 [HIS, GP] (3.0 cr)
- JWST 3511 - Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa Since 1700 [HIS, GP] (3.0 cr)
- RELS 3079 - Muslims and Jews: Conflict and Coexistence in the Middle East and North Africa since 1700 [HIS, GP] (3.0 cr)
- POL 4867W - United States Foreign Policy Toward the Middle East [GP, WI] (4.0 cr)

Latin America

Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Courses must be chosen in consultation with a Global Studies adviser. The following course lists are not exhaustive. Students should consult the list of courses approved by the Global Studies adviser each semester to view additional options. Please note that extra Breadth courses for a specific region or theme may count toward the Electives requirement for the same specific region or theme.

Latin America is a regional concentration. It must be paired with a thematic concentration of your choice.

Breadth Courses

Take 1 or more course(s) totaling 3 or more credit(s) from the following:

- ECON 4311 - Economy of Latin America (3.0 cr)
• GLOS 3930 - Topics in Latin American Studies (3.0 cr)
• HIST 3401W - Early Latin America to 1825 [HIS, GP, WI] (4.0 cr)
• LAS 3401W - Early Latin America to 1825 [HIS, GP, WI] (4.0 cr)
• HIST 3402W - Modern Latin America 1825 to Present [HIS, GP, WI] (4.0 cr)
• LAS 3402W - Modern Latin America 1825 to Present [HIS, GP, WI] (4.0 cr)
• POL 3479 [Inactive] [GP] (3.0 cr)
• LAS 4479 [Inactive] (3.0 cr)
• SPAN 3512 - Modern Latin America (3.0 cr)

Electives Courses
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
• CHIC 3275 - Service Learning in the Chicano/Latino Community [CIV] (3.0 cr)
• CHIC 3352 - Transnational Chicana/o Theory: Global Views/Borderland Spaces (3.0 cr)
• CHIC 3374 - Migrant Farmworkers in the United States: Families, Work, and Advocacy [CIV] (4.0 cr)
• ECON 4311 - Economy of Latin America (3.0 cr)
• GLOS 3930 - Topics in Latin American Studies (3.0 cr)
• HIST 3401W - Early Latin America to 1825 [HIS, GP, WI] (4.0 cr)
• LAS 3401W - Early Latin America to 1825 [HIS, GP, WI] (4.0 cr)
• CHIC 3423 - Central American Revolutions (3.0 cr)
• HIST 3423 - Central American Revolutions (3.0 cr)
• LAS 3402W - Modern Latin America 1825 to Present [HIS, GP, WI] (4.0 cr)
• HIST 3402W - Modern Latin America 1825 to Present [HIS, GP, WI] (4.0 cr)
• LAS 4479 [Inactive] (3.0 cr)
• POL 3479 [Inactive] [GP] (3.0 cr)
• PORT 3502W - Global Portuguese: 1900-present [WI] (3.0 cr)
• SPAN 3401 - Latino Immigration and Community Service [CIV] (3.0 cr)
• SPAN 3512 - Modern Latin America (3.0 cr)

Middle East
Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Courses must be chosen in consultation with a Global Studies adviser. The following course lists are not exhaustive. Students should consult the list of courses approved by the Global Studies adviser each semester to view additional options. Please note that extra Breadth courses for a specific region or theme may count toward the Electives requirement for the same specific region or theme.

Middle East is a regional concentration. It must be paired with a thematic concentration of your choice.

Breadth Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• GLOS 3940 - Topics in Middle Eastern Studies (4.0 cr)
• ALL 3876 - Survey of the Modern Middle East [GP] (3.0 cr)
• HIST 3505 - Survey of the Modern Middle East [GP] (3.0 cr)
• POL 4867W - United States Foreign Policy Toward the Middle East [GP, WI] (4.0 cr)

Electives Courses
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
• ALL 3871 - Islam: Religion and Culture (3.0 cr)
• ALL 3876 - Survey of the Modern Middle East [GP] (3.0 cr)
• ARTH 3015W - Art of Islam [AH, GP, WI] (4.0 cr)
• ARTH 3017 - Islamic Culture [AH, GP] (4.0 cr)
• GLOS 3643 - Islam and the West (3.0 cr)
• GLOS 3681 - Gender and the Family in the Islamic World (3.0 cr)
• GLOS 3940 - Topics in Middle Eastern Studies (4.0 cr)
• HIST 3493 - Islam: Religion and Culture (3.0 cr)
• HIST 3505 - Survey of the Modern Middle East [GP] (3.0 cr)
• HIST 3507 - History of Modern Egypt (3.0 cr)
• HIST 3511 - Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa since 1700 [HIS, GP] (3.0 cr)
• JWST 3511 - Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa Since 1700 [HIS, GP] (3.0 cr)
• RELS 3079 - Muslims and Jews: Conflict and Coexistence in the Middle East and North Africa since 1700 [HIS, GP] (3.0 cr)
• POL 4867W - United States Foreign Policy Toward the Middle East [GP, WI] (4.0 cr)
• RELS 3712 - Islam: Religion and Culture (3.0 cr)

Russia
Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Courses must be chosen in consultation with a Global Studies adviser. The following course lists are not exhaustive. Students should consult the list of courses approved by the Global Studies adviser each semester to view additional options. Please note that extra Breadth courses for a specific region or theme may count toward the Electives requirement for the same specific region or theme.
Russia is a regional concentration. It must be paired with a thematic concentration of your choice.

**Breadth Courses**
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- GLOS 3950 - Topics in Russian Area Studies (3.0 cr)
- HIST 3637 - Modern Russia: From Peter the Great to the Present (3.0 cr)
- HIST 5264 - Imperial Russia: Formation and Expansion of the Russian Empire in the 18th and 19th Centuries (3.0 cr)
- HIST 5265 - 20th-Century Russia: The Collapse of Imperial Russia, the Revolutions, and the Soviet Regime (3.0 cr)
- RUSS 3512 - Russian Art and Culture [AH, GP] (3.0 cr)

**Electives Courses**
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
- GLOS 3950 - Topics in Russian Area Studies (3.0 cr)
- HIST 3637 - Modern Russia: From Peter the Great to the Present (3.0 cr)
- HIST 5264 - Imperial Russia: Formation and Expansion of the Russian Empire in the 18th and 19th Centuries (3.0 cr)
- HIST 5265 - 20th-Century Russia: The Collapse of Imperial Russia, the Revolutions, and the Soviet Regime (3.0 cr)
- RUSS 3404 - Tolstoy in Translation [LITR, GP] (3.0 cr)
- RUSS 3407 - Stories and Plays of Anton Chekhov in Translation (3.0 cr)
- RUSS 3421 - Literature: Middle Ages to Dostoevsky in Translation [LITR, GP] (3.0 cr)
- RUSS 3422 - Literature: Tolstoy to the Present in Translation [LITR] (3.0 cr)
- RUSS 3512 - Russian Art and Culture [AH, GP] (3.0 cr)

**South Asia**
Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Courses must be chosen in consultation with a Global Studies adviser. The following course lists are not exhaustive. Students should consult the list of courses approved by the Global Studies adviser each semester to view additional options. Please note that extra Breadth courses for a specific region or theme may count toward the Electives requirement for the same specific region or theme.

South Asia is a regional concentration. It must be paired with a thematic concentration of your choice.

**Breadth Courses**
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- GLOS 3960 - Topics in South Asian Studies (3.0 cr)
- GLOS 3961 - Culture and Society of India [GP, SOCS] (3.0 cr)
- HIST 3489 - 20th Century India (3.0 cr)

**Electives Courses**
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
- ALL 3014W - Art of India [AH, GP, WI] (4.0 cr)
- ARTH 3014V - Art of India [GP, AH, WI] (4.0 cr)
- ARTH 3014W - Art of India [AH, GP, WI] (4.0 cr)
- RELS 3415W - Art of India [WI] (4.0 cr)
- ALL 3637W - Modern South Asian Literature [WI] (3.0 cr)
- ARTH 3017 - Islamic Culture [AH, GP] (4.0 cr)
- GLOS 3960 - Topics in South Asian Studies (3.0 cr)
- GLOS 3961 - Culture and Society of India [GP, SOCS] (3.0 cr)
- HIST 3489 - 20th Century India (3.0 cr)

**Individualized Region**
Students are required to complete two sub-plans for the major: one thematic concentration and one regional concentration. Students may choose to design their own individualized regional concentration. All courses must be chosen in consultation with the Global Studies adviser.

Individualized Region is a regional concentration. It must be paired with a thematic concentration of your choice.

**Breadth Courses**
Take 1 or more course(s) totaling 3 or more credit(s). All courses must be chosen in consultation with the Global Studies adviser.

**Electives Courses**
Take 3 or more course(s) totaling 9 or more credit(s). All courses must be chosen in consultation with the Global Studies adviser.
**Twin Cities Campus**

**Global Studies Minor**

*Institute for Global Studies*

**College of Liberal Arts**

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 17

The minor offers students the opportunity to study the interrelated processes shaping today's increasingly interdependent world. Students examine political, economic, cultural, and social processes of local communities, nation states, transnational businesses, and social movements across the globe.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Minor Requirements**

After completing GLOS 3101 and GLOS 3144, students declare a thematic and regional concentration and complete an additional 9 credits, including at least one breadth requirement, one course in a theme, and one course in a region. Students may earn a B.A. or a minor in global studies, but not both.

**Minor Courses**

- **GLOS 3145** - Theoretical Approaches to Global Studies (4.0 cr)
- **GLOS 3144** - Knowledge, Power, and the Politics of Representation in Global Studies (4.0 cr)

Breadth course chosen in consultation with a global studies adviser.
Course in a given theme, chosen in consultation with a global studies adviser.
Course in a specific region, chosen in consultation with a global studies adviser.
Twin Cities Campus
Greek Minor
Classical & Near Eastern Studies
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14

The Greek minor allows students who have satisfied the language requirement in Greek to read ancient authors and to expand their knowledge of ancient civilization.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 3 courses before admission to the program.

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](#).

Required prerequisites

Preparatory Courses
Students must complete an introductory course, plus the first year of Greek before declaring the minor. Another appropriate preparatory course other than the options listed below may be taken with prior DUS approval. Note: preparatory coursework does not factor into the overall length in credits of the minor.

**Introductory Course**
- CNES 1002 - World of Greece [HIS] (3.0 cr)
- or CNES 1042 - Greek and Roman Mythology [AH] (4.0 cr)
- or CNES 1042H - Honors Course: Greek and Roman Mythology [AH] (4.0 cr)

**First-Year Greek**
- GRK 1001 - Beginning Classical Greek I (5.0 cr)
- GRK 1002 - Beginning Classical Greek II (5.0 cr)

Minor Requirements
Students are required to take 2 semester(s) of Greek.

Students may earn a B.A. or a minor in Greek, but not both.

**Minor Courses**

**Greek Courses**
- Take 3 or more course(s) totaling 11 or more credit(s) from the following:
  - GRK 3003 - Intermediate Greek Prose (4.0 cr)
  - GRK 3004 - Intermediate Greek Poetry: Homer (4.0 cr)
  - GRK 5100 - Advanced Reading (3.0 cr)
  - GRK 5200 - Biblical Greek (3.0 cr)
  - GRK 57xx

**Electives**
Other appropriate courses that do not appear below may be taken with prior DUS approval.
- Take 1 or more course(s) totaling 3 or more credit(s) from the following:
  - CNES 3008 (inactive) (4.0 cr)
  - CNES 3035 (inactive) (4.0 cr)
  - CNES 3071 - Greek and Hellenistic Religions [HIS] (3.0 cr)
  - CNES 5071 - Greek and Hellenistic Religions (3.0 cr)
  - CNES 3072 - The New Testament (3.0 cr)
  - CNES 5072 - The New Testament (3.0 cr)
  - CNES 3081W - Classical Epic in Translation [LITR, WI] (3.0 cr)
  - CNES 5081W [inactive] [WI] (3.0 cr)
  - CNES 3082W - Greek Tragedy in Translation [LITR, WI] (3.0 cr)
• CNES 3083W - Ancient Comedy [WI] (3.0 cr)
• CNES 5083 - Ancient Comedy (3.0 cr)
• CNES 3103 - Ancient Greece: Alexander and the East [HIS] (3.0 cr)
• CNES 3152 - Art and Archaeology of Ancient Greece [HIS] (3.0 cr)
• CNES 3156 [Inactive] [AH] (3.0 cr)
• CNES 3535 - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
• CNES 5535 - Death and the Afterlife in the Ancient World (3.0 cr)
• CNES 3601 - Sexuality and Gender in Ancient Greece and Rome [AH] (3.0 cr)
• CNES 5601 - Sexuality and Gender in Ancient Greece and Rome (3.0 cr)
• CNES 5108 [Inactive] (3.0 cr)
• GRK 5100 - Advanced Reading (3.0 cr)
• GRK 5200 - Biblical Greek (3.0 cr)
• GRK 5701 - Prose Composition (3.0 cr)
• GRK 5702 - Text Criticism (3.0 cr)
• GRK 5704 - Greek Paleography (3.0 cr)
• GRK 5705 - Introduction to the Historical-Comparative Grammar of Greek and Latin (3.0 cr)
• GRK 5706 [Inactive] (3.0 cr)
• HIST 3052 - Ancient Civilization: Greece (3.0 cr)
• HIST 3061 - "Bread and Circuses": Spectacles and Mass Culture in Antiquity (3.0 cr)


**Twin Cities Campus**

**Hebrew Minor**

*Classical & Near Eastern Studies*

**College of Liberal Arts**

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14

The Hebrew minor permits students who have satisfied the language requirement with Hebrew to use their knowledge to read sources of antiquity, the middle ages, and the modern period and to add to their knowledge of Hebrew civilization and culture.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

Students must complete 3 courses before admission to the program.

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](#).  

**Required prerequisites**

**Preparatory Courses**

Complete two semesters of introductory Hebrew (note that each HEBR course below requires completion of a prerequisite HEBR course), and take at least three credits of related non-language work (in CNES, RELA, or JWST). Note: these preparatory courses do not factor into the overall length in credits of the minor.

**Beginning Hebrew II/Basics of Biblical Hebrew II**

- HEBR 1002 - Beginning Hebrew II (5.0 cr)
- or HEBR 1102 - Beginning Biblical Hebrew II (5.0 cr)
- or HEBR 4002 - Beginning Hebrew II (3.0 cr)
- or HEBR 4105 - Basics of Biblical Hebrew II (3.0 cr)

**Related Non-language Coursework**

- CNES 1001 - World of the Bible: Religions, Empires, and Discourses of Power [AH] (3.0 cr)
- or CNES 1201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
- or CNES 1082 - Jesus in History (3.0 cr)
  - or RELS 1082 - Jesus in History (3.0 cr)
- or JWST 1034 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
  - or RELS 1034 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)

**Minor Requirements**

Students may earn a B.A. or a minor in Hebrew, but not both.

**Minor Courses**

- Take 11 or more credit(s) from the following:
  - HEBR 3xxx

**Related Coursework**

- Take an additional 3 credits of related coursework, which may include courses with the HEBR designator.
Twin Cities Campus

History B.A.
History
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 35 to 44
- Degree: Bachelor of Arts

History examines the past, seeking to understand the development and changes in human experience from its origins to the present. Historians are interested in documenting and interpreting the past from its diverse theoretical, ideological, and methodological approaches, and at all levels from local history to comparative and global history.

Courses range from surveys to research and intensive seminars, focusing on a rich array of topics - various regions (Europe, Africa, Asia, Latin America, United States), time periods (ancient, medieval, early modern, and modern), methods (social, cultural, economic, quantitative), and comparative themes (gender and sexuality, imperialism, race and ethnicity). Interdisciplinary programs incorporate history into a variety of other programs (history of medicine, global studies, medieval studies, American studies, women's studies).

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Take 11 courses: (2) 1xxx-3xxx survey courses, (8) upper-division HIST courses including the senior project, and a HIST elective from any level 1xxx-5xxx.

Majors must fulfill the following distribution requirements with 1xxx-5xxx HIST courses:
1. Chronological: at least 2 pre-modern (up to 1750) courses, and at least 2 modern-era (since 1750) courses
2. Geographic: at least 1 course in each of 2 different geographic areas (the U.S. and Europe count as one geographic area for this requirement; the second course must be focused on Asia, the Middle East, Africa, or Latin America)
3. World History: at least 1 of the following courses - HIST 1011W or 1011V, 1012W or 1012V, 1015W or 1015V, 1017, 1018, 1019, 1411W or 3411W, 3412, 3414, 3415, 3416, 3417, 3418, 3419, 3546, 3728, 3778, 3797, 5501
4. Area of Concentration: at least 3 upper-division courses in 1 geographic area, or in 1 time period, or on 1 unified theme
5. Writing Intensive: at least 3 WI courses with the HIST designator (or cross-listed with HIST), including 1 survey course, 1 upper-division course and HIST 4010W/V

Students who double-major and choose to complete the senior project in their other major are still required to meet History's 11-course requirement (courses must be worth three or four credits each). Students may earn a B.A. or a minor in history, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Survey Courses
At least one of the two survey courses must be writing intensive.
Take 2 or more course(s) totaling 7 - 8 credit(s) from the following:
Take 0 or more course(s) from the following:
•HIST 1026 - Europe and the World: Expansion, Encounter, and Exchange to 1500 (3.0 cr)
•HIST 1027 - Europe and the World: Expansion, Encounter, and Exchange from 1500 to Present (3.0 cr)
•HIST 1307 - Authority and Rebellion: American History to 1865 [HIS] (3.0 cr)
•HIST 1308 - Global America: U.S. History Since 1865 [HIS] (3.0 cr)
•HIST 3051 - Ancient Civilization: Near East and Egypt [HIS] (3.0 cr)
•HIST 3052 - Ancient Civilization: Greece (3.0 cr)
•HIST 3053 - Ancient Civilization: Rome [HIS] (3.0 cr)
•HIST 3101 - Introduction to Medieval History [HIS, GP] (3.0 cr)
•HIST 3152 - British History From the Seventeenth Century [HIS, GP] (4.0 cr)
•HIST 3431 - Early Africa and Its Global Connections [HIS, GP] (3.0 - 4.0 cr)
•HIST 3432 - Modern Africa in a Changing World [HIS, GP] (3.0 - 4.0 cr)
•HIST 3461 - Introduction to East Asia I: The Imperial Age (3.0 - 4.0 cr)
•HIST 3462 - From Subjects to Citizens: The History of East Asia From 1500 to the Present [HIS, GP] (3.0 - 4.0 cr)
•HIST 3485 - History of Southeast Asia [GP] (3.0 cr)
•HIST 3505 - Survey of the Modern Middle East [GP] (3.0 cr)
•Take 1 or more  course(s)  from the following:
  •HIST 1011W - Civilization and the Environment: World History to 1500 [HIS, ENV, WI] (4.0 cr)
  •HIST 1012W - The Age of Global Contact [HIS, GP, WI] (4.0 cr)
  •HIST 1015W - Globalization: Issues and Challenges [GP, WI] (4.0 cr)
  •HIST 1031W - Europe and the World: Expansion, Encounter, and Exchange to 1500 [HIS, GP, WI] (4.0 cr)
  •HIST 1032W - Europe and the World: Expansion, Encounter, and Exchange from 1500 to Present [HIS, GP, WI] (4.0 cr)
  •HIST 1301W - Authority and Rebellion: American History to 1865 [HIS, DSJ, WI] (4.0 cr)
  •HIST 1302W - Global America: U.S. History Since 1865 [HIS, DSJ, WI] (4.0 cr)
  •HIST 1411W - The Family from 10,000 BCE to the Present [HIS, CIV, WI] (4.0 cr)
  •HIST 3151W - British History to the 17th Century [HIS, GP, WI] (4.0 cr)
  •HIST 3401W - Early Latin America to 1825 [HIS, GP, WI] (4.0 cr)
  •HIST 3402W - Modern Latin America 1825 to Present [HIS, GP, WI] (4.0 cr)
  •HIST 3411W - The Family from 10,000 BCE to the Present [HIS, CIV, WI] (4.0 cr)

Upper-division Courses
Three of these seven courses must be taken in the student's area of concentration, as approved by the undergraduate studies office.
At least one of these seven courses must be writing intensive.
Take 7 or more  course(s) totaling 21 or more credit(s) from the following:
  •HIST 3xxx
  •HIST 4xxx
  •HIST 5xxx

History Elective Course
Take one additional history elective course at any level.
Take 1 or more  course(s) totaling 3 or more credit(s) from the following:
  •HIST 1xxx
  •HIST 3xxx
  •HIST 4xxx
  •HIST 5xxx
  •HIST 5xxx

Senior Project
The senior project is completed in HIST 4010W. Honors students should enroll in HIST 4010V. While students may take HIST 4010W/V up to four times with a change in topic, they may only take it in their junior or senior years. Students may elect to count as their senior project any 4010W/V paper they wish, so long as the paper receives a grade of C- or better.
HIST 4010W - Research Seminar [WI] (4.0 cr)
or HIST 4010V - Honors: Research Seminar [WI] (4.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements. Note: HIST 3980W is a one-credit course that must be taken in conjunction with any upper-division (3xxx or higher) HIST course. Instructor permission required, see department for more information.
Take 0 - 1 course(s) from the following:
  •HIST 3000W - Visions of the Past: Thematic Approaches to Understanding History [HIS, WI] (4.0 cr)
  •HIST 3151W - British History to the 17th Century [HIS, GP, WI] (4.0 cr)
  •HIST 3401W - Early Latin America to 1825 [HIS, GP, WI] (4.0 cr)
  •HIST 3402W - Modern Latin America 1825 to Present [HIS, GP, WI] (4.0 cr)
  •HIST 3411W - The Family from 10,000 BCE to the Present [HIS, CIV, WI] (4.0 cr)
  •HIST 3615W - Women in European History: 1500 to the Present [HIS, GP, WI] (3.0 cr)
  •HIST 3691W - The British Empire [WI] (3.0 cr)
• HIST 3704W - Daily Life in Europe: 1300-1800 [HIS, GP, WI] (3.0 cr)
• HIST 3727W - History of the Holocaust [WI] (3.0 cr)
• HIST 3875W - Comparative Race and Ethnicity in US History [HIS, DSJ, WI] (4.0 cr)
• HIST 3980W - Supplemental Writing in History [WI] (1.0 cr)
• HIST 4010V - Honors: Research Seminar [WI] (4.0 cr)
• HIST 4010W - Research Seminar [WI] (4.0 cr)
History Minor

Program Type: Undergraduate minor related to major
Requirements for this program are current for Fall 2014
Required credits in this minor: 14

History examines the past, seeking to understand the development and changes in the human experience from its origins to the present. Historians are interested in documenting and interpreting the past from diverse theoretical, ideological, and methodological approaches and at all levels from local history to comparative and global history.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Take a minimum of five history courses. These courses must be in at least two different cultural/geographic areas and taken A-F. Students may count 1xxx-level coursework toward the minor, but at least 14 credits must be at the upper-division level (3xxx or higher). Students may earn a B.A. or a minor in history, but not both.

Minor Courses
Take at least 14 upper-division credits in at least two different cultural/geographic areas.
Take 5 or more course(s) from the following:
- HIST 1xxx
- HIST 3xxx
- HIST 4xxx
- HIST 5xxx
Twin Cities Campus

History of Science, Technology, and Medicine Minor

College of Liberal Arts - Adm

College of Liberal Arts

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14

The undergraduate minor in the history of science, technology, and medicine (HSTM) combines upper-division coursework in the history of science and technology (HSCI) with upper-division coursework in the history of medicine (HMED) to build a humanistic background to the basic applied sciences, technologies and/or healthcare professions. Students interested in the HSTM minor should consult with the director of undergraduate studies for the HSTM program and draw up a plan of study that represents a coherent theme within the history of sciences, technology, and medicine. Normally such a coherent program entails survey coursework in the history of science, the history of technology, or the history of medicine, along with more advanced historical work around a specific field (science, technology, or medicine) or theme (focus on a particular time period, geographical focus, type of history, etc.).

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses

Take a minimum of 14 credits of HSCI 3xxx-5xxx or HMED 3xxx-5xxx. No more than 25 percent of the total credits in the minor program may consist of directed study, directed instruction, or independent study. No more than 25 percent of the total credits may be taken S-N.

Take 14 or more credit(s) from the following:
- HSCI 3xxx
- HSCI 4xxx
- HSCI 5xxx
- HMED 3xxx
- HMED 4xxx
- HMED 5xxx
Twin Cities Campus
Individually Designed Interdepartmental B.A.
College of Liberal Arts - Adm
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 50
- Degree: Bachelor of Arts

The individually designed interdepartmental major (IDIM) enables students to fulfill program requirements for the B.A. degree by completing an interdepartmental program of coursework focused on a theme of their own choosing, designed in consultation with faculty and staff advisers. IDIM programs consist of three or four areas of concentration, integrated in such a way that the major has strong thematic unity and coherence.

Working closely with an IDIM adviser, students develop a written proposal and course list that articulates a cohesive and unified interdisciplinary theme. IDIM program proposals must be approved by a committee and three faculty or department advisers with expertise in the areas of concentration. Some departments have established guidelines for students who wish to include concentration areas based in those departments.

For specific information on proposal approval procedures and department guidelines, see the individualized degree programs website at http://idp.class.umn.edu.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For certain concentration areas, prerequisite courses must be completed before submitting a program proposal. For certain concentrations, a minimum overall GPA or a minimum tool course GPA is required before a student can submit a program proposal.

Students can declare the major after attending an information session (held two to three times a week) and preparing a preliminary course list. Students are not approved for the degree until they have submitted a program proposal (the submission deadline is once per semester) and the proposal has been approved by a committee and faculty or department advisers.

See the IDIM adviser for more information.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students must complete at least 50 approved CLA credits distributed among three of four concentration areas, with at least 40 of the 50 credits at 3xxx or above. The concentrations may be departmental or thematic in composition, and each must include at least 11 credits at 3xxx or above. At least one upper-division (3xxx or above) course in the major must be writing intensive.

Students must have their program approved by a committee and three department or faculty advisers. At least 20 credits in the major must be completed after the program has been approved. No more than 12 credits of directed study may be applied toward the program. The CLA requirement of 18 credits at or above 3xxx outside the major does not apply.

Students must complete an integrating senior project, earning at least 2 credits in conjunction with the project. Senior project proposals must be approved by faculty and staff advisers the semester before the project is begun. Projects may vary widely in form, depending on a student's program. The project proposal and the project itself must be reviewed and approved by one faculty adviser and two
Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

**Major Courses**
- Take 50 credits, with at least 40 credits at 3xxx or above in area(s) of concentration, in consultation with an adviser.
- Students must complete an integrating senior project, earning at least 2 credits in conjunction with the project.

**Upper-division Writing Intensive within the major**
- Students are required to take one upper-division Writing Intensive course within the major. Students work with their adviser to select the appropriate course.
Twin Cities Campus
Italian Studies B.A.
French & Italian
College of Liberal Arts

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 29
• Degree: Bachelor of Arts

The Italian studies undergraduate program examines Italian and Italian-American literature, culture, society, and history. Courses offered provide a historical perspective from the Middle Ages to the present. Students explore a variety of themes ranging from nation-building and national identity to emigration and travel, to gender relations and feminist discourses, to the study of different narrative forms and representations of Italian and Italian-American culture. Students are encouraged to take courses in other departments when these are related to Italian and Italian-American culture. For further information and updates, see the department Web site at www.cla.umn.edu/frit.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Complete the introductory Italian language courses (ITAL 1001-1004). Note: these courses do not factor into the overall length in credits of the major.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of Italian.

Students may earn a B.A. or a minor in Italian, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Courses
ITAL 3015 - Reading, Conversation, and Composition (4.0 cr)

Electives
Courses from other departments can count towards the major with the approval of the undergraduate adviser for the Italian program. Take 8 or more course(s) totaling 24 or more credit(s) from the following:
• ITAL 3xxx
• ITAL 4xxx
• ITAL 5xxx
• ITAL 3837 - Imagining Italy: Italian and Italian-American Culture, History, and Society Through Film (4.0 cr)
• ITAL 3305 - Staging the Self: Theater and Drama in Modern Italy (4.0 cr)
• ITAL 3502 - Making of Modern Italy: From the Enlightenment to the Present. (3.0 cr)
• ITAL 3550 - Topics in 19th Century Italy (3.0 cr)
• ITAL 3640 - Negotiating the Terms: Italian Film and Literature (3.0 cr)
• ITAL 3640 - Topics in Italian Studies (3.0 cr)
• ITAL 5337 - Nation and Narration: Writings in the 19th Century (4.0 cr)
• ITAL 5401 - Mondo di Dante (4.0 cr)
Senior Project
The senior project involves research and writing in Italian on an approved issue or theme. Projects can include scholarly paper, or creative artistic piece such as musical composition, photography, poetry, fiction, etc. All projects include a research/analytical component.

Students must register for an approved elective with concurrent registration in ITAL 3459W. All projects must be developed under the supervision of the faculty teaching the approved elective course.

Take 1 or more course(s) from the following:
•ITAL 3459W - Senior Project [WI] (1.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
•ITAL 3459W - Senior Project [WI] (1.0 cr)
**Twin Cities Campus**  
**Italian Studies Minor**  
**French & Italian**  
**College of Liberal Arts**

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16

The Italian studies undergraduate minor program examines Italian and Italian American literature, culture, society, and history.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

Students must complete 4 courses before admission to the program.

Students must complete Italian language study equivalent to four semesters (intermediate level) before beginning the minor.

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](http://admissions.umn.edu).

**Minor Requirements**

Students are required to take 4 semester(s) of Italian.

The four required semesters of a second language do not factor into the overall length of credits in the minor.

Students may earn a B.A. or a minor in Italian studies, but not both.

**Minor Courses**

With the approval of the Italian studies undergraduate adviser, courses taken through other departments (e.g., art history, English, history, music) may count toward the Italian studies minor when they pertain to Italian studies topics.

**ITAL 3015 - Reading, Conversation, and Composition (4.0 cr)**

Take 12 or more credit(s) from the following:
- ITAL 3xxx
- ITAL 4xxx
- ITAL 5xxx
Twin Cities Campus
Jewish Studies B.A.
College of Liberal Arts - Adm

College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 28 to 38
- Degree: Bachelor of Arts

This broad, interdisciplinary field studies the civilization of the Jewish people from its beginning in biblical antiquity to the present. The diverse quality of Jewish civilization and the unifying forces of its religion and language offer ample material for the study of continuity, adaptation, and change.

The undergraduate program offers courses in the Bible, Jewish history, Jewish literature, midrash, Jewish philosophy, medieval and modern Jewish studies, Talmud, and rabbincics. The program has links with the Departments of American Studies, Sociology, History, English, German, Music, and Political Science. The University's Center for Holocaust and Genocide Studies offers courses related to the Nazi Holocaust and its aftermath.

Study abroad in Israel or Europe is encouraged as a valuable augment to the major; consult the Learning Abroad Center at (612) 626-9000 for more information.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of Hebrew.

A minimum of 13 upper-division credits must be completed on the University of Minnesota - Twin Cities campus, or through sponsored study abroad programs.

Students may earn a B.A. or a minor in Jewish studies, but not both.

Beginning fall 2012, all incoming CLA freshman must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Introductory Course

- HIST 1534 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
- HIST 3534 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
- JWST 1034 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
- JWST 3034 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
- RELS 1034 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
- RELS 3034 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)

Major Language Requirement
Students are required to complete at least one course in Biblical or Modern Hebrew at the 4th semester or beyond. Students with prior knowledge of Biblical or Modern Hebrew should consult the major program adviser for appropriate placement in each sequence. (Note: these courses require prior completion of prerequisite language courses or placement by the major program adviser upon demonstrated proficiency.)
HEBR 3012 - Intermediate Hebrew II (5.0 cr)
or HEBR 3090 - Advanced Modern Hebrew (3.0 cr)
or HEBR 3102 - Intermediate Biblical Hebrew II (4.0 cr)
or HEBR 5090 - Advanced Modern Hebrew (3.0 cr)

Major Courses
Take a minimum of seven 3xxx-5xxx courses for a minimum of 21 credits. Four courses must be chosen from two emphasis areas: (1) Jewish History & Culture in the Ancient and Medieval Worlds; and (2) Jewish History, Culture, Politics and Society in the Modern World. The remaining three courses are elective.

Jewish History & Culture in the Ancient and Medieval Worlds Emphasis Area
Take at least one "Texts & Languages" course, and one additional course. Note: students who have completed the 4th semester, or beyond, of Modern Hebrew may count a maximum of two of the following courses toward this sub-requirement: HEBR 1101, 1102, 3101 or 3102.

Text & Languages
Take 1 or more course(s) from the following:
• CNES 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• CNES 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• CNES 3204 - The Dead Sea Scrolls (3.0 cr)
• CNES 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• CNES 5204 - The Dead Sea Scrolls (3.0 cr)
• CNES 5513W - Scripture and Interpretation in Israelite Religion and Judaism [WI] (3.0 cr)
• JWST 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• JWST 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• JWST 3204 - Dead Sea Scrolls (3.0 cr)
• JWST 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• JWST 5204 - Dead Sea Scrolls (3.0 cr)
• JWST 5513W - Scripture and Interpretation in Israelite Religion and Judaism [WI] (3.0 cr)
• RELS 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• RELS 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• RELS 3204 - Dead Sea Scrolls (3.0 cr)
• RELS 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• RELS 5204 - Dead Sea Scrolls (3.0 cr)
• RELS 5513W - Scripture and Interpretation in Israelite Religion and Judaism [WI] (3.0 cr)

Additional Course
Take 1 or more course(s) from the following:
• CNES 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• CNES 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• CNES 3202 - Prophecy in Ancient Israel (3.0 cr)
• CNES 3204 - The Dead Sea Scrolls (3.0 cr)
• CNES 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• CNES 3503 - History and Development of Israelite Religion I (3.0 cr)
• CNES 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• CNES 5204 - The Dead Sea Scrolls (3.0 cr)
• CNES 5502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• CNES 5503 - History and Development of Israelite Religion I (3.0 cr)
• CNES 5513W - Scripture and Interpretation in Israelite Religion and Judaism [WI] (3.0 cr)
• HIST 3606 - Christians, Muslims, and Jews in the Middle Ages [HIS, GP] (3.0 cr)
• HIST 3778 - Jews of the Islamic Mediterranean and Christian Europe, 7th-17th Centuries (3.0 cr)
• JWST 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• JWST 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• JWST 3204 - Dead Sea Scrolls (3.0 cr)
• JWST 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• JWST 3606 - Christians, Muslims, and Jews in the Middle Ages [HIS, GP] (3.0 cr)
• JWST 3778 - Jews of the Islamic Mediterranean and Christian Europe, 7th-17th Centuries (3.0 cr)
• JWST 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• JWST 5204 - Dead Sea Scrolls (3.0 cr)
• JWST 5513W - Scripture and Interpretation in Israelite Religion and Judaism [WI] (3.0 cr)
• RELS 3078 - Jews of the Islamic Mediterranean and Christian Europe, 7th-17th Centuries (3.0 cr)
• RELS 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• RELS 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• RELS 3204 - Dead Sea Scrolls (3.0 cr)
• RELS 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• RELS 3503 - History and Development of Israelite Religion I (3.0 cr)
• RELS 3717 - Christians, Muslims, and Jews in the Middle Ages [HIS, GP] (3.0 cr)
Jewish History, Culture, Politics and Society in the Modern World Emphasis Area

Take at least one "Texts & Languages" course, and one additional course. Note: students who have completed the 4th semester, or beyond, of Biblical Hebrew may count a maximum of two of the following courses toward this sub-requirement: HEBR 1001, 1002, 3011 or 3012.

Texts & Languages

Take 1 or more course(s) from the following:

• CSCL 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
• GER 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
• HEBR 3090 - Advanced Modern Hebrew (3.0 cr)
• HEBR 5090 - Advanced Modern Hebrew (3.0 cr)
• JWST 1701 - Beginning Yiddish I (3.0 cr)
• JWST 1702 - Beginning Yiddish II (3.0 cr)
• JWST 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)

Additional Course

Take 1 or more course(s) from the following:

• AMST 3632W - Jewish Women in the United States [HIS, DSJ, WI] (3.0 cr)
• CSCL 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
• GER 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
• HEBR 3090 - Advanced Modern Hebrew (3.0 cr)
• HEBR 5090 - Advanced Modern Hebrew (3.0 cr)
• HIST 3511 - Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa since 1700 [HIS, GP] (3.0 cr)
• HIST 3512 - History of Modern Israel/Palestine: Society, Culture, and Politics [GP] (3.0 cr)
• HIST 3727 - History of the Holocaust (3.0 cr)
• HIST 3727W - History of the Holocaust [WI] (3.0 cr)
• HIST 3775 - History of Jews in Europe and the Atlantic World, from 1700 to Present (3.0 cr)
• JWST 1701 - Beginning Yiddish I (3.0 cr)
• JWST 1702 - Beginning Yiddish II (3.0 cr)
• JWST 3511 - Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa Since 1700 [HIS, GP] (3.0 cr)
• JWST 3512 - History of Modern Israel/Palestine: Society, Culture, and Politics [GP] (3.0 cr)
• JWST 3520 - History of the Holocaust (3.0 cr)
• JWST 3521W - History of the Holocaust [WI] (3.0 cr)
• JWST 3522 - History of the Arab-Israeli Conflict (3.0 cr)
• JWST 3601 - Fleeing Hitler: German and Austrian Filmmakers Between Europe and Hollywood [AH] (3.0 cr)
• JWST 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
• JWST 3632W - Jewish Women in the United States [HIS, DSJ, WI] (3.0 cr)
• JWST 3775 - History of Jews in Europe and the Atlantic World, from 1700 to Present (3.0 cr)
• JWST 3900 - Topics: Jewish Studies (3.0 cr)
• POL 4867W - United States Foreign Policy Toward the Middle East [GP, WI] (4.0 cr)
• POL 4878W - Israeli-Palestinian Situation [GP, WI] (4.0 cr)
• RELS 3520 - History of the Holocaust (3.0 cr)
• RELS 3521W - History of the Holocaust [WI] (3.0 cr)

Electives

Take 3 or more course(s) from the following:

• AMST 3632W - Jewish Women in the United States [HIS, DSJ, WI] (3.0 cr)
• CNES 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• CNES 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• CNES 3202 - Prophecy in Ancient Israel (3.0 cr)
• CNES 3204 - The Dead Sea Scrolls (3.0 cr)
• CNES 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• CNES 3503 - History and Development of Israelite Religion I (3.0 cr)
• CNES 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• CNES 5204 - The Dead Sea Scrolls (3.0 cr)
• CNES 5502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• CNES 5503 - History and Development of Israelite Religion I (3.0 cr)
• CNES 5513W - Scripture and Interpretation in Israelite Religion and Judaism [WI] (3.0 cr)
• CSCL 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
• GER 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
• HEBR 3090 - Advanced Modern Hebrew (3.0 cr)
• HEBR 5090 - Advanced Modern Hebrew (3.0 cr)
•HIST 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
•HIST 3511 - Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa since 1700 [HIS, GP] (3.0 cr)
•HIST 3512 - History of Modern Israel/Palestine: Society, Culture, and Politics [GP] (3.0 cr)
•HIST 3606 - Christians, Muslims, and Jews in the Middle Ages [HIS, GP] (3.0 cr)
•HIST 3727 - History of the Holocaust (3.0 cr)
•HIST 3727W - History of the Holocaust [WI] (3.0 cr)
•HIST 3775 - History of Jews in Europe and the Atlantic World, from 1700 to Present (3.0 cr)
•HIST 3778 - Jews of the Islamic Mediterranean and Christian Europe, 7th-17th Centuries (3.0 cr)
  • JWST 1701 - Beginning Yiddish I (3.0 cr)
  • JWST 1702 - Beginning Yiddish II (3.0 cr)
  • JWST 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
  • JWST 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
  • JWST 3204 - Dead Sea Scrolls (3.0 cr)
  • JWST 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
  • JWST 3511 - Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa Since 1700 [HIS, GP] (3.0 cr)
  • JWST 3512 - History of Modern Israel/Palestine: Society, Culture, and Politics [GP] (3.0 cr)
  • JWST 3520 - History of the Holocaust (3.0 cr)
  • JWST 3521W - History of the Holocaust [WI] (3.0 cr)
  • JWST 3522 - History of the Arab-Israeli Conflict (3.0 cr)
  • JWST 3601 - Fleeing Hitler: German and Austrian Filmmakers Between Europe and Hollywood [AH] (3.0 cr)
  • JWST 3606 - Christians, Muslims, and Jews in the Middle Ages [HIS, GP] (3.0 cr)
  • JWST 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
  • JWST 3632W - Jewish Women in the United States [HIS, DSJ, WI] (3.0 cr)
  • JWST 3775 - History of Jews in Europe and the Atlantic World, from 1700 to Present (3.0 cr)
  • JWST 3778 - Jews of the Islamic Mediterranean and Christian Europe, 7th-17th Centuries (3.0 cr)
  • JWST 3900 - Topics: Jewish Studies (3.0 cr)
  • JWST 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
  • JWST 5204 - Dead Sea Scrolls (3.0 cr)
  • JWST 5513W - Scripture and Interpretation in Israelite Religion and Judaism [WI] (3.0 cr)
•POL 4867W - United States Foreign Policy Toward the Middle East [GP, WI] (4.0 cr)
•POL 4878W - Israeli-Palestinian Situation [GP, WI] (4.0 cr)
•RELS 3078 - Jews of the Islamic Mediterranean and Christian Europe, 7th-17th Centuries (3.0 cr)
•RELS 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
•RELS 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
•RELS 3204 - Dead Sea Scrolls (3.0 cr)
•RELS 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
•RELS 3503 - History and Development of Israelite Religion I (3.0 cr)
•RELS 3520 - History of the Holocaust (3.0 cr)
•RELS 3521W - History of the Holocaust [WI] (3.0 cr)
•RELS 3717 - Christians, Muslims, and Jews in the Middle Ages [HIS, GP] (3.0 cr)
•RELS 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
•RELS 5204 - Dead Sea Scrolls (3.0 cr)
•RELS 5503 - History and Development of Israelite Religion I (3.0 cr)
•RELS 5513W - Scripture and Interpretation in Israelite Religion and Judaism [WI] (3.0 cr)

**Senior Project**
Choose from JWST 4000W (4 credits) or JWST 4001W (1 credit, taken concurrently with an approved upper-division course in the major).

JWST 4000W - Final Project, Writing Intensive [WI] (4.0 cr)

or

JWST 4001W - Final Project, Writing Intensive [WI] (1.0 cr)

**Upper-division Writing Intensive within the major**
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
• JWST 4000W - Final Project, Writing Intensive [WI] (4.0 cr)
• JWST 4001W - Final Project, Writing Intensive [WI] (1.0 cr)
Twin Cities Campus
Jewish Studies Minor
Classical & Near Eastern Studies
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18 to 26

The Jewish studies minor allows students to develop an additional concentration in the academic study of Jewish culture and civilization throughout history. The minor, which recognizes the diversity and international aspect of the Jewish experience, reinforces any disciplinary specialization and contributes a comparative focus. Students choose from among the full range of JWST courses in Jewish history, Bible, Talmud, rabbinics, Jewish literature, and medieval and modern Jewish studies.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
The minor consists of a minimum of six courses in JWST or other departments approved by the DUS. Up to 10 credits of biblical and/or modern Hebrew courses (3xxx or above) may count toward the minor. Students who wish to take introductory courses (1xxx or 2xxx) of a second language, in addition to four semesters of coursework in a first foreign language may count them toward to minor if relevant to Jewish Studies, and approved by the DUS. This applies to students who have studied modern Hebrew but wish to add biblical Hebrew, or vice versa. Students may earn a B.A. or a minor in Jewish Studies, but not both.

Core Course
HIST 1534 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
or HIST 3534 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
or JWST 1034 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
or JWST 3034 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
or RELS 1034 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
or RELS 3034 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)

Minor Courses
Take five courses at the 3xxx-level or above, chosen from two emphasis areas: (1) Jewish History and Culture in the Ancient and Medieval Worlds; (2) Jewish History, Culture, Politics and Society in the Modern World. At least one course must be chosen from each emphasis area.

Jewish History & Culture in the Ancient and Medieval Worlds
Take 1 or more course(s) from the following:
- CNES 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
- CNES 3172 (inactive) (3.0 cr)
- CNES 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
- CNES 3202 - Prophecy in Ancient Israel (3.0 cr)
- CNES 3204 - The Dead Sea Scrolls (3.0 cr)
- CNES 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
- CNES 3503 - History and Development of Israelite Religion I (3.0 cr)
- CNES 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
- CNES 5204 - The Dead Sea Scrolls (3.0 cr)
- CNES 5502 - Ancient Israel: From Conquest to Exile (3.0 cr)
- HEBR 3101 - Intermediate Biblical Hebrew I (4.0 cr)
- HEBR 3102 - Intermediate Biblical Hebrew II (4.0 cr)
- HEBR 3300 (inactive) (3.0 cr)
- HEBR 3400 (inactive) (3.0 cr)
- HIST 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
- HIST 3601 - Christians, Muslims, and Jews in the Middle Ages [HIS, GP] (3.0 cr)
- HIST 3778 - Jews of the Islamic Mediterranean and Christian Europe, 7th-17th Centuries (3.0 cr)
- JWST 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
- JWST 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
- JWST 3204 - Dead Sea Scrolls (3.0 cr)
• JWST 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• JWST 3606 - Christians, Muslims, and Jews in the Middle Ages [HIS, GP] (3.0 cr)
• JWST 3778 - Jews of the Islamic Mediterranean and Christian Europe, 7th-17th Centuries (3.0 cr)
• JWST 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• JWST 5204 - Dead Sea Scrolls (3.0 cr)
• JWST 5513W - Scripture and Interpretation in Israelite Religion and Judaism [WI] (3.0 cr)
• RELS 3078 - Jews of the Islamic Mediterranean and Christian Europe, 7th-17th Centuries (3.0 cr)
• RELS 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• RELS 3204 - Dead Sea Scrolls (3.0 cr)
• RELS 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• RELS 3503 - History and Development of Israelite Religion I (3.0 cr)
• RELS 3717 - Christians, Muslims, and Jews in the Middle Ages [HIS, GP] (3.0 cr)
• RELS 5204 - Dead Sea Scrolls (3.0 cr)
• RELS 5503 - History and Development of Israelite Religion I (3.0 cr)

**Jewish History, Culture, Politics and Society in the Modern World**

Take 1 or more course(s) from the following:

• AMST 3632W - Jewish Women in the United States [HIS, DSJ, WI] (3.0 cr)
• CSCL 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
• GER 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
• HEBR 3011 - Intermediate Hebrew I (5.0 cr)
• HEBR 3012 - Intermediate Hebrew II (5.0 cr)
• HEBR 3090 - Advanced Modern Hebrew (3.0 cr)
• HEBR 5090 - Advanced Modern Hebrew (3.0 cr)
• HIST 3511 - Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa since 1700 [HIS, GP] (3.0 cr)
• HIST 3512 - History of Modern Israel/Palestine: Society, Culture, and Politics [GP] (3.0 cr)
• HIST 3727 - History of the Holocaust (3.0 cr)
• HIST 3727W - History of the Holocaust [WI] (3.0 cr)
• HIST 3775 - History of Jews in Europe and the Atlantic World, from 1700 to Present (3.0 cr)
• JWST 3111 (inactive) (3.0 cr)
• JWST 3113 (inactive) (3.0 cr)
• JWST 3401 (inactive) (3.0 cr)
• JWST 3511 - Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa Since 1700 [HIS, GP] (3.0 cr)
• JWST 3512 - History of Modern Israel/Palestine: Society, Culture, and Politics [GP] (3.0 cr)
• JWST 3520 - History of the Holocaust (3.0 cr)
• JWST 3521W - History of the Holocaust [WI] (3.0 cr)
• JWST 3522 - History of the Arab-Israeli Conflict (3.0 cr)
• JWST 3601 - Fleeing Hitler: German and Austrian Filmmakers Between Europe and Hollywood [AH] (3.0 cr)
• JWST 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
• JWST 3632W - Jewish Women in the United States [HIS, DSJ, WI] (3.0 cr)
• JWST 3711 (inactive) (4.0 cr)
• JWST 3712 (inactive) (4.0 cr)
• JWST 3721 (inactive) (4.0 cr)
• JWST 3722 (inactive) (4.0 cr)
• JWST 3775 - History of Jews in Europe and the Atlantic World, from 1700 to Present (3.0 cr)
• JWST 3900 - Topics: Jewish Studies (3.0 cr)
• POL 4867W - United States Foreign Policy Toward the Middle East [GP, WI] (4.0 cr)
• POL 4878W - Israeli-Palestinian Situation [GP, WI] (4.0 cr)
• RELS 3520 - History of the Holocaust (3.0 cr)
• RELS 3521W - History of the Holocaust [WI] (3.0 cr)

**Electives**

Take 3 or more course(s) from the following:

• AMST 3632W - Jewish Women in the United States [HIS, DSJ, WI] (3.0 cr)
• CNES 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• CNES 3172 (inactive) (3.0 cr)
• CNES 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• CNES 3202 - Prophecy in Ancient Israel (3.0 cr)
• CNES 3204 - The Dead Sea Scrolls (3.0 cr)
• CNES 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• CNES 3503 - History and Development of Israelite Religion I (3.0 cr)
• CNES 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• CNES 5204 - The Dead Sea Scrolls (3.0 cr)
• CNES 5502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• CSCL 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
• GER 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
• HEBR 3011 - Intermediate Hebrew I (5.0 cr)
• HEBR 3012 - Intermediate Hebrew II (5.0 cr)
• HEBR 3090 - Advanced Modern Hebrew (3.0 cr)
• HEBR 3101 - Intermediate Biblical Hebrew I (4.0 cr)
• HEBR 3102 - Intermediate Biblical Hebrew II (4.0 cr)
• HEBR 3300 [Inactive] (3.0 cr)
• HEBR 3400 [Inactive] (3.0 cr)
• HEBR 5090 - Advanced Modern Hebrew (3.0 cr)
• HIST 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• HIST 3511 - Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa since 1700 [HIS, GP] (3.0 cr)
• HIST 3512 - History of Modern Israel/Palestine: Society, Culture, and Politics [GP] (3.0 cr)
• HIST 3606 - Christians, Muslims, and Jews in the Middle Ages [HIS, GP] (3.0 cr)
• HIST 3727 - History of the Holocaust (3.0 cr)
• HIST 3727W - History of the Holocaust [WI] (3.0 cr)
• HIST 3775 - History of Jews in Europe and the Atlantic World, from 1700 to Present (3.0 cr)
• HIST 3778 - Jews of the Islamic Mediterranean and Christian Europe, 7th-17th Centuries (3.0 cr)
• JWST 3111 [Inactive] (3.0 cr)
• JWST 3113 [Inactive] (3.0 cr)
• JWST 3115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• JWST 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• JWST 3204 - Dead Sea Scrolls (3.0 cr)
• JWST 3401 [Inactive] (3.0 cr)
• JWST 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• JWST 3511 - Muslims and Jews: Conflict and Co-existence in the Middle East and North Africa Since 1700 [HIS, GP] (3.0 cr)
• JWST 3512 - History of Modern Israel/Palestine: Society, Culture, and Politics [GP] (3.0 cr)
• JWST 3520 - History of the Holocaust (3.0 cr)
• JWST 3521W - History of the Holocaust [WI] (3.0 cr)
• JWST 3522 - History of the Arab-Israeli Conflict (3.0 cr)
• JWST 3601 - Fleeing Hitler: German and Austrian Filmmakers Between Europe and Hollywood [AH] (3.0 cr)
• JWST 3606 - Christians, Muslims, and Jews in the Middle Ages [HIS, GP] (3.0 cr)
• JWST 3631 - Jewish Writers and Rebels in German, Austrian, and American Culture (3.0 cr)
• JWST 3632W - Jewish Women in the United States [HIS, DSJ, WI] (3.0 cr)
• JWST 3711 [Inactive] (4.0 cr)
• JWST 3712 [Inactive] (4.0 cr)
• JWST 3721 [Inactive] (4.0 cr)
• JWST 3722 [Inactive] (4.0 cr)
• JWST 3775 - History of Jews in Europe and the Atlantic World, from 1700 to Present (3.0 cr)
• JWST 3778 - Jews of the Islamic Mediterranean and Christian Europe, 7th-17th Centuries (3.0 cr)
• JWST 3900 - Topics: Jewish Studies (3.0 cr)
• JWST 5115 - Midrash: Jewish Biblical Interpretation (3.0 cr)
• JWST 5204 - Dead Sea Scrolls (3.0 cr)
• JWST 5513W - Scripture and Interpretation in Israelite Religion and Judaism [WI] (3.0 cr)
• POL 4867W - United States Foreign Policy Toward the Middle East [GP, WI] (4.0 cr)
• POL 4878W - Israeli-Palestinian Situation [GP, WI] (4.0 cr)
• RELS 3078 - Jews of the Islamic Mediterranean and Christian Europe, 7th-17th Centuries (3.0 cr)
• RELS 3201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
• RELS 3204 - Dead Sea Scrolls (3.0 cr)
• RELS 3502 - Ancient Israel: From Conquest to Exile (3.0 cr)
• RELS 3503 - History and Development of Israelite Religion I (3.0 cr)
• RELS 3520 - History of the Holocaust (3.0 cr)
• RELS 3521W - History of the Holocaust [WI] (3.0 cr)
• RELS 3717 - Christians, Muslims, and Jews in the Middle Ages [HIS, GP] (3.0 cr)
• RELS 5204 - Dead Sea Scrolls (3.0 cr)
• RELS 5503 - History and Development of Israelite Religion I (3.0 cr)
Twin Cities Campus  
Journalism B.A.  
School of Journalism & Mass Communication  
College of Liberal Arts

- Program Type: Baccalaureate  
- Requirements for this program are current for Fall 2014  
- Required credits to graduate with this degree: 120  
- Required credits within the major: 36 to 48  
- Degree: Bachelor of Arts

The School of Journalism and Mass Communication offers three tracks focused on distinct areas of study.

The professional journalism track prepares students for careers such as news reporting, writing, editing, producing, and photojournalism in traditional and emerging media. The professional strategic communication track prepares students for careers in advertising, public relations, and corporate, non-profit, and advocacy communications. The two professional tracks are based on a liberal arts foundation, knowledge of the social context in which the professions are practiced, and the skills and experiences needed to succeed in the marketplace.

The mass communication track is for students who wish to study the social, political, economic, and legal aspects of mass communication. Students may develop a program emphasis in areas such as history, law, media effects, media industry studies, international communication, or other aspects of mass communication studies represented in the School of Journalism and Mass Communication.

About two-thirds of the coursework for the B.A. degree is outside of journalism. The 120-credit requirement must include at least 72 non-journalism credits. Total program credits may not exceed 48.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshman and transfer students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 3.00 already admitted to the degree-granting college  
- 3.00 transferring from another University of Minnesota college  
- 3.00 transferring from outside the University

The school admits a limited number of undergraduates annually. To apply, students must have completed, or be enrolled in, JOUR 1001 and at least 30 graded (A-F) credits, including at least one semester of study (13 credits) at the University of Minnesota - Twin Cities campus. Students must write a statement of intent for the major application. The statement of intent provides a writing sample for the Admissions Committee, addressing information about academic interests, professional goals, and mass communication or related experience, if any.

Students who are admitted usually have a 3.00 or higher overall GPA, and must have a grade of C or better in JOUR 1001.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Course
JOUR 1001 - Introduction to Mass Communication [SOCS, TS] (3.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).
Program Requirements
Students are required to take 4 semester(s) of any second language.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Courses
JOUR 3004W - Information for Mass Communication [WI] (3.0 cr)
or JOUR 3004V - Honors: Information for Mass Communication [WI] (3.0 cr)

Supporting Courses
Take 12 credits of 3xxx, 4xxx, or 5xxx courses from other departments, chosen in consultation with a major adviser, or complete a major or minor in another department. Note: these 12 credits are in additional to the JOUR courses that are required for the major.

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Mass Communication Track
The Mass Communication track is for students who wish to study the social, political, economic, and legal aspects of mass communication. Students may develop a program emphasis in areas such as history, law, media effects, media industry studies, international communication, or other aspects of mass communication studies represented in the School of Journalism and Mass Communication.

Context Courses
All courses must be chosen in consultation with a major adviser. Directed studies, special topics and honors major project courses may be used to meet this requirement. With adviser approval, one to three professional (skills) courses may count.
Take exactly 30 credit(s) including exactly 4 sub-requirements(s) from the following:

History
Take 1 or more course(s) from the following:
• JOUR 3007 - The Media in American History and Law: Case Studies [HIS] (3.0 cr)
• JOUR 3614 - History of Media Communication [HIS, TS] (3.0 cr)
• JOUR 3615 - History of the Documentary [AH] (3.0 cr)
• JOUR 5601W - History of Journalism [WI] (3.0 cr)
• JOUR 5606W - Literary Aspects of Journalism [WI] (3.0 cr)
• JOUR 5615 - History of the Documentary (3.0 cr)

International/Multicultural
Take 1 or more course(s) from the following:
• JOUR 3552 - Internet and Global Society [GP] (3.0 cr)
• JOUR 3745 - Mass Media and Popular Culture [DSJ] (3.0 cr)
• JOUR 4801 - Global Communication (3.0 cr)

Media Effects
Take 1 or more course(s) from the following:
• JOUR 3005 - Mass Media Effects [SOCS] (3.0 cr)
• JOUR 3006 - Visual Communication (3.0 cr)
• JOUR 4251 - Psychology of Advertising (3.0 cr)
• JOUR 4272 - Interactive Advertising (3.0 cr)
• JOUR 5501 - Communication, Public Opinion, and Social Media (3.0 cr)
• JOUR 5541 - Mass Communication and Public Health (3.0 cr)

Media and Society
Take 1 or more course(s) from the following:
• JOUR 351 - Economics of New Media [TS] (3.0 cr)
• JOUR 3745 - Mass Media and Popular Culture [AH, DSJ] (3.0 cr)
• JOUR 3771 - Mass Media Ethics: Moral Reasoning and Case Studies [CIV] (3.0 cr)
• JOUR 3775 - Administrative Law and Regulation for Strategic Communication [CIV] (3.0 cr)
• JOUR 3776 - Mass Communication Law (3.0 cr)
• JOUR 3796 - Mass Media and Politics (3.0 cr)
• JOUR 4274W - Advertising in Society [WI] (3.0 cr)
• JOUR 4551 - New Media and Culture [AH, TS] (3.0 cr)
• JOUR 4721 - Mass Media and U.S. Society [SOCS, DSJ] (3.0 cr)
Senior Project
The senior project requirement is fulfilled by taking two 4xxx or 5xxx courses as part of the 30-credit Context Courses sub-
requirement.

Professional Strategic Communication Track
The Professional Strategic Communication track prepares students for careers in advertising, public relations, corporate, non-profit, and
advocacy communications.

Strategic Communication Core Course
JOUR 3201 - Principles of Strategic Communication (3.0 cr)

Capstone Course
JOUR 4263 - Strategic Communication Campaigns (3.0 cr)

Professional Courses
Take a total of five courses for fifteen credits, including:
- a minimum of six credits of Execution Skills
- a minimum of six credits of Planning Skills
- at least one of the following: JOUR 4242 or JOUR 4259 or JOUR 4262.
Courses must be chosen in consultation with a major adviser. Professional courses from the Professional Journalism track may also
be used (prerequisites must be met).

Take 5 or more course(s) totaling 15 or more credit(s) from the following:

Execution Skills
Take 6 or more credit(s) from the following:
- JOUR 3173W - Magazine Writing [WI] (3.0 cr)
- JOUR 3241 - Advertising Strategy and Creative Development (3.0 cr)
- JOUR 3275 - Digital Media in Strategic Communication (3.0 cr)
- JOUR 3279W - Professional Writing for Strategic Communication [WI] (3.0 cr)
- JOUR 3321 - Media Design (3.0 cr)
- JOUR 3451 - TV, Radio and Digital News Reporting (3.0 cr)
- JOUR 4242 - Advertising Portfolio Development (3.0 cr)

Planning Skills
Take 6 or more credit(s) from the following:
- JOUR 3251 - Evaluative Research in Strategic Communication (3.0 cr)
- JOUR 3102 - Multimedia Production and Storytelling (3.0 cr)
- JOUR 3253 - Account Planning (3.0 cr)
- JOUR 3261 - Media Planning (3.0 cr)
- JOUR 4259 - Strategic Communication Case Analysis (3.0 cr)
- JOUR 4262 - Management for Strategic Communication (3.0 cr)

Context Courses
Take three Context courses for a total of 9 credits, one of which must be at the 4xxx or 5xxx level. Courses must be chosen in
consultation with a major adviser.

Take exactly 9 credit(s) from the following:
- JOUR 3005 - Mass Media Effects [SOCS] (3.0 cr)
- JOUR 3006 - Visual Communication (3.0 cr)
- JOUR 3007 - The Media in American History and Law: Case Studies [HIS] (3.0 cr)
- JOUR 3551 - Economics of New Media [TS] (3.0 cr)
- JOUR 3552 - Internet and Global Society [GP] (3.0 cr)
- JOUR 3614 - History of Media Communication [HIS, TS] (3.0 cr)
- JOUR 3615 - History of the Documentary [AH] (3.0 cr)
- JOUR 3741 - Diversity and Mass Communication [DSJ] (3.0 cr)
- JOUR 3745 - Mass Media and Popular Culture [AH, DSJ] (3.0 cr)
- JOUR 3771 - Mass Media Ethics: Moral Reasoning and Case Studies [CIV] (3.0 cr)
- JOUR 3775 - Administrative Law and Regulation for Strategic Communication [CIV] (3.0 cr)
- JOUR 3776 - Mass Communication Law (3.0 cr)
- JOUR 3796 - Mass Media and Politics (3.0 cr)
- JOUR 3991 - Special Topics in Mass Communication: Context (3.0 cr)
- JOUR 3993 - Directed Study (1.0 - 3.0 cr)
- JOUR 4251 - Psychology of Advertising (3.0 cr)
- JOUR 4272 - Interactive Advertising (3.0 cr)
- JOUR 4274W - Advertising in Society [WI] (3.0 cr)
- JOUR 4551 - New Media and Culture [AH, TS] (3.0 cr)
- JOUR 4721 - Mass Media and U.S. Society [SOCS, DSJ] (3.0 cr)
- JOUR 4733H - Honors Thesis Seminar [WI] (3.0 cr)
• JOUR 4801 - Global Communication (3.0 cr)
• JOUR 4991 - Special Topics in Mass Communication: Context (3.0 cr)
• JOUR 4993H - Honors: Projects (3.0 cr)
• JOUR 5501 - Communication, Public Opinion, and Social Media (3.0 cr)
• JOUR 5541 - Mass Communication and Public Health (3.0 cr)
• JOUR 5542 - Theory-based Health Message Design (3.0 cr)
• JOUR 5552 - Law of Internet Communications (3.0 cr)
• JOUR 5601W - History of Journalism [WI] (3.0 cr)
• JOUR 5606W - Literary Aspects of Journalism [WI] (3.0 cr)
• JOUR 5615 - History of the Documentary (3.0 cr)
• JOUR 5725 - Management of Media Organizations (3.0 cr)
• JOUR 5777 - Contemporary Problems in Freedom of Speech and Press (3.0 cr)
• JOUR 5991 - Special Topics in Mass Communication: Context (3.0 cr)
• JOUR 5993 - Directed Study (1.0 - 3.0 cr)

Senior Project
The senior project requirement is fulfilled by taking JOUR 4263 and 4242 or 4259 or 4262.

Professional Journalism Track
The Professional Journalism track prepares students for careers such as news reporting, writing, editing, producing, and photojournalism in traditional and emerging media.

Journalism Core Course
JOUR 3101 - News Reporting and Writing (3.0 cr)

Professional Courses
Courses must be chosen in consultation with a major adviser. Professional courses from the strategic communication track may also be used (prerequisites must be met). Students must take a total of 15 credits, including two courses at the 4xxx or 5xxx level.

Take exactly 15 credit(s) from the following:
• JOUR 3102 - Multimedia Production and Storytelling (3.0 cr)
• JOUR 3103 - Interactive and Data Journalism (3.0 cr)
• JOUR 3121 - Intermediate News Reporting (3.0 cr)
• JOUR 3155 - Editing for Print and Digital Audiences (3.0 cr)
• JOUR 3173W - Magazine Writing [WI] (3.0 cr)
• JOUR 3174 - Media Design (3.0 cr)
• JOUR 3193 - Brovad-Sim Community Journalism Practicum: Murphy News Service (3.0 cr)
• JOUR 3302 - Electronic Photojournalism (3.0 cr)
• JOUR 3303 - Documentary Photojournalism (3.0 cr)
• JOUR 3451 - TV, Radio and Digital News Reporting (3.0 cr)
• JOUR 3452 - Electronic Newscast Producing (3.0 cr)
• JOUR 3990 - Special Topics in Mass Communication: Professional (3.0 cr)

Context Courses
Take four Context courses for a total of 12 credits, including JOUR 3776 and one course at the 4xxx or 5xxx level. Courses must be chosen in consultation with a major adviser.

JOUR 3776 - Mass Communication Law (3.0 cr)

Take exactly 9 credit(s) from the following:
• JOUR 3005 - Mass Media Effects [SOCS] (3.0 cr)
• JOUR 3006 - Visual Communication (3.0 cr)
• JOUR 3007 - The Media in American History and Law: Case Studies [HIS] (3.0 cr)
• JOUR 3201 - Principles of Strategic Communication (3.0 cr)
• JOUR 3551 - Economics of New Media [TS] (3.0 cr)
• JOUR 3552 - Internet and Global Society [GP] (3.0 cr)
• JOUR 3614 - History of Media Communication [HIS, TS] (3.0 cr)
• JOUR 3615 - History of the Documentary [AH] (3.0 cr)
• JOUR 3741 - Diversity and Mass Communication [DSJ] (3.0 cr)
• JOUR 3745 - Mass Media and Popular Culture [AH, DSJ] (3.0 cr)
• JOUR 3771 - Mass Media Ethics: Moral Reasoning and Case Studies [CIV] (3.0 cr)
• JOUR 3775 - Administrative Law and Regulation for Strategic Communication [CIV] (3.0 cr)
• JOUR 3796 - Mass Media and Politics (3.0 cr)

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Information current as of December 12, 2014
• JOUR 3991 - Special Topics in Mass Communication: Context (3.0 cr)
• JOUR 3993 - Directed Study (1.0 - 3.0 cr)
• JOUR 4251 - Psychology of Advertising (3.0 cr)
• JOUR 4272 - Interactive Advertising (3.0 cr)
• JOUR 4274W - Advertising in Society [WI] (3.0 cr)
• JOUR 4551 - New Media and Culture [AH, TS] (3.0 cr)
• JOUR 4721 - Mass Media and U.S. Society [SOCS, DSJ] (3.0 cr)
• JOUR 4733H - Honors Thesis Seminar [WI] (3.0 cr)
• JOUR 4801 - Global Communication (3.0 cr)
• JOUR 4991 - Special Topics in Mass Communication: Context (3.0 cr)
• JOUR 4993H - Honors: Projects (3.0 cr)
• JOUR 5501 - Communication, Public Opinion, and Social Media (3.0 cr)
• JOUR 5541 - Mass Communication and Public Health (3.0 cr)
• JOUR 5552 - Law of Internet Communications (3.0 cr)
• JOUR 5601W - History of Journalism [WI] (3.0 cr)
• JOUR 5606W - Literary Aspects of Journalism [WI] (3.0 cr)
• JOUR 5615 - History of the Documentary (3.0 cr)
• JOUR 5725 - Management of Media Organizations (3.0 cr)
• JOUR 5777 - Contemporary Problems in Freedom of Speech and Press (3.0 cr)
• JOUR 5991 - Special Topics in Mass Communication: Context (3.0 cr)
• JOUR 5993 - Directed Study (1.0 - 3.0 cr)

Senior Project
The senior project requirement is fulfilled by taking two 4xxx or 5xxx courses as part of the 15-credit Professional Courses sub-requirement.
Twin Cities Campus
Latin Minor
Classical & Near Eastern Studies
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14

The minor program permits those who have satisfied Latin language requirement to read Latin authors of antiquity and the Middle Ages and to add to their knowledge of Roman and medieval civilization.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 3 courses before admission to the program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Courses
Students must complete an introductory course, plus the first year of Latin before declaring the minor. Another appropriate preparatory course other than the options listed below may be taken with prior DUS approval. Note: preparatory coursework does not factor into the overall length in credits of the minor.

Introductory Course
CNES 1003 - World of Rome [HIS] (3.0 cr)
or
CNES 1042 - Greek and Roman Mythology [AH] (4.0 cr)
or
CNES 1042H - Honors Course: Greek and Roman Mythology [AH] (4.0 cr)

First-Year Latin
LAT 1001 - Beginning Latin I (5.0 cr)
LAT 1002 - Beginning Latin II (5.0 cr)

Minor Requirements
Students are required to take 2 semester(s) of Latin.

Students may earn a B.A. or a minor in Latin, but not both.

Minor Courses
Latin Courses
Take 3 or more course(s) totaling 11 or more credit(s) from the following:
- LAT 3003 - Intermediate Latin Prose (4.0 cr)
- LAT 3004 - Intermediate Latin Poetry: Vergil (4.0 cr)
- LAT 5100 - Advanced Reading (3.0 cr)
- LAT 5200 - Advanced Reading in Later Latin (3.0 cr)
- LAT 57xx

Electives
Other appropriate courses that do not appear below may be taken with prior DUS approval.
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- CNES 3008 (Inactive)(4.0 cr)
- CNES 3035 (Inactive)(4.0 cr)
- CNES 3072 - The New Testament (3.0 cr)
- CNES 5072 - The New Testament (3.0 cr)
- CNES 3073 - Roman Religion and Early Christianity (3.0 cr)
- CNES 5073 - Roman Religion and Early Christianity (3.0 cr)
- CNES 3081W - Classical Epic in Translation [LITR, WI] (3.0 cr)
- CNES 5081W - Classical Epic in Translation [LITR, WI] (3.0 cr)
- CNES 3083W - Ancient Comedy [WI] (3.0 cr)
- CNES 5083W - Ancient Comedy [WI] (3.0 cr)
• CNES 5083 - Ancient Comedy (3.0 cr)
• CNES 3106 - Ancient Rome: The Age of Nero (3.0 cr)
• CNES 3107 - Age of Constantine the Great (3.0 cr)
• CNES 3108 - Age of St. Augustine of Hippo (3.0 cr)
• CNES 3109 - The Age of Justinian and Muhammad (c.500-c.700 A.D.) (3.0 cr)
• CNES 3156 [Inactive] (3.0 cr)
• CNES 3162 - Roman Art and Archaeology [HIS] (3.0 cr)
• CNES 3535 - Death and the Afterlife in the Ancient World [AH] (3.0 cr)
• CNES 5535 - Death and the Afterlife in the Ancient World (3.0 cr)
• CNES 3601 - Sexuality and Gender in Ancient Greece and Rome [AH] (3.0 cr)
• CNES 5601 - Sexuality and Gender in Ancient Greece and Rome (3.0 cr)
• CNES 5013 - Introduction to Roman Law (3.0 cr)
• CNES 5172 [Inactive] (3.0 cr)
• CNES 5188 - Art and Archaeology of Early Christianity and the Late Roman Empire (3.0 cr)
• HIST 3053 - Ancient Civilization: Rome [HIS] (3.0 cr)
• HIST 3061 - "Bread and Circuses": Spectacles and Mass Culture in Antiquity (3.0 cr)
• HIST 4071 - History of Rome to 78 B.C. (3.0 cr)
• HIST 4072 [Inactive] (3.0 cr)
• HIST 4073 - History of Rome: A.D. 117 to 641 (3.0 cr)
• HIST 5053 - Doing Roman History: Sources, Methods, and Trends (3.0 cr)
Twin Cities Campus
Linguistics B.A.
Institute of Linguistics
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 34
- Degree: Bachelor of Arts

Linguistics is the scientific study of human language. Courses explore the principles governing the structure of natural languages, how languages are acquired by children and adults, the role of language in human cognition and social interaction, and how languages change over time.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students may earn a B.A. or a minor in linguistics, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Courses
Note: Honors students may substitute LING 5201 for LING 4201, or LING 5302 for LING 4302W, or LING 5202 for LING 4202, or LING 5303 for LING 4303. However, LING 4201 and 5201 cannot both be counted towards the degree requirements, nor can 4302 and 5302, or 4202 and 5202, etcetera.
LING 3001 - Introduction to Linguistics [SOCS] (4.0 cr)
    or LING 3001H - Honors: Introduction to Linguistics (4.0 cr)
    or LING 5001 - Introduction to Linguistics (4.0 cr)
LING 4201 - Syntax I (3.0 cr)
LING 4302W - Phonology I [WI] (3.0 cr)
LING 5205 - Semantics (3.0 cr)
LING 4202 - Syntax II (3.0 cr)
    or LING 4303 - Phonology II (3.0 cr)

Electives
No more than 4 credits of LING 1xxx will count. Up to 6 elective credits may be taken in an allied discipline, if approved by the director of undergraduate studies.
Take 15 or more credit(s) from the following:
- LING 1xxx
- LING 2xxx
- LING 3xxx
- LING 4xxx
- LING 5xxx
Senior Project
Complete LING 4901W (honors students take LING 3051H and 3052V) with at least a grade of S. The usual requirement for this course is the revision and expansion of a paper written for another linguistics course, but it may involve an original research paper. Students complete this paper in a seminar offered each spring semester. The topic should be approved by the course instructor before registration for the seminar.
LING 4901W - Major Project Seminar [WI] (3.0 cr)
or LING 3051H - Honors: Thesis (3.0 cr)
LING 3052V - Honors: Thesis [WI] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• LING 4302W - Phonology I [WI] (3.0 cr)
• LING 4901W - Major Project Seminar [WI] (3.0 cr)
• LING 3052V - Honors: Thesis [WI] (3.0 cr)
Twin Cities Campus

Linguistics Minor
Institute of Linguistics
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16

Linguistics is the scientific study of human language. Courses explore the principles governing the structure of natural languages, how languages are acquired by children and adults, the role of language in human cognition and social interaction, and how languages change over time.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
The minor program must be approved by the director of undergraduate studies. Students may earn a B.A. or a minor in linguistics, but not both.

Minor Courses
Note: LING 4201 and LING 5201 cannot both be counted toward the minor. The same rule applies to LING 4302W and LING 5302. Honors students may substitute LING 5201 for LING 4201, and LING 5302 for LING 4302W.

Introduction to Linguistics
  LING 3001 - Introduction to Linguistics [SOCS] (4.0 cr)
  or LING 3001H - Honors: Introduction to Linguistics (4.0 cr)
  or LING 5001 - Introduction to Linguistics (4.0 cr)

Upper-division LING Courses
Take 2 or more course(s) from the following:
  • LING 4002 - Linguistic Analysis (3.0 cr)
  • LING 4201 - Syntax I (3.0 cr)
  • LING 4302W - Phonology I [WI] (3.0 cr)

LING Electives
No more than 4 credits of LING 1xxx may count toward the minor.
Take 6 or more credit(s) from the following:
  • LING 1xxx
  • LING 3xxx
  • LING 4xxx
  • LING 5xxx
Twin Cities Campus
Mass Communication Minor
School of Journalism & Mass Communication
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

The minor serves students who wish to study the social, political, economic, and legal aspects of mass communication.

Program Delivery
This program is available:
  • via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 1 courses before admission to the program.

A GPA above 2.0 is preferred for the following:
  • 2.50 already admitted to the degree-granting college
  • 2.50 transferring from another University of Minnesota college
  • 2.50 transferring from outside the University

Students seeking a minor in mass communication must consult the School of Journalism and Mass Communication website at http://sjmc.umn.edu/minors. There are two qualifications for admission: a GPA of 2.5, and a grade of C or better in JOUR 1001. When these criteria have been met, an adviser in Room 110 Murphy Hall will approve a minor program plan.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Course
Note: this course factors into the overall length in credits of the minor.
JOUR 1001 - Introduction to Mass Communication [SOCS, TS] (3.0 cr)

Minor Requirements
Students may earn a B.A. or a minor in the School of Journalism, but not both.

Minor Courses
JOUR 3004W - Information for Mass Communication [WI] (3.0 cr)

Context Courses
Take at least one JOUR 4xxx or 5xxx context course.
Take 4 or more course(s) from the following:
• JOUR 3005 - Mass Media Effects [SOCS] (3.0 cr)
• JOUR 3006 - Visual Communication (3.0 cr)
• JOUR 3007 - The Media in American History and Law: Case Studies [HIS] (3.0 cr)
• JOUR 3201 - Principles of Strategic Communication (3.0 cr)
• JOUR 3551 - Economics of New Media [TS] (3.0 cr)
• JOUR 3552 - Internet and Global Society [GP] (3.0 cr)
• JOUR 3614 - History of Media Communication [HIS, TS] (3.0 cr)
• JOUR 3615 - History of the Documentary [AH] (3.0 cr)
• JOUR 3741 - Diversity and Mass Communication [DSJ] (3.0 cr)
• JOUR 3745 - Mass Media and Popular Culture [AH, DSJ] (3.0 cr)
• JOUR 3771 - Mass Media Ethics: Moral Reasoning and Case Studies [CIV] (3.0 cr)
• JOUR 3775 - Administrative Law and Regulation for Strategic Communication [CIV] (3.0 cr)
• JOUR 3776 - Mass Communication Law (3.0 cr)
• JOUR 3796 - Mass Media and Politics (3.0 cr)
• JOUR 3991 - Special Topics in Mass Communication: Context (3.0 cr)
• JOUR 4251 - Psychology of Advertising (3.0 cr)
• JOUR 4272 - Interactive Advertising (3.0 cr)
• JOUR 4274W - Advertising in Society [WI] (3.0 cr)
• JOUR 4551 - New Media and Culture [AH, TS] (3.0 cr)
• JOUR 4721 - Mass Media and U.S. Society [SOCS, DSJ] (3.0 cr)
• JOUR 4801 - Global Communication (3.0 cr)
• JOUR 4991 - Special Topics in Mass Communication: Context (3.0 cr)
• JOUR 5501 - Communication, Public Opinion, and Social Media (3.0 cr)
• JOUR 5541 - Mass Communication and Public Health (3.0 cr)
• JOUR 5552 - Law of Internet Communications (3.0 cr)
• JOUR 5601W - History of Journalism [WI] (3.0 cr)
• JOUR 5606W - Literary Aspects of Journalism [WI] (3.0 cr)
• JOUR 5615 - History of the Documentary (3.0 cr)
• JOUR 5725 - Management of Media Organizations (3.0 cr)
• JOUR 5777 - Contemporary Problems in Freedom of Speech and Press (3.0 cr)
• JOUR 5991 - Special Topics in Mass Communication: Context (3.0 cr)
Twin Cities Campus
Mathematics B.A.
School of Mathematics
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 30 to 72
- Degree: Bachelor of Arts

The mission of the program is to provide high-quality mathematics instruction in a stimulating intellectual atmosphere. The goal is to educate students at all levels to provide cultural enrichment, to give them the analytic tools they need to become responsible citizens, and to prepare them for careers involving mathematics.

The School of Mathematics offers a program in the College of Liberal Arts leading to a bachelor of arts degree. The course of study is flexible and may be adapted to satisfy a wide variety of interests and needs. Students may prepare for graduate study in mathematics or may emphasize various fields of interest, such as preparation for secondary school teaching, actuarial science, or programs in applied mathematics. This includes industrial mathematics, biology, mathematics applicable to computer science, and numerical analysis.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 3 courses before admission to the program.

Successful completion of Calculus I (1271/1371/1571H) plus Calculus II (1272/1372/1572H) plus one 2xxx level Calculus course: (2243/2373/2574H) or (2263/2374/2573H). See equivalent course lists below.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Required Calculus Courses
Both Calculus I & II plus one 2xxx (or 3xxx level Honors) Calculus course must be successfully completed in order to declare the Math major.

Calculus Sequence
Calculus I
- MATH 1271 - Calculus I [MATH] (4.0 cr)
- or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
- or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)

Calculus II
- MATH 1272 - Calculus II (4.0 cr)
- or MATH 1372 - CSE Calculus II (4.0 cr)
- or MATH 1572H - Honors Calculus II (4.0 cr)

2xxx Level Calculus Course
- MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
- or MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
- or MATH 2574H - Honors Calculus IV (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students must complete a minimum of 6 upper division math courses at 4xxx or above and a senior project (4995 or 4997W). Please note that MATH 3113, 3116, 3118, 4116, 4118, 3283W, 4005, 4067W, 49xx and 59xx math courses do not satisfy upper division mathematics course requirements.

The School of Mathematics will accept STAT 5101 and STAT 5102 as part of the upper division mathematics course requirements. The content of STAT 5101 is the same as MATH 5651. No other courses from other departments may be used as part of the Mathematics Major course requirements.

In addition to the specializations described below, students who wish to pursue a pure mathematics track, or are planning to go to graduate school in mathematics, should consult their adviser about appropriate course choices.

Beginning fall 2012, all incoming CLA freshman must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Remaining Required Lower Division Calculus Courses

Multivariable Calculus
MATH 2263 - Multivariable Calculus (4.0 cr)
or MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
or MATH 2573H - Honors Calculus III (4.0 cr)

Sequences, Series, and Foundations
MATH 3283W - Sequences, Series, and Foundations: Writing Intensive [WI] (4.0 cr)
or MATH 2283 - Sequences, Series, and Foundations (3.0 cr)

Senior Project
Students should consult with a mathematics adviser prior to beginning the senior year to determine possible topic and possible faculty mentor for the senior project.
MATH 4997W - Senior project (Writing Intensive) [WI] (1.0 cr)
or MATH 4995 - Senior Project for CLA (1.0 cr)

Mathematics Options

Mathematics (No Specialization)
Students who do not choose one of the specializations must complete the basic Mathematics course requirements listed here.
Take 6 or more course(s) including 3 or more sub-requirements(s) from the following:

Algebra Requirement
Both courses can be from the Theoretical Algebra list.
Take 2 or more course(s) from the following:
Theoretical Algebra
Take 1 or more course(s) from the following:
• MATH 4281 - Introduction to Modern Algebra (4.0 cr)
• MATH 5248 - Cryptology and Number Theory (4.0 cr)
• MATH 5251 - Error-Correcting Codes, Finite Fields, Algebraic Curves (4.0 cr)
• MATH 5285H - Honors: Fundamental Structures of Algebra I (4.0 cr)
• MATH 5286H - Honors: Fundamental Structures of Algebra II (4.0 cr)
• MATH 5385 - Introduction to Computational Algebraic Geometry (4.0 cr)

• Applied Algebra
Take 0 or more course(s) from the following:
• MATH 4242 - Applied Linear Algebra (4.0 cr)
• MATH 5705 - Enumerative Combinatorics (4.0 cr)
• MATH 5707 - Graph Theory and Non-enumerative Combinatorics (4.0 cr)
• MATH 5711 - Linear Programming and Combinatorial Optimization (4.0 cr)
• MATH 5485 - Introduction to Numerical Methods I (4.0 cr)

• Analysis Requirement
Take 2 or more course(s) from the following:
• MATH 4567 - Applied Fourier Analysis (4.0 cr)
• MATH 4603 - Advanced Calculus I (4.0 cr)
• MATH 4604 - Advanced Calculus II (4.0 cr)
• MATH 5486 - Introduction To Numerical Methods II (4.0 cr)
• MATH 5525 - Introduction to Ordinary Differential Equations (4.0 cr)
• MATH 5535 - Dynamical Systems and Chaos (4.0 cr)
• MATH 5583 - Complex Analysis (4.0 cr)
• MATH 5587 - Elementary Partial Differential Equations I (4.0 cr)
• MATH 5588 - Elementary Partial Differential Equations II (4.0 cr)
• MATH 5615H - Honors: Introduction to Analysis I (4.0 cr)
• MATH 5616H - Honors: Introduction to Analysis II (4.0 cr)
• MATH 5652 - Introduction to Stochastic Processes (4.0 cr)
• MATH 5654 - Prediction and Filtering (4.0 cr)

**Theory of Probability and Statistics**
• MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)
  or STAT 5101 - Theory of Statistics I (4.0 cr)

**4xxx/5xxx Level Mathematics Electives Requirement**
Courses from the Algebra and Analysis lists which have not already taken to fulfill those requirements may be taken to fulfill the Electives requirement.

Take 2 or more course(s) from the following:
• MATH 4xxx
• MATH 5xxx

-OR-

**Actuarial Science Specialization**
Complete the requirements for the Actuarial Science subplan.

-OR-

**Mathematics Education Specialization**
Complete the requirements for the Mathematics Education subplan.

-OR-

**Computer Applications Specialization**
Complete the requirements for the Computer Applications subplan.

-OR-

**Mathematical Biology: Genomics**
Complete the requirements for the Genomics subplan.

-OR-

**Mathematical Biology: Physiology**
Complete the requirements for the Physiology subplan.

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**Program Sub-plans**
A sub-plan is not required for this program.

**Actuarial Science**
The BA-Mathematics with Actuarial Specialization requires a minimum of 7 upper division (4xxx level and above) Mathematics courses, as indicated in the lists below. Students pursuing the Actuarial Specialization may want to include MATH 4067W, which fulfills an upper division writing intensive requirement, although it does not fulfill any of the upper division Mathematics course requirements. It is recommended for students in this specialization to plan for a summer internship after junior year.

**Mathematics Courses for the Actuarial Specialization**

**Algebra Requirements**

**Theoretical Algebra**
Take 1 or more course(s) from the following:
• MATH 4281 - Introduction to Modern Algebra (4.0 cr)
• MATH 5248 - Cryptology and Number Theory (4.0 cr)
• MATH 5251 - Error-Correcting Codes, Finite Fields, Algebraic Curves (4.0 cr)
• MATH 5285H - Honors: Fundamental Structures of Algebra I (4.0 cr)
• MATH 5286H - Honors: Fundamental Structures of Algebra II (4.0 cr)
• MATH 5385 - Introduction to Computational Algebraic Geometry (4.0 cr)

**Applied Algebra**
• MATH 4242 - Applied Linear Algebra (4.0 cr)

**Analysis Requirements**

**Probability and Statistics**
STAT 5102 does not fulfill the Analysis Requirement.

Theory of Probability & Statistics
• MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)
  or STAT 5101 - Theory of Statistics I (4.0 cr)
• MATH 5652 - Introduction to Stochastic Processes (4.0 cr)

**Actuarial Mathematics Courses**
MATH 4065 - Theory of Interest (4.0 cr)  
MATH 5067 - Actuarial Mathematics I (4.0 cr)  
MATH 5068 - Actuarial Mathematics II (4.0 cr)  

**Computer Science Requirement**  
CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)  
*or*  
CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)  

**Economics and Business Course Requirements**  

**Introductory Economics**  
ECON 1101 - Principles of Microeconomics [SOSCS, GP] (4.0 cr)  
ECON 1102 - Principles of Macroeconomics (4.0 cr)  

**Economics and Finance**  
ACCT 2050 - Introduction to Financial Reporting (4.0 cr)  
ECON 3101 - Intermediate Microeconomics (4.0 cr)  
ECON 4261 - Introduction to Econometrics (4.0 cr)  
FINA 3001 - Finance Fundamentals (3.0 cr)  

**Insurance**  
Take 2 or more course(s) from the following:  
*• INS 4100 - Corporate Risk Management (2.0 cr)*  
*• INS 4101 - Employee Benefits (2.0 cr)*  
*• INS 4200 - Insurance Theory and Practice (2.0 cr)*  

**Computer Applications**  
A minimum of six (6) upper division (4xxx level and above) Mathematics courses and a minimum of two (2) upper division Computer Science courses (plus lower division prerequisites) from the courses indicated below are needed to fulfill the requirements for the Computer Applications Specialization. Students who complete the Computer Applications Specialization also meet requirements for a minor in Computer Science.  

### Algebra Requirements  

**Theoretical Algebra**  
MATH 4281 - Introduction to Modern Algebra (4.0 cr)  
*or*  
MATH 5248 - Cryptology and Number Theory (4.0 cr)  
*or*  
MATH 5251 - Error-Correcting Codes, Finite Fields, Algebraic Curves (4.0 cr)  
*MATH 5285H - Honors: Fundamental Structures of Algebra I (4.0 cr)  
*MATH 5286H - Honors: Fundamental Structures of Algebra II (4.0 cr)*  
*MATH 5385 - Introduction to Computational Algebraic Geometry (4.0 cr)*  

**Applied Algebra**  
MATH 5485 - Introduction to Numerical Methods I (4.0 cr)  

### Analysis Requirements  

**Numerical Methods**  
MATH 5486 - Introduction To Numerical Methods II (4.0 cr)  

**Additional Analysis Course**  
MATH 4567 - Applied Fourier Analysis (4.0 cr)  
*or*  
MATH 4603 - Advanced Calculus I (4.0 cr)  
*or*  
MATH 4604 - Advanced Calculus II (4.0 cr)  
*or*  
MATH 5535 - Dynamical Systems and Chaos (4.0 cr)  
*or*  
MATH 5525 - Introduction to Ordinary Differential Equations (4.0 cr)  
*or*  
MATH 5583 - Complex Analysis (4.0 cr)  
*or*  
MATH 5587 - Elementary Partial Differential Equations I (4.0 cr)  
*or*  
MATH 5588 - Elementary Partial Differential Equations II (4.0 cr)  
*or*  
MATH 5652 - Introduction to Stochastic Processes (4.0 cr)  
*MATH 5654 - Prediction and Filtering (4.0 cr)*  
*MATH 5615H - Honors: Introduction to Analysis I (4.0 cr)*  
*MATH 5616H - Honors: Introduction to Analysis II (4.0 cr)*  
*MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)  
*or*  
STAT 5101 - Theory of Statistics I (4.0 cr)*  

**Additional Computing-Related Mathematics**  

**Mathematical Logic**  
MATH 5165 - Mathematical Logic I (4.0 cr)  

**Computer-Related Mathematics Electives**  
MATH 4242 - Applied Linear Algebra (4.0 cr)  
*MATH 5166 - Mathematical Logic II (4.0 cr)*  
*MATH 5248 - Cryptology and Number Theory (4.0 cr)*  
*MATH 5251 - Error-Correcting Codes, Finite Fields, Algebraic Curves (4.0 cr)*  
*MATH 5285H - Honors: Fundamental Structures of Algebra I (4.0 cr)*
or MATH 5286H - Honors: Fundamental Structures of Algebra II (4.0 cr)
or MATH 5385 - Introduction to Computational Algebraic Geometry (4.0 cr)
or MATH 5705 - Enumerative Combinatorics (4.0 cr)
or MATH 5707 - Graph Theory and Non-enumerative Combinatorics (4.0 cr)
or MATH 5711 - Linear Programming and Combinatorial Optimization (4.0 cr)

Computer Applications Prerequisite Requirements
CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
or CSCI 1901 (Inactive) (4.0 cr)
CSCI 2011 - Discrete Structures of Computer Science (4.0 cr)

Upper Division Computer Science Courses
Take 2 or more course(s) from the following:
- CSCI 4011 - Formal Languages and Automata Theory (4.0 cr)
- CSCI 4041 - Algorithms and Data Structures (4.0 cr)
- CSCI 4107 (Inactive) (3.0 cr)
- CSCI 4511W - Introduction to Artificial Intelligence [WI] (4.0 cr)
- CSCI 5607 - Fundamentals of Computer Graphics I (3.0 cr)
- CSCI 5608 - Fundamentals of Computer Graphics II (3.0 cr)
- CSCI 5403 (Inactive) (3.0 cr)
- CSCI 5421 - Advanced Algorithms and Data Structures (3.0 cr)
- CSCI 5451 - Introduction to Parallel Computing: Architectures, Algorithms, and Programming (3.0 cr)
- CSCI 5511 - Artificial Intelligence I (3.0 cr)
- CSCI 5512 - Artificial Intelligence II (3.0 cr)
- CSCI 5521 - Introduction to Machine Learning (3.0 cr)

Mathematics Education
Six (6) upper division (4xxx level and above) Mathematics courses are required for the Mathematics Education Specialization. These courses prepare students to meet admission requirements for the Secondary Teaching Licensure Program in Mathematics. The topics covered by these courses include Theoretical and Applied Algebra-Combinatorics, Probability, Mathematical Analysis, and Geometry.

Mathematics Education Specialization Requirements

Theoretical Algebra
Math 4281 - Introduction to Modern Algebra (4.0 cr)
or Math 5285H - Honors: Fundamental Structures of Algebra I (4.0 cr)

Applied Algebra - Combinatorics
Math 4707 - Introduction to Combinatorics and Graph Theory (4.0 cr)
or Math 5705 - Enumerative Combinatorics (4.0 cr)
or Math 5707 - Graph Theory and Non-enumerative Combinatorics (4.0 cr)

Geometry
Math 5335 - Geometry I (4.0 cr)

Probability and Statistics
Math 5651 or Stat 5101 may be used to fulfill this requirement.
Math 4653 - Elementary Probability (4.0 cr)

Analysis Requirements
Take 2 or more course(s) from the following:
- Math 4567 - Applied Fourier Analysis (4.0 cr)
- Math 4603 - Advanced Calculus I (4.0 cr)
- Math 4604 - Advanced Calculus II (4.0 cr)
- Math 5651 - Basic Theory of Probability and Statistics (4.0 cr)
or Stat 5101 - Theory of Statistics I (4.0 cr)

Mathematics Elective
If a sixth Mathematics course is needed after requirements for this specialization have been met, a course from either the Algebra or Analysis lists or another standard 4xxx or 5xxx level course may be taken.
Take 0 or more course(s) from the following:

Mathematical Biology: Genomics
A minimum of six (6) upper division (4xxx level and above) Mathematics courses and a minimum of three (3) upper division courses in related areas (plus lower division prerequisites) are needed to fulfill the requirements for the specialization in Mathematical Biology: Genomics.

Mathematics Requirements for MathBio - Genomics
Mathematical Modeling
Math 4428 - Mathematical Modeling (4.0 cr)
Theoretical Algebra
Take 1 or more course(s) from the following:
• MATH 4281 - Introduction to Modern Algebra (4.0 cr)
• MATH 5248 - Cryptology and Number Theory (4.0 cr)
• MATH 5251 - Error-Correcting Codes, Finite Fields, Algebraic Curves (4.0 cr)
• MATH 5285H - Honors: Fundamental Structures of Algebra I (4.0 cr)
• MATH 5286H - Honors: Fundamental Structures of Algebra II (4.0 cr)
• MATH 5385 - Introduction to Computational Algebraic Geometry (4.0 cr)

Applied Algebra
 MATH 4242 - Applied Linear Algebra (4.0 cr)

Analysis Requirements
Genomics Analysis Requirement
Take 1 or more course(s) from the following:
• MATH 5525 - Introduction to Ordinary Differential Equations (4.0 cr)
• MATH 5535 - Dynamical Systems and Chaos (4.0 cr)

Theory of Probability & Statistics I
 MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)
or STAT 5101 - Theory of Statistics I (4.0 cr)

Mathematics Elective
If MATH 5445 is not chosen as the Genomics Elective course, then a sixth upper division Mathematics course is needed for this specialization. A course from either the Algebra or Analysis lists or another standard 4xxx or 5xxx level course may be taken to fulfill this requirement for the major.
Take 0 or more course(s) from the following:
• MATH 4xxx
• MATH 5xxx
• MATH 5445 - Mathematical Analysis of Biological Networks (4.0 cr)

Computer Science Requirements
CSCI 1901, 1902, 2011 plus CSCI 4041 may serve as the substitute prerequisite for CSCI 5461.
• CSCI 5461 - Functional Genomics, Systems Biology, and Bioinformatics (3.0 cr)
• CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
or CSCI 1901 (Inactive) (4.0 cr)
• CSCI 1902 (Inactive) (4.0 cr)
• CSCI 2011 - Discrete Structures of Computer Science (4.0 cr)
• CSCI 4041 - Algorithms and Data Structures (4.0 cr)
• CSCI 5481 - Computational Techniques for Genomics (3.0 cr)

Genomics, Biology Requirements
If the Genomics Elective Course chosen does not require a Chemistry sequence, then it is still recommended that one semester of Chemistry is taken (CHEM 1061 & CHEM 1065 Lab) which will also fulfill the Physical Sciences Liberal education degree requirement.

1xxx Level Biology Requirement
BIOL 1009H may be substituted.
BIOL 1009 - General Biology [BIOL] (4.0 cr)

Genomics Course Requirement
Genetics
• GCD 3022 - Genetics (3.0 cr)

Genomics Elective Requirement
The 5xxx level CSCI course which was not taken to fulfill the Computer Science requirement may (with its prerequisites) be used to fulfill the Genomics Elective Requirement.
Take 1 or more course(s) from the following:
• EEB 5042 - Quantitative Genetics (3.0 cr)
• GCD 4143 - Human Genetics (3.0 cr)
• MATH 5445 - Mathematical Analysis of Biological Networks (4.0 cr)
• Plant Genomics
• PBIO 5301 has these additional prerequisite courses: CHEM 1061, CHEM 1065 (lab), CHEM 1062, CHEM 1066 (lab), CHEM 2301; BIOC 3021.
• PBIO 5301 - Plant Genomics (3.0 cr)
• Molecular Biology of Cancer
• GCD 4151 has these additional prerequisite courses: CHEM 1061, CHEM 1065 (lab), CHEM 1062, CHEM 1066 (lab), CHEM 2301; BIOC 3021; BIOL 4033.
• GCD 4151 - Molecular Biology of Cancer (3.0 cr)

Mathematical Biology: Physiology
A minimum of six (6) upper division (4xxx level and above) Mathematics courses and a minimum of three (3) upper division courses in related areas (plus lower division prerequisites) are needed to fulfill the requirements for the specialization in Mathematical Biology: Physiology.
Mathematics Requirements for MathBio: Physiology

**Mathematical Modeling Requirement**
- MATH 4428 - Mathematical Modeling (4.0 cr)

**Biological Networks or Neuroscience**
- MATH 5445 - Mathematical Analysis of Biological Networks (4.0 cr)
  - or MATH 5447 - Theoretical Neuroscience (4.0 cr)

**Theoretical Algebra**
- Take 1 or more course(s) from the following:
  - MATH 4281 - Introduction to Modern Algebra (4.0 cr)
  - MATH 5248 - Cryptology and Number Theory (4.0 cr)
  - MATH 5251 - Error-Correcting Codes, Finite Fields, Algebraic Curves (4.0 cr)
  - MATH 5285H - Honors: Fundamental Structures of Algebra I (4.0 cr)
  - MATH 5286H - Honors: Fundamental Structures of Algebra II (4.0 cr)
  - MATH 5385 - Introduction to Computational Algebraic Geometry (4.0 cr)

**Applied Algebra**
- MATH 4242 - Applied Linear Algebra (4.0 cr)

**Analysis Requirements**

**Physiology Analysis Requirement**
- Take 1 or more course(s) from the following:
  - MATH 5525 - Introduction to Ordinary Differential Equations (4.0 cr)
  - MATH 5535 - Dynamical Systems and Chaos (4.0 cr)

**Theory of Probability & Statistics**
- MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)
  - or STAT 5101 - Theory of Statistics I (4.0 cr)

**Physiology, Biology, Chemistry Requirements**

**1xxx Level Biology Requirement**
- BIOL 1009H may be substituted.
- BIOL 1009 - General Biology [BIOL] (4.0 cr)

**Physiology Requirement**
- PHSL 3061 - Principles of Physiology (4.0 cr)

**Physics Prerequisites**

**1xxx Level Physics**
- Phys 1301W & 1302W may be substituted.
- PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
- PHYS 1202W - Introductory Physics for Biology and Pre-medicine II [PHYS, WI] (5.0 cr)

**1xxx Level Chemistry Requirements**
- CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
- CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
- CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
- CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)

**Physiology Electives**
- Whichever course - Math 5445 or Math 5447 - was not taken to fulfill the Mathematics requirement can be taken to fulfill this Elective requirement.
- Take 1 or more course(s) from the following:
  - BIOL 4700 *(Inactive)* (3.0 cr)
  - PHYS 5444 - Muscle (3.0 cr)
  - NSC 5202 has additional prerequisite courses: Chem 2301, BioC 3021, NSCI 3101, NSCI 3102.
  - NSC 5202 - Theoretical Neuroscience: Systems and Information Processing (3.0 cr)
Twin Cities Campus
Mathematics Minor
College of Liberal Arts - Adm
College of Liberal Arts

• Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 24 to 28

Students complete all the lower-division requirements in the mathematics major, plus two upper-division electives. See the mathematics major description for information on the utility of a mathematics degree.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students may earn no more than one undergraduate degree in mathematics: a B.A. or a B.S. or a minor.

Minor Courses
Note: qualified honors students can substitute MATH 3592H & 3593H for MATH 2243/2373/2574H, MATH 2263/2374/2573H, and MATH 2283/3283W. See your UHP adviser for final consent. Those who take the MATH 3592H & 3593H series will need to complete a minimum total of 24 credits for the minor. Those who do not complete this honors series will need to complete a minimum total of 25 credits for the minor.

Calculus I
MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)

Calculus II
MATH 1272 - Calculus II (4.0 cr)
or MATH 1372 - CSE Calculus II (4.0 cr)
or MATH 1572H - Honors Calculus II (4.0 cr)

Linear Algebra & Differential Equations
MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
or MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
or MATH 2574H - Honors Calculus IV (4.0 cr)

Multivariable Calculus
MATH 2263 - Multivariable Calculus (4.0 cr)
or MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
or MATH 2573H - Honors Calculus III (4.0 cr)

Sequences, Series, & Foundations
MATH 2283 - Sequences, Series, and Foundations (3.0 cr)
or MATH 3283W - Sequences, Series, and Foundations: Writing Intensive [WI] (4.0 cr)

Electives
Selection of MATH course electives for the minor requires department adviser approval.
MATH 4xxx-5xxx
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
• MATH 4xxx
• MATH 5xxx
or Theory of Statistics
STAT 5101 - Theory of Statistics I (4.0 cr)
STAT 5102 - Theory of Statistics II (4.0 cr)
Twin Cities Campus

Medieval Studies Minor

Center for Medieval Studies

College of Liberal Arts

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 15

The Medieval Studies minor covers the period between 300 and 1500 B.C.E. It includes the history, art history, theater and music history, literature, and languages of the period, including Latin, French, Italian, English, Old English, Scandinavian, and German.

The program allows students with an interest in the medieval period, or who are planning to pursue graduate work in one of the related areas, to concentrate their studies as a coherent whole.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
The minor is administered through the Center for Medieval Studies in the College of Liberal Arts. Coursework must be upper-division (3xxx-5xxx), chosen from approved course lists in consultation with the director of undergraduate studies. All applicable courses originate in other departments. Many of these are cross-listed as MEST 3610, MEST 4610, and MEST 5610. A list of appropriate courses is available at the Center for Medieval Studies.

Minor Courses
The following course list is not exhaustive. Students should consult the director of undergraduate studies for final approval on these, and other, course choices.
Take 15 or more credit(s) from the following:
• ARCH 4423 - Gothic Architecture (3.0 cr)
• ARCH 5423 - Gothic Architecture (3.0 cr)
• ARTH 3009 - Medieval Art [AH] (3.0 cr)
• ENGL 3101 - Survey of Medieval English Literature (3.0 cr)
• ENGL 3102 - Chaucer (3.0 cr)
• ENGL 3110 - Medieval Literatures and Cultures: Intro to Medieval Studies (3.0 cr)
• ENGL 4612 - Old English I (3.0 cr)
• ENGL 4613 - Old English II (3.0 cr)
• ENGL 5110 - Readings in Middle English Literature and Culture (3.0 cr)
• FREN 3111 - Medieval Stories (3.0 cr)
• FREN 3140 - Topics in Medieval and Renaissance Literature (3.0 cr)
• FREN 3601 - French Civilization and Culture I (3.0 cr)
• FREN 3611 - Deciphering Courtly Literatures of Medieval France [LITR, GP] (3.0 cr)
• FREN 3711 - Deciphering Courtly Literatures in Medieval France [LITR, GP] (3.0 cr)
• GER 3601 - German Medieval Literature [LITR, GP] (3.0 cr)
• GER 3702 - Beginning Middle High German (3.0 cr)
• GER 5721 - Introduction to Middle High German (3.0 cr)
• GER 5722 - Middle High German: Advanced Readings (3.0 cr)
• GER 5731 (Inactive) (3.0 cr)
• GER 5732 (Inactive) (3.0 cr)
• GER 5734 - Old Saxon (3.0 cr)
• GER 5740 - Topics in Germanic Medieval Studies (3.0 cr)
• GWSS 3414 (Inactive) (3.0 cr)
• HIST 3101 - Introduction to Medieval History [HIS, GP] (3.0 cr)
• HIST 3541 (Inactive) (3.0 cr)
• HIST 3609 - Military History of Medieval Western Europe (3.0 cr)
• HIST 3611 - Medieval Cities of Europe: 500-1500 [HIS, GP] (3.0 cr)
• HIST 3613 - History of the Crusades [HIS, GP] (3.0 cr)
• HIST 3614 (Inactive) (3.0 cr)
• HIST 3616 - France in the Middle Ages (3.0 cr)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HIST 3618</td>
<td>The Dark Ages Illumined: Medieval Europe to 1050 (3.0 cr)</td>
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<td>HIST 3619</td>
<td>Chivalry, Crisis, and Revival: Medieval History 1050-1500 (3.0 cr)</td>
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<td>HIST 3621</td>
<td>Creating the Modern World in Medieval Europe: The Renaissance, 1200-1600 (3.0 cr)</td>
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<td>HIST 3900</td>
<td>Topics in Medieval and Modern European History (1.0 - 4.0 cr)</td>
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<td>HIST 5111</td>
<td>Proseminar in the History of Medieval Europe (3.0 cr)</td>
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<td>HIST 5115</td>
<td>Medieval Latin Historians (3.0 cr)</td>
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<td>HIST 5501</td>
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<td>HIST 5611</td>
<td>New Directions in the Middle Ages, ca. 300-1100 (3.0 cr)</td>
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<td>HIST 5612</td>
<td>New Directions in the Middle Ages, ca. 1100-1500 (3.0 cr)</td>
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<td>HIST 5614</td>
<td>The Medieval Church (3.0 cr)</td>
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<td>HIST 5616</td>
<td>[Inactive]</td>
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<td>HIST 5900</td>
<td>Topics in European/Medieval History (1.0 - 4.0 cr)</td>
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<td>HMED 3065</td>
<td>Body, Soul, and Spirit in Medieval and Renaissance European Medicine (3.0 cr)</td>
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<td>ITAL 3209</td>
<td>Literature of Medieval City-States (4.0 cr)</td>
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<td>ITAL 3501</td>
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<td>ITAL 3637</td>
<td>From Ancient Rome to Renaissance Florence: Siena on the &quot;French Road&quot; (3.0 cr)</td>
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<td>LAT 5200</td>
<td>Advanced Reading in Later Latin (3.0 cr)</td>
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<td>MEST 5xxx</td>
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<td>MUS 3601W</td>
<td>History of Western Music I [WI] (3.0 cr)</td>
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<td>SCAN 3502</td>
<td>Scandinavian Myths [LITR, GP] (3.0 cr)</td>
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<td>SCAN 3503</td>
<td>Scandinavian Myths [LITR, GP] (3.0 cr)</td>
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<td>SCAN 3505</td>
<td>The Icelandic Saga (3.0 cr)</td>
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<td>SCAN 5701</td>
<td>Old Norse Language and Literature (3.0 cr)</td>
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<td>SCAN 5710</td>
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<td>SPAN 3503</td>
<td>Pre-modern Spanish Culture and Literature (3.0 cr)</td>
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<tr>
<td>SPAN 3703</td>
<td>Origins and History of Spanish and Portuguese (3.0 cr)</td>
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<tr>
<td>SPAN 5160</td>
<td>Medieval Iberian Literatures and Cultures (3.0 cr)</td>
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Twin Cities Campus
Music B. Mus.
School of Music
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120 to 125
- Required credits within the major: 78 to 99
- Degree: Bachelor of Music

The B.Mus. in performance is a professional degree in which music courses make up approximately 75 percent of the program.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Admission to a music program is contingent upon passing an audition. Auditions are highly competitive with students normally having studied for a number of years: a minimum of three-to-four years in voice, guitar, or on an orchestral or band instrument, eight-to-twelve years on piano. Auditions are held during the spring semester prior to fall entrance. Some instruments require a DVD screening round.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students may earn no more than one undergraduate degree from the School of Music: a B.A. or a B.Mus or a minor. Students may earn more than one major within the B.Mus degree, but may not earn more than one emphasis within the B.A. degree.

Students are required to complete one of the listed sub-plans below. Students may complete more than one sub-plan with prior approval from the School of Music. Note that an additional audition may be required.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Music Theory and Ear Training
Take 8 courses for 12 credits.
MUS 1501 - Theory and Analysis of Tonal Music I (2.0 cr)
MUS 1502 - Theory and Analysis of Tonal Music II (2.0 cr)
MUS 1511 - Ear-Training and Sight-Singing I (1.0 cr)
MUS 1512 - Ear-Training and Sight-Singing II (1.0 cr)
MUS 3501 - Theory and Analysis of Tonal Music III (2.0 cr)
MUS 3511 - Ear-Training and Sight-Singing III (1.0 cr)
MUS 4501 - Theory and Analysis of 20th-Century Music (2.0 cr)
MUS 4511 - Ear-Training and Sight-Singing for 20th-Century Music (1.0 cr)

Theory Electives
Note: MUS 5950 must be taken for a minimum of 3 credits in order to count toward this sub-requirement.
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- MUS 3506 - Theory and Analysis of American Popular Music (3.0 cr)
- MUS 4502 - 18th-Century Counterpoint (3.0 cr)
- MUS 4505 - Jazz Theory (3.0 cr)
- MUS 5541 - 16th-Century Counterpoint (3.0 cr)
- MUS 5571 - Schenkerian Analysis for Performers (3.0 cr)
- MUS 5573 - Analysis of Late-Romantic Orchestral Literature (3.0 cr)
Musicology/Ethnomusicology
Take 4 courses for 12 credits.
- MUS 1801W - Music, Society, and Cultures [AH, GP, WI] (3.0 cr)
- MUS 3601W - History of Western Music I [WI] (3.0 cr)
- MUS 3602W - History of Western Music II [WI] (3.0 cr)
- MUS 3603W - History of Western Music III [WI] (3.0 cr)

Conducting
Take 1 course for 2 credits.
- MUS 3401 - Basic Conducting (2.0 cr)

Recital
- MUS 901 - Junior Recital (0.0 cr)
- MUS 951 - Senior Recital (0.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
- MUS 3601W - History of Western Music I [WI] (3.0 cr)
- MUS 3602W - History of Western Music II [WI] (3.0 cr)
- MUS 3603W - History of Western Music III [WI] (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Classical Guitar
Credit requirements in each course group must be satisfied by taking the courses for multiple semesters. Students may need to take more than six credits of electives to reach the 78-credit requirement for the major.

Keyboard
Take a total of 2-4 credits by completing MUS 1151 & 1152 OR MUS 1155.
- MUS 1151 - Piano: Class Lessons I (2.0 cr)
- MUS 1152 - Piano: Class Lessons II (2.0 cr)
- or MUS 1155 - Keyboard Skills I (2.0 cr)

Applied Music
Take 32 or more credit(s) from the following:
- Take 8 or more credit(s) from the following:
  - MUSA 1323 - Guitar: Music Major (2.0 - 4.0 cr)
  - Take 8 or more credit(s) from the following:
  - MUSA 2323 - Guitar: Music Major (2.0 - 4.0 cr)
  - Take 16 or more credit(s) from the following:
  - MUSA 3323 - Guitar: Music Major (2.0 - 4.0 cr)

Ensemble
Take 2 or more course(s) totaling 2 or more credit(s) from the following:
- MUS 3230 - Chorus (1.0 - 2.0 cr)
- MUS 5240 - University Singers (1.0 cr)
Take 2 or more credit(s) from the following:
- MUS 3440 - Chamber Ensemble (1.0 cr)

Electives
Take 6 or more credit(s) from the following:
- MUS 1xxx
- MUS 2xxx
- MUS 3xxx

Harp
Credit requirements in each course group must be satisfied by taking the courses for multiple semesters. Students may need to take more than two credits of electives to reach the 78-credit requirement for the major.

**Keyboard**
Take a total of 2-4 credits by completing MUS 1151 & 1152 OR MUS 1155.
- MUS 1151 - Piano: Class Lessons I (2.0 cr)
- MUS 1152 - Piano: Class Lessons II (2.0 cr)
- or MUS 1155 - Keyboard Skills I (2.0 cr)

**Applied Music**
Take 32 or more credit(s) from the following:
- MUSA 1322 - Harp: Music Major (2.0 - 4.0 cr)
- MUSA 2322 - Harp: Music Major (2.0 - 4.0 cr)
- MUSA 3322 - Harp: Music Major (2.0 - 4.0 cr)

**Ensemble**
Take eight semesters of MUS 3420 at one credit per term.
- MUS 3420 - Orchestra (1.0 cr)

**Electives**
Take 2 or more credit(s) from the following:
- MUS 1xxx
- MUS 2xxx
- MUS 3xxx

**Organ**
Credit requirements in each course group must be satisfied by taking the courses for multiple semesters.

**Keyboard**
Take 4 courses for a minimum of 9 credits.
- MUSA 1401 - Piano: Music Major Secondary (undergraduate) (2.0 - 4.0 cr)
- or MUSA 1402 - Harpsichord: Music Major Secondary (undergraduate) (2.0 - 4.0 cr)
- or MUS 3331 - Jazz Improvisation I (2.0 cr)
- or MUS 3440 - Chamber Ensemble (1.0 cr)
- or MUS 5430 - Contemporary Music Workshop (1.0 cr)
- MUS 1155 - Keyboard Skills I (2.0 cr)
- MUS 5151 - Organ Literature I (3.0 cr)
- MUS 5152 - Organ Literature II (3.0 cr)

**Applied Music**
Take 32 or more credit(s) from the following:
- MUSA 1303 - Organ: Music Major (2.0 - 4.0 cr)
- MUSA 2303 - Organ: Music Major (2.0 - 4.0 cr)
- MUSA 3303 - Organ: Music Major (2.0 - 4.0 cr)

**Ensemble**
Take 6 or more course(s) totaling 6 or more credit(s) from the following:
- MUS 3200 - Campus Singers (2.0 cr)
- MUS 3230 - Chorus (1.0 - 2.0 cr)
- MUS 5240 - University Singers (1.0 cr)

**Piano**
Credit requirements in each course group must be satisfied by taking the courses for multiple semesters. Students may need to take more than two credits of electives in order to reach the 78-credit requirement for the major.

**Keyboard**
Take 4 courses for a minimum of 7 credits.
- MUS 1155 - Keyboard Skills I (2.0 cr)
- MUS 5101 - Piano Pedagogy I (2.0 cr)
- MUSA 1402 - Harpsichord: Music Major Secondary (undergraduate) (2.0 - 4.0 cr)
- or MUSA 1403 - Organ: Music Major Secondary (undergraduate) (2.0 - 4.0 cr)
- or MUS 3331 - Jazz Improvisation I (2.0 cr)
- or MUS 3440 - Chamber Ensemble (1.0 cr)
or MUS 5430 - Contemporary Music Workshop (1.0 cr)
MUS 5181 - Advanced Piano Literature I (2.0 cr)
or MUS 5182 - Advanced Piano Literature II (2.0 cr)

Applied Music
Take 32 or more credit(s) from the following:
Take 8 or more credit(s) from the following:
• MUSA 1301 - Piano: Music Major (2.0 - 4.0 cr)
• Take 8 or more credit(s) from the following:
  • MUSA 2301 - Piano: Music Major (2.0 - 4.0 cr)
• Take 16 or more credit(s) from the following:
  • MUSA 3301 - Piano: Music Major (2.0 - 4.0 cr)

Ensemble
Take 4 or more course(s) totaling 4 or more credit(s) from the following:
• MUS 3440 - Chamber Ensemble (1.0 cr)
• MUS 5440 - Chamber Ensemble (1.0 cr)

Electives
Take 2 or more credit(s) from the following:
• MUS 1xxx
• MUS 2xxx
• MUS 3xxx

String, Woodwind, Brass, Percussion
Credit requirements in each course group must be satisfied by taking the courses for multiple semesters.

Keyboard
Take a total of 2-4 credits by completing MUS 1151 & 1152 OR MUS 1155.
MUS 1151 - Piano: Class Lessons I (2.0 cr)
MUS 1152 - Piano: Class Lessons II (2.0 cr)
or MUS 1155 - Keyboard Skills I (2.0 cr)

Applied Music
Take 32 or more credit(s) from the following:
Take 8 or more credit(s) from the following:
• MUSA 1305 - Violin: Music Major (2.0 - 4.0 cr)
• MUSA 1306 - Viola: Music Major (2.0 - 4.0 cr)
• MUSA 1307 - Cello: Music Major (2.0 - 4.0 cr)
• MUSA 1308 - Double Bass: Music Major (2.0 - 4.0 cr)
• MUSA 1309 - Flute: Music Major (2.0 - 4.0 cr)
• MUSA 1311 - Oboe: Music Major (2.0 - 4.0 cr)
• MUSA 1312 - Clarinet: Music Major (2.0 - 4.0 cr)
• MUSA 1313 - Saxophone: Music Major (2.0 - 4.0 cr)
• MUSA 1314 - Bassoon: Music Major (2.0 - 4.0 cr)
• MUSA 1315 - French Horn: Music Major (2.0 - 4.0 cr)
• MUSA 1316 - Trumpet: Music Major (2.0 - 4.0 cr)
• MUSA 1317 - Trombone: Music Major (2.0 - 4.0 cr)
• MUSA 1318 - Euphonium: Music Major (2.0 - 4.0 cr)
• MUSA 1319 - Tuba: Music Major (2.0 - 4.0 cr)
• MUSA 1321 - Percussion: Music Major (2.0 - 4.0 cr)
• Take 8 or more credit(s) from the following:
  • MUSA 2305 - Violin: Music Major (2.0 - 4.0 cr)
  • MUSA 2306 - Viola: Music Major (2.0 - 4.0 cr)
  • MUSA 2307 - Cello: Music Major (2.0 - 4.0 cr)
  • MUSA 2308 - Double Bass: Music Major (2.0 - 4.0 cr)
  • MUSA 2309 - Flute: Music Major (2.0 - 4.0 cr)
  • MUSA 2311 - Oboe: Music Major (2.0 - 4.0 cr)
  • MUSA 2312 - Clarinet: Music Major (2.0 - 4.0 cr)
  • MUSA 2313 - Saxophone: Music Major (2.0 - 4.0 cr)
  • MUSA 2314 - Bassoon: Music Major (2.0 - 4.0 cr)
  • MUSA 2315 - French Horn: Music Major (2.0 - 4.0 cr)
  • MUSA 2316 - Trumpet: Music Major (2.0 - 4.0 cr)
  • MUSA 2317 - Trombone: Music Major (2.0 - 4.0 cr)
  • MUSA 2318 - Euphonium: Music Major (2.0 - 4.0 cr)
  • MUSA 2319 - Tuba: Music Major (2.0 - 4.0 cr)
  • MUSA 2321 - Percussion: Music Major (2.0 - 4.0 cr)
• Take 16 or more credit(s) from the following:
  • MUSA 3305 - Violin: Music Major (2.0 - 4.0 cr)
• MUSA 3306 - Viola: Music Major (2.0 - 4.0 cr)
• MUSA 3307 - Cello: Music Major (2.0 - 4.0 cr)
• MUSA 3308 - Double Bass: Music Major (2.0 - 4.0 cr)
• MUSA 3309 - Flute: Music Major (2.0 - 4.0 cr)
• MUSA 3311 - Oboe: Music Major (2.0 - 4.0 cr)
• MUSA 3312 - Clarinet: Music Major (2.0 - 4.0 cr)
• MUSA 3313 - Saxophone: Music Major (2.0 - 4.0 cr)
• MUSA 3314 - Bassoon: Music Major (2.0 - 4.0 cr)
• MUSA 3315 - French Horn: Music Major (2.0 - 4.0 cr)
• MUSA 3316 - Trumpet: Music Major (2.0 - 4.0 cr)
• MUSA 3317 - Trombone: Music Major (2.0 - 4.0 cr)
• MUSA 3318 - Euphonium: Music Major (2.0 - 4.0 cr)
• MUSA 3319 - Tuba: Music Major (2.0 - 4.0 cr)
• MUSA 3321 - Percussion: Music Major (2.0 - 4.0 cr)

Band or Orchestra
Take eight semesters of MUS 3410 and/or MUS 3420 at one credit per term.
Take 8 or more course(s) totaling 8 or more credit(s) from the following:
• MUS 3410 - University Wind Bands (1.0 cr)
• MUS 3420 - Orchestra (1.0 cr)

Chamber Ensemble
Take 4 or more course(s) totaling 4 or more credit(s) from the following:
• MUS 3340 - Jazz Ensemble (1.0 cr)
• MUS 3350 - Jazz Combo (1.0 cr)
• MUS 3440 - Chamber Ensemble (1.0 cr)
• MUS 5440 - Chamber Ensemble (1.0 cr)
• MUS 5480 - University Brass Choir (1.0 cr)
• MUS 5490 - Percussion Ensemble (1.0 cr)

Voice
Credit requirements in each course group must be satisfied by taking the courses for multiple semesters.

Keyboard
Take a total of 2-4 credits by completing MUS 1151 & 1152 OR MUS 1155.
MUS 1151 - Piano: Class Lessons I (2.0 cr)
MUS 1152 - Piano: Class Lessons II (2.0 cr)
or MUS 1155 - Keyboard Skills I (2.0 cr)

Ensemble
Take one course each semester. No more than two semesters of MUS 5250 & 5280 may count.
Take 8 or more course(s) totaling 8 - 10 credit(s) from the following:
Take 6 - 8 course(s) totaling 6 - 8 credit(s) from the following:
• MUS 3230 - Chorus (1.0 - 2.0 cr)
• MUS 5240 - University Singers (1.0 cr)
• Take 0 - 2 course(s) totaling 0 - 4 credit(s) from the following:
  • MUS 5250 - Opera Workshop and Ensemble (2.0 cr)
  • MUS 5280 - Opera Theatre (2.0 cr)

Applied Music
Take 32 or more credit(s) from the following:
Take 8 or more credit(s) from the following:
• MUSA 1304 - Voice: Music Major (2.0 - 4.0 cr)
• Take 8 or more credit(s) from the following:
• MUSA 2304 - Voice: Music Major (2.0 - 4.0 cr)
• Take 16 or more credit(s) from the following:
• MUSA 3304 - Voice: Music Major (2.0 - 4.0 cr)

Diction and Vocal Literature
Take 6 courses for 6 credits.
MUS 3241 - Vocal Literature (German Lieder) and Pedagogy (1.0 cr)
MUS 3242 - Vocal Literature (French Melodie) and Pedagogy (1.0 cr)
MUS 3261 - Italian Diction for Singers (1.0 cr)
MUS 3262 - English Diction for Singers (1.0 cr)
MUS 3263 - German Diction for Singers (1.0 cr)
MUS 3264 - French Diction for Singers (1.0 cr)

Language
FREN 1001 - Beginning French (5.0 cr)
GER 1001 - Beginning German (5.0 cr)
ITAL 1001 - Beginning Italian (5.0 cr)
Twin Cities Campus
Music B.A.
School of Music
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 34 to 50
- Degree: Bachelor of Arts

The B.A. program is for students who wish to major in music within a broad liberal arts degree program.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students who pursue the Music B.A. choose to specialize in one of two sub-plans: Academic Emphasis or Applied Emphasis. The Academic Emphasis does not require an entrance audition to the School of Music. Admission to the Applied Emphasis is contingent upon passing an audition. Auditions are competitive with students normally having studied privately for a number of years on the primary instrument. Auditions are held during the spring semester prior to entrance in the fall semester. Some instruments require a DVD screening round. Please visit the School of Music website for more information about each emphasis.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students may earn no more than one undergraduate degree from the School of Music: a B.A. or a B.Mus or a minor. Students may earn more than one major within the B.Mus degree, but may not earn more than one emphasis within the B.A. degree.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Music Theory and Ear Training
MUS 1501 - Theory and Analysis of Tonal Music I (2.0 cr)
MUS 1502 - Theory and Analysis of Tonal Music II (2.0 cr)
MUS 1511 - Ear-Training and Sight-Singing I (1.0 cr)
MUS 1512 - Ear-Training and Sight-Singing II (1.0 cr)
MUS 3501 - Theory and Analysis of Tonal Music III (2.0 cr)
MUS 3511 - Ear-Training and Sight-Singing III (1.0 cr)

Music History
MUS 3601W - History of Western Music I [WI] (3.0 cr)
MUS 3602W - History of Western Music II [WI] (3.0 cr)
MUS 3603W - History of Western Music III [WI] (3.0 cr)

Keyboard
For non-keyboard majors, MUS 1155 may be substituted for MUS 1151-1152. Keyboard majors must consult departmental adviser for appropriate course series.
MUS 1155 - Keyboard Skills I (2.0 cr)
or MUS 1151 - Piano: Class Lessons I (2.0 cr)
MUS 1152 - Piano: Class Lessons II (2.0 cr)

Research and Senior Project
MUS 3995 - Major Project (1.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1  course(s)  from the following:
• MUS 3601W - History of Western Music I [WI] (3.0 cr)
• MUS 3602W - History of Western Music II [WI] (3.0 cr)
• MUS 3603W - History of Western Music III [WI] (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Academic Emphasis

Additional Music Theory and Ear Training
MUS 4504 - Intensive Theory and Analysis of 20th-Century Music (2.0 cr)
MUS 4514 - Ear-Training and Sight-Singing for 20th-Century Music (1.0 cr)

Ethnomusicology
MUS 1801W - Music, Society, and Cultures [AH, GP, WI] (3.0 cr)
or MUS 1804 - World Music [AH, GP] (3.0 cr)

Performance
Take a minimum of one ‘Performance’ credit by enrolling in a School of Music ensemble course, or a private- or group-lesson instruction course (beyond the 'Keyboard' requirement), or a composition course.
Take 1 or more  course(s)  totaling  1 or more  credit(s)  from the following:
• MUS 3200 - Campus Singers (2.0 cr)
• MUS 3230 - Chorus (1.0 - 2.0 cr)
• MUS 3400 - University and Campus Bands (2.0 cr)
• MUS 3410 - University Wind Bands (1.0 cr)
• MUS 3420 - Orchestra (1.0 cr)
• MUS 3430 - Campus Orchestra (2.0 cr)

Electives in Music
Take two courses in Music Theory, Musicology, or Ethnomusicology. Note: MUS 5950 must be taken for a minimum of 3 credits and it must be pre-approved by the departmental adviser in order to satisfy this sub-requirement.
Take 2 or more  course(s)  totaling  6 or more  credit(s)  from the following:
• MUS 5620 - Topics in Opera History (3.0 cr)
• MUS 5624 - Music of J. S. Bach (3.0 cr)
• MUS 5647 - 20th-Century European/American Music (3.0 cr)
• MUS 5950 - Topics in Music (1.0 - 4.0 cr)

Applied Emphasis

Ethnomusicology
MUS 1801W - Music, Society, and Cultures [AH, GP, WI] (3.0 cr)

Applied Lessons
Students must complete a total of 8 credits: two semesters at 2 credits per term of MUSA 12xx, and two semesters at 2 credits per term of MUSA 22xx.
MUSA 12xx
MUSA 22xx

Ensembles/Chamber Music
Students must take four semesters at 1 credit per term of MUS 3xx/5xx ensemble ensembles or chamber music courses.
Take 4 or more  course(s)  totaling  4 or more  credit(s)  from the following:
• MUS 3200 - Campus Singers (2.0 cr)
• MUS 3230 - Chorus (1.0 - 2.0 cr)
• MUS 3340 - Jazz Ensemble (1.0 cr)
• MUS 3350 - Jazz Combo (1.0 cr)
• MUS 3400 - University and Campus Bands (2.0 cr)
• MUS 3410 - University Wind Bands (1.0 cr)
• MUS 3420 - Orchestra (1.0 cr)
MUS 3430 - Campus Orchestra (2.0 cr)
MUS 3440 - Chamber Ensemble (1.0 cr)
MUS 5430 - Contemporary Music Workshop (1.0 cr)
MUS 5440 - Chamber Ensemble (1.0 cr)
MUS 5460 - World Music Ensemble (1.0 - 2.0 cr)
MUS 5480 - University Brass Choir (1.0 cr)
MUS 5490 - Percussion Ensemble (1.0 cr)

Electives in Music

A minimum of 9 of the 12 required electives credits must be taken at the upper-division level. Electives are chosen in consultation with the departmental adviser. A maximum of 3 credits of applied lessons or ensembles/chamber music beyond those required for the program may be counted toward the 12 credits of electives.

MUSA 22xx (no more than 3 credits may count as electives)

or Take at most 12 credit(s) from the following:
- MUS 1xxx
- MUS 3xxx
- MUS 4xxx
- MUS 5xxx
Twin Cities Campus
Music Education B. Mus
School of Music
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 127 to 129
- Required credits within the major: 99 to 111
- Degree: Bachelor of Music

The degree in music education is offered with two concentrations: instrumental/general music K-12 and choral/general. The instrumental/general concentration requires that a student be admitted via audition on an orchestral or band instrument; the choral/general concentration requires that a student be admitted in voice, piano, or organ. Completion of the degree in music education culminates in eligibility for state licensure in the concentration area.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Admission to a music program is contingent upon passing an audition. Auditions are highly competitive with students normally having studied for a number of years: a minimum of three to four years in voice, guitar, or on an orchestral or band instrument, eight to twelve years on piano. Auditions are held throughout the academic year. Incoming freshmen normally take the audition during the winter of their senior year of high school; transfer students one semester prior to the term in which they plan to enroll. Students applying for the program in music education are also required to pass an interview with the music education faculty.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students may earn no more than one undergraduate degree from the School of Music: a B.A. or a B.Mus or a minor. Students may earn more than one major within the B.Mus degree, but may not earn more than one emphasis within the B.A. degree.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html.

Music Theory and Ear Training
MUS 1501 - Theory and Analysis of Tonal Music I (2.0 cr)
MUS 1502 - Theory and Analysis of Tonal Music II (2.0 cr)
MUS 1511 - Ear-Training and Sight-Singing I (1.0 cr)
MUS 1512 - Ear-Training and Sight-Singing II (1.0 cr)
MUS 3501 - Theory and Analysis of Tonal Music III (2.0 cr)
MUS 3511 - Ear-Training and Sight-Singing III (1.0 cr)
MUS 4504 - Intensive Theory and Analysis of 20th-Century Music (2.0 cr)
MUS 4514 - Ear-Training and Sight-Singing for 20th-Century Music (1.0 cr)

Creativity and Improvisation
MUED 3101 - Improvisation and Creativity in the Music Classroom (2.0 cr)

Musicology/Ethnomusicology
MUS 1801W - Music, Society, and Cultures [AH, GP, WI] (3.0 cr)
MUS 3601W - History of Western Music I [WI] (3.0 cr)
MUS 3602W - History of Western Music II [WI] (3.0 cr)
MUS 3603W - History of Western Music III [WI] (3.0 cr)

Keyboard
For non-keyboard majors, MUS 1155 may be substituted for MUS 1151-1152. Keyboard majors must consult departmental adviser for appropriate course series.
MUS 1151 - Piano: Class Lessons I (2.0 cr)
MUS 1152 - Piano: Class Lessons II (2.0 cr)
or MUS 1155 - Keyboard Skills I (2.0 cr)

Professional Education
Take 9 courses for at least 12 credits. Note that EDHD 5008 must be taken for 2 credits and the EDHD 4xxx course must be taken for 1 credit.
EDHD 4001 - Teaching Students with Special Needs in Inclusive Settings (1.0 cr)
EDHD 4xxx
EDHD 5000 - Cultures, Schools, and Communities (Human Relations) (1.0 cr)
EDHD 5008 - Reading in the Content Areas for Initial Licensure Candidates (1.0 - 2.0 cr)
EDHD 5010 - Cultures, Schools, and Communities (Human Relations) (2.0 cr)
EDHD 5013 - Child and Adolescent Development for Teaching and Learning (1.0 cr)
EDHD 5014 - Child and Adolescent Development for Teaching and Learning (2.0 cr)
EDHD 5020 - Cultures, Schools, and Communities (Human Relations) (1.0 cr)
PUBH 3005 - Fundamentals of Alcohol and Drug Abuse for Teacher Education (1.0 cr)

Senior Recital
The senior recital is offered for zero credit and most typically taken in the fall of the fourth year.
MUS 951 - Senior Recital (0.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• MUS 3601W - History of Western Music I [WI] (3.0 cr)
• MUS 3602W - History of Western Music II [WI] (3.0 cr)
• MUS 3603W - History of Western Music III [WI] (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Instrumental/General Music Education
Students successfully completing the program will meet licensure requirements to teach band, orchestra, and general classroom music in grades K-12 in Minnesota.

Major Courses
Note: majors must take MUED 5350 & 5550 for a combined minimum of 10 credits.
MUED 1201 - Introduction to Music Education (2.0 cr)
MUED 3301 - General Music I (3.0 cr)
MUED 3302 - General Music II (3.0 cr)
MUED 3502 - String Techniques and Teaching (2.0 cr)
MUED 3503 - Woodwind Techniques and Teaching (2.0 cr)
MUED 3504 - Brass Techniques and Teaching (2.0 cr)
MUED 3505 - Percussion Techniques and Teaching (2.0 cr)
MUED 3516 - Instrumental Methods and Conducting I (3.0 cr)
MUED 3517 - Instrumental Methods and Conducting II (3.0 cr)
MUED 3519 - Advanced Conducting and Repertoire (Instrumental) (2.0 cr)
MUED 5350 - Student Teaching in Classroom Music (4.0 - 8.0 cr)
MUED 5550 - Student Teaching in Instrumental Music (4.0 - 8.0 cr)
MUED 5650 - Student Teaching Seminar (2.0 cr)

Applied Music
Students must complete: MUS 1260 or MUS 1404; two semesters at 2 credits per term of 12xx courses; two semesters at 2 credits per term of 22xx courses; and three semesters at 2 credits per term of 32xx courses.
MUS 1260 - Voice Class (2.0 cr)
or MUSA 1404 - Voice: Music Major Secondary (undergraduate) (2.0 - 4.0 cr)

Take 4 or more credit(s) from the following:

- MUSA 1205 - Violin: Music Education and BA (2.0 cr)
- MUSA 1206 - Viola: Music Education and BA (2.0 cr)
- MUSA 1207 - Cello: Music Education and BA (2.0 cr)
- MUSA 1208 - Double Bass: Music Education and BA (2.0 cr)
- MUSA 1209 - Flute: Music Education and BA (2.0 cr)
- MUSA 1211 - Oboe: Music Education and BA (2.0 cr)
- MUSA 1212 - Clarinet: Music Education and BA (2.0 cr)
- MUSA 1213 - Saxophone: Music Ed and BA (2.0 cr)
- MUSA 1214 - Bassoon: Music Education and BA (2.0 cr)
- MUSA 1215 - French Horn: Music Education and BA (2.0 cr)
- MUSA 1216 - Trumpet: Music Education and BA (2.0 cr)
- MUSA 1217 - Trombone: Music Education and BA (2.0 cr)
- MUSA 1218 - Euphonium: Music Education and BA (2.0 cr)
- MUSA 1219 - Tuba: Music Education and BA (2.0 cr)
- MUSA 1221 - Percussion: Music Ed and BA (2.0 cr)
- MUSA 1222 - Harp: Music Education and BA (2.0 cr)

Take 4 or more credit(s) from the following:

- MUSA 2205 - Violin: Music Education and BA (2.0 cr)
- MUSA 2206 - Viola: Music Education and BA (2.0 cr)
- MUSA 2207 - Cello: Music Education and BA (2.0 cr)
- MUSA 2208 - Bass: Music Education and BA (2.0 cr)
- MUSA 2209 - Flute: Music Education and BA (2.0 cr)
- MUSA 2211 - Oboe: Music Education and BA (2.0 cr)
- MUSA 2212 - Clarinet: Music Education and BA (2.0 cr)
- MUSA 2213 - Saxophone: Music Education and BA (2.0 cr)
- MUSA 2214 - Bassoon: Music Education and BA (2.0 cr)
- MUSA 2215 - French Horn: Music Education and BA (2.0 cr)
- MUSA 2216 - Trumpet: Music Education and BA (2.0 cr)
- MUSA 2217 - Trombone: Music Education and BA (2.0 cr)
- MUSA 2218 - Euphonium: Music Education and BA (2.0 cr)
- MUSA 2219 - Tuba: Music Education and BA (2.0 cr)
- MUSA 2221 - Percussion: Music Education and BA (2.0 cr)
- MUSA 2222 - Harp: Music Education and BA (2.0 cr)

Take 6 or more credit(s) from the following:

- MUSA 3205 - Violin: Music Education and BA (2.0 cr)
- MUSA 3206 - Viola: Music Education and BA (2.0 cr)
- MUSA 3207 - Cello: Music Education and BA (2.0 cr)
- MUSA 3208 - Double Bass: Music Education and BA (2.0 cr)
- MUSA 3209 - Flute: Music Education and BA (2.0 cr)
- MUSA 3211 - Oboe: Music Education and BA (2.0 cr)
- MUSA 3212 - Clarinet: Music Education and BA (2.0 cr)
- MUSA 3213 - Saxophone: Music Education and BA (2.0 cr)
- MUSA 3214 - Bassoon: Music Education and BA (2.0 cr)
- MUSA 3215 - French Horn: Music Education and BA (2.0 cr)
- MUSA 3216 - Trumpet: Music Education and BA (2.0 cr)
- MUSA 3217 - Trombone: Music Education and BA (2.0 cr)
- MUSA 3218 - Euphonium: Music Education and BA (2.0 cr)
- MUSA 3219 - Tuba: Music Education and BA (2.0 cr)
- MUSA 3221 - Percussion: Music Education and BA (2.0 cr)
- MUSA 3222 - Harp: Music Education and BA (2.0 cr)

Ensemble Requirement
Band or orchestra (1 credit per semester) is required for a minimum of six semesters, to be selected in consultation with a departmental adviser. An ensemble course (1 credit per semester) is required for a minimum of one semester.

Take exactly 6 credit(s) from the following:

- MUS 3410 - University Wind Bands (1.0 cr)
- MUS 3420 - Orchestra (1.0 cr)

Ensemble

MUS 3340 - Jazz Ensemble (1.0 cr)
or MUS 3350 - Jazz Combo (1.0 cr)
or MUS 3440 - Chamber Ensemble (1.0 cr)
or MUS 5480 - University Brass Choir (1.0 cr)
or MUS 5490 - Percussion Ensemble (1.0 cr)

Conducting
MUS 3401 - Basic Conducting (2.0 cr)

Choral/General Music Education
This program is for students majoring in voice, piano, organ, or classical guitar who want to teach choral and classroom music in the elementary and secondary schools. Students successfully completing the program will meet licensure requirements to teach choral and general classroom music in grades K-12 in Minnesota.

Major Courses
Note: majors must take MUED 5350 & 5450 for a combined minimum of 10 credits.
MUED 1201 - Introduction to Music Education (2.0 cr)
MUED 3301 - General Music I (3.0 cr)
MUED 3302 - General Music II (3.0 cr)
MUED 3415 - Choral Conducting and Methods I (3.0 cr)
MUED 3416 - Choral Conducting and Methods II (3.0 cr)
MUED 3419 - Advanced Conducting and Repertoire (Choral) (2.0 cr)
MUED 5350 - Student Teaching in Classroom Music (4.0 - 8.0 cr)
MUED 5450 - Student Teaching in Vocal Music (4.0 - 8.0 cr)
MUED 5650 - Student Teaching Seminar (2.0 cr)

Pedagogy and Diction
MUED 3417 - Style, Pedagogy, and Diction in the Choral Music Classroom I (2.0 cr)
MUED 3418 - Style, Pedagogy, and Diction in the Choral Music Classroom II (2.0 cr)

Ensemble Requirements
MUS 3230 or MUS 5240 is required for a minimum of seven semesters (1 credit each semester), selected in consultation with a departmental adviser.
Take 7 or more credit(s) from the following:
*MUS 3230 - Chorus (1.0 - 2.0 cr)
*MUS 5240 - University Singers (1.0 cr)

Conducting
MUS 3401 - Basic Conducting (2.0 cr)

Instrument Focus

Voice
Students must complete two semesters at two credits per term of MUSA 1204; two semesters at 2 credits per term of MUSA 2204; and three semesters at two credits per term of MUSA 3204. Additionally, students must complete 4 credits of MUSA 1401.

Applied Voice - 1204
Take 2 or more course(s) totaling 4 or more credit(s) from the following:
*MUSA 1204 - Voice: Music Education and BA (2.0 cr)
Take 2 or more course(s) totaling 4 or more credit(s) from the following:
*MUSA 2204 - Voice: Music Education and BA (2.0 cr)
Take 3 or more course(s) totaling 6 or more credit(s) from the following:
*MUSA 3204 - Voice: Music Education and BA (2.0 cr)

Applied Piano
Take 4 or more credit(s) from the following:
*MUSA 1401 - Piano: Music Major Secondary (undergraduate) (2.0 - 4.0 cr)

-OR-

Piano
Students must complete two semesters at two credits per term of MUSA 1201; two semesters at two credits per term of MUSA 2201; and three semesters at two credits per term of MUSA 3201. Additionally, students must complete 4 credits of MUSA 1404.

Applied Piano - 1201
Take 2 or more course(s) totaling 4 or more credit(s) from the following:
*MUSA 1201 - Piano: Music Education and BA (2.0 cr)
Take 2 or more course(s) totaling 4 or more credit(s) from the following:
*MUSA 2201 - Piano: Music Ed and BA (2.0 cr)
Take 3 or more course(s) totaling 6 or more credit(s) from the following:
*MUSA 3201 - Piano: Music Ed and BA (2.0 cr)

Applied Voice
Take 4 or more credit(s) from the following:
*MUSA 1404 - Voice: Music Major Secondary (undergraduate) (2.0 - 4.0 cr)
Twin Cities Campus

Music Minor
School of Music
College of Liberal Arts

*Program Type: Undergraduate minor related to major
*Requirements for this program are current for Fall 2014
*Required credits in this minor: 20 to 24

A minor in music is available for students majoring in other fields.

Program Delivery
This program is available:
* via classroom (the majority of instruction is face-to-face)

Admission Requirements
An entrance audition identical to that for a music major is required.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students may earn a major or a minor in music, but not both.

Music Theory and Ear Training
MUS 1501 - Theory and Analysis of Tonal Music I (2.0 cr)
MUS 1502 - Theory and Analysis of Tonal Music II (2.0 cr)
MUS 1511 - Ear-Training and Sight-Singing I (1.0 cr)
MUS 1512 - Ear-Training and Sight-Singing II (1.0 cr)

Musicology/Ethnomusicology
Take 2 or more course(s) from the following:
• MUS 1801W - Music, Society, and Cultures [AH, GP, WI] (3.0 cr)
• MUS 3601W - History of Western Music I [WI] (3.0 cr)
• MUS 3602W - History of Western Music II [WI] (3.0 cr)
• MUS 3603W - History of Western Music III [WI] (3.0 cr)

Keyboard
For non-keyboard minors, MUS 1155 may be substituted for MUS 1151-1152. Keyboard minors take 1155.
MUS 1155 - Keyboard Skills I (2.0 cr)
or MUS 1151 - Piano: Class Lessons I (2.0 cr)
  MUS 1152 - Piano: Class Lessons II (2.0 cr)

Applied Music
Students must take two semesters at 2 credits per term.
Take 4 or more credit(s) from the following:
• MUSA 1301 - Piano: Music Major (2.0 - 4.0 cr)
• MUSA 1302 - Harpsichord: Music Major (2.0 - 4.0 cr)
• MUSA 1303 - Organ: Music Major (2.0 - 4.0 cr)
• MUSA 1304 - Voice: Music Major (2.0 - 4.0 cr)
• MUSA 1305 - Violin: Music Major (2.0 - 4.0 cr)
• MUSA 1306 - Viola: Music Major (2.0 - 4.0 cr)
• MUSA 1307 - Cello: Music Major (2.0 - 4.0 cr)
• MUSA 1308 - Double Bass: Music Major (2.0 - 4.0 cr)
• MUSA 1309 - Flute: Music Major (2.0 - 4.0 cr)
• MUSA 1311 - Oboe: Music Major (2.0 - 4.0 cr)
• MUSA 1312 - Clarinet: Music Major (2.0 - 4.0 cr)
• MUSA 1313 - Saxophone: Music Major (2.0 - 4.0 cr)
• MUSA 1314 - Bassoon: Music Major (2.0 - 4.0 cr)
• MUSA 1315 - French Horn: Music Major (2.0 - 4.0 cr)
• MUSA 1316 - Trumpet: Music Major (2.0 - 4.0 cr)
• MUSA 1317 - Trombone: Music Major (2.0 - 4.0 cr)
• MUSA 1318 - Euphonium: Music Major (2.0 - 4.0 cr)
• MUSA 1319 - Tuba: Music Major (2.0 - 4.0 cr)
• MUSA 1321 - Percussion: Music Major (2.0 - 4.0 cr)
• MUSA 1322 - Harp: Music Major (2.0 - 4.0 cr)
• MUSA 1323 - Guitar: Music Major (2.0 - 4.0 cr)

Ensembles
Take 2 or more course(s) from the following:
• MUS 3230 - Chorus (1.0 - 2.0 cr)
• MUS 3410 - University Wind Bands (1.0 cr)
• MUS 3420 - Orchestra (1.0 cr)
• MUS 3440 - Chamber Ensemble (1.0 cr)
• MUS 5240 - University Singers (1.0 cr)
• MUS 5280 - Opera Theatre (2.0 cr)
**Twin Cities Campus**

**Music Therapy B. Mus.**

**School of Music**

**College of Liberal Arts**

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 92 to 107
- Degree: Bachelor of Music

This program prepares students for a profession in music therapy, using music to influence behavioral changes in people, from preschool through geriatrics, in a variety of educational and health-related environments. Completion of this degree program leads to eligibility for the Board Certification exam. Successful completion of the exam leads to the MT-BC credential (Music Therapist - Board Certified).

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

Admission to a music program is contingent upon passing an audition. Auditions are highly competitive with students normally having studied for a number of years—a minimum of three to four years in voice, guitar, or on an orchestral or band instrument, eight to twelve years on piano. Auditions are held throughout the academic year. Incoming freshmen normally take the audition during the winter of their senior year of high school; transfer students one semester prior to the term in which they plan to enroll. Students applying for the program in music therapy are required to pass an interview with music education/therapy faculty.

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](http://...).
MUS 3501 - Theory and Analysis of Tonal Music III (2.0 cr)
MUS 3511 - Ear-Training and Sight-Singing III (1.0 cr)
MUS 4504 - Intensive Theory and Analysis of 20th-Century Music (2.0 cr)
MUS 4514 - Ear-Training and Sight-Singing for 20th-Century Music (1.0 cr)

Musicology/Ethnomusicology
Take all of the following courses for a total of 12 credits.
MUS 1801W - Music, Society, and Cultures [AH, GP, WI] (3.0 cr)
MUS 3601W - History of Western Music I [WI] (3.0 cr)
MUS 3602W - History of Western Music II [WI] (3.0 cr)
MUS 3603W - History of Western Music III [WI] (3.0 cr)

Keyboard
Take a total of 2-4 credits by completing MUS 1151 & 1152 OR MUS 1155. Non-keyboard majors with advanced keyboard skills may substitute MUS 1155 for MUS 1151 & 1152, subject to departmental approval. Keyboard majors must take MUS 1155.
MUS 1151 - Piano: Class Lessons I (2.0 cr)
MUS 1152 - Piano: Class Lessons II (2.0 cr)
or MUS 1155 - Keyboard Skills I (2.0 cr)

Guitar
Take all of the following courses for a total of 4 credits.
MUED 3802 - Guitar I for Music Education and Music Therapy Majors: Developing Group Songleading Skills (2.0 cr)
MUED 3803 - Guitar II for Music Education and Music Therapy Majors: Developing Group Songleading Skills (2.0 cr)

Conducting
Take the following course for a total of 2 credits.
MUS 3401 - Basic Conducting (2.0 cr)

Applied Music
Take a minimum of 14 credits by completing two semesters at 2 credits per semester of 12xx courses; two semesters at 2 credits per semester of 22xx courses; and three semesters at 6 credits per semester of 32xx courses.
Take 2 or more course(s) totaling 4 or more credit(s) from the following:
- MUSA 1201 - Piano: Music Education and BA (2.0 cr)
- MUSA 1203 - Organ: Music Education and BA (2.0 cr)
- MUSA 1204 - Voice: Music Education and BA (2.0 cr)
- MUSA 1205 - Violin: Music Education and BA (2.0 cr)
- MUSA 1206 - Viola: Music Education and BA (2.0 cr)
- MUSA 1207 - Cello: Music Education and BA (2.0 cr)
- MUSA 1208 - Double Bass: Music Education and BA (2.0 cr)
- MUSA 1209 - Flute: Music Education and BA (2.0 cr)
- MUSA 1211 - Oboe: Music Education and BA (2.0 cr)
- MUSA 1212 - Clarinet: Music Education and BA (2.0 cr)
- MUSA 1213 - Saxophone: Music Education and BA (2.0 cr)
- MUSA 1214 - Bassoon: Music Education and BA (2.0 cr)
- MUSA 1215 - French Horn: Music Education and BA (2.0 cr)
- MUSA 1216 - Trumpet: Music Education and BA (2.0 cr)
- MUSA 1217 - Trombone: Music Education and BA (2.0 cr)
- MUSA 1218 - Euphonium: Music Education and BA (2.0 cr)
- MUSA 1219 - Tuba: Music Education and BA (2.0 cr)
- MUSA 1221 - Percussion: Music Education and BA (2.0 cr)
- MUSA 1222 - Harp: Music Education and BA (2.0 cr)
- MUSA 1223 - Guitar: Music Education and BA (2.0 cr)

Take 2 or more course(s) totaling 4 or more credit(s) from the following:
- MUSA 2201 - Piano: Music Ed and BA (2.0 cr)
- MUSA 2203 - Piano: Music Education and BA (2.0 cr)
- MUSA 2204 - Voice: Music Education and BA (2.0 cr)
- MUSA 2205 - Violin: Music Education and BA (2.0 cr)
- MUSA 2206 - Viola: Music Education and BA (2.0 cr)
- MUSA 2207 - Cello: Music Education and BA (2.0 cr)
- MUSA 2208 - Bass: Music Education and BA (2.0 cr)
- MUSA 2209 - Flute: Music Education and BA (2.0 cr)
- MUSA 2211 - Oboe: Music Education and BA (2.0 cr)
- MUSA 2212 - Clarinet: Music Education and BA (2.0 cr)
- MUSA 2213 - Saxophone: Music Education and BA (2.0 cr)
- MUSA 2214 - Bassoon: Music Education and BA (2.0 cr)
Take 3 or more course(s) totaling 6 or more credit(s) from the following:

- MUSA 3201 - Piano: Music Ed and BA (2.0 cr)
- MUSA 3203 - Organ: Music Education and BA (2.0 cr)
- MUSA 3204 - Voice: Music Education and BA (2.0 cr)
- MUSA 3205 - Violin: Music Education and BA (2.0 cr)
- MUSA 3206 - Viola: Music Education and BA (2.0 cr)
- MUSA 3207 - Cello: Music Education and BA (2.0 cr)
- MUSA 3208 - Double Bass: Music Education and BA (2.0 cr)
- MUSA 3209 - Flute: Music Education and BA (2.0 cr)
- MUSA 3211 - Oboe: Music Education and BA (2.0 cr)
- MUSA 3212 - Clarinet: Music Education and BA (2.0 cr)
- MUSA 3213 - Saxophone: Music Education and BA (2.0 cr)
- MUSA 3214 - Bassoon: Music Education and BA (2.0 cr)
- MUSA 3215 - French Horn: Music Education and BA (2.0 cr)
- MUSA 3216 - Trumpet: Music Education and BA (2.0 cr)
- MUSA 3217 - Trombone: Music Education and BA (2.0 cr)
- MUSA 3218 - Euphonium: Music Education and BA (2.0 cr)
- MUSA 3219 - Tuba: Music Education and BA (2.0 cr)
- MUSA 3221 - Percussion: Music Education and BA (2.0 cr)
- MUSA 3222 - Harp: Music Education and BA (2.0 cr)

Ensembles
Take a minimum of seven semesters of ensemble courses.
Take 7 or more credit(s) from the following:

- MUS 3230 - Chorus (1.0 - 2.0 cr)
- MUS 3410 - University Wind Bands (1.0 cr)
- MUS 3420 - Orchestra (1.0 cr)
- MUS 5240 - University Singers (1.0 cr)

Special Needs Courses
Take 10-11 credits by completing PSY 1001, PSY 3604, and [PSTL 1135 or BIOL 1010 or KIN 3027]. PSTL 1135 is preferred. Students who take PSTL 1135 must do so in the spring semester of their first year. Students who take BIOL 1010 or KIN 3027 must consult with the departmental adviser prior to enrollment.

- PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
- PSY 3604 - Introduction to Abnormal Psychology (3.0 cr)
- PSTL 1135 - Essentials of Human Anatomy and Physiology [BIOL] (4.0 cr)
  or BIOL 1010 - Human Biology: Concepts and Current Ethical Issues [BIOL, CIV] (4.0 cr)
  or KIN 3027 - Human Anatomy for Kinesiology Students (3.0 cr)

Internship
A six-month internship is required upon completion of all coursework. The internship can be taken for 1-13 credits.

- MUED 5855 - Music Therapy Internship (1.0 - 13.0 cr)

Voice and Recital
Take all of the following courses for a total of 2 credits.

- MUS 951 - Senior Recital (0.0 cr)
- MUS 1260 - Voice Class (2.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:

- MUS 3601W - History of Western Music I [WI] (3.0 cr)
- MUS 3602W - History of Western Music II [WI] (3.0 cr)
- MUS 3603W - History of Western Music III [WI] (3.0 cr)
Twin Cities Campus
New Media Studies Minor
College of Liberal Arts - Adm
College of Liberal Arts

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 15

This interdisciplinary minor explores multiple perspectives of how information or content is created and shaped in new and emerging media, as well as the role and impact of those media on human communication. New media refers to the emerging digital technologies that enable information to be produced, stored, transmitted, and displayed in new ways. Students will have an understanding of how these technologies change the ways in which various types of content can be created, managed, and distributed to potentially change the content itself.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
At least one course must be 4xxx or above. No more than 8 credits of elective courses (courses without the JOUR designator) may be earned from a single department. Students may not use only technical (hands-on or skills) courses to fulfill the electives requirement (see list below). Other electives may be chosen only if they represent new courses offered by the same department that are similar to those on the approved list. The list of electives is updated periodically--students should see the SJMC website for the most current list. Approval of alternative electives for the minor is made by the chair of the faculty steering committee in consultation with the appropriate department.

Minor Courses
Take 15 or more credit(s) from the following:

Media Studies/Journalism Core
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
• JOUR 3551 - Economics of New Media [TS] (3.0 cr)
• JOUR 3552 - Internet and Global Society [GP] (3.0 cr)
• JOUR 4551 - New Media and Culture [AH, TS] (3.0 cr)
• JOUR 5552 - Law of Internet Communications (3.0 cr)

Electives
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
• ARTS 3601 - New Media: Making Art Interactive (4.0 cr)
• COMM 3211 - Introduction to U.S. Electronic Media (3.0 cr)
• COMM 4291 - New Telecommunication Media (3.0 cr)
• CSCL 3173W - The Rhetoric of Everyday Life [CIV, WI] (3.0 cr)
• CSCL 3461 - Monsters, Robots, Cyborgs [LITR] (3.0 cr)
• ENGL 3351W (inactive) [AH, GP, WI] (4.0 cr)
• ENGL 4722 - Alphabet to Internet: History of Writing Technologies (4.0 cr)
• GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
• HIST 3705 - From Printing Press to Internet: Media, Communications, and History (3.0 cr)
• HSCI 3331 - Technology and American Culture [HIS, TS] (3.0 cr)
• HSCI 3715 - Technology and Civilization: Waterwheels to the Web [HIS, TS] (3.0 - 4.0 cr)
• HSCI 4321 - History of Computing [TS, HIS] (3.0 cr)
• SCMC 3001W - History of Cinema and Media Culture [WI] (4.0 cr)
• TH 4555 - Audio Technology (3.0 cr)
• TH 4556 - Digital Audio and MIDI for Performance (3.0 cr)
• TH 5554 - Multimedia Production for Live Performance (3.0 cr)
• WRIT 3577W - Rhetoric, Technology, and the Internet [TS, WI] (3.0 cr)
• WRIT 4501 - Usability and Human Factors in Technical Communication (3.0 cr)
Twin Cities Campus
Norwegian Minor
German, Scandinavian, & Dutch
College of Liberal Arts

• Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 16

The minor includes the study of the spoken language, literature, culture, and civilization.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Complete the introductory 4-semester Norwegian language sequence or its equivalent. Note: these credits do not factor into the overall length in credits of the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students are required to take 4 semester(s) of Norwegian.

The minor consists of a minimum of 16 credits in 3xxx, 4xxx (beyond 4004), and 5xxx courses with no more than one course being a directed or independent study. The four required semesters of a second language do not factor into the overall length of credits in the minor. All courses must be taken A-F and must be completed with a grade of C- or better. At least one course must be taken in the Scandinavian program at the University of Minnesota - Twin Cities campus. Students with a German, Scandinavian, Dutch major may elect a minor in Norwegian, but no courses may count for both the major and the minor. The program must be approved by the director of undergraduate studies.

Minor Courses
SCAN 3011W - Readings in Scandinavian Languages [WI] (4.0 cr)
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
• SCAN 3xxx
• SCAN 4xxx
• SCAN 5xxx
Twin Cities Campus
Philosophy B.A.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

A Philosophy major program requires 30 credits, at least 11 of which must be upper-division philosophy credits completed at the University of Minnesota - Twin Cities campus. No more than 8 credits of PHIL 1xxx may count toward the degree, and at least two 3-or-more-credit courses must be PHIL 4xxx or higher. Students who double-major and choose to complete the senior project in their other major are still responsible for taking 30 total PHIL credits. Students may earn a B.A. or a minor in philosophy, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Required Courses

History of Philosophy
PHIL 3001W - General History of Western Philosophy: Ancient Period [AH, WI] (4.0 cr)
or PHIL 3005W - General History of Western Philosophy: Modern Period [AH, WI] (4.0 cr)

Logic
PHIL 1001 - Introduction to Logic [MATH] (4.0 cr)
or PHIL 5201 - Symbolic Logic I (4.0 cr)

Metaphysics/Epistemology/Philosophy of Language/Philosophy of Science
PHIL 3234 - Knowledge and Society (4.0 cr)
or PHIL 3601W - Scientific Thought [WI] (4.0 cr)
or PHIL 4101 - Metaphysics (3.0 cr)
or PHIL 4105W - Epistemology [WI] (3.0 cr)
or PHIL 4231 - Philosophy of Language (3.0 cr)

Value Theory
PHIL 3311W - Introduction to Ethical Theory [WI] (4.0 cr)
or PHIL 4310W - History of Moral Theories [WI] (3.0 cr)
or PHIL 4320W - Intensive Study of an Historical Moral Theory [WI] (3.0 cr)
or PHIL 4321W - Theories of Justice [WI] (3.0 cr)
or PHIL 4330 - Contemporary Moral Theories (3.0 cr)
or PHIL 4414 - Political Philosophy (3.0 cr)

Philosophy Electives
If you have not yet taken two three-or-more-credit PHIL 4xxx-5xxx courses, do so here. Some students may have to take more than 13 elective credits in order to reach the 30-credit requirement.
Take 13 or more credit(s) from the following:
• PHIL 1xxx
• PHIL 3xxx
• PHIL 4xx
• PHIL 5xxx

Senior Project
A senior project is required and is typically a paper.
PHIL 4995 - Senior Project (Directed Studies) (1.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• PHIL 3001W - General History of Western Philosophy: Ancient Period [AH, WI] (4.0 cr)
• PHIL 3005W - General History of Western Philosophy: Modern Period [AH, WI] (4.0 cr)
• PHIL 3302W - Moral Problems of Contemporary Society [CIV, WI] (4.0 cr)
• PHIL 3311W - Introduction to Ethical Theory [WI] (4.0 cr)
• PHIL 3601W - Scientific Thought [WI] (4.0 cr)
• PHIL 4105W - Epistemology [WI] (3.0 cr)
• PHIL 4310W - History of Moral Theories [WI] (3.0 cr)
• PHIL 4320W - Intensive Study of an Historical Moral Theory [WI] (3.0 cr)
• PHIL 4321W - Theories of Justice [WI] (3.0 cr)

Program Sub-plans
A sub-plan is not required for this program.

Ethics and Civic Life
The Department of Philosophy’s optional concentration in ethics and civic life is an opportunity for students who are interested in ethics and community service to relate their experiences in the classroom to their work in the community and vice versa. Students who complete the concentration will receive acknowledgment on their transcripts.

Core Courses
Take 3 or more course(s) from the following:
• PHIL 1004W - Introduction to Political Philosophy [AH, CIV, WI] (4.0 cr)
• PHIL 1006W - Philosophy and Cultural Diversity [AH, DSJ, WI] (4.0 cr)
• PHIL 3301 - Environmental Ethics [ENV] (4.0 cr)
• PHIL 3302W - Moral Problems of Contemporary Society [CIV, WI] (4.0 cr)
• PHIL 3304 - Law and Morality (4.0 cr)
• PHIL 3305 - Medical Ethics (4.0 cr)
• PHIL 3307 - Social Justice and Community Service [AH, CIV] (4.0 cr)
• PHIL 3602 - Science, Technology, and Society (3.0 cr)
• PHIL 4325 - Education and Social Change [AH, CIV] (4.0 cr)
• PHIL 4326 - Lives Worth Living: Questions of Self, Vocation, and Community [CIV, AH] (4.0 cr)
• PHIL 4414 - Political Philosophy (3.0 cr)
• PHIL 4622 - Philosophy and Feminist Theory (3.0 cr)

Community Service
The community service component may be completed by taking a practicum course in philosophy (for example, PHIL 1007 in conjunction with 1004W); a community service component of one of the above courses; or a directed study in philosophy with a community service component.
Twin Cities Campus
Philosophy Minor
Philosophy
College of Liberal Arts

• Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 14

See the major description for more information.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
The minor consists of 14 semester credits (or their equivalent) of PHIL courses at the 3xxx-level or above. At least 8 credits must be taken at the University of Minnesota - Twin Cities campus. Students may earn a B.A. or a minor in philosophy, but not both.

Minor Courses
Take 14 or more credit(s) from the following:
• PHIL 3xxx
• PHIL 4xxx
• PHIL 5xxx
Twin Cities Campus
Physics B.A.
School of Physics & Astronomy
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 40
- Degree: Bachelor of Arts

The undergraduate physics program prepares students for employment, often in industrial or governmental laboratories, or for further study at graduate or professional schools in physics, engineering, biophysics, medicine, education, law, or business.

The program integrates a broad foundation in physics that can be flexibly combined with coursework in other technical disciplines or used to specialize in physics. Students should consult a physics adviser to help formulate objectives for undergraduate study.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students may earn no more than one undergraduate degree in the Physics program: a B.A. or a B.S. or a minor.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Mathematics
Complete a total of four courses from the calculus sequence or honors calculus sequence. These course do not count toward the total number of credits required for the major.

Calculus Sequence
- MATH 1271 - Calculus I [MATH] (4.0 cr)
- or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
- MATH 1272 - Calculus II (4.0 cr)
- or MATH 1372 - CSE Calculus II (4.0 cr)
- MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
- or MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
- MATH 2263 - Multivariable Calculus (4.0 cr)
- or MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
- or Honors Sequence
  - MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
  - MATH 1572H - Honors Calculus II (4.0 cr)
  - MATH 2573H - Honors Calculus III (4.0 cr)
  - MATH 2574H - Honors Calculus IV (4.0 cr)

Major Courses
Physics I
  - PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)

**Physics II**
- PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

**Physics III**
- PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)
  or PHYS 2403H - Honors Physics III (4.0 cr)

**Other Lower-division Requirements**
- PHYS 2201 - Introductory Thermodynamics and Statistical Physics (3.0 cr)
- PHYS 2601 - Quantum Physics (4.0 cr)
- PHYS 2605 - Quantum Physics Laboratory (3.0 cr)
- PHYS 4051 - Methods of Experimental Physics I (5.0 cr)

**Upper-Division Requirements**
Take 2 or more course(s) from the following:
- PHYS 4001 - Analytical Mechanics (4.0 cr)
- PHYS 4002 - Electricity and Magnetism (4.0 cr)
- PHYS 4101 - Quantum Mechanics (4.0 cr)

**Senior Project**
The senior project is completed in PHYS 4025W, or by some alternate means subject to prior departmental approval. Should the approved alternate physics project total fewer than 5 credits, an additional physics elective at the 3xxx-level or higher is required to meet the 5-credit senior project minimum.
- PHYS 4052W - Methods of Experimental Physics II [WI] (5.0 cr)

**Upper-division Writing Intensive within the major**
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
- PHYS 4052W - Methods of Experimental Physics II [WI] (5.0 cr)
**Twin Cities Campus**

**Physics Minor**

*School of Physics & Astronomy*

*College of Liberal Arts*

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 37

See the major description for more information.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Minor Requirements**

Physics minors must take all required physics and mathematics courses A-F (except those offered S-N only). Students may earn no more than one degree in the Department of Physics: a B.A. or a B.S. or a minor.

**Mathematics**

Take 12 credits.

- MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
  - or MATH 1271 - Calculus I [MATH] (4.0 cr)
- MATH 1372 - CSE Calculus II (4.0 cr)
  - or MATH 1272 - Calculus II (4.0 cr)
- MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
  - or MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)

*or Honors Sequence*

- MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
- MATH 1572H - Honors Calculus II (4.0 cr)
- MATH 2573H - Honors Calculus III (4.0 cr)

**Physics Sequence**

Take 25 credits.

- PHYS 2201 - Introductory Thermodynamics and Statistical Physics (3.0 cr)

*Physics I*

- PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
  - or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)

*Physics II*

- PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
  - or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

*Physics III*

- PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)
  - or PHYS 2403H - Honors Physics III (4.0 cr)

**Quantum Physics**

- PHYS 2601 - Quantum Physics (4.0 cr)
- PHYS 2605 - Quantum Physics Laboratory (3.0 cr)

**Physics/Astrophysics Elective**

Take 3 or more credit(s) from the following:

- PHYS 3xxx
- PHYS 4xxx
- PHYS 5xxx

*or* Take 3 or more credit(s) from the following:

- AST 3xxx
- AST 4xxx
- AST 5xxx
Twin Cities Campus
Physiology B.A.
Integrative Biology and Physiology
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 57 to 65
- Degree: Bachelor of Arts

The physiology major concentrates on understanding the functions of the human body from individual cells to organ systems. The program is based upon principles from chemistry, physics, mathematics, and biological sciences.

This major is particularly appropriate for students who intend to enter medical school or graduate study in any of a variety of biological, health, or biomedical sciences. The required courses form a strong core in biomedical science. Many of the required courses are identical to those required for admission to medical school. Students may tailor the overall degree program to specific needs and may choose additional science courses in preparation for medical school, other health sciences professional schools, or graduate school. Students may also take advantage of the freedom to pursue a more diverse undergraduate experience in CLA. Others may benefit from an opportunity to pursue a double major.

For the latest information, visit the physiology major website: http://physiology.med.umn.edu/undergraduate-program.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html.

Preparatory Coursework
These courses are prerequisites for future physiology coursework, such as PHSL 3061 and 3701.

- MATH 1271 - Calculus I [MATH] (4.0 cr)
- MATH 1272 - Calculus II (4.0 cr)
- CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
- CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
- CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
- CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)

Physics Sequence

- Physcis I
  - PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
or  PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)

- Physcis II
  - PHYS 1202W - Introductory Physics for Biology and Pre-medicine II [PHYS, WI] (5.0 cr)
or  PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)

Major Core Curriculum
BIOL 4003 - Genetics (3.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2311 - Organic Lab (4.0 cr)
PHSL 3061 - Principles of Physiology (4.0 cr)
PHSL 3062W - Research Paper for Physiology Majors [WI] (1.0 cr)
PHSL 3701 - Physiology Laboratory (2.0 cr)

Organic Chemistry II
CHEM 2302 - Organic Chemistry II (3.0 cr)

Advanced Physiology Course(s)
Take 1 or more course(s) from the following:
• PHSL 3095 - Problems in Physiology (1.0 - 5.0 cr)
• PHSL 4021 - Advanced Physiology and Bioengineering: Bionic Human (3.0 cr)
• PHSL 4031 - Physiological Discussions: Contemporary Topics (2.0 cr)
• PHSL 4095H - Honors Problems in Physiology (2.0 - 4.0 cr)
• PHSL 4900 - Advanced Physiology Teaching Laboratory (1.0 - 6.0 cr)
• PHSL 5444 - Muscle (3.0 cr)
• PHSL 5510 - Advanced Cardiac Physiology and Anatomy (2.0 - 3.0 cr)
• PHSL 5525 - Anatomy and Physiology of the Pelvis and Urinary System (1.0 - 2.0 cr)
• PHSL 5700 - Cell Physiology (4.0 cr)

Cell Biology
• BIOL 4004 - Cell Biology (3.0 cr)
• GCD 3033 - Principles of Cell Biology (3.0 cr)
• PHSL 4700 - Cell Physiology (3.0 cr)

Biochemistry
BIOC 3021 - Biochemistry (3.0 cr)

Electives
A course taken as a major requirement cannot also count as an elective.
Take 3 or more course(s) totaling 6 or more credit(s) from the following:
• ANAT 3601 - Principles of Human Anatomy (3.0 cr)
• ANAT 3602 - Principles of Human Anatomy Laboratory (2.0 cr)
• ANAT 3608H - Principles of Human Anatomy Laboratory for Honors Students (3.0 cr)
• ANAT 3611 - Principles of Human Anatomy (3.0 cr)
• ANAT 3612 - Principles of Human Anatomy Laboratory (2.0 cr)
• ANAT 4900 - Directed Studies in Anatomy (1.0 - 6.0 cr)
• ANAT 5525 - Anatomy and Physiology of the Pelvis and Urinary System (1.0 - 2.0 cr)
• BIOC 4xxx
• BIOL 4993 - Directed Studies (1.0 - 6.0 cr)
• BIOL 4994 - Directed Research (1.0 - 6.0 cr)
• CHEM 4xxx
• CSCI 3xxx
• CSCI 4xxx
• GCD 4025 - Cell Biology Laboratory (2.0 cr)
• GCD 4034 - Molecular Genetics (3.0 cr)
• GCD 4111 - Histology: Cell and Tissue Organization (4.0 cr)
• GCD 4161 - Developmental Biology (3.0 cr)
• GCD 5036 - Molecular Cell Biology (3.0 cr)
• MATH 2xxx
• MICB 3301 - Biology of Microorganisms (5.0 cr)
• MICB 4131 - Immunology (3.0 cr)
• PHSL 3095 - Problems in Physiology (1.0 - 5.0 cr)
• PHSL 4021 - Advanced Physiology and Bioengineering: Bionic Human (3.0 cr)
• PHSL 4031 - Physiological Discussions: Contemporary Topics (2.0 cr)
• PHSL 4095H - Honors Problems in Physiology (2.0 - 4.0 cr)
• PHSL 4900 - Advanced Physiology Teaching Laboratory (1.0 - 6.0 cr)
• PHSL 5115 - Clinical Physiology I (3.0 cr)
• PHSL 5116 - Clinical Physiology II (3.0 cr)
• PHSL 5444 - Muscle (3.0 cr)
• PHSL 5510 - Advanced Cardiac Physiology and Anatomy (2.0 - 3.0 cr)
• PHSL 5525 - Anatomy and Physiology of the Pelvis and Urinary System (1.0 - 2.0 cr)
• PHSL 5700 - Cell Physiology (4.0 cr)
• PSY 3011 - Introduction to Learning and Behavior (3.0 cr)
• PSY 3031 - Introduction to Sensation and Perception (3.0 cr)
• PSY 3061 - Introduction to Biological Psychology (3.0 cr)
• PSY 5012 - Learning and Cognition in Animals (4.0 cr)
• PSY 5031W - Perception [WI] (3.0 cr)
• PSY 5036W - Computational Vision [WI] (3.0 cr)
• PSY 5037 - Psychology of Hearing (3.0 cr)
• PSY 5038W - Introduction to Neural Networks [WI] (3.0 cr)
• PSY 5137 - Introduction to Behavioral Genetics (3.0 cr)
• STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
• STAT 3022 - Data Analysis (4.0 cr)
• STAT 5021 - Statistical Analysis (4.0 cr)
Political scientists study topics, such as the exercise of power and influence; sources and resolution of conflicts; the relation of politics to the economy, culture, and other aspects of society; the adoption and implementation of public policies; and the development of political systems. These topics are studied at all levels, from local communities to the global community.

The scope of the discipline is reflected in the main areas of specialization that make up the undergraduate curriculum: political theory, comparative government and politics, international relations, and American governmental systems and processes. In addition, undergraduates may choose from several optional concentrations: business and politics, campaigns and elections, citizenship and civic action, global politics, law and politics, democratization and development, political psychology, beliefs, and behavior, and public affairs.

Program Requirements
Students are required to take 4 semester(s) of any second language.

The Political Science B.A. consists of a minimum of 32 credits, at least 24 of which must be upper-division (POL 3xxx-4xxx). Choosing a sub-plan concentration is optional. Note: POL 3070, 3080, 3085, 3108H, 3110H, 4900V & 4970 may be used to meet the 24-credit upper-division requirement.

Students may earn a B.A. or a minor in political science, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Preparatory Courses
It is strongly recommended, but not required, that majors complete lower-division POL coursework. No more than 8 credits of POL 1xxx may count toward the B.A.

Take 0 - 8 credit(s) from the following:

- POL 1001 - American Democracy in a Changing World [SOCS] (4.0 cr)
- POL 1001H - Honors Course: American Democracy in a Changing World [SOCS] (4.0 cr)
- POL 1019 - Indigenous Peoples: A Global Perspective [GP] (3.0 cr)
- POL 1025 - Global Politics [SOCS, GP] (4.0 cr)
- POL 1026 - We and They: U.S. Foreign Policy (4.0 cr)
- POL 1054 - Puzzles in World Politics [SOCS, GP] (4.0 cr)
- POL 1054H - Honors: Puzzles in World Politics [SOCS, GP] (4.0 cr)
• POL 1201 - Political Ideas and Ideologies [HIS, CIV] (4.0 cr)
• POL 1234 - Citizen U: Building Tomorrow's Citizens Today (3.0 cr)
• POL 1903 - Freshman Seminar (3.0 cr)
• POL 1904 - Topics: Freshman seminar (3.0 cr)
• POL 1905 - Freshman Seminar (3.0 cr)
• POL 1908W - Topics: Freshman Seminar [WI] (3.0 cr)
• POL 1909W - Topics: Freshman Seminar [WI] (3.0 cr)

**Upper-division Courses**

Take at least one course from three of the four subfields: political theory, comparative government, international relations, and American government. Students who do not choose to complete an optional sub-plan should take remaining upper-division coursework from these course lists.

Take 3 or more course(s) including 3 or more sub-requirements(s) from the following:

**Political Theory**

Take 0 or more course(s) from the following:

• POL 3210 - Practicum (2.0 cr)
• POL 3225 - American Political Thought [CIV] (3.0 cr)
• POL 3235W - Democracy and Citizenship [CIV, WI] (3.0 cr)
• POL 3215W - Power, Virtue and Vice: Ancient and Early Modern Political Theory [WI] (3.0 cr)
• POL 3252W - Revolution, Democracy, and Empire: Modern Political Thought [AH, CIV, WI] (3.0 cr)
• POL 4210 - Topics in Political Theory (3.0 cr)
• POL 4253 - Modernity and Its Discontents: Late Modern Political Thought (3.0 - 4.0 cr)
• POL 4275 - Domination, Exclusion, and Justice: Contemporary Political Thought (3.0 cr)

**Comparative Government**

Take 0 or more course(s) from the following:

• POL 3410 - Topics in Comparative Politics (3.0 cr)
• POL 3451W - Politics and Society in the New Europe [GP, WI] (3.0 cr)
• POL 3464 - Politics of Inequality (3.0 cr)
• POL 3465 - Theories of Political Economy (3.0 cr)
• POL 3475 - Islamist Politics (3.0 cr)
• POL 3477 - Political Economy of Development [SOCS, GP] (3.0 - 4.0 cr)
• POL 3479 (Inactive) [GP] (3.0 cr)
• POL 4403W - Comparative Constitutionalism [GP, WI] (3.0 cr)
• POL 4410 - Topics in Comparative Politics (3.0 cr)
• POL 4461W - European Government and Politics [GP, WI] (4.0 cr)
• POL 4463 - The Cuban Revolution Through the Words of Cuban Revolutionaries [GP] (3.0 cr)
• POL 4465 - Southeast Asian Politics [GP] (3.0 cr)
• POL 4473W - Chinese Politics [GP, WI] (3.0 cr)
• POL 4477 - Struggles and Issues in the Middle East (4.0 cr)
• POL 4478W - Contemporary Politics in Africa and the Colonial Legacy [GP, WI] (4.0 cr)
• POL 4481 - Governments and Markets (3.0 - 4.0 cr)
• POL 4485 - Human Rights and Democracy in the World [CIV] (3.0 cr)
• POL 4487 - The Struggle for Democratization and Citizenship (4.0 cr)
• POL 3469W - Citizens, Consumers, and Corporations [CIV, WI] (3.0 cr)
• POL 4492 - Law and Injustice in Latin America (3.0 cr)
• POL 4494W - US-Latin American Relations [WI] (3.0 cr)
• POL 4495 - Politics of Family, Sex, and Children [DSJ] (3.0 cr)

**International Relations**

Take 0 or more course(s) from the following:

• POL 3810 - Topics in International Relations and Foreign Policy (3.0 cr)
• POL 3833 - The United States and the Global Economy (3.0 cr)
• POL 3835 - International Relations [SOCS, GP] (3.0 cr)
• POL 3873W - Global Citizenship and International Ethics [CIV, WI] (3.0 cr)
• POL 4810 - Topics in International Politics and Foreign Policy (3.0 cr)
• POL 4867W - United States Foreign Policy Toward the Middle East [GP, WI] (4.0 cr)
• POL 4878W - Israeli-Palestinian Situation [GP, WI] (4.0 cr)
• POL 4883W - Global Governance [WI] (3.0 cr)
• POL 4885W - International Conflict and Security [GP, WI] (4.0 cr)
• POL 4887 - Thinking Strategically in International Politics [MATH] (3.0 cr)

**American Government**

Take 0 or more course(s) from the following:

• POL 3306 - Presidential Leadership and American Democracy (3.0 cr)
• POL 3308 - Congressional Politics and Institutions [SOCS] (3.0 cr)
• POL 3309 - Justice in America (3.0 cr)
• POL 3310 - Topics in American Politics (3.0 cr)
• POL 3310H - Topics in American Politics (3.0 cr)
• POL 3319 - Education and the American Dream [SOCS, DSJ] (3.0 cr)
• POL 3321 - Issues in American Public Policy (3.0 cr)
• POL 3323 - Political Tolerance in the United States (3.0 - 4.0 cr)
• POL 3325 - U.S. Campaigns and Elections (3.0 cr)
• POL 3701 - American Indian Tribal Governments and Politics [HIS, DSJ] (3.0 cr)
• POL 3739 - Politics of Race, Class, and Ethnicity (3.0 cr)
• POL 3752 - Chicana/o Politics [SOCS, DSJ] (3.0 cr)
• POL 3766 - Political Psychology of Mass Behavior [SOCS] (3.0 cr)
• POL 3767 - Political Psychology of Elite Behavior [CIV] (3.0 cr)
• POL 3769 - Public Opinion and Voting Behavior [SOCS] (3.0 cr)
• POL 3785 - Persuasion and Political Propaganda (3.0 cr)
• POL 3785H - Persuasion and Political Propaganda (3.0 cr)
• POL 4310 - Topics in American Politics (3.0 cr)
• POL 4315W - State Governments: Laboratories of Democracy [WI] (4.0 cr)
• POL 4322 - Rethinking the Welfare State (3.0 cr)
• POL 4327 - The Politics of American Cities and Suburbs (3.0 cr)
• POL 4331 - Thinking Strategically in Domestic Politics (3.0 - 4.0 cr)
• POL 4501W - The Supreme Court and Constitutional Interpretation [CIV, WI] (3.0 cr)
• POL 4502W - The Supreme Court, Civil Liberties, and Civil Rights [CIV, WI] (3.0 cr)
• POL 4507 - Law, Sovereignty, and Treaty Rights (3.0 cr)
• POL 4525W - Federal Indian Policy [WI] (3.0 cr)
• POL 4561 - Comparative Legal Systems (3.0 cr)
• POL 4737W - American Political Parties [WI] (4.0 cr)
• POL 4766 - America, the Unusual?: American Political Culture in Comparative Context [CIV] (3.0 cr)
• POL 4771 - Racial Attitudes and Intergroup Conflict (3.0 cr)
• POL 4773W - Interest Groups, Social Movements and Politics of Race, Class, and Gender [DSJ, WI] (3.0 cr)

Senior Project
The senior project is fulfilled by taking any POL 4xxx course as part of the 24-credit upper-division requirement. Honors students must take POL 4900V or POL 3110H to complete the senior thesis requirement.

Program Sub-plans
A sub-plan is not required for this program.

Business and Politics
Business and Politics
Take 4 or more course(s) from the following:
• POL 3085 - Quantitative Analysis in Political Science [MATH] (4.0 cr)
• POL 4315W - State Governments: Laboratories of Democracy [WI] (4.0 cr)
• POL 4327 - The Politics of American Cities and Suburbs (3.0 cr)
• POL 4331 - Thinking Strategically in Domestic Politics (3.0 - 4.0 cr)
• POL 4481 - Governments and Markets (3.0 - 4.0 cr)
• POL 3833 - The United States and the Global Economy (3.0 cr)

Campaigns and Elections
Campaigns and Elections
Take 4 or more course(s) from the following:
• POL 3085 - Quantitative Analysis in Political Science [MATH] (4.0 cr)
• POL 3210 - Practicum (2.0 cr)
• POL 3225 - American Political Thought [CIV] (3.0 cr)
• POL 3766 - Political Psychology of Mass Behavior [SOCS] (3.0 cr)
• POL 3306 - Presidential Leadership and American Democracy (3.0 cr)
• POL 4331 - Thinking Strategically in Domestic Politics (3.0 - 4.0 cr)
• POL 4461W - European Government and Politics [GP, WI] (4.0 cr)
• POL 4737W - American Political Parties [WI] (4.0 cr)
• POL 3769 - Public Opinion and Voting Behavior [SOCS] (3.0 cr)

Citizenship and Civic Action
Citizenship and Civic Action
Take 4 or more course(s) from the following:
• POL 3210 - Practicum (2.0 cr)
- POL 3225 - American Political Thought [CIV] (3.0 cr)
- POL 3235W - Democracy and Citizenship [CIV, WI] (3.0 cr)
- POL 3251W - Power, Virtue and Vice: Ancient and Early Modern Political Theory [WI] (3.0 cr)
- POL 3252W - Revolution, Democracy, and Empire: Modern Political Thought [AH, CIV, WI] (3.0 cr)
- POL 3739 - Politics of Race, Class, and Ethnicity (3.0 cr)
- POL 3873W - Global Citizenship and International Ethics [CIV, WI] (3.0 cr)
- POL 3739 - Politics of Race, Class, and Ethnicity [CIV, WI] (3.0 cr)
- POL 4210 - Topics in Political Theory (3.0 cr)
- POL 4253 - Modernity and Its Discontents: Late Modern Political Thought (3.0 - 4.0 cr)
- POL 4275 - Domination, Exclusion, and Justice: Contemporary Political Thought (3.0 cr)
- POL 4322 - Rethinking the Welfare State (3.0 cr)
- POL 4485 - Human Rights and Democracy in the World [CIV] (3.0 cr)
- POL 4487 - The Struggle for Democratization and Citizenship (4.0 cr)
- POL 4502W - The Supreme Court, Civil Liberties, and Civil Rights [CIV, WI] (3.0 cr)
- POL 4766 - America, the Unusual?: American Political Culture in Comparative Context [CIV] (3.0 cr)

Democratization and Development

Take 4 or more course(s) from the following:
- POL 3210 - Practicum (2.0 cr)
- POL 3235W - Democracy and Citizenship [CIV, WI] (3.0 cr)
- POL 3477 - Political Economy of Development [SOCS, GP] (3.0 - 4.0 cr)
- POL 3739 - Politics of Race, Class, and Ethnicity (3.0 cr)
- POL 4210 - Topics in Political Theory (3.0 cr)
- POL 4253 - Modernity and Its Discontents: Late Modern Political Thought (3.0 - 4.0 cr)
- POL 4275 - Domination, Exclusion, and Justice: Contemporary Political Thought (3.0 cr)
- POL 4322 - Rethinking the Welfare State (3.0 cr)
- POL 4477 - Struggles and Issues in the Middle East (4.0 cr)
- POL 4478W - Contemporary Politics in Africa and the Colonial Legacy [GP, WI] (4.0 cr)
- POL 3479 (inactive) [GP] (3.0 cr)
- POL 4487 - The Struggle for Democratization and Citizenship (4.0 cr)
- POL 4561 - Comparative Legal Systems (3.0 cr)
- POL 4766 - America, the Unusual?: American Political Culture in Comparative Context [CIV] (3.0 cr)
- POL 4885W - International Conflict and Security [GP, WI] (4.0 cr)
- POL 5253 (inactive) (4.0 cr)

Global Politics

Take 4 or more course(s) from the following:
- POL 3235W - Democracy and Citizenship [CIV, WI] (3.0 cr)
- POL 3451W - Politics and Society in the New Europe [GP, WI] (3.0 cr)
- POL 3477 - Political Economy of Development [SOCS, GP] (3.0 - 4.0 cr)
- POL 3835 - International Relations [SOCS, GP] (3.0 cr)
- POL 3873W - Global Citizenship and International Ethics [CIV, WI] (3.0 cr)
- POL 4461W - European Government and Politics [GP, WI] (4.0 cr)
- POL 4473W - Chinese Politics [GP, WI] (3.0 cr)
- POL 4477 - Struggles and Issues in the Middle East (4.0 cr)
- POL 4479W - Contemporary Politics in Africa and the Colonial Legacy [GP, WI] (4.0 cr)
- POL 3479 (inactive) [GP] (3.0 cr)
- POL 4485 - Human Rights and Democracy in the World [CIV] (3.0 cr)
- POL 3833 - The United States and the Global Economy (3.0 cr)
- POL 4883W - Global Governance [WI] (3.0 cr)
- POL 4885W - International Conflict and Security [GP, WI] (4.0 cr)
- POL 4887 - Thinking Strategically in International Politics [MATH] (3.0 cr)

Law and Politics

Take 4 or more course(s) from the following:
- POL 3225 - American Political Thought [CIV] (3.0 cr)
- POL 3252W - Revolution, Democracy, and Empire: Modern Political Thought [AH, CIV, WI] (3.0 cr)
- POL 4253 - Modernity and Its Discontents: Late Modern Political Thought (3.0 - 4.0 cr)
- POL 4275 - Domination, Exclusion, and Justice: Contemporary Political Thought (3.0 cr)
- POL 4501W - The Supreme Court and Constitutional Interpretation [CIV, WI] (3.0 cr)
- POL 4502W - The Supreme Court, Civil Liberties, and Civil Rights [CIV, WI] (3.0 cr)
• POL 4561 - Comparative Legal Systems (3.0 cr)
• POL 4883W - Global Governance [WI] (3.0 cr)
• POL 5252 (Inactive) (3.0 cr)
• POL 5253 (Inactive) (4.0 cr)

Political Psychology, Beliefs, and Behavior

Take 4 or more course(s) from the following:
• POL 3739 - Politics of Race, Class, and Ethnicity (3.0 cr)
• POL 3766 - Political Psychology of Mass Behavior [SOCS] (3.0 cr)
• POL 4253 - Modernity and Its Discontents: Late Modern Political Thought (3.0 - 4.0 cr)
• POL 4275 - Domination, Exclusion, and Justice: Contemporary Political Thought (3.0 cr)
• POL 3306 - Presidential Leadership and American Democracy (3.0 cr)
• POL 4331 - Thinking Strategically in Domestic Politics (3.0 - 4.0 cr)
• POL 4485 - Human Rights and Democracy in the World [CIV] (3.0 cr)
• POL 4766 - America, the Unusual?: American Political Culture in Comparative Context [CIV] (3.0 cr)
• POL 4887 - Thinking Strategically in International Politics [MATH] (3.0 cr)
• POL 5253 (Inactive) (4.0 cr)

Public Affairs

Take 4 or more course(s) from the following:
• POL 3085 - Quantitative Analysis in Political Science [MATH] (4.0 cr)
• POL 3235W - Democracy and Citizenship [CIV, WI] (3.0 cr)
• POL 3321 - Issues in American Public Policy (3.0 cr)
• POL 3306 - Presidential Leadership and American Democracy (3.0 cr)
• POL 4315W - State Governments: Laboratories of Democracy [WI] (4.0 cr)
• POL 4322 - Rethinking the Welfare State (3.0 cr)
• POL 4327 - The Politics of American Cities and Suburbs (3.0 cr)
• POL 4481 - Governments and Markets (3.0 - 4.0 cr)
• POL 4501W - The Supreme Court and Constitutional Interpretation [CIV, WI] (3.0 cr)
• POL 3833 - The United States and the Global Economy (3.0 cr)

BA/MPP in Political Engagement

The College of Liberal Arts and the Humphrey School of Public Affairs offer an early-admission opportunity for eligible University of Minnesota Political Science B.A. students also interested in completing the Master's in Public Policy (M.P.P.). The M.P.P.’s Political Engagement sub-plan enables Political Science majors to take 13 M.P.P. credits during their senior (fourth) year, and to complete the M.P.P. after a fifth year of full-time graduate study plus one summer.

Interested Political Science undergraduates should contact the Department of Political Science adviser for more information. The M.P.P./Political Engagement sub-plan application deadline is December 15th of the student's junior year, and admission to the M.P.P./Political Engagement sub-plan is contingent on a formal admissions process.

Students admitted to the M.P.P./Political Engagement sub-plan must maintain timely degree progress to ensure all undergraduate degree requirements are completed by the end of their fourth year.

The M.P.P.'s Political Engagement sub-plan is open to Political Science undergraduates only. Double majors may apply, but only if they choose to complete the senior project requirement in Political Science.

BA/MPP in Political Engagement

PA 5002 - Introduction to Policy Analysis (1.5 cr)
PA 5003 - Introduction to Financial Analysis and Management (1.5 cr)
PA 5011 - Management of Organizations (3.0 cr)
PA 5021 - Economics For Policy Analysis and Planning I (3.0 cr)
PA 5031 - Empirical Analysis I (4.0 cr)
Twin Cities Campus
Political Science Minor
Political Science
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16

Political scientists study topics, such as the exercise of power and influence; sources and resolution of conflicts; the relation of politics to the economy, culture, and other aspects of society; the adoption and implementation of public policies; and the development of political systems. These topics are studied at all levels, from local communities to the global community.

The scope of the discipline is reflected in the main areas of specialization that make up the undergraduate curriculum: political theory, comparative government and politics, international relations, and American governmental systems and processes.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Complete a minimum of four courses and 16 credits. POL 3070 & POL 4970 do not count toward the minor. Up to 3 credits of POL 3080 may count toward the minor.

Political science minors who major in global studies must complete at least two upper-division courses outside of the comparative government and international relations subfields. Global studies majors must take at least two upper-division courses from political theory or American government.

Students may earn a B.A. or a minor in political science, but not both.

Minor Courses
Take at least one course in two of the four subfields: political theory, American government, comparative government, and international relations.
Take 16 or more credit(s) from the following:

Lower-Division Courses
Take 0 or more credit(s) from the following:
- POL 1001 - American Democracy in a Changing World [SOCS] (4.0 cr)
- POL 1001H - Honors Course: American Democracy in a Changing World [SOCS] (4.0 cr)
- POL 1019 - Indigenous Peoples: A Global Perspective [GP] (3.0 cr)
- POL 1025 - Global Politics [SOCS, GP] (4.0 cr)
- POL 1026 - We and They: U.S. Foreign Policy (4.0 cr)
- POL 1054 - Puzzles in World Politics [SOCS, GP] (4.0 cr)
- POL 1201 - Political Ideas and Ideologies [HIS, CIV] (4.0 cr)
- POL 1234 - Citizen U: Building Tomorrow's Citizens Today (3.0 cr)
- POL 1903 - Freshman Seminar (3.0 cr)
- POL 1904 - Topics: Freshman Seminar (3.0 cr)
- POL 1905 - Freshman Seminar (3.0 cr)
- POL 1908W - Topics: Freshman Seminar [WI] (3.0 cr)
- POL 1909W - Topics: Freshman Seminar [WI] (3.0 cr)

Political Theory
Take 0 or more credit(s) from the following:
- POL 3210 - Practicum (2.0 cr)
- POL 3225 - American Political Thought [CIV] (3.0 cr)
- POL 325W - Democracy and Citizenship [CIV, WI] (3.0 cr)
- POL 3251W - Power, Virtue and Vice: Ancient and Early Modern Political Theory [WI] (3.0 cr)
- POL 3252W - Revolution, Democracy, and Empire: Modern Political Thought [AH, CIV, WI] (3.0 cr)
- POL 4210 - Topics in Political Theory (3.0 cr)
- POL 4253 - Modernity and Its Discontents: Late Modern Political Thought (3.0 - 4.0 cr)
- POL 4275 - Domination, Exclusion, and Justice: Contemporary Political Thought (3.0 cr)
American Government
Take 0 or more credit(s) from the following:

- POL 3306 - Presidential Leadership and American Democracy (3.0 cr)
- POL 3308 - Congressional Politics and Institutions [SOCS] (3.0 cr)
- POL 3309 - Justice in America (3.0 cr)
- POL 3310 - Topics in American Politics (3.0 cr)
- POL 3310H - Topics in American Politics (3.0 cr)
- POL 3319 - Education and the American Dream [SOCS, DSJ] (3.0 cr)
- POL 3321 - Issues in American Public Policy (3.0 cr)
- POL 3323 - Political Tolerance in the United States (3.0 - 4.0 cr)
- POL 3325 - U.S. Campaigns and Elections (3.0 cr)
- POL 3701 - American Indian Tribal Governments and Politics [HIS, DSJ] (3.0 cr)
- POL 3739 - Politics of Race, Class, and Ethnicity (3.0 cr)
- POL 3752 - Chicana/o Politics [SOCS, DSJ] (3.0 cr)
- POL 3766 - Political Psychology of Mass Behavior [SOCS] (3.0 cr)
- POL 3767 - Political Psychology of Elite Behavior [CIV] (3.0 cr)
- POL 3769 - Public Opinion and Voting Behavior [SOCS] (3.0 cr)
- POL 3785 - Persuasion and Political Propaganda (3.0 cr)
- POL 3785H - Persuasion and Political Propaganda (3.0 cr)
- POL 4310 - Topics in American Politics (3.0 cr)
- POL 4315W - State Governments: Laboratories of Democracy [WI] (4.0 cr)
- POL 4322 - Rethinking the Welfare State (3.0 cr)
- POL 4501W - The Supreme Court and Constitutional Interpretation [CIV, WI] (3.0 cr)
- POL 4502W - The Supreme Court, Civil Liberties, and Civil Rights [CIV, WI] (3.0 cr)
- POL 4507 - Law, Sovereignty, and Treaty Rights (3.0 cr)
- POL 4525W - Federal Indian Policy [WI] (3.0 cr)
- POL 4561 - Comparative Legal Systems (3.0 cr)
- POL 4737W - American Political Parties [WI] (4.0 cr)
- POL 4766 - America, the Unusual?: American Political Culture in Comparative Context [CIV] (3.0 cr)
- POL 4771 - Racial Attitudes and Intergroup Conflict (3.0 cr)
- POL 4773W - Interest Groups, Social Movements and Politics of Race, Class, and Gender [DSJ, WI] (3.0 cr)

Comparative Government
Take 0 or more credit(s) from the following:

- POL 3410 - Topics in Comparative Politics (3.0 cr)
- POL 3451W - Politics and Society in the New Europe [GP, WI] (3.0 cr)
- POL 3464 - Politics of Inequality (3.0 cr)
- POL 3465 - Theories of Political Economy (3.0 cr)
- POL 3475 - Islamist Politics (3.0 cr)
- POL 3477 - Political Economy of Development [SOCS, GP] (3.0 - 4.0 cr)
- POL 3479 [Inactive] [GP] (3.0 cr)
- POL 4403W - Comparative Constitutionalism [GP, WI] (3.0 cr)
- POL 4410 - Topics in Comparative Politics (3.0 cr)
- POL 4461W - European Government and Politics [GP, WI] (4.0 cr)
- POL 4463 - The Cuban Revolution Through the Words of Cuban Revolutionaries [GP] (3.0 cr)
- POL 4465 - Southeast Asian Politics [GP] (3.0 cr)
- POL 4473W - Chinese Politics [GP, WI] (3.0 cr)
- POL 4478W - Contemporary Politics in Africa and the Colonial Legacy [GP, WI] (4.0 cr)
- POL 4481 - Governments and Markets (3.0 - 4.0 cr)
- POL 4485 - Human Rights and Democracy in the World [CIV] (3.0 cr)
- POL 4487 - The Struggle for Democratization and Citizenship (4.0 cr)
- POL 3489W - Citizens, Consumers, and Corporations [CIV, WI] (3.0 cr)
- POL 4492 - Law and (In)Justice in Latin America (3.0 cr)
- POL 4494W - US-Latin American Relations [WI] (3.0 cr)
- POL 4495 - Politics of Family, Sex, and Children [DSJ] (3.0 cr)

International Relations
Take 0 or more credit(s) from the following:

- POL 3810 - Topics in International Relations and Foreign Policy (3.0 cr)
- POL 3833 - The United States and the Global Economy (3.0 cr)
- POL 3835 - International Relations [SOCS, GP] (3.0 cr)
- POL 3873V - Global Citizenship and International Ethics [CIV, WI] (3.0 cr)
- POL 3873W - Global Citizenship and International Ethics [CIV, WI] (3.0 cr)
- POL 4810 - Topics in International Politics and Foreign Policy (3.0 cr)
- POL 4867W - United States Foreign Policy Toward the Middle East [GP, WI] (4.0 cr)
- POL 4878W - Israeli-Palestinian Situation [GP, WI] (4.0 cr)
• **POL 4883W** - Global Governance [WI] (3.0 cr)
• **POL 4885W** - International Conflict and Security [GP, WI] (4.0 cr)
• **POL 4887** - Thinking Strategically in International Politics [MATH] (3.0 cr)

**Electives**
Take 0 or more credit(s) from the following:
• **POL 3080** - Faculty-Supervised Individual Internships (3.0 - 13.0 cr)
• **POL 3085** - Quantitative Analysis in Political Science [MATH] (4.0 cr)
• **POL 5xxx**
Twin Cities Campus
Portuguese Studies Minor
Spanish & Portuguese
College of Liberal Arts

• Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 16

The Portuguese studies minor focuses on literary, cultural, and linguistic studies from Portugal, Brazil, and Lusophone Africa. Students begin with language skills courses. These are followed by analysis skills courses in Hispanic literature, culture, and linguistics. The department encourages minors to study abroad in a Portuguese-speaking area.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Complete the introductory 4-semester Portuguese language sequence or its equivalent. Note: these credits do not factor into the overall length in credits of the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students are required to take 4 semester(s) of Portuguese.

The four required semesters of a second language do not factor into the overall length of credits in the minor.

Students must declare the minor at least one full term before completing minor requirements and are encouraged to declare it as early as possible (preferably during preparatory coursework). Contact the department office for declaration procedures. The department administers two allowable degree combinations: Spanish Studies B.A. and Portuguese Studies minor, or Spanish Studies minor and Portuguese Studies minor. No other departmental degree combinations are allowed.

Minor Courses
PORT 3003 - Portuguese Conversation and Composition (4.0 cr)
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
• PORT 3xxx
• PORT 4xxx
• PORT 5xxx
Twin Cities Campus
Psychology B.A.
Psychology
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 36
- Degree: Bachelor of Arts

Psychology examines human behavior through environmental, genetic, physiological, and social determinants and correlates. The department strives to train students with a strong general background in psychology and an ability to think clearly and critically in a wide variety of settings. Students must fulfill distribution requirements in a variety of psychological topics.

Faculty and students work with related University units, including the Institute of Child Development, the Department of Computer Science and Engineering, the Carlson School of Management, the Departments of Psychiatry and Educational Psychology, the Department of Neuroscience, and affiliated research units within the department, such as the Center for Cognitive Sciences, the Center for Interest Measurement Research, and the Minnesota Center for Twin and Family Research. While a B.A. in psychology has proved to be a valuable and useful background for a wide variety of careers, a professional career as a psychologist requires further training.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Prospective majors are strongly encouraged to complete PSY 3801 (or a Department of Psychology approved equivalent) prior to formally declaring the major. To declare a major, students schedule an appointment with a Psychology Advisor (psyadvis@umn.edu).

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Note: CPSY, EPSY, and CAPY courses do not count as upper-division credits outside of psychology. Transfer students must complete a minimum of 16 upper-division credits in the Department of Psychology at the University of Minnesota - Twin Cities campus.

Students may earn no more than one undergraduate degree in psychology: a B.A. or a B.S. or a minor. Students may combine the psychology B.A. with the child psychology minor, but not with the child psychology B.A. or B.S.

Beginning fall 2012, all incoming CLA freshman must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Preparatory Courses
Take three courses for a total of 12 credits.

PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
  or PSY 1001H - Honors Introduction to Psychology [SOCS] (4.0 cr)
  or PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
PSY 3801 - Introduction to Psychological Measurement and Data Analysis [MATH] (4.0 cr)
  or PSY 3801H - Honors Introduction to Psychological Measurement and Data Analysis [MATH] (4.0 cr)
PSY 3001W - Introduction to Research Methods [WI] (4.0 cr)
  or PSY 3001V - Honors Introduction to Research Methods [WI] (4.0 cr)
Major Courses
Take five courses for a total of 15 credits.

Cognitive and Brain Sciences
Take 2 or more course(s) from the following:
• PSY 3011 - Introduction to Learning and Behavior (3.0 cr)
• PSY 3031 - Introduction to Sensation and Perception (3.0 cr)
• PSY 3051 - Introduction to Cognitive Psychology (3.0 cr)
• PSY 3061 - Introduction to Biological Psychology (3.0 cr)
• PSY 4011 - Applied Behavior Analysis (3.0 cr)
• PSY 4012 - Behavior Analysis and Autism (4.0 cr)
• PSY 4036 - Perceptual Issues in Visual Impairment (3.0 cr)
• PSY 5012 - Learning and Cognition in Animals (4.0 cr)
• PSY 5014 - Psychology of Human Learning and Memory (3.0 cr)
• PSY 5015 - Cognition, Computation, and Brain (3.0 cr)
• PSY 5018H - Mathematical Models of Human Behavior (3.0 cr)
• PSY 5031W - Perception [WI] (3.0 cr)
• PSY 5036W - Computational Vision [WI] (3.0 cr)
• PSY 5037 - Psychology of Hearing (3.0 cr)
• PSY 5038W - Introduction to Neural Networks [WI] (3.0 cr)
• PSY 5054 - Psychology of Language (3.0 cr)
• PSY 5062 - Cognitive Neuropsychology (3.0 cr)
• PSY 5063 - Introduction to Functional MRI (3.0 cr)
• PSY 5064 - Brain and Emotion (3.0 cr)
• PSY 5065 - Functional Imaging: Hands-on Training (3.0 cr)

Clinical, Personality, and Social Psychology
Take 2 or more course(s) from the following:
• PSY 3201 - Introduction to Social Psychology (3.0 cr)
• PSY 3206 - Introduction to Health Psychology (3.0 cr)
• PSY 3301 - Introduction to Cultural Psychology (3.0 cr)
• PSY 3617 - Introduction to Clinical Psychology (3.0 cr)
• PSY 3633 - Happiness: Integrating Research Across Psychological Sciences (3.0 cr)
• PSY 5202 - Attitudes and Social Behavior (3.0 cr)
• PSY 5204 - Psychology of Interpersonal Relationships (3.0 cr)
• PSY 5205 - Applied Social Psychology (3.0 cr)
• PSY 5206 *(Inactive)* (3.0 cr)
• PSY 5207 - Personality and Social Behavior (3.0 cr)
• CPSY 4303 - Adolescent Psychology (3.0 cr)
• PSY 3604 - Introduction to Abnormal Psychology (3.0 cr)
• PSY 3101 - Introduction to Personality (3.0 cr)
or PSY 5101 - Personality Psychology (3.0 cr)

Individual Differences, Quantitative, and Applied Psychology
Take 1 or more course(s) from the following:
• PSY 3121 - History and Systems of Psychology (3.0 cr)
• PSY 3511 - Introduction to Counseling Psychology (3.0 cr)
• PSY 3711 - Psychology in the Workplace (3.0 cr)
• PSY 4501 - Psychology of Women and Gender (3.0 cr)
• PSY 5136 - Human Abilities (3.0 cr)
• PSY 5137 - Introduction to Behavioral Genetics (3.0 cr)
• PSY 5138 *(Inactive)* (3.0 cr)
• PSY 5501 - Vocational and Occupational Health Psychology (3.0 cr)
• PSY 5707 - Personnel Psychology (4.0 cr)
• PSY 5708 - Organizational Psychology (3.0 cr)
• PSY 5862 - Psychological Measurement: Theory and Methods (3.0 cr)
• PSY 5865 - Advanced Psychological and Educational Measurement (4.0 cr)
• PSY 3135 - Introduction to Individual Differences (3.0 cr)
or PSY 5135 - Psychology of Individual Differences (3.0 cr)

Electives
Take as many credits as needed to reach the 36-credit requirement. Students may count up to 6 combined credits of PSY 3960/4960/5960, 3993, 4993/5993, 3996 and 4996H; OR up to 9 combined credits of PSY 4993/5993 toward the electives subrequirement.

PSY 3xxx
or PSY 4xxx
or PSY 5xxx
Take at most 6 credit(s) from the following:

- **PSY 3960** - Undergraduate Seminar in Psychology (1.0 - 5.0 cr)
- **PSY 3993** - Directed Study (1.0 - 6.0 cr)
- **PSY 3996** - Undergraduate Fieldwork and Internship in Psychology (1.0 - 6.0 cr)
- **PSY 4960** - Seminar in Psychology (1.0 - 4.0 cr)
- **PSY 4993** - Directed Research: Special Areas of Psychology and Related Sciences (1.0 - 6.0 cr)
- **PSY 4996H** - Honors Internship/Externship (1.0 - 6.0 cr)
- **PSY 5960** - Topics in Psychology (1.0 - 4.0 cr)
- **PSY 5993** - Research Laboratory in Psychology (3.0 cr)

or Take at most 9 credit(s) from the following:

- **PSY 4993** - Directed Research: Special Areas of Psychology and Related Sciences (1.0 - 6.0 cr)
- **PSY 5993** - Research Laboratory in Psychology (3.0 cr)

**Senior Project**

Students completing a double major in another CLA department who choose to complete that department's major project must complete 36 total credits in psychology, using additional electives to replace credits that would have been earned through psychology's major project. Honors students should take PSY 4902V for a minimum of 3, but no more than 6, credits.

- **PSY 3902W** - Major Project - Individual Interests [WI] (3.0 cr)
- **PSY 4902V** - Honors Project [WI] (1.0 - 6.0 cr)

**Program Sub-plans**

A sub-plan is not required for this program.

**Honors UHP**

This is an honors sub-plan.

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.

Current departmental honors course offerings are listed at:

Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or with an honors directed studies, or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.

**CLA Honors**

Honors students in the B.A. program take PSY 4994V as one of their Major Courses requirements, and PSY 4902V in place of PSY 3902W for the senior project (see 'Senior Project' above). Additionally, honors students in the B.A. program must take one course at the 4xxx or above, excluding CPSY 4303 and PSY 4902V, 4960, 4993, 4994V, 4996H, 5960 & 5993. Honors students are encouraged to choose honors versions of core courses, including PSY 1001H, 3801H, and 3001V.

- **PSY 4994V** - Honors Research Practicum [WI] (4.0 cr)
Twin Cities Campus
Psychology B.S.
Psychology
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 54 to 61
- Degree: Bachelor of Science

Psychology examines human behavior through environmental, genetic, physiological, and social determinants and correlates. The B.S. in psychology offers students rigorous scientific training in biological and quantitative psychology, complimented by a broad education in such related fields as neuroscience, cognitive science, computer science, biology, chemistry, and mathematics. This degree is intended to prepare students for graduate work in psychology, as well as in related fields such as cognitive science, neuroscience, and medicine.

The B.S. degree in psychology emphasizes coursework in biological and quantitative/cognitive sciences. The biological courses are appropriate for students interested primarily in specializations such as the biological basis of psychopathology, the brain-behavior relation, evolutionary psychology, and behavior genetics. The quantitative/cognitive science courses are appropriate for students interested primarily in statistics and methods used in psychological research, in mathematical models of perception and cognition, and in psychological measurement. Students interested in the biological area are encouraged to choose heavily from outside foundation courses in the life sciences (e.g., biochemistry, biology, genetics and cell biology, evolution and behavior), whereas students focusing upon quantitative/cognitive science courses are encouraged to select more outside foundation courses in mathematics and the physical sciences (e.g., computer science, mathematics, physics, statistics).

A psychology B.S. is a valuable and useful background for a variety of careers and graduate and professional academic programs. A professional career as a psychologist requires further training. Students completing the baccalaureate degree in psychology may not receive a second baccalaureate degree in child psychology.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Prospective majors are strongly encouraged to complete PSY 3801 (or a Department of Psychology approved equivalent) and two outside foundation cluster courses prior to formally declaring the major. To declare a major, students must schedule an appointment with a Psychology Advisor (psyadvis@umn.edu).

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Transfer students must complete a minimum of 16 upper-division credits and 9 credits within the Outside Foundation Courses requirement in the Department of Psychology at the University of Minnesota - Twin Cities campus. Students may earn no more than one undergraduate degree in psychology: a B.A. or a B.S. or a minor. Students may combine the psychology B.S. with the child psychology minor, but not with the child psychology B.A. or B.S.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Outside Foundation Courses
Take 18 or more credit(s) including 3 or more sub-requirements(s) from the following:
- Philosophy
Note: All of these courses except PHIL 1001 have prerequisites. 
Take 0 - 11 credit(s) from the following: 
• PHIL 1001 - Introduction to Logic [MATH] (4.0 cr)  
• PHIL 3601W - Scientific Thought [WI] (4.0 cr) 
• PHIL 3607 - Philosophy of Psychology (4.0 cr)  
• PHIL 4607 - Philosophy of the Biological Sciences (3.0 cr)  
• PHIL 5201 - Symbolic Logic I (4.0 cr)  
• PHIL 5202 - Symbolic Logic II (4.0 cr)  
• PHIL 1005 - Scientific Reasoning (4.0 cr)  
  or PHIL 1005H - Scientific Reasoning (4.0 cr)  

**Computer Science/Math**  
Note: All of these courses except CSCI 1103 have prerequisites.  
Take 0 - 11 credit(s) from the following: 
• CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)  
• CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)  
• CSCI 1901 (Inactive) (4.0 cr)  
• CSCI 1902 (Inactive) (4.0 cr)  
• CSCI 2011 - Discrete Structures of Computer Science (4.0 cr)  
• MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)  
• MATH 2263 - Multivariable Calculus (4.0 cr)  
• MATH 1271 - Calculus I [MATH] (4.0 cr)  
  or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)  
• MATH 1272 - Calculus II (4.0 cr)  
  or MATH 1572H - Honors Calculus II (4.0 cr)  

**Physical Science**  
Note: All of these courses except CHEM 1015 have prerequisites.  
Take 0 - 11 credit(s) from the following:  
• CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)  
• CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)  
• CHEM 2301 - Organic Chemistry I (3.0 cr)  
• CHEM 2302 - Organic Chemistry II (3.0 cr)  
• CHEM 2304 - Organic Chemistry II for the Life Sciences (3.0 cr)  
• CHEM 2311 - Organic Lab (4.0 cr)  
• CHEM 2312H - Honors Organic Lab (5.0 cr)  
• PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)  
• PHYS 1102W - Introductory College Physics II [PHYS, WI] (4.0 cr)  
• PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)  
  or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)  
• PHYS 1202W - Introductory Physics for Biology and Pre-medicine II [PHYS, WI] (5.0 cr)  
  or PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)  
• PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)  

**Biological Science**  
Note: All of these courses except ANTH 1001, ANTH 3002, and BIOL 1001 have prerequisites.  
Take 0 - 11 credit(s) from the following:  
• ANTH 3002 - Sex, Evolution, and Behavior: Examining Human Evolutionary Biology (4.0 cr)  
• BIOL 3021 - Biochemistry (3.0 cr)  
• BIOL 1101W - Heredity and Human Society [CIV, WI] (3.0 cr)  
• BIOL 2002 - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)  
• BIOL 3409 - Evolution (3.0 cr)  
• BIOL 3411 - Introduction to Animal Behavior (3.0 cr)  
• BIOL 4003 - Genetics (3.0 cr)  
• BIOL 4004 - Cell Biology (3.0 cr)  
• EEB 4329 - Primate Ecology and Social Behavior (3.0 cr)  
• GCD 3022 - Genetics (3.0 cr)  
• NSCI 1100 - Human Neuroanatomy [BIOL] (4.0 cr)  
• NSCI 3101 - Introduction to Neurobiology I: Molecular, Cellular, and Systems (3.0 cr)
• ANTH 1001 - Human Evolution [BIOL] (4.0 cr)
  or ANTH 1001H - Honors: Human Evolution [BIOL] (4.0 cr)
• BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
  or BIOL 1001H - Introductory Biology I: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
• BIOL 1009 - General Biology [BIOL] (4.0 cr)
  or BIOL 1009H - Honors: General Biology [BIOL] (4.0 cr)

Major Courses
At least one course must be 4xxx or above, excluding CPSY 4303 and PSY 4902V, 4960, 4993, 4994V, 4996H, 5960, & 5993.

Take 36 or more credit(s) from the following:

Preparatory Courses
PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
  or PSY 1001H - Honors Introduction to Psychology [SOCS] (4.0 cr)
  or PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
PSY 3801 - Introduction to Psychological Measurement and Data Analysis [MATH] (4.0 cr)
  or PSY 3801H - Honors Introduction to Psychological Measurement and Data Analysis [MATH] (4.0 cr)
PSY 3001W - Introduction to Research Methods [WI] (4.0 cr)
  or PSY 3001V - Honors Introduction to Research Methods [WI] (4.0 cr)

Cognitive and Brain Sciences
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
  • PSY 3011 - Introduction to Learning and Behavior (3.0 cr)
  • PSY 3031 - Introduction to Sensation and Perception (3.0 cr)
  • PSY 3051 - Introduction to Cognitive Psychology (3.0 cr)
  • PSY 3061 - Introduction to Biological Psychology (3.0 cr)
  • PSY 4011 - Applied Behavior Analysis (3.0 cr)
  • PSY 4012 - Behavior Analysis and Autism (4.0 cr)
  • PSY 4032 - Psychology of Music (3.0 cr)
  • PSY 4036 - Perceptual Issues in Visual Impairment (3.0 cr)
  • PSY 5012 - Learning and Cognition in Animals (4.0 cr)
  • PSY 5014 - Psychology of Human Learning and Memory (3.0 cr)
  • PSY 5015 - Cognition, Computation, and Brain (3.0 cr)
  • PSY 5018H - Mathematical Models of Human Behavior (3.0 cr)
  • PSY 5031W - Perception [WI] (3.0 cr)
  • PSY 5036W - Computational Vision [WI] (3.0 cr)
  • PSY 5037 - Psychology of Hearing (3.0 cr)
  • PSY 5038W - Introduction to Neural Networks [WI] (3.0 cr)
  • PSY 5054 - Psychology of Language (3.0 cr)
  • PSY 5062 - Cognitive Neuropsychology (3.0 cr)
  • PSY 5063 - Introduction to Functional MRI (3.0 cr)
  • PSY 5064 - Brain and Emotion (3.0 cr)
  • PSY 5065 - Functional Imaging: Hands-on Training (3.0 cr)

Clinical, Personality, and Social
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
  • CPSY 4303 - Adolescent Psychology (3.0 cr)
  • PSY 3201 - Introduction to Social Psychology (3.0 cr)
  • PSY 3206 - Introduction to Health Psychology (3.0 cr)
  • PSY 3301 - Introduction to Cultural Psychology (3.0 cr)
  • PSY 3604 - Introduction to Abnormal Psychology (3.0 cr)
  • PSY 3617 - Introduction to Clinical Psychology (3.0 cr)
  • PSY 3633 - Happiness: Integrating Research Across Psychological Sciences (3.0 cr)
  • PSY 5202 - Attitudes and Social Behavior (3.0 cr)
  • PSY 5204 - Psychology of Interpersonal Relationships (3.0 cr)
  • PSY 5205 - Applied Social Psychology (3.0 cr)
  • PSY 5206 (inactive) (3.0 cr)
  • PSY 5207 - Personality and Social Behavior (3.0 cr)
  • PSY 3101 - Introduction to Personality (3.0 cr)
  or PSY 5101 - Personality Psychology (3.0 cr)

Individual Differences, Quantitative, and Applied
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
  • PSY 3121 - History and Systems of Psychology (3.0 cr)
  • PSY 3511 - Introduction to Counseling Psychology (3.0 cr)
  • PSY 3711 - Psychology in the Workplace (3.0 cr)
  • PSY 4501 - Psychology of Women and Gender (3.0 cr)
  • PSY 5136 - Human Abilities (3.0 cr)
  • PSY 5137 - Introduction to Behavioral Genetics (3.0 cr)
• PSY 5138 *(Inactive)* (3.0 cr)
• PSY 5501 - Vocational and Occupational Health Psychology (3.0 cr)
• PSY 5707 - Personnel Psychology (4.0 cr)
• PSY 5708 - Organizational Psychology (3.0 cr)
• PSY 5862 - Psychological Measurement: Theory and Methods (3.0 cr)
• PSY 5865 - Advanced Psychological and Educational Measurement (4.0 cr)
• PSY 3135 - Introduction to Individual Differences (3.0 cr)
  or PSY 5135 - Psychology of Individual Differences (3.0 cr)

**Electives**

Take as many elective credits as needed to reach the 36-credit minimum for the major courses requirement. Take at most 8 credit(s) from the following:

- PSY 3xxx
- PSY 4xxx
- PSY 5xxx

Take at most 3 credit(s) from the following:

- PSY 3960 - Undergraduate Seminar in Psychology (1.0 - 5.0 cr)
- PSY 3993 - Directed Study (1.0 - 6.0 cr)
- PSY 3996 - Undergraduate Fieldwork and Internship in Psychology (1.0 - 6.0 cr)
- PSY 4960 - Seminar in Psychology (1.0 - 4.0 cr)
- PSY 4996H - Honors Internship/Externship (1.0 - 6.0 cr)
- PSY 5960 - Topics in Psychology (1.0 - 4.0 cr)

Students may count up to 6 credits of PSY 4993/5993 toward the electives sub-requirement. An additional 3 credits of PSY 5993 is required for the senior project.

- PSY 4993 - Directed Research: Special Areas of Psychology and Related Sciences (1.0 - 6.0 cr)
  or PSY 5993 - Research Laboratory in Psychology (3.0 cr)

**Senior Project**

Take PSY 4993 or 5993 one semester prior to, or concurrent with, PSY 3902W for a total of 6 credits. Honors students fulfill the senior project by enrolling in PSY 4902V for a minimum of 3, but no more than 6, credits. (Note: neither PSY 4993 nor PSY 5993 is required for the honors senior project.)

**Non-honors Sequence**

- PSY 3902W - Major Project - Individual Interests [WI] (3.0 cr)
- PSY 4993 - Directed Research: Special Areas of Psychology and Related Sciences (1.0 - 6.0 cr)
  or PSY 5993 - Research Laboratory in Psychology (3.0 cr)

**Honors Sequence**

- PSY 4902V - Honors Project [WI] (1.0 - 6.0 cr)

**Program Sub-plans**

A sub-plan is not required for this program.

**Honors UHP**

This is an honors sub-plan.

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.

Current departmental honors course offerings are listed at:

Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or with an honors directed studies, or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.

**CLA Honors**

Honors students in the B.S. program take PSY 4994V as one of their major courses requirements, and PSY 4902V in place of PSY 3902W for the senior project (see ‘Senior Project’ above). Honors students are encouraged to choose honors versions of core courses, including PSY 1001H, 3801H, and 3001V.

- PSY 4994V - Honors Research Practicum [WI] (4.0 cr)
Twin Cities Campus
Psychology Minor
Psychology
College of Liberal Arts

• Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 21

The undergraduate minor in psychology offers students an empirical foundation in the discipline, along with the opportunity to construct an area of emphasis.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 2 courses before admission to the program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Courses
Students must complete PSY 1001 and PSY 3801 before declaring the minor.
PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
PSY 3801 - Introduction to Psychological Measurement and Data Analysis [MATH] (4.0 cr)

Minor Requirements
No courses without a PSY designator can be used to fulfill minor requirements. Transfer students must complete a minimum of 9 upper-division credits in the Department of Psychology at the University of Minnesota - Twin Cities campus in order to be awarded the minor. Students may earn no more than one undergraduate degree in psychology: a B.A. or a B.S. or a minor. Students may combine the psychology minor with the B.A. or the B.S. in child psychology, but not both.

Research Methods
PSY 3001W - Introduction to Research Methods [WI] (4.0 cr)

Electives
Recommended options for structuring the elective coursework include: 1) sampling from each of the domains; or 2) selection of a focus area, including a 3xxx course followed by advanced coursework in that sub-area of the discipline.
Take 9 or more credit(s) from the following:
• PSY 3xxx
• PSY 4xxx
• PSY 5xxx
Twin Cities Campus
Public Health Minor
Geography, Environment, Society, Sociology
College of Liberal Arts

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14 to 16

Protecting the public’s health requires addressing challenges that are influenced as much by individual and social behavior as they are by biology, chemistry, and physics. Biology, the environment, social and political systems, technology, and more intersect to describe the methods of protecting the health and well-being of the population. Liberal arts students, and students from other colleges who complement their major degree programs with a public health minor, will understand how to help society by improving health and preventing disease on a population level.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Specific program requirements are subject to change. Minors must follow the degree requirements current for the semester in which they declared.

Introduction to the Discipline
Take a minimum of two courses (4-6 credits). Note: PUBH 3004 is a 4-credit course that combines PUBH 3001 and PUBH 3003. If taking PUBH 3004, do not take PUBH 3001 or PUBH 3003. (PUBH 3004 satisfies half of the "Introduction to the Discipline" sub-requirement and all of the "Applying Public Health Theory" sub-requirement below.)

Part I
- PUBH 3202 - What is Public Health? (2.0 cr)
  or PUBH 3001 - Personal and Community Health (2.0 cr)
  or PUBH 3004 - Basic Concepts in Personal and Community Health (4.0 cr)

Part II
- PUBH 3350 - Epidemiology: People, Places, and Disease (2.0 cr)
  or PUBH 3106 - Making Sense of Health Studies (2.0 cr)

Understanding Health Issues From Varying Social Scientific Contexts
Take 6 or more credit(s) from the following:
- AFRO 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
- ANTH 3306W - Medical Anthropology [GP, WI] (3.0 cr)
- ANTH 4075 - Cultural Histories of Healing [SOCS, GP] (3.0 cr)
- CNES 5535 - Death and the Afterlife in the Ancient World (3.0 cr)
- CSCL 3456W - Sexuality and Culture [DSJ, WI] (3.0 cr)
- CSCL 3458W - The Body and the Politics of Representation [HIS, WI] (3.0 cr)
- ECON 5890 - Economics of the Health-Care System (3.0 cr)
- GEOG 3381W - Population in an Interacting World [SOCS, GP, WI] (4.0 cr)
- GEOG 3379 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
- GEOG 3401 - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
- GEOG 3411W - Geography of Health and Health Care [WI] (4.0 cr)
- GLOS 3613W - Stuffed and Starved: The Politics of Eating [SOCS, GP, WI] (3.0 cr)
- JOUR 5541 - Mass Communication and Public Health (3.0 cr)
- JOUR 5543 - Public Health Campaign Evaluation (3.0 cr)
- PHIL 3305 - Medical Ethics (4.0 cr)
- PSY 3206 - Introduction to Health Psychology (3.0 cr)
- PSY 5205 - Applied Social Psychology (3.0 cr)
- PSY 5206 (inactive)(3.0 cr)
- SOC 3501 - Sociology of Families [SOCS, DSJ] (3.0 cr)
- SOC 3511 - World Population Problems [GP] (3.0 cr)
- SOC 3681 - Gender and the Family in the Islamic World (3.0 cr)
- SOC 4246 - Sociology of Health and Illness (3.0 cr)
Applying Public Health Theory
Note: Students who take PUBH 3004 in fulfillment of the "Introduction to the Discipline" sub-requirement will also have fulfilled the "Applying Public Health Theory" sub-requirement.
Take 2 or more credit(s) from the following:
• PUBH 3003 - Fundamentals of Alcohol and Drug Abuse (2.0 cr)
• PUBH 3004 - Basic Concepts in Personal and Community Health (4.0 cr)
• PUBH 3010 - Public Health Approaches to HIV/AIDS (2.0 cr)
• PUBH 3040 - Dying and Death in Contemporary Society: Implications for Intervention (2.0 cr)
• PUBH 3102 - Issues in Environmental and Occupational Health (3.0 cr)
• PUBH 3104 - Environmental Health Effects: Introduction to Toxicology (2.0 cr)
• PUBH 3315 - Clinical Research from Lab to Bedside to Populations (2.0 cr)
• PUBH 3415 - Introduction to Clinical Trials - Online (3.0 cr)
• PUBH 3639 - Prevention: Theory, Practice, and Application in Public Health Services (3.0 cr)
• PUBH 3801 - Health Economics and Policy (3.0 cr)
• PUBH 3802 - Health and Human Rights (3.0 cr)
• PUBH 3807 - Global Health, Relief, Development and Religious and Non-religious NGOs (3.0 cr)
• PUBH 3905 - Nutrition for Public Health Promotion and Disease Prevention (2.0 cr)
• PUBH 3940 - Concepts and Controversies in Public Health Nutrition and Health Promotion (1.0 cr)
• PUBH 3950 - From Kid to Community: Personal, Social and Environmental Influences on Youth Obesity (2.0 cr)

Global Impact
Note: Both Global Impact courses carry a pre-requisite chosen from the "Introduction to the Discipline" course list above. Take PUBH 3107 or PUBH 3601.
• PUBH 3107 - Global Public Health and the Environment (2.0 cr)
or PUBH 3601 - Maternal and Child Health Global Public Health Issues (2.0 cr)
Twin Cities Campus
Religious Studies B.A.
Classical & Near Eastern Studies
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 31 to 34
- Degree: Bachelor of Arts

Students in religious studies are trained in the critical study of religious thought, practice, institutions, and communities throughout the world and across time periods. The subject of religion is by its very nature interdisciplinary, attracting interest from many perspectives, including textual and literary studies, history, sociology, anthropology, the arts, and philosophy.

Students in the religious studies program select one of two tracks. The religion, culture, and society track is designed for students who seek to study religious traditions broadly or comparatively. The texts and traditions track is for students who seek to study a single tradition deeply, reading its foundational texts in their original language. Both tracks examine religion as a social and cultural force affecting fundamental issues of our world. All majors take courses in at least two religious traditions and develop an interdisciplinary concentration area consisting of four courses, selected from a variety of departments and focused on a theme, tradition, time period, location, practice, or set of questions. The concentration area must be approved by the major adviser.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of Track I: Any language. Track II: Any language approved by the major adviser.

A minimum of 12 upper-division program credits must be taken at the University of Minnesota - Twin Cities campus. Students who double major and choose to complete the senior project requirement in their other CLA major are still required to take at least 30 credits in the religious studies program. Students may earn a B.A. or a minor in religious studies, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Preparatory Courses
The preparatory course ensures that students are introduced to the academic study of religion and understand how it is different from what they may have experienced in their own families or religious institutions. Courses that do not appear on this list may be accepted with prior consent by the major adviser.
- AMST 1011 - Religions and American Identity in the United States from World War II to the Present [CIV] (3.0 cr)
- or CNES 1001 - World of the Bible: Religions, Empires, and Discourses of Power [AH] (3.0 cr)
- or CNES 1082 - Jesus in History (3.0 cr)
- or CNES 1201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
- or JWST 1034 - Introduction to Jewish History and Civilization [HIS] (3.0 cr)
- or JWST 1201 - The Bible: Context and Interpretation [LITR] (3.0 cr)
- or RELS 1001 - Introduction to the Religions of the World [GP] (3.0 cr)
- or RELS 1002 - Introduction to the Study of Religions in America [AH] (3.0 cr)

Theory and Methods
RELS 3001W - Theory and Method in Religion: Critical Approaches to the Study of Religion [WI] (3.0 cr)

Senior Project
The senior project must be taken for 4 credits. Choose to enroll in RELS 4952 for 4 credits, or enroll in RELS 4952 concurrent with an adviser-approved upper-division course for a combined 4 credits. The program strongly recommends that students complete RELS 3001W at least one semester prior to enrolling in RELS 4952.

RELS 4952 - Final Project (1.0 - 4.0 cr)
or RELS 4952 - Final Project (1.0 - 4.0 cr)
with adviser-approved upper-division course

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
- RELS 3001W - Theory and Method in Religion: Critical Approaches to the Study of Religion [WI] (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Track I: Religion, Culture, and Society
This track is designed to meet the needs of students who wish to study religion broadly and pursue a highly contextualized investigation of religion as a social and cultural force. It serves students who are drawn to the methodologies of the humanities, social sciences, and the arts. It serves students who are motivated by questions of expression, psychology, theology, or religious thought, as well as public and social policy and the political contexts and ramifications of religion. It prepares students for many careers serving diverse communities in public arenas, as well as for graduate study in the arts or social sciences, or in theological or seminary programs.

Take a minimum of 24 credits at 3xxx or above. Final clearance by the major adviser is required.

Major Courses
Take a minimum of 4 courses and 12 credits. Courses must be approved by the major adviser, and may be taken in any relevant academic department.
- Take a course in a religious tradition (e.g., Buddhism, Christianity, Hinduism, Islam, Judaism, a Native American tradition, Zoroastrianism) for at least 3 credits.
- Take a course in a different religious tradition (e.g., Buddhism, Christianity, Hinduism, Islam, Judaism, a Native American tradition, Zoroastrianism) for at least 3 credits.
- Take two courses in sociocultural contexts of religion (e.g., in history, sociology, or anthropology of religion) for at least 3 credits each.

Area Concentration
Take a minimum of 4 courses and 12 credits in a chosen area concentration. These courses should share geographic, chronological, thematic, methodological, or traditional links. Courses used to fulfill the "Major Courses" sub-requirement cannot also be used to fulfill this requirement. Courses must be approved by the major adviser, and may be taken in any relevant department.
- Take four 3xxx-5xxx electives

Track II: Texts and Traditions
This track is designed for students interested in gaining in-depth knowledge of a particular religious tradition by studying the untranslated foundational texts of the chosen tradition. This track prepares students for many careers serving diverse communities in public arenas, as well as for graduate study in a variety of fields or seminary programs. It is particularly recommended for students interested in topics, such as the study of the Bible or Qur'an; the history of Judaism, Islam, or Christianity before the modern period; or the study of the traditions and texts of the religions of South or East Asia, whether in their countries of origin or in diaspora.

Take a minimum of 21 credits of which at least 18 credits must be 3xxx or above. This track requires that students gain proficiency in a language directly tied to their specified religion. Students must complete preparatory work through the fourth semester (or equivalent) of a language appropriate to the specific religious tradition and its sources. Language selection must be approved by the major adviser. Sample pairings include, but are not limited to, the following:

American Indian religions: Ojibwe or Dakota
Buddhism: Chinese or Japanese
Christianity: Greek or Latin (for scriptural or medieval concentration), German or Spanish (for relevant geographical/cultural themes)
Hinduism: Sanskrit or Hindi
Islam: Arabic, Turkish, or Persian
Judaism: Hebrew (for scriptural or historical area of concentration), German or Yiddish (e.g., for Jewish literature or 20th-century)
Interdisciplinary concentration areas and courses must be approved by the major adviser.

**Track II Language Proficiency Requirement**
Take a minimum of 3 credits.
Students must gain proficiency (up through 4th semester or equiv) in a language directly tied to their specified religion. See above for further specification.

**Major Courses**
Take a minimum of 2 courses and 6 credits. Courses must be approved by major adviser, and may be taken in any relevant department.
- Take a course in a religious tradition different from the specified religion (e.g., Buddhism, Christianity, Hinduism, Islam, Judaism, a Native American tradition, Zoroastrianism) for at least 3 credits.
- Take a course in another religious tradition also different from the specified religion (e.g., Buddhism, Christianity, Hinduism, Islam, Judaism, a Native American tradition, Zoroastrianism) for at least 3 credits.

**Area Concentration**
Take a minimum of 4 courses and 12 credits. These courses should share chronological or traditional links. Courses used to fulfill the "Major Courses" sub-requirement cannot also be used to fulfill this requirement. Courses must be approved by the major adviser, and may be taken in any relevant department.
- Take four 3xxx-5xxx electives
Twin Cities Campus

Religious Studies Minor
Classical & Near Eastern Studies
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

The minor in religious studies allows those in other majors to participate in the critical study of religion.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
All minor coursework must be taken A-F. Transfer students must take at least three of the five courses at the University of Minnesota - Twin Cities campus (or with U of M residence credits for study abroad). Final clearance is required prior to graduation. Students may earn a B.A. or a minor in religious studies, but not both.

Minor Courses
Take a minimum of five courses for at least 15 credits. The purpose of the minor is to expose students to a diversity of religious traditions. At least two traditions must be represented among the four electives courses.

Theory and Methods
RELS 3001W - Theory and Method in Religion: Critical Approaches to the Study of Religion [WI] (3.0 cr)
or Equivalent course to RELS 3001 that is approved by the director of undergraduate studies.

Electives
Take four 3xxx-5xxx courses totaling at least 12 credits in RELS or other DUS-approved designator.
Russian is the native language of some 150 million citizens of the Russian Federal Republic. It is one of the five official languages of the UN, and ranks with English, Chinese, Hindi, Urdu, and Spanish as a major world language. Russian remains the unofficial lingua franca of the former Soviet republics, an indispensable communications tool across all of the Caucasus and Central Asia. Russian is a major language for scientific publication, and it is an increasingly important language for business and trade as Russian institutions, both public and private, integrate with their European and American counterparts.

Besides a thorough grounding in the Russian language, students in the Russian major become conversant with the enormous wealth of Russian cultural heritage in literature, visual art, theater, and music. In particular, Russia has produced one of the world's most vibrant and exciting literary traditions—including the works of poets like Pushkin, Lermontov, Blok, and Akhmatova, and writers like Gogol, Turgenev, Dostoevsky, Tolstoy, and Chekhov. Despite the upheavals caused by the fall of communism, Russian literary culture remains vibrant today, and only a fraction of this fascinating contemporary work is available in translation.

Further information on the value of a Russian major can be found at http://www.russnet.org/why/index.html.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Complete the introductory 4-semester Russian language sequence or its equivalent. Note: these credits do not factor into the overall length in credits of the major.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of Russian.

At least one upper-division course in the major (RUSS 3xxx-5xxx) must be writing intensive.

Students may earn a B.A. or a minor in Russian, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Advanced Language Courses
RUSS 3101 - Advanced Russian I (4.0 cr)
RUSS 3102 - Advanced Russian II (4.0 cr)

Major Courses
RUSS 3421 - Literature: Middle Ages to Dostoevsky in Translation [LITR, GP] (3.0 cr)
RUSS 3422 - Literature: Tolstoy to the Present in Translation [LITR] (3.0 cr)
RUSS 3512 - Russian Art and Culture [AH, GP] (3.0 cr)
Electives
Take a minimum of 12 credits. Preparatory courses such as RUSS 3001 & RUSS 3002 do NOT count toward the electives requirement.
Take 4 or more course(s) from the following:
•RUSS 3xxx
•RUSS 5xxx

Major Project
RUSS 3311 - Russian Major Project (3.0 cr)
Twin Cities Campus
Russian Minor
Slavic Languages/Literatures
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16

Russian is the native language of some 150 million citizens of the Russian Federal Republic and remains the unofficial lingua franca of the former Soviet republics, an indispensable communications tool across all of the Caucasus and Central Asia. The minor in Russian includes the study of the spoken language as well as the literature and culture of Russia.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete language study equivalent to two semesters (beginning level) before beginning the minor. These required semesters of a second language do not factor into the overall length of credits in the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students are required to take 2 semester(s) of Russian.

All minor coursework must be taken A-F. Students may earn a B.A. or a minor in Russian, but not both.

Minor Courses
- RUSS 3001 - Intermediate Russian I (5.0 cr)
- RUSS 3002 - Intermediate Russian II (5.0 cr)
Take 6 or more credit(s) from the following:
- RUSS 3xxx
- RUSS 4xxx
- RUSS 5xxx
Twin Cities Campus
Sociology B.A.
Sociology
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 35 to 37
- Degree: Bachelor of Arts

Sociology examines stability and change in social life by addressing the underlying patterns of social relations in formal organizations, in legal institutions, and in the family, economy, and political arena.

Coursework focuses on the criminal justice system and criminal behavior, mental health, families and close relationships, education, urban and rural communities, politics and policy formation, social movements and social change, diverse racial and ethnic groups, and social psychology. Faculty interests in the comparative study of social relations and institutions in various countries add an international emphasis to these areas of study. All sociology courses emphasize the skills of social inquiry necessary for analyzing patterns of social relationships.

For more information, visit the sociology website for undergraduates at http://www.soc.umn.edu/undergrad/.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 1 courses before admission to the program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Coursework
SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)
or SOC 1011V - Honors: Introduction to Sociology [SOCS, DSJ, WI] (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students may earn no more than one undergraduate degree from the Department of Sociology: a B.A. or B.S. or minor in sociology; or a B.A. or B.S. or minor in sociology of law, criminology, and deviance.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Required Courses
SOC 3701 - Social Theory (4.0 cr)
SOC 3801 - Sociological Research Methods (4.0 cr)
SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)

Required Electives
Students must complete at least five 3xxx-5xxx SOC elective courses. At least one elective must be 4xxx or higher. For honors students, at least two electives must be 4xxx or higher.
Take 5 or more course(s) totaling 15 or more credit(s) from the following:
- SOC 3xxx
- SOC 4xxx
- SOC 5xxx

Senior Project
Take 4-6 credits. Before beginning the senior project, students must be a declared major and have completed all major coursework except one sociology elective course. Students are strongly advised to contact the department at least two semesters in advance of registration to insure they are on the senior project wait list. Students have three senior project registration options.

Seminar or Research
SOC 4966W - Major-Project Seminar [WI] (4.0 cr)
or SOC 4094W - Directed Research: Senior Project [WI] (4.0 cr)

or Independent Study
SOC 4967W - Advanced Senior Project Independent Study [WI] (1.0 cr)
The additional sociology elective must be pre-approved by the department adviser.
- SOC 3xxx
  - or SOC 4xxx

or Honors
Honors students must take both pro-seminars, SOC 4977V and SOC 4978V, in their senior year.
- SOC 4977V - Senior Honors Proseminar I [WI] (3.0 cr)
- SOC 4978V - Senior Honors Proseminar II [WI] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
- SOC 4966W - Major-Project Seminar [WI] (4.0 cr)
- SOC 4094W - Directed Research: Senior Project [WI] (4.0 cr)
- SOC 4967W - Advanced Senior Project Independent Study [WI] (1.0 cr)
- SOC 4977V - Senior Honors Proseminar I [WI] (3.0 cr)
- SOC 4978V - Senior Honors Proseminar II [WI] (3.0 cr)
Twin Cities Campus
Sociology B.S.
Sociology
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 55 to 61
- Degree: Bachelor of Science

Sociology examines stability and change in social life by addressing the underlying patterns of social relations in formal organizations, in legal institutions, and in the family, economy, and political arena.

Coursework focuses on the criminal justice system and criminal behavior, mental health, families and close relationships, education, urban and rural communities, politics and policy formation, social movements and social change, diverse racial and ethnic groups, and social psychology. Faculty interests in the comparative study of social relations and institutions in various countries add an international emphasis to these areas of study. All sociology courses emphasize the skills of social inquiry necessary for analyzing patterns of social relationships.

The Sociology B.S. program is for students interested in developing a rigorous mathematical concentration in research methodologies. This option builds on the course requirements for the Sociology B.A. program by featuring 12-16 additional credits of upper-division coursework in one of four clusters: (1) Organizations, Business, or Non-Profits, (2) Health Care and Careers, (3) Policy Analysis, or (4) Quantitative Emphasis.

For more information, visit the sociology website for undergraduates at http://www.soc.umn.edu/undergrad/.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students who are interested in the B.S. option are encouraged to schedule a meeting with the departmental adviser to discuss the major and its requirements.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Coursework
SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)
or SOC 1011V - Honors: Introduction to Sociology [SOCS, DSJ, WI] (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to complete a sub-plan in consultation with the departmental adviser. Students must be on a pre-approved waiting list to register for the senior project and should contact the Department of Sociology at least two semesters in advance of registration. Students may earn no more than one undergraduate degree from the Department of Sociology: a B.A. or B.S. or minor in sociology; or a B.A. or B.S. or minor in sociology of law, criminology, and deviance.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html.

Quantitative Courses
In order to be successful, students must take these courses in sequence. MATH 1142 or 1271 should be taken before SOC 3811, and SOC 3811 should be taken before STAT 3022.
MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)
STAT 3022 - Data Analysis (4.0 cr)

Theory & Methods Courses
SOC 3701 - Social Theory (4.0 cr)
SOC 3801 - Sociological Research Methods (4.0 cr)

Electives
Students must complete at least five 3xxx-5xxx SOC elective courses. At least one elective must be 4xxx or higher. For honors students, at least two electives must be 4xxx or higher. Consult the departmental adviser to choose sociology electives that pair with your sub-plan.

Take 5 or more course(s) totaling 15 or more credit(s) from the following:
- SOC 3xxx
- SOC 4xxx
- SOC 5xxx

Senior Project
Choose one of the following three options and take 4-6 credits. Note: before beginning the senior project, students must complete all major coursework except one elective course. Students do not need to have completed their supportive field coursework (sub-plan) before beginning the senior project. Students who choose SOC 4967W must complete it with the same instructor as the additional elective.

Seminar or Research
SOC 4966W - Major-Project Seminar [WI] (4.0 cr)
or SOC 4094W - Directed Research: Senior Project [WI] (4.0 cr)

Independent Study
SOC 4967W - Advanced Senior Project Independent Study [WI] (1.0 cr)
The additional sociology elective must be pre-approved by the department adviser.
- SOC 3xxx
- SOC 4xxx
- SOC 5xxx

Honors
Honors students must take the pro-seminars consecutively in their senior year. SOC 4977V is only offered in fall, and SOC 4978V is only offered in spring. Honors students must complete all core coursework and at least three electives before enrolling in SOC 4977V. At least two electives must be 4xxx or higher. At least four electives must be taken before enrolling in SOC 4978V.
SOC 4977V - Senior Honors Proseminar I [WI] (3.0 cr)
SOC 4978V - Senior Honors Proseminar II [WI] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
- SOC 4966W - Major-Project Seminar [WI] (4.0 cr)
- SOC 4094W - Directed Research: Senior Project [WI] (4.0 cr)
- SOC 4967W - Advanced Senior Project Independent Study [WI] (1.0 cr)
- SOC 4977V - Senior Honors Proseminar I [WI] (3.0 cr)
- SOC 4978V - Senior Honors Proseminar II [WI] (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Organization, Business, or Non-Profit
This sub-plan requires a minimum of four courses and at least 12-16 upper-division credits. Note: some courses require pre-requisites. Consult the university catalog for more information.

Supportive Field Courses
Note: ECON 1101 & 1102 are strongly recommended as pre-requisites for most of the following courses.
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
- ABUS 3301 - Introduction to Quality Management (3.0 cr)
Health Care and Careers
This sub-plan requires a minimum of four courses and at least 12-16 upper-division credits. Note: some courses require pre-requisites. Consult the university catalog for more information.
Supportive Field Courses
Take 4 or more course(s) totaling 12 or more credit(s) from the following:

- ABUS 4571 - Introduction to Grant Writing for Health Care and Nonprofit Organizations (3.0 cr)
- ADDS 5081 - Multicultural Foundations of Behavioral Health (3.0 cr)
- ANTH 3035 - Anthropologies of Death [SOCS, GP] (3.0 cr)
- ANTH 3365W - Medical Anthropology [GP, WI] (3.0 cr)
- CSCL 3472 - Gay Men and Homophobia in American Culture [DSJ] (3.0 cr)
- CSPH 5115 - Cultural Awareness, Knowledge, and Health (3.0 cr)
- CSPH 5121 - Whole Systems Healing: Health and the Environment (2.0 cr)
- CSPH 5641 - Animals in Health Care: The Healing Dimensions of Human/Animal Relationships (3.0 cr)
- FSCN 3615 - Sociocultural Aspects of Food, Nutrition, and Health [GP] (3.0 cr)
- GEOG 3411W - Geography of Health and Health Care [WI] (4.0 cr)
- GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
- HMED 3001W - Health, Disease, and Healing I [HIS, WI] (4.0 cr)
- HMED 3002W - Health Care in History II [HIS, WI] (3.0 cr)
- HMED 3040 - Human Health, Disease, and the Environment in History [HIS] (3.0 cr)
- HMED 3055 - Women, Health, and History (3.0 cr)
- JOUR 5541 - Mass Communication and Public Health (3.0 cr)
- KIN 3001 - Lifetime Health and Wellness [SOCS] (3.0 cr)
- OLPD 3601 - Introduction to Human Resource Development (3.0 cr)
- OLPD 3620 - Introduction to Training and Development (3.0 cr)
- OLPD 3640 - Introduction to Organization Development (3.0 cr)
- OLPD 3828 - Diversity in the Workplace (3.0 cr)
- PA 3003 - Nonprofit and Public Financial Management (3.0 cr)
- PA 4101 - Nonprofit Management and Governance (3.0 cr)
- PHAR 3206 - Issues in Health Literacy and Communication (3.0 cr)
- PHAR 4200W - Drugs and the U.S. Health Care System [CIV, WI] (3.0 cr)
- PHAR 5206 - Applied Health Literacy and Communication (3.0 cr)
- PHIL 3302W - Moral Problems of Contemporary Society [CIV, WI] (4.0 cr)
- PSY 3206 - Introduction to Health Psychology (3.0 cr)
- PUBH 3004 - Basic Concepts in Personal and Community Health (4.0 cr)
- PUBH 3350 - Epidemiology: People, Places, and Disease (2.0 cr)
- PUBH 3601 - Maternal and Child Health Global Public Health Issues (2.0 cr)
- PUBH 3801 - Health Economics and Policy (3.0 cr)
- PUBH 3802 - Health and Human Rights (3.0 cr)
- PUBH 3807 - Global Health, Relief, Development and Religious and Non-religious NGOs (3.0 cr)
- SPAN 3404 - Medical Spanish and Community Health Service (3.0 cr)
- SW 3703 - Gender Violence in Global Perspective (3.0 cr)
- WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
- WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Policy Analysis
This sub-plan requires a minimum of four courses and at least 12-16 upper-division credits. Note: some courses require pre-requisites. Consult the university catalog for more information.

Supportive Field Courses
Take 4 or more course(s) totaling 12 or more credit(s) from the following:

- AFRO 3426 - African Americans, Social Policy, and the Welfare State (3.0 cr)
- AMIN 3314 - Natural Resource Management and Environmental Policy in Indian Country [ENV] (3.0 cr)
- AMIN 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans, & Chicanos in the U.S. (3.0 cr)
- APEC 3006 - Applied Macroeconomics: Government and the Economy (3.0 cr)
- APEC 3007 - Applied Macroeconomics: Policy, Trade, and Development [GP] (3.0 cr)
- APEC 4311 - Tourism Development: Principles, Processes, Policies (3.0 cr)
- APEC 5811 - Cooperative Organization (3.0 cr)
- ECON 3101 - Intermediate Microeconomics (4.0 cr)
- ECON 3102 - Intermediate Macroeconomics (4.0 cr)
- ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
- GEOG 3331 - Geography of the World Economy [SOCS, GP] (3.0 cr)
- GEOG 3361W - Geography and Public Policy [WI] (3.0 cr)
- GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
- GEOG 3379 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
- GEOG 3381W - Population in an Interacting World [SOCS, GP, WI] (4.0 cr)
- GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
- GLOS 3303 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>GLOS 3401</td>
<td>International Human Rights Law (3.0 cr)</td>
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<tr>
<td>GWSS 3590</td>
<td>Topics: Social Change, Activism, Law, and Policy Studies (3.0 cr)</td>
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<tr>
<td>HIST 3804</td>
<td>Religion and the U.S. Founding: Contests Then and Now over the Place of Religion in Politics [HIS] (3.0 cr)</td>
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<tr>
<td>ID 3208</td>
<td>Internship Reflection: Making Meaning of Your Experience (1.0 cr)</td>
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<tr>
<td>ID 3572</td>
<td>HECUA: Inequality in America - Social Policy and Anti-Poverty Strategies in Theory and Practice [DSJ] (4.0 cr)</td>
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<tr>
<td>OLPD 3336</td>
<td>Religion, Ethics, and Educational Policy [CIV] (3.0 cr)</td>
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<tr>
<td>OLPD 3380</td>
<td>Developing Intercultural Competence (3.0 cr)</td>
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<tr>
<td>OLPD 4303W</td>
<td>Leadership for Global Citizenship [WI] (3.0 cr)</td>
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<tr>
<td>PA 3002</td>
<td>Basic Methods of Policy Analysis [SOCS] (3.0 cr)</td>
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<tr>
<td>PA 3961</td>
<td>Leadership, You, and Your Community (3.0 cr)</td>
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<tr>
<td>PA 4101</td>
<td>Nonprofit Management and Governance (3.0 cr)</td>
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<tr>
<td>PA 4190</td>
<td>Topics in Public and Nonprofit Leadership and Management (1.0 - 3.0 cr)</td>
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<tr>
<td>PHIL 3302W</td>
<td>Moral Problems of Contemporary Society [CIV, WI] (4.0 cr)</td>
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<tr>
<td>PHIL 3304</td>
<td>Law and Morality (4.0 cr)</td>
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<tr>
<td>POL 3235W</td>
<td>Democracy and Citizenship [CIV, WI] (3.0 cr)</td>
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<tr>
<td>POL 3306</td>
<td>Presidential Leadership and American Democracy (3.0 cr)</td>
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<td>POL 3308</td>
<td>Congressional Politics and Institutions [SOCS] (3.0 cr)</td>
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<td>POL 3309</td>
<td>Justice in America (3.0 cr)</td>
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<tr>
<td>POL 3319</td>
<td>Education and the American Dream [SOCS, DSJ] (3.0 cr)</td>
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<tr>
<td>POL 3321</td>
<td>Issues in American Public Policy (3.0 cr)</td>
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<tr>
<td>POL 3325</td>
<td>U.S. Campaigns and Elections (3.0 cr)</td>
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<tr>
<td>POL 3464</td>
<td>Politics of Inequality (3.0 cr)</td>
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<tr>
<td>POL 3477</td>
<td>Political Economy of Development [SOCS, GP] (3.0 - 4.0 cr)</td>
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<tr>
<td>POL 3701</td>
<td>American Indian Tribal Governments and Politics [HIS, DSJ] (3.0 cr)</td>
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<tr>
<td>POL 3739</td>
<td>Politics of Race, Class, and Ethnicity (3.0 cr)</td>
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<td>POL 3766</td>
<td>Political Psychology of Mass Behavior [SOCS] (3.0 cr)</td>
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<tr>
<td>POL 3767</td>
<td>Political Psychology of Elite Behavior [CIV] (3.0 cr)</td>
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<tr>
<td>POL 3769</td>
<td>Public Opinion and Voting Behavior [SOCS] (3.0 cr)</td>
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<tr>
<td>POL 3785</td>
<td>Persuasion and Political Propaganda (3.0 cr)</td>
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<tr>
<td>POL 3873W</td>
<td>Global Citizenship and International Ethics [CIV, WI] (3.0 cr)</td>
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<tr>
<td>POL 4485</td>
<td>Human Rights and Democracy in the World [CIV] (3.0 cr)</td>
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<tr>
<td>POL 451W</td>
<td>Citizens, Consumers, and Corporations [CIV, WI] (3.0 cr)</td>
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<tr>
<td>POL 4495</td>
<td>Politics of Family, Sex, and Children [DSJ] (3.0 cr)</td>
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<tr>
<td>POL 4501W</td>
<td>The Supreme Court and Constitutional Interpretation [CIV, WI] (3.0 cr)</td>
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<tr>
<td>POL 4507</td>
<td>Law, Sovereignty, and Treaty Rights (3.0 cr)</td>
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<tr>
<td>POL 4525W</td>
<td>Federal Indian Policy [WI] (3.0 cr)</td>
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<tr>
<td>POL 4771</td>
<td>Racial Attitudes and Intergroup Conflict (3.0 cr)</td>
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<tr>
<td>POL 4773W</td>
<td>Interest Groups, Social Movements and Politics of Race, Class, and Gender [DSJ, WI] (3.0 cr)</td>
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<tr>
<td>PUBH 3801</td>
<td>Health Economics and Policy (3.0 cr)</td>
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<tr>
<td>WRIT 3029W</td>
<td>Business and Professional Writing [WI] (3.0 cr)</td>
<td></td>
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<tr>
<td>WRIT 3152W</td>
<td>Writing on Issues of Science and Technology [WI] (4.0 cr)</td>
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<tr>
<td>WRIT 3244W</td>
<td>Critical Literacies: How Words Change the World [AH, DSJ, WI] (3.0 cr)</td>
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<tr>
<td>WRIT 3315</td>
<td>Writing on Issues of Land and the Environment [AH, DSJ] (3.0 cr)</td>
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<tr>
<td>WRIT 3562W</td>
<td>Technical and Professional Writing [WI] (4.0 cr)</td>
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</tbody>
</table>

### Quantitative Emphasis

This sub-plan requires a minimum of four courses and at least 12-16 upper-division credits. Note: some courses require pre-requisites. Consult the university catalog for more information.

### Supportive Field Courses

Note: MATH 1272 is a required pre-requisite for most of the following courses. MATH 1272 carries a pre-requisite of MATH 1271. Students who are interested in this sub-plan should take MATH 1271 instead of MATH 1142 in order to complete these course sequences in a timely fashion.

Take 4 or more course(s) totaling 12 or more credit(s) from the following:

- GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
- HIST 3797 - History of Population [SOCS, GP] (3.0 cr)
- HIST 5011 - Measuring the Past: Quantitative Methods for Historical Research (4.0 cr)
- MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
- MATH 2263 - Multivariable Calculus (4.0 cr)
- MATH 3283W - Sequences, Series, and Foundations: Writing Intensive [WI] (4.0 cr)
- MATH 4242 - Applied Linear Algebra (4.0 cr)
- MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)
- POL 3085 - Quantitative Analysis in Political Science [MATH] (4.0 cr)
- PSY 5018H - Mathematical Models of Human Behavior (3.0 cr)
- PSY 5862 - Psychological Measurement: Theory and Methods (3.0 cr)
• PSY 5865 - Advanced Psychological and Educational Measurement (4.0 cr)
• STAT 4101 - Theory of Statistics I (4.0 cr)
• STAT 4102 - Theory of Statistics II (4.0 cr)
• STAT 5041 - Bayesian Decision Making (3.0 cr)
• STAT 5101 - Theory of Statistics I (4.0 cr)
• STAT 5102 - Theory of Statistics II (4.0 cr)
• STAT 5201 - Sampling Methodology in Finite Populations (3.0 cr)
• STAT 5302 - Applied Regression Analysis (4.0 cr)
• STAT 5303 - Designing Experiments (4.0 cr)
• STAT 5401 - Applied Multivariate Methods (3.0 cr)
• STAT 5421 - Analysis of Categorical Data (3.0 cr)
• STAT 5601 - Nonparametric Methods (3.0 cr)
Twin Cities Campus
Sociology Minor
Sociology
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14 to 16

Sociology examines stability and change in social life by addressing the underlying patterns of social relations in formal organizations, in legal institutions, and in the family, economy, and political arena.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 4 credits before admission to the program.

Students are strongly urged to complete two additional sociology courses beyond SOC 1001 or SOC 1011V before declaring the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Introduction to Sociology
Note: this course does not factor into the overall length in credits of the minor.
SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)  
or SOC 1011V - Honors: Introduction to Sociology [SOCS, DSJ, WI] (4.0 cr)

or Equivalent Transfer Course

Minor Requirements
Transfer students must meet the requirements either through approved coursework completed at their transfer institution or at the University of Minnesota - Twin Cities. At least 6 credits (two courses) for the minor must be taken from the Department of Sociology at the University of Minnesota - Twin Cities campus. Students may earn no more than one undergraduate degree from the Department of Sociology: a B.A. or B.S. or minor in sociology; or a B.A. or B.S. or minor in sociology of law, criminology, and deviance.

Minor Courses
SOC 3701 - Social Theory (4.0 cr)
SOC 3801 - Sociological Research Methods (4.0 cr)
  or SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- SOC 3xx
- SOC 4xx
Twin Cities Campus

Sociology of Law, Criminology, and Deviance B.A.

Sociology
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 31 to 33
- Degree: Bachelor of Arts

Sociology examines stability and change in social life by addressing the underlying patterns of social relations in formal organizations, in legal institutions, and in the family, economy, and political arena.

Coursework focuses on the criminal justice system and criminal behavior, mental health, families and close relationships, education, urban and rural communities, politics and policy formation, social movements and social change, diverse racial and ethnic groups, and social psychology. Faculty interests in the comparative study of social relations and institutions in various countries add an international emphasis to these areas of study. All sociology courses emphasize the skills of social inquiry necessary for analyzing patterns of social relationships.

For more information, visit the sociology website at http://www.soc.umn.edu/undergrad/.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 1 courses before admission to the program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Course
Note: this course does not factor into the overall length in credits of the major.
SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)
or SOC 1011V - Honors: Introduction to Sociology [SOCS, DSJ, WI] (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Before beginning the senior project, students must complete all major coursework except one elective course. Students must be on a pre-approved waiting list to register for the senior project and should contact the Department of Sociology at least two semesters in advance of registration. Students may earn no more than one undergraduate degree from the Department of Sociology: a B.A. or B.S. or minor in sociology; or a B.A. or B.S. or minor in sociology of law, criminology, and deviance.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Courses

Criminal Justice or Behavior
SOC 3101 - Introduction to the Criminal Justice System [SOCS, CIV] (3.0 cr)
or SOC 3102 - Introduction to Criminal Behavior and Social Control (3.0 cr)

Theory & Methods
SOC 3701 - Social Theory (4.0 cr)
SOC 3801 - Sociological Research Methods (4.0 cr)
SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)

Electives
At least three elective credits must be non-31xx and non-41xx. At least six elective credits must be 41xx.

Take 12 or more credit(s) from the following:
• SOC 3xxx
• SOC 4xxx
• SOC 5xxx

Senior Project
Take 4-6 credits. Before beginning the senior project, students must complete all major coursework except one elective course. The elective must be taught by the same faculty member who is guiding the student project. Elective coursework must be chosen from a list available from the department. Students have three senior project registration options.

Seminar or Research
SOC 4094W - Directed Research: Senior Project [WI] (4.0 cr)
or SOC 4966W - Major-Project Seminar [WI] (4.0 cr)
or Independent Study
SOC 4967W - Advanced Senior Project Independent Study [WI] (1.0 cr)
The additional sociology elective must be pre-approved by the departmental adviser.
• SOC 3xxx
  or SOC 4xxx
  or SOC 5xxx
or Honors
Honors students must take both pro-seminars, SOC 4977V and SOC 4978V, in their senior year.
SOC 4977V - Senior Honors Proseminar I [WI] (3.0 cr)
SOC 4978V - Senior Honors Proseminar II [WI] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• SOC 4094W - Directed Research: Senior Project [WI] (4.0 cr)
• SOC 4966W - Major-Project Seminar [WI] (4.0 cr)
• SOC 4967W - Advanced Senior Project Independent Study [WI] (1.0 cr)
• SOC 4977V - Senior Honors Proseminar I [WI] (3.0 cr)
• SOC 4978V - Senior Honors Proseminar II [WI] (3.0 cr)
Sociology of Law, Criminology, and Deviance B.S.

Sociology

College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 55 to 61
- Degree: Bachelor of Science

Sociology examines stability and change in social life by addressing the underlying patterns of social relations in formal organizations, in legal institutions, and in the family, economy, and political arena.

Coursework focuses on the criminal justice system and criminal behavior, mental health, families and close relationships, education, urban and rural communities, politics and policy formation, social movements and social change, diverse racial and ethnic groups, and social psychology. Faculty interests in the comparative study of social relations and institutions in various countries add an international emphasis to these areas of study. All sociology courses emphasize the skills of social inquiry necessary for analyzing patterns of social relationships. The Sociology B.S. program is for students interested in developing a rigorous mathematical concentration in research methodologies. This option builds on course requirements for the Sociology B.A. program by featuring 12-16 additional credits of upper-division coursework in one of four clusters: (1) Organizations, Business, or Non-Profits, (2) Health Care and Careers, (3) Policy Analysis, or (4) Quantitative Emphasis.

For more information, visit the sociology website at www.soc.umn.edu/undergrad/.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students who are interested in the B.S. option are encouraged to schedule a meeting with the departmental adviser to discuss the major and its requirements.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Courses

SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)

or

SOC 1011V - Honors: Introduction to Sociology [SOCS, DSJ, WI] (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to complete a sub-plan in consultation with the departmental adviser. Students must be on a pre-approved waiting list to register for the senior project and should contact the Department of Sociology at least two semesters in advance of registration. Students may earn no more than one undergraduate degree from the Department of Sociology: a B.A. or B.S. or minor in sociology; or a B.A. or B.S. or minor in sociology of law, criminology, and deviance.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Quantitative Courses
In order to be successful, students must take these courses in sequence. MATH 1142 or 1271 should be taken before SOC 3811, and SOC 3811 should be taken before STAT 3022.

MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)
STAT 3022 - Data Analysis (4.0 cr)

Criminal Justice or Criminal Behavior
SOC 3101 - Introduction to the Criminal Justice System [SOCS, CIV] (3.0 cr)
or SOC 3102 - Introduction to Criminal Behavior and Social Control (3.0 cr)

Theory & Methods Courses
SOC 3701 - Social Theory (4.0 cr)
SOC 3801 - Sociological Research Methods (4.0 cr)

Electives
Students must complete at least four 3xxx-5xxx SOC elective courses. At least one course must be non-SOC 31xx and non-SOC 41xx. At least two courses must be SOC 41xx. Consult the departmental adviser to choose sociology electives that pair with your sub-plan.
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
• SOC 3xxx
• SOC 4xxx
• SOC 5xxx

Senior Project
Choose one of the following three options and take 4-6 credits. Note: before beginning the senior project, students must complete all major coursework except one elective course. Students do not need to have completed their supportive field coursework (sub-plan) before beginning the senior project. Students who choose SOC 4967W must complete it with the same instructor as the additional elective.

Seminar or Research
SOC 4094W - Directed Research: Senior Project [WI] (4.0 cr)
or SOC 4966W - Major-Project Seminar [WI] (4.0 cr)

or Independent Study
SOC 4967W - Advanced Senior Project Independent Study [WI] (1.0 cr)
The additional sociology elective must be pre-approved by the departmental adviser.
• SOC 3xxx
or SOC 4xxx
or SOC 5xxx

or Honors
Honors students must take the pro-seminars consecutively in their senior year. SOC 4977V is only offered in fall, and SOC 4978V is only offered in spring. Honors students must complete all core coursework and at least three electives before enrolling in SOC 4977V. At least four electives must be taken before enrolling in SOC 4978V.
SOC 4977V - Senior Honors Proseminar I [WI] (3.0 cr)
SOC 4978V - Senior Honors Proseminar II [WI] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• SOC 4094W - Directed Research: Senior Project [WI] (4.0 cr)
• SOC 4966W - Major-Project Seminar [WI] (4.0 cr)
• SOC 4967W - Advanced Senior Project Independent Study [WI] (1.0 cr)
• SOC 4977V - Senior Honors Proseminar I [WI] (3.0 cr)
• SOC 4978V - Senior Honors Proseminar II [WI] (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Organization, Business, or Non-Profit
This sub-plan requires a minimum of four courses and at least 12-16 upper-division credits. Note: some courses require pre-requisites.
Consult the university catalog for more information.

Supportive Field Courses
Note: ECON 1101 & 1102 are strongly recommended as pre-requisites for most of the following courses. Take 4 or more course(s) totaling 12 or more credit(s) from the following:

- ABUS 3301 - Introduction to Quality Management (3.0 cr)
- ABUS 4022 - Management in Organizations (3.0 cr)
- ABUS 4023W - Communicating for Results [WI] (3.0 cr)
- ABUS 4041 - Dynamics of Leadership (3.0 cr)
- ABUS 4101 - Accounting and Finance for Managers (3.0 cr)
- ABUS 4104 - Management and Human Resource Practices (3.0 cr)
- ABUS 4151 - Innovation for Leaders and Organizations (3.0 cr)
- ABUS 4509 - New Product Development (3.0 cr)
- ABUS 4515 - Strategy and Management for a Sustainable Future (3.0 cr)
- ABUS 4571 - Introduction to Grant Writing for Health Care and Nonprofit Organizations (3.0 cr)
- ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
- ACCT 3001 - Introduction to Management Accounting (3.0 cr)
- AMIN 3314 - Natural Resource Management and Environmental Policy in Indian Country [ENV] (3.0 cr)
- AMIN 4511 - American Indian Political Economy (3.0 cr)
- AMST 4301 - Workers and Consumers in the Global Economy [DSJ] (3.0 cr)
- ANTH 4053 - Economy, Culture, and Critique [SOCS, GP] (3.0 cr)
- ANTH 4121 - Business Anthropology (3.0 cr)
- APEC 3001 - Applied Microeconomics: Consumers, Producers, and Markets (4.0 cr)
- APEC 3002 - Applied Microeconomics: Managerial Economics (4.0 cr)
- APEC 3451 - Food and Agricultural Sales (3.0 cr)
- APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
- APEC 3821 - Retail Center Management (3.0 cr)
- APEC 4311 - Tourism Development: Principles, Processes, Policies (3.0 cr)
- APEC 4311 - Cooperative Organization (3.0 cr)
- BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
- CHIC 3374 - Migrant Farmworkers in the United States: Families, Work, and Advocacy [CIV] (4.0 cr)
- CHIC 5374 - Migrant Farmworkers in the U.S.: Families, Work, and Advocacy [CIV] (4.0 cr)
- COMM 3411 - Introduction to Small Group Communication (3.0 cr)
- COMM 3441 - Introduction to Organizational Communication (3.0 cr)
- COMM 3451W - Intercultural Communication: Theory and Practice [WI] (3.0 cr)
- ECON 3101 - Intermediate Microeconomics (4.0 cr)
- ECON 3102 - Intermediate Macroeconomics (4.0 cr)
- FINA 3001 - Finance Fundamentals (3.0 cr)
- FNRM 4232W - Managing Recreational Lands [WI] (4.0 cr)
- GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
- HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
- INS 4100 - Corporate Risk Management (2.0 cr)
- MGMT 3001 - Fundamentals of Management (3.0 cr)
- MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)
- MKTG 3001 - Principles of Marketing (3.0 cr)
- OLPD 3302 - Leadership, You, and Your Community (3.0 cr)
- OLPD 3318 - Introduction to Project Management (3.0 cr)
- OLPD 3380 - Developing Intercultural Competence (3.0 cr)
- OLPD 3461 - Cooperative Sales Management (3.0 cr)
- OLPD 3601 - Introduction to Human Resource Development (3.0 cr)
- OLPD 3620 - Introduction to Training and Development (3.0 cr)
- OLPD 3640 - Introduction to Organization Development (3.0 cr)
- OLPD 3828 - Diversity in the Workplace (3.0 cr)
- OLPD 4303W - Leadership for Global Citizenship [WI] (3.0 cr)
- OLPD 4401 - E-Marketing (3.0 cr)
- OLPD 4420 - Practicum in Nonprofit Organizations (2.0 cr)
- OLPD 4426 - Strategic Customer Relationship Management (3.0 cr)
- PA 3003 - Nonprofit and Public Financial Management (3.0 cr)
- PA 4101 - Nonprofit Management and Governance (3.0 cr)
- PA 4190 - Topics in Public and Nonprofit Leadership and Management (1.0 - 3.0 cr)
- POL 3489W - Citizens, Consumers, and Corporations [CIV, WI] (3.0 cr)
- SCO 3001 - Introduction to Operations Management (3.0 cr)
- SCO 3045 - Sourcing and Supply Management (2.0 cr)
- UC 3201 - Web Designer Introduction (4.0 cr)
- WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
- WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Health Care and Careers
This sub-plan requires a minimum of four courses and at least 12-16 upper-division credits. Note: some courses require pre-requisites. Consult the university catalog for more information.

Supportive Field Courses
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
• ABUS 4571 - Introduction to Grant Writing for Health Care and Nonprofit Organizations (3.0 cr)
• ADDS 5081 - Multicultural Foundations of Behavioral Health (3.0 cr)
• ANTH 3035 - Anthropologies of Death [SOCS, GP] (3.0 cr)
• ANTH 3306W - Medical Anthropology [GP, WI] (3.0 cr)
• CSLC 3456W - Sexuality and Culture [DSJ, WI] (3.0 cr)
• CSLC 3472 - Gay Men and Homophobia in American Culture [DSJ] (3.0 cr)
• CSPH 5115 - Cultural Awareness, Knowledge and Health (3.0 cr)
• CSPH 5121 - Whole Systems Healing: Health and the Environment (2.0 cr)
• CSPH 5641 - Animals in Health Care: The Healing Dimensions of Human/Animal Relationships (3.0 cr)
• FSCN 3615 - Sociocultural Aspects of Food, Nutrition, and Health [GP] (3.0 cr)
• GEOG 3411W - Geography of Health and Health Care [WI] (4.0 cr)
• GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
• HMED 3001W - Health, Disease, and Healing I [HIS, WI] (4.0 cr)
• HMED 3002W - Health Care in History II [HIS, WI] (3.0 cr)
• HMED 3040 - Human Health, Disease, and the Environment in History [HIS] (3.0 cr)
• HMED 3055 - Women, Health, and History (3.0 cr)
• JOUR 5541 - Mass Communication and Public Health (3.0 cr)
• KIN 3001 - Lifetime Health and Wellness [SOCS] (3.0 cr)
• OLPD 3601 - Introduction to Human Resource Development (3.0 cr)
• OLPD 3620 - Introduction to Training and Development (3.0 cr)
• OLPD 3640 - Introduction to Organization Development (3.0 cr)
• OLPD 3828 - Diversity in the Workplace (3.0 cr)
• PA 3003 - Nonprofit and Public Financial Management (3.0 cr)
• PA 4101 - Nonprofit Management and Governance (3.0 cr)
• PHAR 3206 - Issues in Health Literacy and Communication (3.0 cr)
• PHAR 4200W - Drugs and the U.S. Health Care System [CIV, WI] (3.0 cr)
• PHAR 5206 - Applied Health Literacy and Communication (3.0 cr)
• PHIL 3302W - Moral Problems of Contemporary Society [CIV, WI] (4.0 cr)
• PSY 3206 - Introduction to Health Psychology (3.0 cr)
• PUBH 3004 - Basic Concepts in Personal and Community Health (4.0 cr)
• PUBH 3350 - Epidemiology: People, Places, and Disease (2.0 cr)
• PUBH 3601 - Maternal and Child Health Global Public Health Issues (2.0 cr)
• PUBH 3801 - Health Economics and Policy (3.0 cr)
• PUBH 3802 - Health and Human Rights (3.0 cr)
• PUBH 3807 - Global Health, Relief, Development and Religious and Non-religious NGOs (3.0 cr)
• SPAN 3404 - Medical Spanish and Community Health Service (3.0 cr)
• SW 3703 - Gender Violence in Global Perspective (3.0 cr)
• WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
• WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Policy Analysis
This sub-plan requires a minimum of four courses and at least 12-16 upper-division credits. Note: some courses require pre-requisites. Consult the university catalog for more information.

Supportive Field Courses
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
• AFRO 3426 - African Americans, Social Policy, and the Welfare State (3.0 cr)
• AMIN 3314 - Natural Resource Management and Environmental Policy in Indian Country [ENV] (3.0 cr)
• AMIN 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans, & Chicanos in the U.S. (3.0 cr)
• APEC 3006 - Applied Macroeconomics: Government and the Economy (3.0 cr)
• APEC 3007 - Applied Macroeconomics: Policy, Trade, and Development [GP] (3.0 cr)
• APEC 4311 - Tourism Development: Principles, Processes, Policies (3.0 cr)
• APEC 5811 - Cooperative Organization (3.0 cr)
• ECON 3101 - Intermediate Microeconomics (4.0 cr)
• ECON 3102 - Intermediate Macroeconomics (4.0 cr)
• ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
• GEOG 3331 - Geography of the World Economy [SOCS, GP] (3.0 cr)
• GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
• GEOG 3379 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
• GEOG 3381W - Population in an Interacting World [SOCS, GP, WI] (4.0 cr)
• GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
• GLOS 3303 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
• GLOS 3401 - International Human Rights Law (3.0 cr)
• GWSS 3390 - Topics: Social Change, Activism, Law, and Policy Studies (3.0 cr)
• HIST 3804 - Religion and the U.S. Founding: Contests Then and Now over the Place of Religion in Politics [HIS] (3.0 cr)
• ID 3208 - Internship Reflection: Making Meaning of Your Experience (1.0 cr)
• ID 3272 - HECUA: Inequality in America - Social Policy and Anti-Poverty Strategies in Theory and Practice [DSJ] (4.0 cr)
• OLPD 3336 - Religion, Ethics, and Educational Policy [CIV] (3.0 cr)
• OLPD 3380 - Developing Intercultural Competence (3.0 cr)
• OLPD 4303W - Leadership for Global Citizenship [WI] (3.0 cr)
• PA 3002 - Basic Methods of Policy Analysis [SOCS] (3.0 cr)
• PA 3961 - Leadership, You, and Your Community (3.0 cr)
• PA 4101 - Nonprofit Management and Governance (3.0 cr)
• PA 4190 - Topics in Public and Nonprofit Leadership and Management (1.0 - 3.0 cr)
• PHIL 3302W - Moral Problems of Contemporary Society [CIV, WI] (4.0 cr)
• PHIL 3304 - Law and Morality (4.0 cr)
• POL 3235W - Democracy and Citizenship [CIV, WI] (3.0 cr)
• POL 3306 - Presidential Leadership and American Democracy (3.0 cr)
• POL 3308 - Congressional Politics and Institutions [SOCS] (3.0 cr)
• POL 3309 - Justice in America (3.0 cr)
• POL 3319 - Education and the American Dream [SOCS, DSJ] (3.0 cr)
• POL 3321 - Issues in American Public Policy (3.0 cr)
• POL 3325 - U.S. Campaigns and Elections (3.0 cr)
• POL 3464 - Politics of Inequality (3.0 cr)
• POL 3477 - Political Economy of Development [SOCS, GP] (3.0 - 4.0 cr)
• POL 3701 - American Indian Tribal Governments and Politics [HIS, DSJ] (3.0 cr)
• POL 3739 - Politics of Race, Class, and Ethnicity (3.0 cr)
• POL 3766 - Political Psychology of Mass Behavior [SOCS] (3.0 cr)
• POL 3767 - Political Psychology of Elite Behavior [CIV] (3.0 cr)
• POL 3769 - Public Opinion and Voting Behavior [SOCS] (3.0 cr)
• POL 3785 - Persuasion and Political Propaganda (3.0 cr)
• POL 3873W - Global Citizenship and International Ethics [CIV, WI] (3.0 cr)
• POL 3899W - Citizens, Consumers, and Corporations [CIV, WI] (3.0 cr)
• POL 4495 - Politics of Family, Sex, and Children [DSJ] (3.0 cr)
• POL 4501W - The Supreme Court and Constitutional Interpretation [CIV, WI] (3.0 cr)
• POL 4507 - Law, Sovereignty, and Treaty Rights (3.0 cr)
• POL 4525W - Federal Indian Policy [WI] (3.0 cr)
• POL 4771 - Racial Attitudes and Intergroup Conflict (3.0 cr)
• POL 4773W - Interest Groups, Social Movements and Politics of Race, Class, and Gender [DSJ, WI] (3.0 cr)
• PUBH 3801 - Health Economics and Policy (3.0 cr)
• WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
• WRIT 3152W - Writing on Issues of Science and Technology [WI] (4.0 cr)
• WRIT 3244W - Critical Literacies: How Words Change the World [AH, DSJ, WI] (3.0 cr)
• WRIT 3315 - Writing on Issues of Land and the Environment [AH, DSJ] (3.0 cr)
• WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Quantitative Emphasis
This sub-plan requires a minimum of four courses and 12-16 upper-division credits. Note: some courses require pre-requisites. Consult the university catalog for more information.

Supportive Field Courses
Note: MATH 1272 is a required pre-requisite for most of the following courses. MATH 1272 carries a pre-requisite of MATH 1271. Students who are interested in this sub-plan should take MATH 1271 instead of MATH 1142 in order to complete these course sequences in a timely fashion. Take 4 or more course(s) totaling 12 or more credit(s) from the following:
• GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
• HIST 3797 - History of Population [SOCS, GP] (3.0 cr)
• HIST 5011 - Measuring the Past: Quantitative Methods for Historical Research (4.0 cr)
• MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
• MATH 2263 - Multivariable Calculus (4.0 cr)
• MATH 3283W - Sequences, Series, and Foundations: Writing Intensive [WI] (4.0 cr)
• MATH 4242 - Applied Linear Algebra (4.0 cr)
• MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)
• POL 3085 - Quantitative Analysis in Political Science [MATH] (4.0 cr)
• PSY 5018H - Mathematical Models of Human Behavior (3.0 cr)
• PSY 5862 - Psychological Measurement: Theory and Methods (3.0 cr)
• PSY 5865 - Advanced Psychological and Educational Measurement (4.0 cr)
• STAT 4101 - Theory of Statistics I (4.0 cr)
• STAT 4102 - Theory of Statistics II (4.0 cr)
• STAT 5041 - Bayesian Decision Making (3.0 cr)
• STAT 5101 - Theory of Statistics I (4.0 cr)
• STAT 5102 - Theory of Statistics II (4.0 cr)
• STAT 5201 - Sampling Methodology in Finite Populations (3.0 cr)
• STAT 5302 - Applied Regression Analysis (4.0 cr)
• STAT 5303 - Designing Experiments (4.0 cr)
• STAT 5401 - Applied Multivariate Methods (3.0 cr)
• STAT 5421 - Analysis of Categorical Data (3.0 cr)
• STAT 5601 - Nonparametric Methods (3.0 cr)
Twin Cities Campus

Sociology of Law, Criminology, and Deviance Minor

Sociology
College of Liberal Arts

• Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 16

Sociologists study human social behavior. More specifically, sociology examines how we group ourselves (families, social groups, formal organizations, societies); how we behave in groups (collective action, social change, crime and delinquency); and how characteristics like age, race, social class, and gender affect our relationships with each other and with organizations and institutions.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 4 credits before admission to the program.

Students are strongly urged to complete two additional sociology courses beyond SOC 1001 or SOC 1011V before declaring the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Courses
SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)
or SOC 1011V - Honors: Introduction to Sociology [SOCS, DSJ, WI] (4.0 cr)
or Equivalent Transfer Course

Minor Requirements
Transfer students must meet the requirements either through approved coursework completed at their transfer institution or at the University of Minnesota - Twin Cities. At least 6 credits (two courses) for the minor must be taken from the Department of Sociology at the University of Minnesota - Twin Cities campus. Students may earn no more than one undergraduate degree from the Department of Sociology: a B.A. or B.S. or minor in sociology; or a B.A. or B.S. or minor in sociology of law, criminology, and deviance.

Minor Courses

Criminal Justice
SOC 3101 - Introduction to the Criminal Justice System [SOCS, CIV] (3.0 cr)
or SOC 3102 - Introduction to Criminal Behavior and Social Control (3.0 cr)

Social Theory or Methodology
SOC 3701 - Social Theory (4.0 cr)
or SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)
or SOC 3801 - Sociological Research Methods (4.0 cr)

Electives
Take three or more course(s) totaling 9 or more credit(s) from the following:
- Two SOC 41xx courses (6 credits) chosen from the LCD area of sociology.
- One upper-division non-criminology course (3 credits), chosen from:
  SOC 3xxx
  or SOC 4xxx
Twin Cities Campus

Spanish and Portuguese Studies B.A.
Spanish & Portuguese
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 35
- Degree: Bachelor of Arts

The program develops analytical skills and methodologies needed to explore Hispanic, Hispanic-American, and Luso-Brazilian languages and cultures. The department offers two majors (Spanish studies and combined Spanish-Portuguese studies) and two minors (Spanish studies and Portuguese studies).

It is important to note that department majors and minors are not simply Spanish and Portuguese language programs; rather, they are liberal arts programs concentrating on Spanish, Latin American, and/or Luso-Brazilian literary, cultural, and linguistics studies with language skills as the foundation. All major and minor options in this department begin with prerequisite language courses, followed by advanced language skills courses (special arrangements may be made for native speakers of Spanish or Portuguese). These are followed by critical analysis skills courses in Hispanic literature, culture, and linguistics that prepare students to take advanced coursework in specific areas. The major options culminate in the completion of a senior project through a SPAN 5xxx course, or SPAN 3972W.

The department strongly encourages majors and minors to study abroad in a Spanish- or Portuguese-speaking area. Students who wish to complete department program requirements through study abroad must meet with the department adviser prior to departure. Detailed information regarding undergraduate Spanish and Portuguese studies academic issues is printed in the Undergraduate Advising Handbook (also available at http://spanport.cla.umn.edu).

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of Spanish and Portuguese.

At least six major courses must be taken in residence. Up to three of these can be fulfilled either at UMN-TC or through sponsored study abroad programs. The other three courses must be advanced electives (at least two with a SPAN 31xx pre-req) and must be taken at UMN-TC (including SPAN 3972W/SPAN 5xxx/PORT 5xxx). Majors are required to study abroad for at least 6 weeks or take a service learning course. The Spanish-Portuguese major requires 5-6 semesters of language, which goes above and beyond the second language requirement. Students pursuing a second CLA major may complete the senior project in their other major, but must substitute three credits of adviser-approved SPAN 3xxx/5xxx elective with a SPAN 31xx pre-req, or PORT 3xxx/5xxx elective for SPAN 3972W. The department administers two allowable degree combinations: Spanish Studies B.A. and Portuguese Studies minor, or Spanish Studies minor and Portuguese Studies minor. No other departmental degree combinations are allowed.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Preparatory Courses
Choose from the following two options: (1) complete the Spanish language sequence and PORT 3001, or (2) complete the Spanish language sequence and the Portuguese language sequence. Students who have not completed SPAN 1001 at the U of M must take...
SPAN 1022 in place of SPAN 1002. Students may start above SPAN 1001 based on language placement. Note: these courses do not factor into the overall length in credits for the major.

**Option 1**
- SPAN 1001 - Beginning Spanish (5.0 cr)
- SPAN 1002 - Beginning Spanish (5.0 cr)
- or SPAN 1022 - Alternate Second-Semester Spanish (5.0 cr)
- SPAN 1003 - Intermediate Spanish (5.0 cr)
- SPAN 1004 - Intermediate Spanish (5.0 cr)
- or SPAN 1014 - Business Spanish (5.0 cr)
- or SPAN 1044 - Intermediate Medical Spanish (5.0 cr)
- PORT 3001 - Portuguese for Spanish Speakers (4.0 cr)

**Option 2**
- SPAN 1001 - Beginning Spanish (5.0 cr)
- SPAN 1002 - Beginning Spanish (5.0 cr)
- or SPAN 1022 - Alternate Second-Semester Spanish (5.0 cr)
- SPAN 1003 - Intermediate Spanish (5.0 cr)
- SPAN 1004 - Intermediate Spanish (5.0 cr)
- or SPAN 1014 - Business Spanish (5.0 cr)
- or SPAN 1044 - Intermediate Medical Spanish (5.0 cr)
- PORT 1101 - Beginning Portuguese (5.0 cr)
- PORT 1102 - Beginning Portuguese (5.0 cr)
- PORT 1103 - Intermediate Portuguese (5.0 cr)
- PORT 1104 - Intermediate Portuguese (5.0 cr)

**Major Courses**
Take six courses for twenty credits.
- PORT 3003 - Portuguese Conversation and Composition (4.0 cr)
- PORT 3501W - Global Portuguese: 1300-1900 [WI] (3.0 cr)
- PORT 3502W - Global Portuguese: 1900-present [WI] (3.0 cr)
- SPAN 3015 - Spanish Composition and Communication (4.0 cr)
- SPAN 3104W - Introduction to the Study of Hispanic Literatures [LITR, WI] (3.0 cr)
- SPAN 3107W - Introduction to the Study of Hispanic Linguistics [WI] (3.0 cr)

**Electives**
Take a minimum of two courses at the SPAN 3xxx level, and two courses at the PORT 3xxx level. At least two courses must have a SPAN 31xx prerequisite. Honors students must take at least one SPAN/PORT 5xxx. Note: PORT 3001 is a preparatory course, and will not count toward the 'Electives' sub-requirement.

**Spanish Electives**
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- SPAN 3211 - Discourses of Imperial Spain, 1492-1800 (3.0 cr)
- SPAN 3212 - Discourses of Modern and Contemporary Spain, 1800-Present (3.0 cr)
- SPAN 3221 - Latin American Colonial Discourses: Empire and Early Modernity (3.0 cr)
- SPAN 3222 - Discourses of Modern and Contemporary Latin America (3.0 cr)
- SPAN 3501 - Roots of Modern Spain and Latin America (3.0 cr)
- SPAN 3502 - Modern Spain (3.0 cr)
- SPAN 3510 - Issues in Hispanic Cultures (3.0 cr)
- SPAN 3512 - Modern Latin America (3.0 cr)
- SPAN 3701 - Structure of Spanish: Phonology and Phonetics (3.0 cr)
- SPAN 3702 - Structure of Spanish: Morphology and Syntax (3.0 cr)
- SPAN 3703 - Origins and History of Spanish and Portuguese (3.0 cr)
- SPAN 3704 - Sociolinguistics of the Spanish-Speaking World (3.0 cr)
- SPAN 3705 (Inactive) (3.0 cr)
- SPAN 3706 - Spanish Applied Linguistics (3.0 cr)
- SPAN 3707 - Linguistic Accuracy Through Translation (3.0 cr)
- SPAN 3730 - Topics in Hispanic Linguistics (3.0 cr)
- SPAN 3800 - Film Studies in Spanish (3.0 cr)
- SPAN 3910 - Topics in Spanish Peninsular Literature (3.0 cr)
- SPAN 3920 - Topics in Spanish-American Literature (3.0 cr)

**Portuguese Electives**
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- PORT 3503W - Literatures and Cultures of Lusophone Africa [WI] (3.0 cr)
- PORT 3800 - Film Studies in Portuguese (3.0 cr)
- PORT 3910 - Topics in Lusophone Literatures (3.0 cr)
- PORT 3970 (Inactive) (1.0 - 4.0 cr)
Study Abroad or Service Learning
A minimum 6-week study abroad experience, or a semester-long service learning course, is required. Study abroad must be fulfilled in a Spanish- and/or Portuguese-speaking country, involve coursework in Spanish and/or Portuguese, and include courses related to Spanish and/or Portuguese studies. Consult adviser for final consent. The service learning requirement is fulfilled by SPAN 3401, 3404, and other courses with adviser consent.

Study abroad
or Service Learning
Take 0 or more credit(s) from the following:
• SPAN 3401 - Latino Immigration and Community Service [CIV] (3.0 cr)
• SPAN 3404 - Medical Spanish and Community Health Service (3.0 cr)

Senior Seminar
Majors fulfill the senior seminar requirement one of two ways: after all other major courses are complete, enroll in SPAN 3972W with departmental adviser permission and attend a graduation seminar informational/preparatory session offered by the department several times a year, or enroll in a SPAN 5xxx or PORT 5xxx with instructor permission. Honors students must enroll in SPAN 3972W.

SPAN 3972W - Graduation Seminar [WI] (3.0 cr)
or SPAN 5xxx
or PORT 5xxx
Twin Cities Campus

Spanish Language Advanced-Level Proficiency Certificate
Spanish & Portuguese
College of Liberal Arts

• Program Type: Undergraduate credit certificate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 6 to 8
• This certificate requires an intensive Spanish-language immersion experience. Complete either: (1) An academic study abroad experience of at least 6 weeks that includes at least 1 course taught in Spanish OR (2) a pre-approved immersion experience.

Following is a list of immersion options, but is not meant to be exhaustive. Students will choose in consultation with their adviser:
- Service learning in a Spanish speaking community for at least a semester
- Sustained volunteer or work experience in a Spanish speaking community
- Participation in the Community Engagement Scholars Program, with a focus on opportunities to engage with native Spanish speakers
- TandemPlus participation with a Spanish language partner
- Additional upper division coursework taught in Spanish
- Spend an average of 15-20 hours per week outside of class actively using Spanish in 1 or more of the contexts above or by engaging with Spanish speakers or media.

• Degree: Spanish Language Advanced-Level Proficiency Cert

This certificate is designed for students interested in achieving advanced-level proficiency in Spanish and having their skills formally recognized. People who have advanced-level proficiency in Spanish possess the speaking, reading, writing and listening skills sufficient to satisfy the requirements of everyday situations at home and at work. They also generally understand and are understood by native speakers of Spanish. For an extended definition of advanced-level proficiency, please visit the American Council on the Teaching of Foreign Languages website: www.actfl.org/sites/default/files/pdfs/ACTFLProficiencyGuidelines2012_FINAL.pdf

The Certificate of Advanced-Level Proficiency is open to all University of Minnesota undergraduate students, especially those who seek higher levels of Spanish proficiency in order to become more competitive for graduate or professional programs, careers with domestic Spanish-speaking populations, or international careers.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
The Spanish Language Advanced-Level Proficiency Certificate consists of six required components:
- pass the Spanish LPE
- complete two upper-division courses taught in Spanish* with a grade of C- or higher
- complete a Spanish-language immersion experience
- complete the self-assessment instrument
- submit a critical reflection essay
- pass the ACTFL exam

* A note about the coursework in Spanish: students have two options, both of which include completing at least one content-based course. A content-based course is defined as one that is focused on an academic discipline, and taught almost exclusively in Spanish, or for which the discussion section is delivered in Spanish. A minimum of 10 pages of written work in Spanish must be completed, including a single assignment of at least five pages. See the certificate website for a list of approved courses. Options include courses taught by the Department of Spanish and Portuguese Studies and other university departments. You may contact the Languages
Across the Curriculum (LAC) coordinator about additional courses that may apply, such as courses taught abroad.

**Spanish LPE**
Pass the Spanish Language Proficiency Exam (LPE). This exam is typically taken after 4 semesters of college-level study, or the equivalent. For more information, please visit http://langtest.umn.edu/lpe.

**Two Upper-division Courses Taught in Spanish**
Complete two upper-division courses taught in Spanish, for a total of 6-8 credits, with a grade of C- or higher. There are two options for completing this requirement:
- Option 1: SPAN 3015 and one pre-approved content-based* course
- Option 2: two pre-approved content-based* courses

*Content-based courses are defined under "Program Requirements" above.

**Spanish-language Immersion**
Participate in an intensive Spanish-language immersion experience. There are two options for completing this requirement:
- Option 1: Participate in an academic study abroad experience of at least six weeks that includes at least one course taught in Spanish
- Option 2: Complete a pre-approved immersion experience, such as a service learning experience (see the Certificate website for a list of approved options)

**Self-assessment Instrument**
Take the self-assessment and use this information to gauge your own proficiency level. It is strongly recommended that you do not attempt the ACTFL exam until the self-assessment results indicate that you may have achieved advanced-level proficiency.

**Critical Reflection Essay**
Submit a short essay (of 500 words or less) written in English that summarizes and explains how you have used your skills in Spanish and cultural understanding at the university and beyond. Show that you have engaged in critical reflection on the learning process and developed the tools for continued language acquisition. Cite specific experiences to illustrate your linguistic growth.

**Pass the ACTFL**
Pass the ACTFL advanced-level exam in Spanish by achieving a rating of Advanced-Low or higher in all four sections:
- Speaking
- Writing
- Listening
- Reading

**Additional Recommended Experiences to Enhance Spanish-Language Proficiency**
- Study abroad in a Spanish-speaking country for at least 1 semester
- Service learning in a Spanish-speaking community for at least 1 semester
- Participate in the Community Engagement Scholars Program and work with native Spanish speakers
- Participate in TandemPlus
- Take extra upper-division courses taught in Spanish
- Take the self-assessment test periodically
- Spend approximately 15-20 hours per week outside of class actively using Spanish (reading, writing, speaking, listening)
Spanish Studies B.A.
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 34
- Degree: Bachelor of Arts

The program develops analytical skills and methodologies needed to explore Hispanic and Hispanic-American languages and cultures.

It is important to note that department majors and minors are not simply Spanish and Portuguese language majors or minors; rather, they are liberal arts majors and minors concentrating on Spanish, Latin American, and/or Luso-Brazilian literary, cultural, and linguistic studies with language skills at the foundation. All major and minor options in this department begin with prerequisite language courses, followed by advanced language skills courses (special arrangements may be made for native speakers of Spanish or Portuguese). These are followed by critical analysis skills courses in Hispanic literature, culture, and linguistics that prepare students to take advanced coursework in specific areas. The major options culminate in the completion of a senior project through a SPAN 5xxx course or SPAN 3972W.

Majors are required to enroll in a minimum 6-week study abroad experience, or a semester-long service learning course. The study abroad requirement must be fulfilled in a Spanish-speaking country, involve coursework in Spanish, and include courses related to Spanish studies. Students must meet with the department adviser prior to departure. The service learning requirement is fulfilled by SPAN 3401, or SPAN 3404, or other courses with adviser consent.

Detailed information regarding Spanish and Portuguese studies undergraduate academic issues is printed in the Undergraduate Advising Handbook (available at http://spanport.cla.umn.edu).

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Complete the introductory 4-semester Spanish language sequence or its equivalent. Note: these credits do not factor into the overall length in credits of the major.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of Spanish.

The Spanish Studies major is completed by a minimum of 34 credits and 11 courses and requires that students take at least 5-6 semesters of language above and beyond the CLA second language requirement. Spanish courses taken in fulfillment of CLA's second language requirement (SPAN 1001-1004 or their equivalents) do not count toward the major. Students pursuing a second CLA major may choose to complete the senior project requirement in their other major. These students are required to substitute 3 credits of advanced SPAN electives with a 31xx pre-req for SPAN 3972W. Students must complete 6 major courses in residence. Three can be taken at the UMNTC campus or through sponsored study abroad programs. The other 3 must be advanced electives courses (requiring a SPAN 31xx pre-requisite) and must be taken at the UMNTC campus (including the senior project).

The department administers two allowable degree combinations: Spanish Studies B.A. and Portuguese Studies minor, or Spanish Studies minor and Portuguese Studies minor. No other departmental degree combinations are allowed.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific
information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Advanced Language Course
SPAN 3015 - Spanish Composition and Communication (4.0 cr)

Critical Analysis Courses
SPAN 3104W - Introduction to the Study of Hispanic Literatures [LITR, WI] (3.0 cr)
SPAN 3105W - Introduction to the Study of Hispanic Cultures [WI] (3.0 cr)
SPAN 3107W - Introduction to the Study of Hispanic Linguistics [WI] (3.0 cr)

Spanish Major Electives
Take 6 SPAN 3xxx courses. 4 of the 6 must have a SPAN 31xx prereq. Within the 6, take 1 course from each area: culture, linguistics, and literature. As an elective, SPAN 3970 must be taken for 3 credits. Honors students must take at least one SPAN 5xxx. Up to one course taught in English can count toward the major. Written departmental consent, via a signed contract, is required during the first week of classes. Adviser consent is needed to receive credit for all other courses not listed below.

Take 6 or more course(s) totaling 18 or more credit(s) from the following:

Electives

Literature Electives
Take 1 or more course(s) from the following:
• SPAN 3211 - Discourses of Imperial Spain, 1492-1800 (3.0 cr)
• SPAN 3212 - Discourses of Modern and Contemporary Spain, 1800-Present (3.0 cr)
• SPAN 3221 - Latin American Colonial Discourses: Empire and Early Modernity (3.0 cr)
• SPAN 3222 - Discourses of Modern and Contemporary Latin America (3.0 cr)
• SPAN 3910 - Topics in Spanish Peninsular Literature (3.0 cr)
• SPAN 3920 - Topics in Spanish-American Literature (3.0 cr)

Culture and Civilization Electives
Take 1 or more course(s) from the following:
• SPAN 3501 - Roots of Modern Spain and Latin America (3.0 cr)
• SPAN 3502 - Modern Spain (3.0 cr)
• SPAN 3510 - Issues in Hispanic Cultures (3.0 cr)
• SPAN 3512 - Modern Latin America (3.0 cr)
• SPAN 3800 - Film Studies in Spanish (3.0 cr)

Linguistics Electives
Take 1 or more course(s) from the following:
• SPAN 3701 - Structure of Spanish: Phonology and Phonetics (3.0 cr)
• SPAN 3702 - Structure of Spanish: Morphology and Syntax (3.0 cr)
• SPAN 3703 - Origins and History of Spanish and Portuguese (3.0 cr)
• SPAN 3704 - Sociolinguistics of the Spanish-Speaking World (3.0 cr)
• SPAN 3706 - Spanish Applied Linguistics (3.0 cr)
• SPAN 3707 - Linguistic Accuracy Through Translation (3.0 cr)
• SPAN 3730 - Topics in Hispanic Linguistics (3.0 cr)

SPAN 3970
Depending on the topic, this course may fulfill culture, literature, or linguistics requirement.

Take 0 or more course(s) from the following:
• SPAN 3970 - Directed Studies (1.0 - 4.0 cr)

Additional Electives
Any courses not used to fulfill culture/literature/linguistics requirements may be taken as additional electives.

Take 0 or more course(s) from the following:
• PORT 3001 - Portuguese for Spanish Speakers (4.0 cr)
• SPAN 3022 - Advanced Business Spanish (4.0 cr)
• SPAN 3044 - Advanced Medical Spanish (4.0 cr)
• SPAN 3401 - Latino Immigration and Community Service [CIV] (3.0 cr)
• SPAN 3404 - Medical Spanish and Community Health Service (3.0 cr)

Senior Seminar
Take a minimum of 3 credits. Majors fulfill the senior seminar requirement one of two ways: after all other major courses are complete, enroll in SPAN 3972W with departmental adviser permission and attend a graduation seminar informational/preparatory session offered by the department several times a year, or enroll in a SPAN 5xxx with instructor permission. Honors students must enroll in SPAN 3972W.

SPAN 3972W - Graduation Seminar [WI] (3.0 cr)

or SPAN 5xxx

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:

- **SPAN 3104W - Introduction to the Study of Hispanic Literatures [LITR, WI] (3.0 cr)**
- **SPAN 3105W - Introduction to the Study of Hispanic Cultures [WI] (3.0 cr)**
- **SPAN 3107W - Introduction to the Study of Hispanic Linguistics [WI] (3.0 cr)**
- **SPAN 3972W - Graduation Seminar [WI] (3.0 cr)**
Twin Cities Campus

Spanish Studies Minor
Spanish & Portuguese
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16 to 18

The Spanish Studies minor focuses on Spanish and Latin American literary, cultural, and linguistic studies. Students begin with language skills courses. These are followed by courses in Hispanic literature, culture, and linguistics. Courses with specific skills focus and service-learning components are also available. The department encourages minors to study abroad in a Spanish-speaking area.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Preparatory Courses
These courses must be taken in sequential order, and do not factor into the overall length in credits of the minor. In select cases, students with advanced proficiency may be exempt from taking some or all of these courses. See the departmental adviser for more information.

SPAN 1001 - Beginning Spanish (5.0 cr)
SPAN 1002 - Beginning Spanish (5.0 cr)
SPAN 1003 - Intermediate Spanish (5.0 cr)
SPAN 1004 - Intermediate Spanish (5.0 cr)
or SPAN 1014 - Business Spanish (5.0 cr)
or SPAN 1044 - Intermediate Medical Spanish (5.0 cr)

Minor Requirements
The Spanish Studies minor requires a minimum of five courses. Students must declare the minor at least one full term before completing its requirements and are encouraged to declare as early as possible. At least one course must be completed at the University of Minnesota - Twin Cities campus. The department administers two allowable degree combinations: Spanish Studies B.A. and Portuguese Studies minor, or Spanish Studies minor and Portuguese Studies minor. No other departmental degree combinations are allowed.

Minor Courses
SPAN 3015 - Spanish Composition and Communication (4.0 cr)

Critical Analysis
SPAN 3104W - Introduction to the Study of Hispanic Literatures [LITR, WI] (3.0 cr)
or SPAN 3105W - Introduction to the Study of Hispanic Cultures [WI] (3.0 cr)
or SPAN 3107W - Introduction to the Study of Hispanic Linguistics [WI] (3.0 cr)

Elective with Critical Analysis Pre-requisite
Note that some of the following courses carry pre-requisites. For more information, please consult the University Catalog.
Take 1 or more course(s) from the following:
• SPAN 3211 - Discourses of Imperial Spain, 1492-1800 (3.0 cr)
• SPAN 3212 - Discourses of Modern and Contemporary Spain, 1800-Present (3.0 cr)
• SPAN 3221 - Latin American Colonial Discourses: Empire and Early Modernity (3.0 cr)
• SPAN 3222 - Discourses of Modern and Contemporary Latin America (3.0 cr)
• SPAN 3501 - Roots of Modern Spain and Latin America (3.0 cr)
• SPAN 3502 - Modern Spain (3.0 cr)
• SPAN 3510 - Issues in Hispanic Cultures (3.0 cr)
• SPAN 3512 - Modern Latin America (3.0 cr)
• SPAN 3701 - Structure of Spanish: Phonology and Phonetics (3.0 cr)
• SPAN 3702 - Structure of Spanish: Morphology and Syntax (3.0 cr)
• SPAN 3703 - Origins and History of Spanish and Portuguese (3.0 cr)
• **SPAN 3704** - Sociolinguistics of the Spanish-Speaking World (3.0 cr)
• **SPAN 3705 (Inactive)** (3.0 cr)
• **SPAN 3706** - Spanish Applied Linguistics (3.0 cr)
• **SPAN 3707** - Linguistic Accuracy Through Translation (3.0 cr)
• **SPAN 3730** - Topics in Hispanic Linguistics (3.0 cr)
• **SPAN 3800** - Film Studies in Spanish (3.0 cr)
• **SPAN 3910** - Topics in Spanish Peninsular Literature (3.0 cr)
• **SPAN 3920** - Topics in Spanish-American Literature (3.0 cr)

**Electives**

These additional electives carry the following restrictions:
- one course may be service learning (SPAN 3401 or SPAN 3404)
- one course may be taken in English (SPAN 36xx or DUS-approved course outside the department, with all work completed in Spanish), or PORT 3001, or PORT 3002. Taking a course in English requires advanced written consent. See the departmental adviser for more information.

Take 2 or more course(s) from the following:
- Approved SPAN 3xxx elective
- **SPAN 3401** - Latino Immigration and Community Service [CIV] (3.0 cr)
  or **SPAN 3404** - Medical Spanish and Community Health Service (3.0 cr)
- **SPAN 36xx** or DUS-approved course outside the department
  or **PORT 3001** - Portuguese for Spanish Speakers (4.0 cr)
  or **PORT 3002** - Business Portuguese for Spanish Speakers (4.0 cr)
Twin Cities Campus

Speech-Language-Hearing Sciences B.A.

College of Liberal Arts

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 36 to 37
• Degree: Bachelor of Arts

The curriculum examines the physical, biological, and behavioral foundations of human communication. Courses focus on the study of variation in speech, language, and hearing processes, and seek to apply that knowledge to identifying, preventing, and managing disordered speech, language, and hearing.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Majors are advised to select additional courses beyond those needed to satisfy the liberal education requirements in the behavioral, biological, cognitive, physical, and social sciences.

Students may earn a B.A. or a minor in speech-language-hearing sciences, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Courses
SLHS 3302 - Anatomy and Physiology of the Speech and Hearing Mechanisms (3.0 cr)
SLHS 3303 - Language Acquisition and Science (3.0 cr)
SLHS 3304 - Phonetics (3.0 cr)
SLHS 3305W - Speech Science [WI] (3.0 cr)
SLHS 3306 - Hearing Science (3.0 cr)
SLHS 4301 - Introduction to the Neurosciences of Human Communication (3.0 cr)
SLHS 4402 - Assessment and Treatment in Speech-Language Pathology (3.0 cr)
SLHS 4801 - Hearing Measurement and Disorders (3.0 cr)
SLHS 4802 - Rehabilitative Audiology (3.0 cr)
SLHS 1301W - The Physics and Biology of Spoken Language [PHYS, WI] (4.0 cr)
or SLHS 1402 - The Talking Brain [SOCS] (3.0 cr)
SLHS 1401 - Communication Differences and Disorders [SOCS] (3.0 cr)
or SLHS 3401 - Communication Differences and Disorders [SOCS] (3.0 cr)

Senior Project
SLHS 3402W - Major Project in Speech and Hearing Science [WI] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill © 2005 by the Regents of the University of Minnesota
other major requirements.
Take 0 - 1 course(s) from the following:
• SLHS 3305W - Speech Science [WI] (3.0 cr)
• SLHS 3402W - Major Project in Speech and Hearing Science [WI] (3.0 cr)
Twin Cities Campus
Speech-Language-Hearing Sciences Minor
Speech-Language-Hearing Sciences
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14

The minor's curriculum examines the physical, biological, and behavioral foundations of human communication. Courses focus on the study of variation in speech, language, and hearing processes, and apply that knowledge to identifying, preventing, and managing disordered speech, language, and hearing.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
No more than 20 percent of total credits for the minor may be directed study. Students may earn a B.A. or a minor in speech-language-hearing sciences, but not both.

Minor Courses
Students may need instructor permission to take 5xxx courses.
Take 14 or more credit(s) from the following:
- SLHS 3xxx
- SLHS 4xxx
- SLHS 5xxx
Twin Cities Campus
Statistics B.A.
Statistics, School of-ADM
College of Liberal Arts

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 51 to 55
• Degree: Bachelor of Arts

Statistics is concerned with theories and methods of data collection, tabulation, analysis, and interpretation, and their use in learning from data and making decisions.

A bachelor's degree gives students an understanding of the theory of statistics and trains them in basic use of the most important types of statistical methods. The degree prepares students for graduate work or for jobs in diverse areas as marketing analysis, quality management, and support for scientific research.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students must complete two years of mathematics, one course in computer programming, and 26 credits of STATS 3xxx or higher (two courses in statistical theory, two courses in statistical methods, at least three elective courses in statistics, and a senior project).

Students may earn no more than one degree from the Statistics program: a B.A. or a B.S. or a minor.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Mathematics
Take a total of five courses for twenty credits.
MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)
or MATH 1372 - CSE Calculus II (4.0 cr)
MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
or MATH 2263 - Multivariable Calculus (4.0 cr)
MATH 2244 - Linear Algebra and Differential Equations (4.0 cr)
or MATH 2264 - Multivariable Calculus and Vector Analysis (4.0 cr)
MATH 4242 - Applied Linear Algebra (4.0 cr)
or Honors Sequence
MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
MATH 1572H - Honors Calculus II (4.0 cr)
MATH 2573H - Honors Calculus III (4.0 cr)
MATH 2574H - Honors Calculus IV (4.0 cr)
MATH 4242 - Applied Linear Algebra (4.0 cr)
Major Courses
Take four courses for 15-16 credits.

**STAT 3022** - Data Analysis (4.0 cr)
**STAT 3011** - Introduction to Statistical Analysis [MATH] (4.0 cr)
*or* **STAT 3021** - Introduction to Probability and Statistics (3.0 cr)

Choose a theory course group:

**Option 1**
- **STAT 4101** - Theory of Statistics I (4.0 cr)
- **STAT 4102** - Theory of Statistics II (4.0 cr)

**Option 2**
- **STAT 5101** - Theory of Statistics I (4.0 cr)
- **STAT 5102** - Theory of Statistics II (4.0 cr)

**Option 3**
- **MATH 5651** - Basic Theory of Probability and Statistics (4.0 cr)
- **STAT 5102** - Theory of Statistics II (4.0 cr)

**Programming for Statisticians**
Take one course for 4 credits.

**CSCI 1103** - Introduction to Computer Programming in Java (4.0 cr)
*or* **CSCI 1113** - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
*or* **CSCI 1913** - Introduction to Algorithms, Data Structures, and Program Development (4.0 cr)
*or* **CSCI 1933** - Introduction to Algorithms and Data Structures (4.0 cr)

**Electives**
Take 3 or more course(s) totaling 9 - 12 credit(s) from the following:

- **STAT 5031** - Statistical Methods for Quality Improvement (4.0 cr)
- **STAT 5041** - Bayesian Decision Making (3.0 cr)
- **STAT 5201** - Sampling Methodology in Finite Populations (3.0 cr)
- **STAT 5302** - Applied Regression Analysis (4.0 cr)
- **STAT 5303** - Designing Experiments (4.0 cr)
- **STAT 5401** - Applied Multivariate Methods (3.0 cr)
- **STAT 5421** - Analysis of Categorical Data (3.0 cr)
- **STAT 5511** - Time Series Analysis (3.0 cr)
- **STAT 5601** - Nonparametric Methods (3.0 cr)
- **STAT 5931** - Topics in Statistics (3.0 cr)
- **STAT 5932** - Topics in Statistics (3.0 cr)

**Senior Project**
**STAT 4893W** - Senior Project [WI] (3.0 cr)

**Upper-division Writing Intensive within the major**
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
- **STAT 4893W** - Senior Project [WI] (3.0 cr)
Twin Cities Campus

Statistics Minor
Statistics, School of ADM
College of Liberal Arts

• Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 14

Statistics is concerned with theories and methods of data collection, tabulation, analysis, and interpretation, and their use in learning from data and making decisions.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students may earn no more than one undergraduate degree in statistics: a B.A. or a B.S. or a minor.

Minor Courses
At least 2 courses must be taken at the 4xxx-5xxx level.
Take 14 or more credit(s) from the following:
• STAT 3xxx
• STAT 4xxx
• STAT 5xxx
Studies in Cinema and Media Culture (SCMC) examines cinema by emphasizing its location within the intricate social, historical, and cultural matrix of audiovisual forms and practices. Core courses and electives are offered not only in the Department of Cultural Studies and Comparative Literature (CSCL), but also in a number of other contributing departments. Through the program's interdisciplinary framework, students explore the sounds and images of cinema as they have changed throughout the 19th and 20th centuries. Print, photography, radio, television, video, and digital media are also considered crucial to understanding the medium. Students develop the ability to "read" the production and circulation of meaning in cinema, especially within the institutions of mass culture; examine the history of cinema cultures; engage the cross-cultural and global dynamics of cinema production and reception; and explore the theoretical models that have shaped thinking about the cinema and its relations to other media.

Although the major includes a production component, its principal focus is on cultural contexts, history, and theory.

Effective fall 2001, the Studies in Cinema and Media Culture major replaced the Film Studies major. Currently-declared Film Studies majors have the option of either completing their degree in Film Studies or transferring to the new SCMC major. The director of undergraduate studies can help students transfer programs.

For the latest information on the SCMC major, visit the CSCL website.

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

All major courses must be taken A-F. At least one upper-division (3xxx or above) course in the major must be WI.

In addition to the courses below, the department maintains a list of current-semester courses that also count toward the major. Please visit http://cscl.umn.edu/ugrad/scmccourselists.html for an updated list of approved courses.

Note on topics courses, directed studies, and internships: students may count up to three toward the major, but no more than two in any one category (two topics courses; two directed studies/internships). Such courses may be counted in Section C without prior approval as long as they appear on the current-semester SCMC-approved list. Directed studies and internships may also be counted in Section C with prior written approval from the SCMC undergraduate adviser or the director of undergraduate studies. In rare cases, such courses may be used in Section B, but only with prior written approval. For both internships and directed studies, students work with a faculty member of their choice to complete and submit a Faculty/Student Contract outlining the goals and scope of coursework. The course number of the internship or directed study should be selected appropriate to the home department (3993, 4993, or 5993).

Students may earn a B.A. or a minor in studies in cinema and media culture, but not both.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific...
information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Section A - Major Courses
Take at least three courses for a minimum of 12 credits. SCMC 5001 or 5002 may also serve as a basis for the senior project.

ARTH 1921W - Introduction to Film Study [AH, WI] (4.0 cr)
or
CSCL 1201 - Introduction to Cinema and Media Culture [AH] (4.0 cr)
or
CSCL 1921W - Introduction to Film Study [AH, WI] (4.0 cr)
or
SCMC 1201 - Introduction to Cinema and Media Culture [AH] (4.0 cr)
ARTH 3921W - Art of the Film [AH, WI] (4.0 cr)
or
SCMC 3001W - History of Cinema and Media Culture [WI] (4.0 cr)
SCMC 5001 - Critical Debates in the Study of Cinema and Media Culture (4.0 cr)
or
SCMC 5002 - Advanced Film Analysis (4.0 cr)

Section B - Context: Society, History, Culture Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:

• AMST 3252W - American Popular Culture and Politics: 1900 to 1940 [HIS, CIV, WI] (4.0 cr)
• AMST 3253W - American Popular Culture and Politics: 1940 to the Present [HIS, CIV, WI] (4.0 cr)
• COMM 3211 - Introduction to U.S. Electronic Media (3.0 cr)
• COMM 3231 - Reality TV: History, Culture, and Economics (3.0 cr)
• COMM 5261 - Political Economy of Media Culture (3.0 cr)
• HSCI 4321 - History of Computing [TS, HIS] (3.0 cr)
• JOUR 3614 - History of Media Communication [HIS, TS] (3.0 cr)
• JOUR 3745 - Mass Media and Popular Culture [AH, DSJ] (3.0 cr)
• JOUR 5615 - History of the Documentary (3.0 cr)

Section B - Practice: Production and Training Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:

• ARTS 3602 - Narrative Digital Video (4.0 cr)
• ARTS 3603 - Experimental Video (4.0 cr)
• ARTS 5620 - Narrative Digital Video (4.0 cr)
• ARTS 5630 - Advanced Experimental Video (4.0 cr)
• COMM 3201 - Introduction to Electronic Media Production (3.0 - 4.0 cr)
• COMM 3204 - Advanced Electronic Media Production (4.0 cr)
• ENGW 5205 - Screenwriting (4.0 cr)
• ENGW 5207 [Inactive] (4.0 cr)
• SCMC 3201 - Fundamentals of Digital Filmmaking (4.0 cr)
• SCMC 3202 - Intermediate Digital Filmmaking (4.0 cr)
• TH 4550 - Video Technology (3.0 cr)

Section B - Difference: National, International, and "Foreign" Cinemas Courses
Take 1 or more course(s) totaling 3 or more credit(s) from the following:

• AFRO 3655 - African American Cinema [AH, DSJ] (3.0 cr)
• ALL 3356W - Chinese Film [AH, WI] (3.0 cr)
• ALL 3456 - Japanese Film [GP] (3.0 cr)
• ALL 3556 - Korean Film (3.0 cr)
• AMIN 3304 - Indigenous Filmmakers [AH] (3.0 cr)
• AMIN 3402 - American Indians and the Cinema [AH, DSJ] (3.0 cr)
• CSCL 3176 - Oppositional Cinemas [GP] (4.0 cr)
• CSCL 5411 - Avant-Garde Cinema (4.0 cr)
• FREN 3451 - North African Cinema (3.0 cr)
• FRIT 3802 [Inactive] (3.0 cr)
• GER 3604W - Introduction to German Cinema [AH, GP, WI] (3.0 cr)
• JOUR 3741 - Diversity and Mass Communication [DSJ] (3.0 cr)

Section B - Analysis: Theory, Method, Critique Courses
Note: SCMC 5001 fulfills the Section B - Analysis requirement only if not previously counted toward the Section A - Major Courses requirement.
Take 3 or more credit(s) from the following:

• COMM 3263W - Media Literacy: Decoding Media Images and Messages [WI] (3.0 cr)
• COMM 4245 - Critical Television Studies (3.0 cr)
• COMM 5211 - Critical Media Studies: Theory and Methods (3.0 cr)
• CSCL 3115 - Cinema and Ideology [AH] (4.0 cr)
• CSCL 3177 - On Television [CIV] (4.0 cr)
• CSCL 3178W - Documentary Cinema: History and Politics [WI] (4.0 cr)
• GWSS 3307 - Feminist Film Studies [AH, DSJ] (3.0 cr)
**SCMC 5001 - Critical Debates in the Study of Cinema and Media Culture (4.0 cr)**

**Section C - Electives**

Take at least 3 courses, of which no more than one may be at the 1xxx-level. 3xxx-5xxx courses taken in Section C may also serve as a basis for the senior project. Courses used to fulfill other program requirements may not be counted toward Section C. Students may count a 3xxx-5xxx directed study as long as it is pre-approved by the departmental adviser. Visit http://cscl.umn.edu/ugrad/scmcourseslists.html for an updated list of approved courses.

- **AFRO 3654** - African Cinema (4.0 cr)
- **AFRO 3655** - African American Cinema [AH, DSJ] (3.0 cr)
- **ALL 1001** *(Inactive)* (3.0 cr)
- **ALL 3356W** - Chinese Film [AH, WI] (3.0 cr)
- **ALL 3456** - Japanese Film [GP] (3.0 cr)
- **ALL 3556** - Korean Film (3.0 cr)
- **AMIN 3304** - Indigenous Filmmakers [AH] (3.0 cr)
- **AMIN 3402** - American Indians and the Cinema [AH, DSJ] (3.0 cr)
- **AMST 3252W** - American Popular Culture and Politics: 1900 to 1940 [HIS, CIV, WI] (4.0 cr)
- **AMST 3253W** - American Popular Culture and Politics: 1940 to the Present [HIS, CIV, WI] (4.0 cr)
- **ARTH 1921W** - Introduction to Film Study [AH, WI] (4.0 cr)
- **ARTH 3921W** - Art of the Film [AH, WI] (4.0 cr)
- **ARTS 1601** - Experimental and Media Arts [AH] (4.0 cr)
- **ARTS 3601** - New Media: Making Art Interactive (4.0 cr)
- **ARTS 3602** - Narrative Digital Video (4.0 cr)
- **ARTS 3603** - Experimental Video (4.0 cr)
- **ARTS 3703** - Photography: Digital Imaging (4.0 cr)
- **ARTS 5610** - New Media: Making Art Interactive (4.0 cr)
- **ARTS 5620** - Narrative Digital Video (4.0 cr)
- **ARTS 5630** - Advanced Experimental Video (4.0 cr)
- **COMM 3201** - Introduction to Electronic Media Production (3.0 - 4.0 cr)
- **COMM 3204** - Advanced Electronic Media Production (4.0 cr)
- **COMM 3211** - Introduction to U.S. Electronic Media (3.0 cr)
- **COMM 3231** - Reality TV: History, Culture, and Economics (3.0 cr)
- **COMM 3263W** - Media Literacy: Decoding Media Images and Messages [WI] (3.0 cr)
- **COMM 4245** - Critical Television Studies (3.0 cr)
- **COMM 4263** - Feminist Media Studies [DSJ] (3.0 cr)
- **COMM 5211** - Critical Media Studies: Theory and Methods (3.0 cr)
- **COMM 5261** - Political Economy of Media Culture (3.0 cr)
- **CSCL 1201** - Introduction to Cinema and Media Culture [AH] (4.0 cr)
- **CSCL 1921W** - Introduction to Film Study [AH, WI] (4.0 cr)
- **CSCL 3115** - Cinema and Ideology [AH] (4.0 cr)
- **CSCL 3176** - Oppositional Cinemas [GP] (4.0 cr)
- **CSCL 3177** - On Television [CIV] (4.0 cr)
- **CSCL 3178W** - Documentary Cinema: History and Politics [WI] (4.0 cr)
- **CSCL 3993** - Directed Study (1.0 - 3.0 cr)
- **CSCL 4993** - Directed Study (1.0 - 3.0 cr)
- **CSCL 5411** - Avant-Garde Cinema (4.0 cr)
- **CSCL 5593** - Directed Study (1.0 - 3.0 cr)
- **ENGL 3040** - Studies in Film (3.0 cr)
- **ENGW 5205** - Screenwriting (4.0 cr)
- **ENGW 5207** *(Inactive)* (4.0 cr)
- **FREN 3451** - North African Cinema (3.0 cr)
- **FRIT 3802** *(Inactive)* (3.0 cr)
- **GER 1601** - Fleeing Hitler: German and Austrian Filmmakers Between Europe and Hollywood [AH] (3.0 cr)
- **GER 3604W** - Introduction to German Cinema [AH, GP, WI] (3.0 cr)
- **GWSS 3307** - Feminist Film Studies [AH, DSJ] (3.0 cr)
- **GWSS 3409W** - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
- **HSCI 4321** - History of Computing [TS, HIS] (3.0 cr)
- **JOUR 1001** - Introduction to Mass Communication [SOCS, TS] (3.0 cr)
- **JOUR 3614** - History of Media Communication [HIS, TS] (3.0 cr)
- **JOUR 3615** - History of the Documentary [AH] (3.0 cr)
- **JOUR 3741** - Diversity and Mass Communication [DSJ] (3.0 cr)
- **JOUR 3745** - Mass Media and Popular Culture [AH, DSJ] (3.0 cr)
- **JOUR 3796** - Mass Media and Politics (3.0 cr)
- **JOUR 5615** - History of the Documentary (3.0 cr)
- **PORT 3900** - Film Studies in Portuguese (3.0 cr)
SCMC 1201 - Introduction to Cinema and Media Culture [AH] (4.0 cr)
SCMC 3001W - History of Cinema and Media Culture [WI] (4.0 cr)
SCMC 3201 - Fundamentals of Digital Filmmaking (4.0 cr)
SCMC 3202 - Intermediate Digital Filmmaking (4.0 cr)
SCMC 3993 - Directed Study (1.0 - 3.0 cr)
SCMC 4993 - Directed Study (1.0 - 3.0 cr)
SCMC 5001 - Critical Debates in the Study of Cinema and Media Culture (4.0 cr)
SCMC 5002 - Advanced Film Analysis (4.0 cr)
SCMC 5993 - Directed Study (1.0 - 3.0 cr)
SPAN 3800 - Film Studies in Spanish (3.0 cr)
TH 4550 - Video Technology (3.0 cr)
GEOG 3374W - The City in Film [AH, WI] (4.0 cr)
or GEOG 5374W - The City in Film [WI] (4.0 cr)

**Senior Project**
Complete one of the following as part of the minimum 33 credits required for graduation:
1. Project within a 3xxx-5xxx directed study
2. Project within a 3xxx-4xxx course (specially arranged with instructor)
3. Coursework, including substantial writing, in any 5xxx SCMC major course from the approved list
4. Honors project or thesis.

Although SCMC emphasizes contextual analysis, history, and theory, production projects (e.g., short films, video installations) are welcome.
Twin Cities Campus
Studies in Cinema and Media Culture Minor
Cultural Studies & Comparative Literature
College of Liberal Arts

• Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 18

Studies in cinema and media culture (SCMC) examines cinema by emphasizing its location within the intricate social, historical, and cultural matrix of audiovisual forms and practices.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students may earn a B.A. or a minor in studies in cinema and media culture, but not both.

Minor Courses
ARTH 1921W - Introduction to Film Study [AH, WI] (4.0 cr)
or CSCL 1201 - Introduction to Cinema and Media Culture [AH] (4.0 cr)
or CSCL 1921W - Introduction to Film Study [AH, WI] (4.0 cr)
or SCMC 1201 - Introduction to Cinema and Media Culture [AH] (4.0 cr)

Electives
Take at least 14 credits of electives at the 3xxx-5xxx level.
Take 14 or more credit(s) from the following:
• AFRO 3654 - African Cinema (4.0 cr)
• AFRO 3655 - African American Cinema [AH, DSJ] (3.0 cr)
• ALL 3356W - Chinese Film [AH, WI] (3.0 cr)
• ALL 3456 - Japanese Film [GP] (3.0 cr)
• ALL 3556 - Korean Film (3.0 cr)
• AMIN 3402 - American Indians and the Cinema [AH, DSJ] (3.0 cr)
• AMST 3252W - American Popular Culture and Politics: 1900 to 1940 [HIS, CIV, WI] (4.0 cr)
• AMST 3253W - American Popular Culture and Politics: 1940 to the Present [HIS, CIV, WI] (4.0 cr)
• ARTH 3921W - Art of the Film [AH, WI] (4.0 cr)
• ARTS 3601 - New Media: Making Art Interactive (4.0 cr)
• ARTS 3602 - Narrative Digital Video (4.0 cr)
• ARTS 3603 - Experimental Video (4.0 cr)
• ARTS 3703 - Photography: Digital Imaging (4.0 cr)
• ARTS 5610 - New Media: Making Art Interactive (4.0 cr)
• ARTS 5620 - Narrative Digital Video (4.0 cr)
• ARTS 5630 - Advanced Experimental Video (4.0 cr)
• COMM 3201 - Introduction to Electronic Media Production (3.0 - 4.0 cr)
• COMM 3204 - Advanced Electronic Media Production (4.0 cr)
• COMM 3211 - Introduction to U.S. Electronic Media (3.0 cr)
• COMM 3231 - Reality TV: History, Culture, and Economics (3.0 cr)
• COMM 3263W - Media Literacy: Decoding Media Images and Messages [WI] (3.0 cr)
• COMM 4245 - Critical Television Studies (3.0 cr)
• COMM 4263 - Feminist Media Studies [DSJ] (3.0 cr)
• COMM 5211 - Critical Media Studies: Theory and Methods (3.0 cr)
• COMM 5261 - Political Economy of Media Culture (3.0 cr)
• CSCL 3115 - Cinema and Ideology [AH] (4.0 cr)
• CSCL 3176 - Oppositional Cinemas [GP] (7.0 cr)
• CSCL 3177 - On Television [CIV] (4.0 cr)
• CSCL 3178W - Documentary Cinema: History and Politics [WI] (4.0 cr)
• CSCL 3993 - Directed Study (1.0 - 3.0 cr)
• CSCL 4993 - Directed Study (1.0 - 3.0 cr)
• CSCL 5411 - Avant-Garde Cinema (4.0 cr)
• CSCL 5993 - Directed Study (1.0 - 3.0 cr)
• ENGL 3040 - Studies in Film (3.0 cr)
• ENGW 5205 - Screenwriting (4.0 cr)
• ENGW 5207 (Inactive) (4.0 cr)
• FREN 3451 - North African Cinema (3.0 cr)
• FRIT 3802 (Inactive) (3.0 cr)
• GER 3604W - Introduction to German Cinema [AH, GP, WI] (3.0 cr)
• GWSS 3307 - Feminist Film Studies [AH, DSJ] (3.0 cr)
• GWSS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
• HSCI 4321 - History of Computing [TS, HIS] (3.0 cr)
• JOUR 3614 - History of Media Communication [HIS, TS] (3.0 cr)
• JOUR 3615 - History of the Documentary [AH] (3.0 cr)
• JOUR 3741 - Diversity and Mass Communication [DSJ] (3.0 cr)
• JOUR 3745 - Mass Media and Popular Culture [AH, DSJ] (3.0 cr)
• JOUR 3796 - Mass Media and Politics (3.0 cr)
• JOUR 5615 - History of the Documentary (3.0 cr)
• SCMC 3001W - History of Cinema and Media Culture [WI] (4.0 cr)
• SCMC 3201 - Fundamentals of Digital Filmmaking (4.0 cr)
• SCMC 3202 - Intermediate Digital Filmmaking (4.0 cr)
• SCMC 3993 - Directed Study (1.0 - 3.0 cr)
• SCMC 4993 - Directed Study (1.0 - 3.0 cr)
• SCMC 5001 - Critical Debates in the Study of Cinema and Media Culture (4.0 cr)
• SCMC 5002 - Advanced Film Analysis (4.0 cr)
• SCMC 5993 - Directed Study (1.0 - 3.0 cr)
• SPAN 3800 - Film Studies in Spanish (3.0 cr)
• TH 4550 - Video Technology (3.0 cr)
• GEOG 3374W - The City in Film [AH, WI] (4.0 cr)
or GEOG 5374W - The City in Film [WI] (4.0 cr)
Swedish Minor

Program Type: Undergraduate minor related to major
Requirements for this program are current for Fall 2014
Required credits in this minor: 16

The minor includes the study of the spoken language, literature, culture, and civilization.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Complete the introductory 4-semester Swedish language sequence or its equivalent. Note: these credits do not factor into the overall length in credits of the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students are required to take 4 semester(s) of Swedish.

The minor consists of a minimum of 16 credits in 3xxx, 4xxx (beyond 4004), and 5xxx courses with no more than one course being a directed or independent study. The four required semesters of a second language do not factor into the overall length of credits in the minor. All courses must be taken A-F and must be completed with a grade of C- or better. At least one course must be taken in the Scandinavian program at the University of Minnesota - Twin Cities campus. Students with a German, Scandinavian, Dutch major may elect a minor in Swedish, but no courses may count for both the major and the minor. The minor program must be approved by the director of undergraduate studies.

Minor Courses

SCAN 3011W - Readings in Scandinavian Languages [WI] (4.0 cr)
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
• SCAN 3xxx
• SCAN 4xxx
• SCAN 5xxx
Twin Cities Campus
Technical Communication Certificate
Writing Studies
College of Liberal Arts

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 8 to 9
- Degree: Technical Communication Certificate

The certificate in technical communication provides students with proficiency in four areas of technical communication: written, oral, visual, and digital. Students take at least two required upper-division courses and complete a capstone project as part of one of the courses. The courses are designed to teach students practical skills for communicating complex technical information to a variety of audiences and to complement their career plans.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Universal requirements:
- Complete a minimum of 8 credits at the University of Minnesota - Twin Cities campus
- Complete all courses with a grade of C- or higher
- Produce a capstone project: The purpose of the capstone project is (1) to further develop and reflect on what you have learned through your certificate coursework and (2) to provide you with a tangible product that can be used for job applications and during interviews. The one-credit capstone project must be added on to WRIT 3562W or the WRIT elective that you take for the certificate. The capstone project will be evaluated by the instructor of the chosen WRIT course. If necessary to the project, an outside reader with subject matter expertise will be invited to also read and provide input. Projects will be evaluated on the following criteria: how well the project is written, organized and designed; how well the project extends an existing assignment; how well the project illustrates communication principles such as style, clarity and design; how well the project demonstrates rhetorical components of audience, purpose, message and context; how well the project addresses insights into communication in the student's specific field (science, engineering, architecture, political science, etcetera). Consult the departmental adviser for further details.

Required Course
WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Elective Course
Take a total of one elective course.
Take 1 or more course(s) from the following:
- WRIT 3257 - Technical and Professional Presentations (3.0 cr)
- WRIT 3577W - Rhetoric, Technology, and the Internet [TS, WI] (3.0 cr)
- WRIT 3672W - Project Design and Development [WI] (3.0 cr)

or
Students may substitute one of the following courses as an elective with prior approval from the WRIT departmental advisers.
Take 1 or more course(s) from the following:
- WRIT 3441 - Editing, Critique, and Style (3.0 cr)
- WRIT 3671 - Visual Rhetoric and Document Design (3.0 cr)
- WRIT 4431W - Science, Technology, and the Law [CIV, WI] (3.0 cr)
- WRIT 4501 - Usability and Human Factors in Technical Communication (3.0 cr)
- WRIT 4573W - Writing Proposals and Grant Management [WI] (3.0 cr)
- WRIT 4662W - Writing With Digital Technologies [WI] (4.0 cr)
Capstone Project
Take WRIT 3291 as a 1-cr. 'add-on' to either of the certificate's required courses. The capstone project extends an assignment in the selected course to further explore an aspect of technical communication. The project must be developed in consultation with the instructor of the selected course, and all work must be completed within the same semester. Project formats include a paper, report, podcast, video, scientific poster, or electronic presentation. Consult dept adviser for full details.

WRIT 3291 - Independent Study (1.0 - 3.0 cr)
Twin Cities Campus
Technical Writing and Communication B.S.
Writing Studies
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 52
- Degree: Bachelor of Science

The Department of Writing Studies offers a Bachelor of Science in technical writing and communication (TWC). This degree offers a unique combination of written, digital, oral and visual communication theory and practice as it relates to interdisciplinary areas of science and technology. Core WRIT courses address writing and editing, rhetorical theory, visual rhetoric and document design, usability, and technical communication practices. Students combine core WRIT courses with one of four sub-plan areas in technology or science: information technology and design, biological and health sciences, legal discourse and public policy, and environmental science. For major advising, contact the Assistant Director of the Technical Writing and Communication Program in the Department of Writing Studies in 202 Nolte Center.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All required courses must be taken A-F and students must earn a grade of at least C-.

Equivalent transfer courses are accepted in all areas (except for required WRIT courses). Students must complete a minimum of 37 credits of WRIT courses, plus 15 credits of courses within one of four sub-plan areas.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Core Courses
Take 7 courses for a total of 24 credits. Note: WRIT 3671, or WRIT 3701W, or WRIT 4501 can be taken in conjunction with WRIT 4995 to fulfill the senior project.
- WRIT 3001 - Introduction to Technical Writing and Communication (3.0 cr)
- WRIT 3221W - Communication Modes and Methods [WI] (4.0 cr)
- WRIT 3441 - Editing, Critique, and Style (3.0 cr)
- WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
- WRIT 3671 - Visual Rhetoric and Document Design (3.0 cr)
- WRIT 3701W - Rhetorical Theory for Writing Studies [WI] (4.0 cr)
- WRIT 4501 - Usability and Human Factors in Technical Communication (3.0 cr)

Required Electives
Students must take at least 6 credits from each of the two categories for a total of 12 credits. Note: WRIT 3102W, or WRIT 3244W, or WRIT 4662W, or WRIT 3361, or WRIT 3381W, or WRIT 3577W can be taken in conjunction with WRIT 4995 to fulfill the senior project.
Take 12 or more credit(s) from the following:
Oral, Written, Visual, and Digital Communication
- Take 6 or more credit(s) from the following:
• WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
• WRIT 3101W - Writing Arguments [WI] (3.0 cr)
• WRIT 3102W - Public Writing [CIV, WI] (3.0 cr)
• WRIT 3244W - Critical Literacies: How Words Change the World [AH, DSJ, WI] (3.0 cr)
• WRIT 3257 - Technical and Professional Presentations (3.0 cr)
• WRIT 3533 - Roles of the Reader (3.0 cr)
• WRIT 3672W - Project Design and Development [WI] (3.0 cr)
• WRIT 3751W - Seminar: Theory and Practice of Writing Consultancy [WI] (4.0 cr)
• WRIT 4196 - Internship in Technical Writing and Communication (3.0 cr)
• WRIT 4573W - Writing Proposals and Grant Management [WI] (3.0 cr)
• WRIT 4662W - Writing With Digital Technologies [WI] (4.0 cr)

**Science, Technology, and Society**
Take 6 or more credit(s) from the following:
• WRIT 3152W - Writing on Issues of Science and Technology [WI] (4.0 cr)
• WRIT 3315 - Writing on Issues of Land and the Environment [AH, DSJ] (3.0 cr)
• WRIT 3361 - Literature of Social Movements in the United States: 1950 to Present [LITR, CIV] (3.0 cr)
• WRIT 3371W - Technology, Self, and Society [WI] (3.0 cr)
• WRIT 3381W - Writing and Modern Cultural Movements [AH, WI] (3.0 cr)
• WRIT 3405W - Humanistic Healthcare and Communication [AH, WI] (3.0 cr)
• WRIT 3577W - Rhetoric, Technology, and the Internet [TS, WI] (3.0 cr)
• WRIT 4431W - Science, Technology, and the Law [CIV, WI] (3.0 cr)
• WRIT 4664W - Science Writing for Popular Audiences [WI] (3.0 cr)

**Senior Project**
The senior project is completed during the final year of coursework. Take WRIT 4995 (1 cr.) in conjunction with any 3xxx- or 4xxx-level WRIT course. The following WRIT courses are suggested: WRIT 3671, WRIT 3701W, WRIT 4501, WRIT 3102W, WRIT 3244W, WRIT 4662W, WRIT 3361, WRIT 3381W, or WRIT 3577W. Instructor consent is required prior to registration.

**Upper-division Writing Intensive within the major**
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
• WRIT 3101W - Writing Arguments [WI] (3.0 cr)
• WRIT 3102W - Public Writing [CIV, WI] (3.0 cr)
• WRIT 3152W - Writing on Issues of Science and Technology [WI] (4.0 cr)
• WRIT 3221W - Communication Modes and Methods [WI] (4.0 cr)
• WRIT 3244W - Critical Literacies: How Words Change the World [AH, DSJ, WI] (3.0 cr)
• WRIT 3371W - Technology, Self, and Society [WI] (3.0 cr)
• WRIT 3381W - Writing and Modern Cultural Movements [AH, WI] (3.0 cr)
• WRIT 3405W - Humanistic Healthcare and Communication [AH, WI] (3.0 cr)
• WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
• WRIT 3577W - Rhetoric, Technology, and the Internet [TS, WI] (3.0 cr)
• WRIT 3672W - Project Design and Development [WI] (3.0 cr)
• WRIT 3751W - Seminar: Theory and Practice of Writing Consultancy [WI] (4.0 cr)
• WRIT 4431W - Science, Technology, and the Law [CIV, WI] (3.0 cr)
• WRIT 4573W - Writing Proposals and Grant Management [WI] (3.0 cr)
• WRIT 4662W - Writing With Digital Technologies [WI] (4.0 cr)

**Program Sub-plans**
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

**Information Technology and Design**

**Required Courses**
Complete 15 credits in the sub-plan. Six of the 15 credits must be taken at 3xxx or above. Other courses may be allowed, see department adviser for final consent. Note: Students completing this sub-plan are encouraged to take WRIT 3577W as one of their required electives for the major. WRIT 3577W does not count toward the required 15 credits in the sub-plan.
Take 15 or more credit(s) from the following:
• ARCH 3611 - Design in the Digital Age (3.0 cr)
• ARTH 3422 - Off the Wall: History of Graphic Arts in Europe and America in the Modern Age (4.0 cr)
• COMM 3201 - Introduction to Electronic Media Production (3.0 - 4.0 cr)
• COMM 3204 - Advanced Electronic Media Production (4.0 cr)
• COMM 3211 - Introduction to U.S. Electronic Media (3.0 cr)
• COMM 4291 - New Telecommunication Media (3.0 cr)
• CSCI 1001 - Overview of Computer Science [MATH, TS] (4.0 cr)
• CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)
• CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
• CSCI 1133H - Honors Introduction to Computing and Programming Concepts (4.0 cr)
• CSCI 1913 - Introduction to Algorithms, Data Structures, and Program Development (4.0 cr)
• CSCI 1933 - Introduction to Algorithms and Data Structures (4.0 cr)
• CSCI 2011 - Discrete Structures of Computer Science (4.0 cr)
• CSCI 3921W - Social, Legal, and Ethical Issues in Computing [CIV, WI] (3.0 cr)
• DES 1101W - Introduction to Design Thinking [AH, WI] (4.0 cr)
• DES 2101 - Design and Visual Presentation (3.0 cr)
• DES 3311 - Travels in Typography (3.0 cr)
• GDES 1315 - Foundations: The Graphic Studio (4.0 cr)
• GDES 4131W - History of Graphic Design [WI] (4.0 cr)
• GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
• HSCI 3331 - Technology and American Culture [HIS, TS] (3.0 cr)
• HSCI 3401 - Ethics in Science and Technology [HIS, CIV] (3.0 cr)
• HSCI 3714 - Technology and Civilization: Stone Tools to Steam Engines [HIS, TS] (3.0 - 4.0 cr)
• HSCI 3715 - Technology and Civilization: Waterwheels to the Web [HIS, TS] (3.0 - 4.0 cr)
• HSCI 4231 - History of Computing [TS, HIS] (3.0 cr)
• HUMF 5001 - Foundations of Human Factors/Ergonomics (3.0 cr)
• JOUR 3006 - Visual Communication (3.0 cr)
• JOUR 3614 - History of Media Communication [HIS, TS] (3.0 cr)
• JOUR 4272 - Interactive Advertising (3.0 cr)
• JOUR 4551 - New Media and Culture [AH, TS] (3.0 cr)
• KIN 3505 - Intro to Human-Centered Design (3.0 cr)
• PHIL 3601W - Scientific Thought [WI] (4.0 cr)
• UC 3201 - Web Designer Introduction (4.0 cr)

Biological and Health Sciences

Required Courses

Students must complete 15 credits in the sub-plan. Six of the 15 credits must be taken at 3xxx or above. Other courses may be allowed in consultation with department adviser.

Students are strongly encouraged to take BIOL 1009 and ANAT 3001 within this sub-plan to facilitate a stronger knowledge base for other required courses.

Take 15 or more credit(s) from the following:

• ANAT 3001 - Human Anatomy (3.0 cr)
• BIOC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)
• BIOC 3021 - Biochemistry (3.0 cr)
• BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
• BIOL 1009 - General Biology [BIOL] (4.0 cr)
• BIOL 1101W - Heredity and Human Society [CIV, WI] (3.0 cr)
• BIOL 2012 - General Zoology (4.0 cr)
• BIOL 2022 - General Botany (3.0 cr)
• BIOL 3811 - Introduction to Animal Behavior (4.0 cr)
• BIOL 4003 - Genetics (3.0 cr)
• BIOL 4004 - Cell Biology (3.0 cr)
• CHEM 2101 - Introductory Analytical Chemistry Lecture (3.0 cr)
• CHEM 2111 - Introductory Analytical Chemistry Lab (2.0 cr)
• CHEM 2301 - Organic Chemistry I (3.0 cr)
• CHEM 2302 - Organic Chemistry II (3.0 cr)
• CHEM 2311 - Organic Lab (4.0 cr)
• CHEM 4001 - Chemistry of Biomass and Biomass Conversion to Fuels and Products (4.0 cr)
• MICB 3301 - Biology of Microorganisms (5.0 cr)
• PHAR 1002 - Medical Terminology (2.0 cr)
• PHAR 5201 - Applied Health Sciences Terminology (2.0 cr)
• PHCL 3100 - Pharmacology for Pre-Med and Life Science Students (2.0 cr)
• PHIL 1005 - Scientific Reasoning (4.0 cr)
• PHIL 3601W - Scientific Thought [WI] (4.0 cr)
• PHIL 4607 - Philosophy of the Biological Sciences (3.0 cr)
• PHSL 3051 - Human Physiology (4.0 cr)
• PUBH 3001 - Personal and Community Health (2.0 cr)
• PUBH 3004 - Basic Concepts in Personal and Community Health (4.0 cr)
• STAT 1001 - Introduction to the Ideas of Statistics [MATH] (4.0 cr)
• STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)

- Introductory Chemistry - Lecture & Lab
  • CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
  • CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)

- Chemical Principles I - Lecture & Lab
  • CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
  • CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)

- Chemical Principles II - Lecture & Lab
  • CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
  • CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)

Legal Discourse and Public Policy

Required Courses
Complete 15 credits in the sub-plan. Six of the 15 credits must be taken at 3xxx or above. Other courses may be allowed, see departmental adviser for final consent. Note: Students completing this sub-plan are encouraged to take WRIT 3577W and WRIT 4431 as two of their required electives for the major. WRIT 3577W and WRIT 4431 do not count toward the required 15 credits in the sub-plan.

Take 15 or more credit(s) from the following:
• AMIN 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans, & Chicanos in the U.S. (3.0 cr)
• COMM 3631 - Freedom of Speech [CIV] (3.0 cr)
• CSCI 3921W - Social, Legal, and Ethical Issues in Computing [CIV, WI] (3.0 cr)
• JOUR 3007 - The Media in American History and Law: Case Studies [HIS] (3.0 cr)
• JOUR 3776 - Mass Communication Law (3.0 cr)
• JOUR 5552 - Law of Internet Communications (3.0 cr)
• PHIL 1001 - Introduction to Logic [MATH] (4.0 cr)
• PHIL 1004W - Introduction to Political Philosophy [AH, CIV, WI] (4.0 cr)
• PHIL 4321W - Theories of Justice [WI] (3.0 cr)
• POL 1001 - American Democracy in a Changing World [SOCS] (4.0 cr)
• POL 1201 - Political Ideas and Ideologies [HIS, CIV] (4.0 cr)
• POL 3225 - American Political Thought [CIV] (3.0 cr)
• POL 3308 - Congressional Politics and Institutions [SOCS] (3.0 cr)
• POL 3309 - Justice in America (3.0 cr)
• POL 4403W - Comparative Constitutionalism [GP, WI] (3.0 cr)
• POL 4485 - Human Rights and Democracy in the World [CIV] (3.0 cr)
• POL 4501W - The Supreme Court and Constitutional Interpretation [CIV, WI] (3.0 cr)
• POL 4502W - The Supreme Court, Civil Liberties, and Civil Rights [CIV, WI] (3.0 cr)
• SOC 3101 - Introduction to the Criminal Justice System [SOCS, CIV] (3.0 cr)
• SOC 4101W - Sociology of Law [WI] (3.0 cr)
• SOC 4161 - Criminal Law in American Society (3.0 cr)
• SOC 4162 - Criminal Procedure in American Society (3.0 cr)
• SOC 4170 - Sociology of International Law [GP] (3.0 cr)

Environmental Science

Required Courses
Complete 15 credits in the sub-plan. Six of the 15 credits must be taken at 3xxx or above. Other courses may be allowed, see departmental adviser for final consent.

Take 15 or more credit(s) from the following:
• AGRO 5321 - Ecology of Agricultural Systems (3.0 cr)
• ANTH 3041 - Ecological Anthropology (3.0 cr)
• APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
• ARCH 4561 - Architecture and Ecology (3.0 cr)
• BBE 4733 - Renewable Energy Technologies [TS] (3.0 cr)
• CE 3501 - Environmental Engineering [ENV] (3.0 cr)
• CHEN 5551 - Survey of Renewable Energy Technologies (3.0 cr)
• EEB 3001 - Ecology and Society [ENV] (3.0 cr)
• ESCI 1001 - Earth and Its Environments [PHYS, ENV] (4.0 cr)
• ESCI 1012 - Natural Hazards and Disasters [TS] (3.0 cr)
• ESCI 2202 - Earth History (4.0 cr)
• ESCI 3002 - Climate Change and Human History [ENV] (3.0 cr)
• ESCI 3004 - Water and Society (3.0 cr)
• ESCI 3005 - Earth Resources (3.0 cr)
• ESPM 1011 - Issues in the Environment [ENV] (3.0 cr)
• ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
• ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
• ESPM 3251 - Natural Resources in Sustainable International Development [GP] (3.0 cr)
• ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
• ESPM 3601 - Sustainable Housing--Community, Environment, and Technology [TS] (3.0 cr)
• ESPM 3603 - Environmental Life Cycle Analysis (3.0 cr)
• ESPM 3604 - Environmental Management Systems and Strategy (3.0 cr)
• ESPM 3607 - Natural Resources Consumption and Sustainability [GP] (3.0 cr)
• FW 4102 - Principles of Conservation Biology [ENV] (3.0 cr)
• GEOG 3401 - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
• HIST 3452 - African Conservation Histories (3.0 cr)
• BIOL 3407 - Environment and Its Biological and Physical Context [ENV] (3.0 cr)
• PHIL 3301 - Environmental Ethics [ENV] (4.0 cr)
• SOC 4305 - Environment & Society: An Enduring Conflict [ENV] (3.0 cr)
• SOC 4311 - Race, Class, and the Politics of Nature (3.0 cr)
• SUST 3003 - Sustainable People, Sustainable Planet [ENV] (3.0 cr)
• URBS 3751 - Understanding the Urban Environment [ENV] (3.0 cr)
• AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
  or ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• BIOL 3408W - Ecology [WI] (3.0 cr)
• GEOG 3379 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
  or GLOS 3303 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
Twin Cities Campus

Technical Writing and Communication Minor

Writing Studies

College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16 to 18

The minor provides theoretical and practical information about how to communicate complex technical information to various audiences. Students take required courses in written communication, visual communication and in communication technologies. Additional courses (e.g., oral communication, project management, international communication) are selected to complement students’ career plans. For help in planning the minor, contact the Assistant Director of the Technical Writing and Communication Program in the Department of Writing Studies in 202 Nolte Center.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Students may earn a B.S. in technical writing and communication or a minor in technical writing and communication, but not both.

Minor Courses

WRIT 3441 - Editing, Critique, and Style (3.0 cr)
WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
WRIT 3257 - Technical and Professional Presentations (3.0 cr)
or WRIT 3671 - Visual Rhetoric and Document Design (3.0 cr)

Upper-division Electives

Independent study and internship courses cannot be used to satisfy the WRIT 3xxx-5xxx elective requirement.
Take 2 or more course(s) from the following:

• WRIT 3xxx
• WRIT 4xxx
• WRIT 5xxx
Twin Cities Campus
Theatre Arts B.A.
Theatre Arts & Dance
College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 43
- Degree: Bachelor of Arts

This degree program offers study of the art form in both theoretical historical context and the practice of live dramatic performance. Course offerings include theatre history and dramatic literature; acting, movement, and voice; directing; design and technology for scenery, costume, lighting, makeup, and sound; and stage and arts management.

Coursework also embraces theatre as a group art, an art in which individual excellence is often fully realized only in collaboration with other artists. The practical application of the art encourages students to test classroom experiences under the pressure of public performance in the laboratory of the University Theatre.

For students interested in a BFA program, see Acting BFA for requirements.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

Students may earn no more than one undergraduate degree from the theatre arts program: a B.A. in theatre arts, or a B.F.A. in acting, or a minor in theatre arts.

Beginning fall 2012, all incoming CLA freshman must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Courses
TH 1101W - Introduction to the Theatre [AH, WI] (3.0 cr)
TH 1321 - Beginning Acting: Fundamentals of Performance (3.0 cr)
TH 1322 - Creating the Performance (3.0 cr)
TH 1501 - Introduction to Design and Technology for Live Performance (3.0 cr)
TH 3171 - History of the Theatre: Ancient Greece Through Neo-Classicism (3.0 cr)
TH 3172 - History of the Theatre: Age of Enlightenment to Present (3.0 cr)

Dramatic Literature
- TH 4177W - Survey of Dramatic Literature I: Strategic Interpretation [WI] (3.0 cr)
- or TH 4178W - Survey of Dramatic Literature II: Representation and its Effects [WI] (3.0 cr)

Theatre Practicum
Take no more than 2 credits in acting.
Take 4 or more credit(s) from the following:
- TH 3100 - Theatre Practicum (1.0 cr)

Design/Technology
Take 2 or more course(s) from the following:
• TH 3521 - Introduction to Scenic Design for Theater and Performance (3.0 cr)
• TH 3531 - Introduction to Theatrical Costume Design (3.0 cr)
• TH 3541 - Introduction to Stage Lighting Design (3.0 cr)
• TH 3571 - Introduction to Stage Technology (3.0 cr)

**Electives**
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
• TH 3xxx
• TH 4xxx
• TH 5xxx
• DNCE 3xxx
• DNCE 4xxx
• DNCE 5xxx

**Senior Seminar**
TH 4901 - Senior Seminar (2.0 cr)

**Program Sub-plans**
A sub-plan is not required for this program.

**Honors UHP**
This is an honors sub-plan.

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.

Current departmental honors course offerings are listed at:
http://www.honors.umn.edu/academics/curriculum/dept_courses_current.html

Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or with an honors directed studies, or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.
Twin Cities Campus
Theatre Arts Minor
Theatre Arts & Dance
College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 24

The minor offers study of the art form in both theoretical historical context and the practice of live dramatic performance. Course offerings include theatre history and dramatic literature; acting, movement, and voice; directing; design and technology for scenery, costume, lighting, makeup, and sound; and stage and arts management.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students may earn a B.A. or a minor in Theatre Arts, but not both.

Minor Courses
Introductory Courses
- TH 1101W - Introduction to the Theatre [AH, WI] (3.0 cr)
- TH 1321 - Beginning Acting: Fundamentals of Performance (3.0 cr)
- TH 1322 - Creating the Performance (3.0 cr)
- TH 1501 - Introduction to Design and Technology for Live Performance (3.0 cr)

Upper-division Courses
Take 2 or more course(s) from the following:
- TH 3171 - History of the Theatre: Ancient Greece Through Neo-Classicism (3.0 cr)
- TH 3172 - History of the Theatre: Age of Enlightenment to Present (3.0 cr)
- TH 4177W - Survey of Dramatic Literature I: Strategic Interpretation [WI] (3.0 cr)
- TH 4178W - Survey of Dramatic Literature II: Representation and its Effects [WI] (3.0 cr)

Design/Technology
Take 2 or more course(s) from the following:
- TH 3521 - Introduction to Scenic Design for Theater and Performance (3.0 cr)
- TH 3531 - Introduction to Theatrical Costume Design (3.0 cr)
- TH 3541 - Introduction to Stage Lighting Design (3.0 cr)
- TH 3571 - Introduction to Stage Technology (3.0 cr)
Twin Cities Campus

University Honors Program

College of Biological Sciences, College of Continuing Education, College of Design, College of Education and Human Development, College of Food, Agricultural and Natural Resource Sciences, College of Liberal Arts, Curtis L. Carlson School of Management, School of Nursing, College of Science and Engineering

• Program Type: Other
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 14 to 44
• This program is 8 terms (4 years) long.

The University Honors Program (UHP) assists high-achieving students in making the most of their undergraduate education. Our students are driven to excel both inside and outside the classroom, but we challenge them to go one step further.

Program Delivery

This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, as well as degree program requirements. For any course required in a degree program, UHP students are expected to register for the honors version of courses associated with their discipline, when offered. These courses are designed to meet degree and UHP requirements.

To remain in the honors program, students must maintain a grade point average of 3.5 and complete a set number of Honors Experiences per year (May and summer sessions included).

Freshman Year

Students build a solid foundation of knowledge to serve them throughout their undergraduate career. Most students complete first-year Honors Experiences primarily through honors courses. Courses can be found here: http://www.honors.umn.edu/experiences/courses-and-tutoring/index.php

Two honors courses
  Two honors courses (honors seminars, departmental honors courses, or freshman seminars totalling at least six credits)

Two other Honors Experiences
  Two other Honors Experiences (courses or non-course experiences)

Sophomore Year

Students continue to take advantage of the curriculum while expanding their education beyond the classroom. Through non-course Honors Experiences they begin to apply their knowledge in the laboratory, studio, or community. Examples of these experiences can be found here: http://www.honors.umn.edu/experiences/non-course-experiences/index.php.

Two honors courses
  Two honors courses (totalling at least six credits)

Two other Honors Experiences
  Two other Honors Experiences (courses or non-course experiences)

Junior Year

Students engage in research, scholarship, or creative activity with a faculty mentor—an important step toward the development of a project for the honors thesis—while deepening and broadening their knowledge and skill base. The honors thesis guide can be found here: http://www.honors.umn.edu/latin-honors/thesis-guide/index.php.

One honors course
Two other Honors Experiences
Two other Honors Experiences (courses or non-course experiences)

Senior Year
The honors education culminates in the writing of an honors thesis. Through this thesis, students demonstrate mastery of their field of study, along with the ability to think creatively and independently.

One honors course
One additional Honors Experience
The Honors Thesis
**Twin Cities Campus**

**Urban Studies B.A.**

**Geography, Environment, Society**

**College of Liberal Arts**

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 36 to 43
- Degree: Bachelor of Arts

This cross-disciplinary major involves urban studies coursework, fieldwork experiences, internships, and coursework in disciplines that offer useful perspectives on contemporary urban and postindustrial society.

The program focuses on conceptual and analytical frameworks and specialized skills needed for professions focused on urban change or development. Students completing the program work in public agencies or private business or pursue graduate study in urban planning, law, social welfare, public affairs, or the social and environmental sciences.

Students are encouraged to incorporate field study into the major or minor. Options include urban studies programs sponsored by the Higher Education Consortium for Urban Affairs (HECUA) in South America, Norway, and Minneapolis-St. Paul.

**Program Delivery**

This program is available:

- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](#).

**General Requirements**

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the [liberal education requirements](#). Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

**Program Requirements**

Students are required to take 4 semester(s) of any second language.

Students may earn no more than one undergraduate degree in urban studies: a B.A. or a B.S. or a minor.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: [http://class.umn.edu/degree_requirements/index.html](http://class.umn.edu/degree_requirements/index.html)

**Major Courses**

- **URBS 1001W** - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)
- or **URBS 3001W** - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)

Take 2 or more credit(s) from the following:

- **URBS 3201** - Urban Studies Colloquium (1.0 cr)
- **URBS 3202** - Urban Studies Colloquium (1.0 cr)

Take 6 or more credit(s) from the following:

- **URBS 3500** - Urban Studies Workshop (3.0 cr)

**Skills and Methods Courses**

Take 2 or more course(s) totaling 6 - 8 credit(s) from the following:

**Introductory Courses in Statistics & Research**

Take 0 - 1 course(s) from the following:

- **EPSY 3264** - Basic and Applied Statistics [MATH] (3.0 cr)
- **EPSY 5261** - Introductory Statistical Methods (3.0 cr)
- **GEOG 3511** - Principles of Cartography (4.0 cr)
- **GEOG 3531** - Numerical Spatial Analysis (4.0 cr)
• **PA 5031** - Empirical Analysis I (4.0 cr)
• **POL 3085** - Quantitative Analysis in Political Science [MATH] (4.0 cr)
• **PSY 3001W** - Introduction to Research Methods [WI] (4.0 cr)
• **SOC 3801** - Sociological Research Methods (4.0 cr)
• **SOC 3811** - Basic Social Statistics [MATH] (4.0 cr)
• **STAT 3011** - Introduction to Statistical Analysis [MATH] (4.0 cr)
• **STAT 3021** - Introduction to Probability and Statistics (3.0 cr)

**Intermediate Courses in Statistics & Quantitative Analysis**

Take 0 or more course(s) from the following:

• **FNRM 3131** - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)
• **GEOG 3561** - Principles of Geographic Information Science (4.0 cr)
• **GEOG 5511** - Principles of Cartography (3.0 cr)
• **GEOG 5562** - Geographic Information Science and Analytical Cartography (3.0 cr)
• **GEOG 5563** - Advanced Geographic Information Science (3.0 cr)
• **STAT 3022** - Data Analysis (4.0 cr)
• **STAT 4101** - Theory of Statistics I (4.0 cr)
• **STAT 4102** - Theory of Statistics II (4.0 cr)
• **STAT 5021** - Statistical Analysis (4.0 cr)
• **STAT 5201** - Sampling Methodology in Finite Populations (3.0 cr)
• **STAT 5401** - Applied Multivariate Methods (3.0 cr)
• **STAT 5421** - Analysis of Categorical Data (3.0 cr)

**Applied Courses in Statistics & Quantitative Research Design**

Take 0 or more course(s) from the following:

• **CE 3101** - Computer Applications in Civil Engineering I (3.0 cr)
• **GEOG 5564** - Urban Geographic Information Science and Analysis (3.0 cr)
• **HIST 5011** - Measuring the Past: Quantitative Methods for Historical Research (4.0 cr)
• **HIST 5454** - Understanding Housing: Assessment and Analysis (3.0 cr)
• **PA 5022** - Economics For Policy Analysis and Planning II (1.5 - 3.0 cr)
• **PA 5271** - Geographic Information Systems: Applications in Planning and Policy Analysis (3.0 cr)

**Other Methods Courses**

Take 0 or more course(s) from the following:

• **AFRO 5551** - Methods: Use of Oral Traditions as Resources for History (3.0 cr)
• **GEOG 3401** - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
• **GEOG 3523** - Digital Mapping: Introduction to Making Online Maps for the Humanities and Sciences (3.0 cr)
• **GEOG 5401** - Geography of Environmental Systems and Global Change (4.0 cr)
• **GEOG 5565** - Geographical Analysis of Human-Environment Systems (3.0 cr)
• **GWSS 5101** - Feminist Approaches to Ethnography (3.0 cr)
• **HIST 3001** - Public History (4.0 cr)
• **MKTG 3010** - Marketing Research (4.0 cr)
• **PA 4101** - Nonprofit Management and Governance (3.0 cr)
• **PA 5035** - Survey Research and Data Collection (1.5 cr)
• **PA 5112** - Public Budgeting (3.0 cr)
• **PA 5221** - Private Sector Development (3.0 cr)
• **PA 5253** - Designing Planning and Participation Processes (3.0 cr)
• **PA 5511** - Community Economic Development (3.0 cr)
• **PA 5521** - Development Planning and Policy Analysis (4.0 cr)
• **WRIT 4573W** - Writing Proposals and Grant Management [WI] (3.0 cr)

**Communication Courses**

Take 0 - 1 course(s) from the following:

• **COMM 3411** - Introduction to Small Group Communication (3.0 cr)
• **COMM 3441** - Introduction to Organizational Communication (3.0 cr)
• **COMM 5411** - Small Group Communication Research (3.0 cr)
• **COMM 5441** - Communication in Human Organizations (3.0 cr)
• **SW 3501** - Theories and Practices of Social Change Organizing (3.0 cr)

**Urban Form and Society Courses**

Take 2 or more course(s) totaling 6 - 8 credit(s) from the following:

• **ARCH 3412** - Architectural History Since 1750 [HIS, GP] (3.0 cr)
• **ARCH 4445W** - Suburbs [WI] (3.0 cr)
• **CSCL 5256W** - Suburbia [WI] (3.0 cr)
• **DES 3331** - Street Life Urban Design Seminar (3.0 cr)
• **GEOG 3371W** - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
• **GEOG 3373** - Changing Form of the City [HIS, GP] (3.0 cr)
• **GEOG 3973** - Geography of the Twin Cities [SOCS] (3.0 cr)
• **HIST 3479** - History of Chinese Cities and Urban Life (3.0 - 4.0 cr)
• HSG 2463 - Housing and Community Development (3.0 cr)
• URBS 3301W - American Cities As Settings for Cultural Diversity [WI] (3.0 cr)
• URBS 3861 - Financing Cities (3.0 cr)
• URBS 3871 - A Suburban World (3.0 cr)
• URBS 5861 - Financing Cities (3.0 cr)

Internship and Senior Paper
Complete both courses. Students planning to finish their degree requirements at the end of fall semester should take URBS 3993 in place of URBS 3955W.

URBS 3900 - Urban Studies Internship Seminar (2.0 cr)
URBS 3955W - Senior Paper Seminar [WI] (2.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ARCH 4445W - Suburbia [WI] (3.0 cr)
• CSCL 5256W - Suburbia [WI] (3.0 cr)
• GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
• PSY 3001W - Introduction to Research Methods [WI] (4.0 cr)
• URBS 3001W - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)
• URBS 3301W - American Cities As Settings for Cultural Diversity [WI] (3.0 cr)
• URBS 3955W - Senior Paper Seminar [WI] (2.0 cr)
• WRT 4573W - Writing Proposals and Grant Management [WI] (3.0 cr)
• PSY 3001V - Honors Introduction to Research Methods [WI] (4.0 cr)

Urban Studies Concentrations

Social and Cultural Analysis of Urban Life
This is Track A.
Take 3 or more course(s) totaling 9 - 12 credit(s) from the following:
• AFRO 3072 - Racism: Social and Psychological Consequences for Black Americans (3.0 cr)
• AFRO 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
• AFRO 5910 - Topics in African American and African Studies (3.0 cr)
• AMIN 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
• AMIN 4511 - American Indian Political Economy (3.0 cr)
• CHIC 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
• CHIC 4275 - Theory in Action: Community Engagement in a Social Justice Framework [CIV] (3.0 cr)
• COMM 3451W - Intercultural Communication: Theory and Practice [WI] (3.0 cr)
• COMM 5451W - Intercultural Communication Processes [WI] (3.0 cr)
• GEOG 3374W - The City in Film [AH, WI] (4.0 cr)
• GEOG 5374W - The City in Film [WI] (4.0 cr)
• GWSS 5404 - Working Class Women's Cultures (3.0 cr)
• HIST 3821 - United States in the 20th Century to 1945 [HIS] (3.0 cr)
• HIST 3822 - United States in the 20th Century Since 1945 (3.0 cr)
• HIST 3865 - African American History, 1865 to Present (3.0 - 4.0 cr)
• HIST 3869 - Urban American History: Race, Class, Gender, and Sexuality in Urban America (3.0 cr)
• HIST 3872 - African American History: 1830 to the Present [HIS, DSJ] (3.0 cr)
• HSG 4467W - Housing and the Social Environment [WI] (4.0 cr)
• PA 5290 - Topics in Planning (1.0 - 4.0 cr)
• PA 5401 - Poverty, Inequality, and Public Policy (3.0 cr)
• PA 5601 - Global Survey of Gender and Public Policy (3.0 cr)
• POL 3739 - Politics of Race, Class, and Ethnicity (3.0 cr)
• PSY 3201 - Introduction to Social Psychology (3.0 cr)
• SOC 3451W - Cities & Social Change [WI] (3.0 cr)
• SOC 4108 - Current Issues in Crime Control (3.0 cr)
• SW 5101 - Historical Origins and Contemporary Policies and Programs in Social Welfare (3.0 - 4.0 cr)
• URBS 3301W - American Cities As Settings for Cultural Diversity [WI] (3.0 cr)

-OR-

Urban Political Economy
This is Track B.
Take 3 or more course(s) totaling 9 - 12 credit(s) from the following:
• APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
- APEC 5321 - Regional Economic Analysis (3.0 cr)
- APEC 5341 - Public Finance (3.0 cr)
- APEC 5611 - Economic Aspects of Environmental Management (3.0 cr)
- ECON 4621H - Honors Course: Urban Economics (4.0 cr)
- ECON 4821 - Public Economics (3.0 cr)
- GEOG 3331 - Geography of the World Economy [SOCS, GP] (3.0 cr)
- GEOG 3361W - Geography and Public Policy [WI] (3.0 cr)
- GEOG 5361 - Geography and Real Estate (4.0 cr)
- HIST 3841 - American Business History (3.0 cr)
- HSG 5463 - Housing Policy (3.0 cr)
- LA 3004 - Regional Landscape Planning (3.0 cr)
- LA 3514 - Making the Mississippi [CIV] (3.0 cr)
- PA 4200 - Urban and Regional Planning (3.0 cr)
- PA 5004 - Introduction to Planning (3.0 cr)
- PA 5013 - Law and Urban Land Use (1.5 cr)
- PA 5211 - Land Use Planning (3.0 cr)
- PA 5221 - Private Sector Development (3.0 cr)
- PA 5261 - Housing Policy (3.0 cr)
- PA 5290 - Topics in Planning (1.0 - 4.0 cr)
- PA 5421 - Racial Inequality and Public Policy (3.0 cr)
- PA 5511 - Community Economic Development (3.0 cr)
- POL 3477 - Political Economy of Development [SOCS, GP] (3.0 - 4.0 cr)
- POL 3739 - Politics of Race, Class, and Ethnicity (3.0 cr)
- URBS 3771 - Fundamentals of Transit (3.0 cr)
- URBS 3861 - Financing Cities (3.0 cr)
- URBS 3871 - A Suburban World (3.0 cr)
- URBS 5861 - Financing Cities (3.0 cr)

- OR -

Urban Infrastructure and Environment

This is Track C. Take 3 or more course(s) totaling 9 - 11 credit(s) from the following:

- APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
- ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
- ARCH 4671 - Historic Preservation (3.0 cr)
- ARCH 4701W - Introduction to Urban Form and Theory [WI] (3.0 cr)
- ARCH 5672 - Historic Building Conservation (3.0 cr)
- ARCH 5673 - Historic Property Research and Documentation (3.0 cr)
- ARCH 5711 - Theory and Principles of Urban Design (3.0 cr)
- CE 3201 - Transportation Engineering (3.0 cr)
- CE 5211 - Traffic Engineering (3.0 cr)
- CE 5212 - Transportation Policy, Planning, and Deployment (4.0 cr)
- ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
- ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
- ESPM 3251 - Natural Resources in Sustainable International Development [GP] (3.0 cr)
- LA 3003 - Case Studies in Sustainable Landscape Planning and Design (3.0 cr)
- LA 3501 - Environmental Design and Its Biological and Physical Context [ENV] (3.0 cr)
- LA 4755 - Infrastructure, Natural Systems, and Space of Inhabited Landscapes [TS] (3.0 cr)
- LA 5204 - Metropolitan Landscape Ecology (3.0 cr)
- LA 5401 - Directed Studies in Emerging Areas of Landscape Architecture (1.0 - 3.0 cr)
- PA 5013 - Law and Urban Land Use (1.5 cr)
- PA 5212 - Managing Urban Growth and Change (3.0 cr)
- PA 5231 - Transit Planning and Management (3.0 cr)
- PA 5232 - Transportation Policy, Planning, and Deployment (4.0 cr)
- PA 5421 - Racial Inequality and Public Policy (3.0 cr)
- PA 5722 - Environmental and Resource Economics Policy (3.0 cr)
- SUST 4004 - Sustainable Communities (3.0 cr)
- URBS 3751 - Understanding the Urban Environment [ENV] (3.0 cr)
- URBS 3771 - Fundamentals of Transit (3.0 cr)
Twin Cities Campus

Urban Studies B.S.

Geography, Environment, Society

College of Liberal Arts

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 42 to 51
• Degree: Bachelor of Science

This cross-disciplinary major involves urban studies coursework, fieldwork experiences, internships, and coursework in disciplines that offer useful perspectives on contemporary urban and postindustrial society.

The program focuses on conceptual and analytical frameworks and specialized skills needed for professions focused on urban change or development. Students completing the program work in public agencies or private business or pursue graduate study in urban planning, law, social welfare, public affairs, or the social and environmental sciences.

Students are encouraged to incorporate field study into the major or minor. Options include urban studies programs sponsored by the Higher Education Consortium for Urban Affairs (HECUA) in South America, Norway, and Minneapolis-St. Paul.

Program Delivery

This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Students may earn no more than one undergraduate degree in urban studies: a B.A. or a B.S. or a minor.

Beginning fall 2012, all incoming CLA freshmen must complete the appropriate First Year Experience course sequence. Specific information about this collegiate requirement can be found at: http://class.umn.edu/degree_requirements/index.html

Major Courses

URBS 1001W - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)

or URBS 3001W - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)

Take 2 or more credit(s) from the following:
• URBS 3201 - Urban Studies Colloquium (1.0 cr)
• URBS 3202 - Urban Studies Colloquium (1.0 cr)

Take 6 or more credit(s) from the following:
• URBS 3500 - Urban Studies Workshop (3.0 cr)

Skills and Methods Courses

Take 4 or more course(s) totaling 12 - 16 credit(s) from the following:

Introductory Courses in Statistics & Research

Take 0 - 1 course(s) from the following:
• EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)
• EPSY 5261 - Introductory Statistical Methods (3.0 cr)
• GEOG 3511 - Principles of Cartography (4.0 cr)
• GEOG 3531 - Numerical Spatial Analysis (4.0 cr)
• PA 5031 - Empirical Analysis I (4.0 cr)
• POL 3085 - Quantitative Analysis in Political Science [MATH] (4.0 cr)
• PSY 3001W - Introduction to Research Methods [WI] (4.0 cr)
• SOC 3801 - Sociological Research Methods (4.0 cr)
• SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)
• STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
• STAT 3021 - Introduction to Probability and Statistics (3.0 cr)

**Intermediate Courses** in Statistics & Quantitative Analysis
Take 0 - 2 course(s) from the following:
• FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)
• GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
• GEOG 5511 - Principles of Cartography (3.0 cr)
• GEOG 5562 - Geographic Information Science and Analytical Cartography (3.0 cr)
• GEOG 5563 - Advanced Geographic Information Science (3.0 cr)
• STAT 3022 - Data Analysis (4.0 cr)
• STAT 4101 - Theory of Statistics I (4.0 cr)
• STAT 4102 - Theory of Statistics II (4.0 cr)
• STAT 5021 - Statistical Analysis (4.0 cr)
• STAT 5201 - Sampling Methodology in Finite Populations (3.0 cr)
• STAT 5401 - Applied Multivariate Methods (3.0 cr)
• STAT 5421 - Analysis of Categorical Data (3.0 cr)

**Applied Courses** in Statistics & Quantitative Research Design
Take 0 - 2 course(s) from the following:
• CE 3101 - Computer Applications in Civil Engineering I (3.0 cr)
• GEOG 5564 - Urban Geographic Information Science and Analysis (3.0 cr)
• HIST 3001 - Public History (4.0 cr)
• HIST 5011 - Measuring the Past: Quantitative Methods for Historical Research (4.0 cr)
• HSG 5464 - Understanding Housing: Assessment and Analysis (3.0 cr)
• PA 5022 - Economics For Policy Analysis and Planning II (1.5 - 3.0 cr)
• PA 5271 - Geographic Information Systems: Applications in Planning and Policy Analysis (3.0 cr)

**Other Methods Courses**
Take 0 - 2 course(s) from the following:
• AFRO 5551 - Methods: Use of Oral Traditions as Resources for History (3.0 cr)
• GEOG 3401 - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
• GEOG 3523 - Digital Mapping: Introduction to Making Online Maps for the Humanities and Sciences (3.0 cr)
• GEOG 5401 - Geography of Environmental Systems and Global Change (4.0 cr)
• GEOG 5563 - Advanced Geographic Information Science (3.0 cr)
• GEOG 5565 - Geographical Analysis of Human-Environment Systems (3.0 cr)
• GWSS 5101 - Feminist Approaches to Ethnography (3.0 cr)
• HIST 3001 - Public History (4.0 cr)
• MKTG 3010 - Marketing Research (4.0 cr)
• PA 4101 - Nonprofit Management and Governance (3.0 cr)
• PA 5035 - Survey Research and Data Collection (1.5 cr)
• PA 5111 - Financing Public and Nonprofit Organizations (3.0 cr)
• PA 5112 - Public Budgeting (3.0 cr)
• PA 5221 - Private Sector Development (3.0 cr)
• PA 5253 - Designing Planning and Participation Processes (3.0 cr)
• PA 5511 - Community Economic Development (3.0 cr)
• PA 5521 - Development Planning and Policy Analysis (4.0 cr)
• WRIT 4573W - Writing Proposals and Grant Management [WI] (3.0 cr)

**Urban Form and Society Courses**
Take 2 or more course(s) totaling 6 - 8 credit(s) from the following:
• ARCH 3412 - Architectural History Since 1750 [HIS, GP] (3.0 cr)
• ARCH 4445W - Suburbia [WI] (3.0 cr)
• CSCL 5256W - Suburbia [WI] (3.0 cr)
• DES 3331 - Street Life Urban Design Seminar (3.0 cr)
• GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
• GEOG 3373 - Changing Form of the City [HIS, GP] (3.0 cr)
• GEOG 3973 - Geography of the Twin Cities [SOCS] (3.0 cr)
• HIST 3479 - History of Chinese Cities and Urban Life (3.0 - 4.0 cr)
• HSG 2463 - Housing and Community Development (3.0 cr)
• URB S 3301W - American Cities As Settings for Cultural Diversity [WI] (3.0 cr)
• URB S 3861 - Financing Cities (3.0 cr)
• URB S 3871 - A Suburban World (3.0 cr)
• URB S 5861 - Financing Cities (3.0 cr)
Internship and Senior Paper
Complete both courses. Students planning to finish their degree requirements at the end of fall semester should take URBS 3993 in place of URBS 3955W.

URBS 3900 - Urban Studies Internship Seminar (2.0 cr)
URBS 3955W - Senior Paper Seminar [WI] (2.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
• ARCH 4445W - Suburbia [WI] (3.0 cr)
• CSCL 5256W - Suburbia [WI] (3.0 cr)
• GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
• PSY 3001W - Introduction to Research Methods [WI] (4.0 cr)
• URBS 3001W - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)
• URBS 3301W - American Cities As Settings for Cultural Diversity [WI] (3.0 cr)
• URBS 3955W - Senior Paper Seminar [WI] (2.0 cr)
• WRIT 4573W - Writing Proposals and Grant Management [WI] (3.0 cr)
• PSY 3001V - Honors Introduction to Research Methods [WI] (4.0 cr)

Urban Studies Concentrations

Social and Cultural Analysis of Urban Life
This is Track A.
Take 3 or more course(s) totaling 9 - 12 credit(s) from the following:
• AFRO 3072 - Racism: Social and Psychological Consequences for Black Americans (3.0 cr)
• AFRO 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
• AFRO 5910 - Topics in African American and African Studies (3.0 cr)
• AMIN 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans, & Chicanos in the U.S. (3.0 cr)
• AMIN 4511 - American Indian Political Economy (3.0 cr)
• CHIC 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
• CHIC 4275 - Theory in Action: Community Engagement in a Social Justice Framework [CIV] (3.0 cr)
• COMM 3451W - Intercultural Communication: Theory and Practice [WI] (3.0 cr)
• COMM 5451W - Intercultural Communication Processes [WI] (3.0 cr)
• GEOG 3374W - The City in Film [AH, WI] (4.0 cr)
• GEOG 5374W - The City in Film [WI] (4.0 cr)
• GWSS 5404 - Working Class Women's Cultures (3.0 cr)
• HIST 3821 - United States in the 20th Century to 1945 [HIS] (3.0 cr)
• HIST 3822 - United States in the 20th Century Since 1945 (3.0 cr)
• HIST 3865 - African American History, 1865 to Present (3.0 - 4.0 cr)
• HIST 3869 - Urban American History: Race, Class, Gender, and Sexuality in Urban America (3.0 cr)
• HIST 3872 - American Indian History: 1830 to the Present [HIS, DSJ] (3.0 cr)
• HSG 4467W - Housing and the Social Environment [WI] (4.0 cr)
• PA 5290 - Topics in Planning (1.0 - 4.0 cr)
• PA 5401 - Poverty, Inequality, and Public Policy (3.0 cr)
• PA 5601 - Global Survey of Gender and Public Policy (3.0 cr)
• POL 3739 - Politics of Race, Class, and Ethnicity (3.0 cr)
• PSY 3201 - Introduction to Social Psychology [3.0 cr]
• SOC 3451W - Cities & Social Change [WI] (3.0 cr)
• SOC 4108 - Current Issues in Crime Control (3.0 cr)
• SW 5101 - Historical Origins and Contemporary Policies and Programs in Social Welfare (3.0 - 4.0 cr)
• URBS 3301W - American Cities As Settings for Cultural Diversity [WI] (3.0 cr)

-OR-

Urban Political Economy
This is Track B.
Take 3 or more course(s) totaling 9 - 12 credit(s) from the following:
• APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
• APEC 5321 - Regional Economic Analysis (3.0 cr)
• APEC 5341 - Public Finance (3.0 cr)
• APEC 5611 - Economic Aspects of Environmental Management (3.0 cr)
• ECON 4621H - Honors Course: Urban Economics (4.0 cr)
• ECON 4821 - Public Economics (3.0 cr)
• GEOG 3331 - Geography of the World Economy [SOCS, GP] (3.0 cr)
• GEOG 3361W - Geography and Public Policy [WI] (3.0 cr)
• GEOG 5361 - Geography and Real Estate (4.0 cr)
• HIST 3841 - American Business History (3.0 cr)
• HSG 5463 - Housing Policy (3.0 cr)
• LA 3004 - Regional Landscape Planning (3.0 cr)
• LA 3514 - Making the Mississippi [CIV] (3.0 cr)
• PA 4200 - Urban and Regional Planning (3.0 cr)
• PA 5004 - Introduction to Planning (3.0 cr)
• PA 5013 - Law and Urban Land Use (1.5 cr)
• PA 5211 - Land Use Planning (3.0 cr)
• PA 5221 - Private Sector Development (3.0 cr)
• PA 5261 - Housing Policy (3.0 cr)
• PA 5290 - Topics in Planning (1.0 - 4.0 cr)
• PA 5421 - Racial Inequality and Public Policy (3.0 cr)
• PA 5511 - Community Economic Development (3.0 cr)
• POL 3477 - Political Economy of Development [SOCS, GP] (3.0 - 4.0 cr)
• POL 3739 - Politics of Race, Class, and Ethnicity (3.0 cr)
• URBS 3771 - Fundamentals of Transit (3.0 cr)
• URBS 3861 - Financing Cities (3.0 cr)
• URBS 3871 - A Suburban World (3.0 cr)
• URBS 5861 - Financing Cities (3.0 cr)

-OR-

Urban Infrastructure and Environment

This is Track C.

Take 3 or more course(s) totaling 9 - 11 credit(s) from the following:

• APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
• ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
• ARCH 4671 - Historic Preservation (3.0 cr)
• ARCH 4701W - Introduction to Urban Form and Theory [WI] (3.0 cr)
• ARCH 5672 - Historic Building Conservation (3.0 cr)
• ARCH 5673 - Historic Property Research and Documentation (3.0 cr)
• ARCH 5711 - Theory and Principles of Urban Design (3.0 cr)
• CE 3201 - Transportation Engineering (3.0 cr)
• CE 5211 - Traffic Engineering (3.0 cr)
• CE 5212 - Transportation Policy, Planning, and Deployment (4.0 cr)
• ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
• ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
• ESPM 3251 - Natural Resources in Sustainable International Development [GP] (3.0 cr)
• LA 3003 - Case Studies in Sustainable Landscape Planning and Design (3.0 cr)
• LA 3501 - Environmental and Its Biological and Physical Context [ENV] (3.0 cr)
• LA 4755 - Infrastructure, Natural Systems, and Space of Inhabited Landscapes [TS] (3.0 cr)
• LA 5204 - Metropolitan Landscape Ecology (3.0 cr)
• LA 5401 - Directed Studies in Emerging Areas of Landscape Architecture (1.0 - 3.0 cr)
• PA 5013 - Law and Urban Land Use (1.5 cr)
• PA 5212 - Managing Urban Growth and Change (3.0 cr)
• PA 5231 - Transit Planning and Management (3.0 cr)
• PA 5232 - Transportation Policy, Planning, and Deployment (4.0 cr)
• PA 5722 - Environmental and Resource Economics Policy (3.0 cr)
• SUST 4004 - Sustainable Communities (3.0 cr)
• URBS 3751 - Understanding the Urban Environment [ENV] (3.0 cr)
• URBS 3771 - Fundamentals of Transit (3.0 cr)
Urban Studies Minor

College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14

The minor in urban studies focuses on the conceptual and analytical frameworks and specialized skills needed for professions focused on urban change or development.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Students may earn no more than one undergraduate degree in Urban Studies: a B.A. or a B.S. or a minor.

Minor Courses

- URBS 1001W - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)
- URBS 3500 - Urban Studies Workshop (3.0 cr)

Electives

Take at least 6 credits of electives. Choose from the following tracks: Urban Form and Society, Cultural Analysis, Political Economy, and Infrastructure and Environment.

Colloquia

Take two semesters of URBS 3201 or URBS 3202 for one credit each semester.

Take 2 or more credit(s) from the following:
- URBS 3201 - Urban Studies Colloquium (1.0 cr)

or Take 2 or more credit(s) from the following:
- URBS 3202 - Urban Studies Colloquium (1.0 cr)
Twin Cities Campus
Aerospace Engineering and Mechanics B.A.E.M.
Aerospace Engineering & Mechanics
College of Science and Engineering

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 122
• Required credits within the major: 76
• Degree: Bachelor of Aerospace Engineering and Mechanics

The mission of the bachelor of aerospace engineering and mechanics (B.A.E.M.) program is to produce graduates who are prepared to enter and sustain the practice of aerospace engineering and related fields, or to pursue advanced studies. This mission is consistent with the mission of the University of Minnesota in learning and teaching, and with the mission of the College of Science and Engineering: to provide a rigorous and stimulating education for its undergraduate majors and to provide programs of instruction in engineering that meet nationally accepted standards for practice of the profession of engineering.

Aerospace engineering is a multidisciplinary field that encompasses many areas of science and engineering and plays a major role in the technological advancement of society. As a constantly changing profession, aerospace engineering is concerned with a wide range of problems and the latest technologies. An aerospace engineer must have a comprehensive fundamental education in mathematics, physical sciences, and engineering sciences. The four-year program leading to the B.A.E.M. provides this broad background. The program is accredited by the Engineering Accreditation Commission of ABET.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 8 courses before admission to the program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Mathematics Core
Honors math (MATH 1571H, 1572H, (2573H or 2574H)) may be taken in place of the listed courses
MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
MATH 1372 - CSE Calculus II (4.0 cr)
or MATH 1272 - Calculus II (4.0 cr)
MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
or MATH 2263 - Multivariable Calculus (4.0 cr)

Physics Core
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

Chemistry Core
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)

Statics Core
AEM 2011 - Statics (3.0 cr)
General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
AEM Core
AEM 2012 - Dynamics (3.0 cr)
AEM 2301 - Mechanics of Flight (3.0 cr)
AEM 3031 - Deformable Body Mechanics (3.0 cr)
AEM 4201 - Fluid Mechanics (4.0 cr)
AEM 3101 - Mathematical Modeling and Simulation in Aerospace Engineering (2.0 cr)
AEM 4202 - Aerodynamics (4.0 cr)
AEM 4301 - Orbital Mechanics (3.0 cr)
AEM 4501 - Aerospace Structures (3.0 cr)
AEM 4601 - Instrumentation Laboratory (3.0 cr)
AEM 4331 - Mathematical Modeling and Simulation in Aerospace Engineering (2.0 cr)
AEM 4602W - Aeromechanics Laboratory [WI] (4.0 cr)
AEM 4203 - Aerospace Propulsion (4.0 cr)
AEM 4303W - Flight Dynamics and Control [WI] (4.0 cr)

Math, Science, and Engineering
CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
EE 3005 - Fundamentals of Electrical Engineering (4.0 cr)
EE 3006 - Fundamentals of Electrical Engineering Laboratory (1.0 cr)
ME 3324 - Introduction to Thermal Science (3.0 cr)
MATS 2001 - Introduction to the Science of Engineering Materials (3.0 cr)
or MATS 3011 - Introduction to Materials Science and Engineering (3.0 cr)
PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)
or PHYS 2303 - Physics III: Physics of Matter (4.0 cr)
or PHYS 2403H - Honors Physics III (4.0 cr)
MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
or MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
or MATH 2574H - Honors Calculus IV (4.0 cr)

Technical Electives
At least three courses (to total at least 9 credits) are required. These are typically chosen from 4xxx and 5xxx AEM courses that extend material covered in the required courses. They may be from other engineering, math and science disciplines at the appropriate level. One may be a 2xxx or 3xxx math or science course. In particular AST 2001 may be used to complete a minor in astronomy. Details are available from: www.aem.umn.edu/teaching/undergraduate/advising_guide/index.shtml

Program Sub-plans
A sub-plan is not required for this program.

EIP
Students may obtain professional experience in an industry or government assignment through an internship. The internship program usually consists of one term experience, generally in the summer. The practical engineering experience obtained through an internship not only enhances a student's education but also gives an edge on employment after graduation.

Students can receive 3 credits by taking AEM 4796 (report required). These credits can be counted as a technical elective toward the B.A.E.M. degree.

Internship
AEM 4796 - Professional Experience (3.0 cr)
Twin Cities Campus
Astrophysics B.S.Astrop.
College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 43 to 56
- Degree: Bachelor of Science in Astrophysics

The astrophysics program enables students to tackle complex and ill-defined problems within the physical sciences. The program prepares students for careers in professional astronomy, computational astrophysics, secondary education in the physical sciences, ROTC programs in the Air Force or Navy, data analysis, or laboratory science.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 8 courses before admission to the program.

Freshman and transfer students are usually admitted to pre-major status before admission to this major.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Mathematics Core
- MATH 1271 - Calculus I [MATH] (4.0 cr)
  or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
- MATH 1272 - Calculus II (4.0 cr)
  or MATH 1372 - CSE Calculus II (4.0 cr)
- MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
  or MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)

Physics Core
- PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
  or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
- PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
  or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)
- PHYS 2303 - Physics III: Physics of Matter (4.0 cr)
  or PHYS 2403H - Honors Physics III (4.0 cr)
  or PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students interested in astrophysics are encouraged to take AST 1011H.

Astrophysics Core
- PHYS 2201 - Introductory Thermodynamics and Statistical Physics (3.0 cr)
- PHYS 2601 - Quantum Physics (4.0 cr)
- AST 2001 - Introduction to Astrophysics (4.0 cr)
- AST 4994W - Directed Research [WI] (3.0 - 5.0 cr)
- PHYS 2605 - Quantum Physics Laboratory (3.0 cr)
PHYS 4001 - Analytical Mechanics (4.0 cr)
PHYS 4002 - Electricity and Magnetism (4.0 cr)
Take 2 or more course(s) from the following:
• AST 4xxx
• AST 5xxx
MATH 2283 - Sequences, Series, and Foundations (3.0 cr)
  or MATH 3xxx
  or MATH 4xxx
MATH 2263 - Multivariable Calculus (4.0 cr)
  or MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)

Astrophysics Focus

Data Analysis Specialist
This emphasis prepares students for careers in corporate and government labs and research divisions. Examples are programming, image processing, laboratory instrumentation, and general data analysis. Suggested courses are listed below.
Take 16 or more credit(s) from the following:
• AST 5201 - Methods of Experimental Astrophysics (4.0 cr)
• CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
• EE 3005 - Fundamentals of Electrical Engineering (4.0 cr)
• PHYS 4051 - Methods of Experimental Physics I (5.0 cr)
• PHYS 4052W - Methods of Experimental Physics II [WI] (5.0 cr)
  -OR-

Professional Astronomer
This emphasis prepares students for graduate school in astronomy. The program is similar to doing a double major in astrophysics and physics. The program emphasizes observational astronomy.
16 credits of AST, MATH, CHEM, PHYS, GEO, EE, or CSCI (3xxx, 4xxx, 5xxx)

Suggested courses are listed below.
Take 16 or more credit(s) from the following:
• PHYS 4101 - Quantum Mechanics (4.0 cr)
• PHYS 4201 - Statistical and Thermal Physics (3.0 cr)
• Take 0 or more course(s) from the following:
  • AST 4xxx
  • AST 5xxx
• Take 0 or more credit(s) from the following:
  • CHEM 3xxx
  • CHEM 4xxx
  • CHEM 5xxx
• Take 0 or more course(s) from the following:
  • CSCI 3xxx
  • CSCI 4xxx
  • CSCI 5xxx
• Take 0 or more course(s) from the following:
  • EE 3xxx
  • EE 4xxx
  • EE 5xxx
• Take 0 or more course(s) from the following:
  • GEO 3xxx
  • GEO 4xxx
  • GEO 5xxx
• Take 0 or more course(s) from the following:
  • MATH 3xxx
  • MATH 4xxx
  • MATH 5xxx
• Take 0 or more course(s) from the following:
  • PHYS 3xxx
  • PHYS 4xxx
  • PHYS 5xxx
  -OR-

Secondary Education

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Information current as of December 12, 2014
This emphasis prepares students for entry to a master's program in secondary science education. In addition to the courses listed below, students must complete 100 hours of in-class experience across at least two semesters.

**PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)**
**HSCI 1814 - Revolutions in Science: The Babylonians to Newton [HIS, GP] (3.0 - 4.0 cr)**
  or **HSCI 4121W - History of 20th-Century Physics [WI] (3.0 cr)**
**PHIL 1005 - Scientific Reasoning (4.0 cr)**
  or **PHIL 3601W - Scientific Thought [WI] (4.0 cr)**
**AST 5201 - Methods of Experimental Astrophysics (4.0 cr)**
  or **Physics Research**
  This course pair replaces AST 4994 in the student's program.
  **PHYS 4051 - Methods of Experimental Physics I (5.0 cr)**
  **PHYS 4052W - Methods of Experimental Physics II [WI] (5.0 cr)**

-OR-

**Technical Electives**
Select 16 credits in consultation with your adviser.
Twin Cities Campus
Biomedical Engineering B.Bm.E.
Department of Biomedical Engineering
College of Science and Engineering

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 124
• Required credits within the major: 71
• Degree: Bachelor of Biomedical Engineering

Biomedical engineers apply the fundamentals of mathematics, physics, chemistry, and biology to solve medically relevant problems. Examples of biomedical engineering activities include medical device design, fabrication and testing, prosthesis fabrication, ergonomics and human factors, physiological function monitoring, home health care technology development, biomedical informatics, functional imaging and tomography, biomaterial development and biocompatibility, artificial tissue and organ fabrication, cell- and biomolecule-based sensors and therapeutics, gene therapy development, and biomedical microsystems.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 10 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Mathematics
Honors math (MATH 1571H, 1572H, 2573H, 2574H) may be taken in place of the listed courses.
MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)
or MATH 1372 - CSE Calculus II (4.0 cr)
MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
or MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)

Physical Sciences
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
or CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
or CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
or CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

Preparatory Courses
BMEN 2401 - Programming for Biomedical Engineers (2.0 cr)
BMEN 2501 - Cellular and Molecular Biology for Biomedical Engineers [BIOL] (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Statistics

STAT 3021 - Introduction to Probability and Statistics (3.0 cr)

Major Courses

BMEN 1601 - Biomedical Engineering Undergraduate Seminar I (1.0 cr)
BMEN 1602 - Biomedical Engineering Undergraduate Seminar II (1.0 cr)
BMEN 3011 - Biomechanics (3.0 cr)
BMEN 3111 - Biomedical Transport Processes (3.0 cr)
BMEN 3211 - Bioelectricity and Bioinstrumentation (3.0 cr)
BMEN 3311 - Biomaterials (3.0 cr)
BMEN 3411 - Biomedical Systems Analysis (3.0 cr)
BMEN 4001W - Biomedical Engineering Design I [WI] (3.0 cr)
BMEN 4002W - Biomedical Engineering Design II [WI] (3.0 cr)
PHSL 3061 - Principles of Physiology (4.0 cr)
PHSL 3701 - Physiology Laboratory (2.0 cr)
BMEN 3015 - Biomechanics Lab (1.0 cr)
BMEN 3215 - Bioelectricity and Bioinstrumentation Lab (1.0 cr)
BMEN 3315 - Biomaterials Lab (1.0 cr)
BMEN 3115 - Biomedical Transport Processes Lab (1.0 cr)
BMEN 3415 - Biomedical Systems Analysis Lab (1.0 cr)

Technical Electives

Take 27 credits of technical electives approved by an adviser. A maximum of 10 credits of science courses and a maximum of 6 credits of research may be counted toward the total.

Multivariable Calculus

MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
or MATH 2263 - Multivariable Calculus (4.0 cr)
Twin Cities Campus

Bioproducts and Biosystems Engineering B.B.E.

College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 125
- Required credits within the major: 72 to 80
- Degree: Bachelor of Bioproducts and Biosystems Engineering

The bioproducts and biosystems engineering curriculum provides a broad fundamental scientific and engineering background to harness the molecular building blocks of renewable resources for sustainable utilization, to design and develop biological systems, and to help improve the environment by developing solutions for environmental and natural resource issues affecting soil, water, and air. The curriculum offers three areas of specialization: bioproducts engineering, food engineering, and environmental and ecological engineering.

The program produces graduates who

- have a broad fundamental engineering background, including mathematics, physical science, biological science, and engineering science and design;
- serve the engineering needs of clientele in the areas of bioproducts, bioprocessing and food, and environment and ecology;
- are successfully employed in engineering jobs in industry, consulting, government, or academia;
- are engaged in professional development and lifelong learning.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Students must complete 10 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Mathematics

MATH 1271 - Calculus I [MATH] (4.0 cr)
  or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)
  or MATH 1372 - CSE Calculus II (4.0 cr)
MATH 2263 - Multivariable Calculus (4.0 cr)
  or MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)

Biological and Physical Sciences

BIOL 1009 - General Biology [BIOL] (4.0 cr)
  or CHEM 1051 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
  or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
  or CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
  or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
**Additional Requirements**

BBE 2001 - Mechanics and Structural Design (4.0 cr)

**General Requirements**

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

**Program Requirements**

**Common Core**

BBE 1001 - Bioproducts and Biosystems Engineering Orientation (1.0 cr)
BBE 2002 - Introduction to Engineering Design (3.0 cr)
BBE 3013 - Engineering Principles of Molecular and Cellular Processes (3.0 cr)
BBE 3033 - Material and Energy Balances in Biological Systems (3.0 cr)
BBE 3043 - Biological and Environmental Thermodynamics (3.0 cr)
BBE 3012 - Transport in Biological Processes I (4.0 cr)
BBE 4013 - Transport in Biological Processes II (3.0 cr)
BBE 4023W - Process Control and Instrumentation [WI] (3.0 cr)
BBE 4303 - Introduction to Bio-based Materials Science (3.0 cr)
BBE 4502W - BBE Capstone Design [WI] (4.0 cr)
STAT 3021 - Introduction to Probability and Statistics (3.0 cr)
MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
or MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)

**Program Sub-plans**

Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

**Bioproducts Engineering**

**Chemistry**

CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 4501 - Introduction to Thermodynamics, Kinetics, and Statistical Mechanics (3.0 cr)

**Emphasis Courses**

BBE 1002 - Biorenewable Resources [TS] (3.0 cr)
BBE 4001 - Chemistry of Biomass and Biomass Conversion to Fuels and Products [ENV] (4.0 cr)
BBE 4301 - Applied Surface and Colloid Science (3.0 cr)
BBE 4401 - Bioproducts Engineering (3.0 cr)
BBE 4402 - Bio-based Products Engineering Lab I (1.0 cr)
BBE 4403 - Bio-based Products Engineering Lab II (1.0 cr)
BBE 4713 - Biological Process Engineering (3.0 cr)

**Technical Electives**

See adviser for suggestions in creating a materials focus or an energy and manufacturing focus.

Select at least 6 credits from the Technical Electives group with at least 3 of those credits selected from the following group (BBE 3396, BBE 4305, BBE 4404, BBE 4733, BBE 4900, or IE 5513).

Take 2 or more course(s) totaling 6 or more credit(s) from the following:

- BBE 3396 - Industry Assignment (1.0 cr)
- BBE 4302 - Biodegradation of Bioproducts (3.0 cr)
- BBE 4305 - Pulp and Paper Technology (3.0 cr)
- BBE 4404 - Biopolymers and Biocomposites Engineering (3.0 cr)
- BBE 4491 - Senior Topics: Independent Study (1.0 - 4.0 cr)
- BBE 4504W - Bio-based Products Development and Management [WI] (3.0 cr)
- BBE 4733 - Renewable Energy Technologies [TS] (3.0 cr)
- BBE 4900 - Intern Reports (2.0 cr)
- IE 5513 - Engineering Safety (4.0 cr)

**Other Technical Electives**

Take 2 or more course(s) totaling 6 or more credit(s) from the following:
•CHEM 2302 - Organic Chemistry II (3.0 cr)
•CHEM 2311 - Organic Lab (4.0 cr)
•CHEM 4221 - Introduction to Polymer Chemistry (3.0 cr)
•BIOC 3021 - Biochemistry (3.0 cr)
•MATS 3801 - Structural Characterization Lab (4.0 cr)
•MATS 4214 - Polymers (3.0 cr)
•ME 4431W - Energy Conversion Systems Laboratory [WI] (4.0 cr)
•CE 4502 - Water and Wastewater Treatment (3.0 cr)
•IE 5551 - Production Planning and Inventory Control (4.0 cr)

Environmental and Ecological Engineering

Biochemistry
BIOC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)

Emphasis Courses
BBE 3023 - Ecological Engineering Principles (3.0 cr)

Environmental and Ecological Engineering
Take 3 or more course(s) from the following:
•BBE 4523 - Ecological Engineering Design (3.0 cr)
•BBE 4533 - Sustainable Waste Management Engineering (3.0 cr)
•BBE 4535 - Assessment and Diagnosis of Impaired Waters (3.0 cr)
•BBE 5513 - Watershed Engineering (3.0 cr)

Engineering Electives
Select at least 12 credits of engineering electives from BBE 4523, 4533, 4535, or 5513 if not taken above, and from the following list of courses.
Take 4 or more course(s) totaling 12 or more credit(s) from the following:
•BBE 4401 - Bioproducts Engineering (3.0 cr)
•BBE 4713 - Biological Process Engineering (3.0 cr)
•BBE 4723 - Food Process Engineering (3.0 cr)
•BBE 4733 - Renewable Energy Technologies [TS] (3.0 cr)
•CE 3202 - Surveying and Mapping (2.0 cr)
•CE 3402W - Civil Engineering Materials [WI] (3.0 cr)
•CE 3501 - Environmental Engineering [ENV] (3.0 cr)
•CE 4351 - Groundwater Mechanics (3.0 cr)
•CE 4502 - Water and Wastewater Treatment (3.0 cr)
•CE 4511 - Hydraulic Structures (3.0 cr)
•CE 4512 - Open Channel Hydraulics (4.0 cr)
•CE 4561 - Solid Hazardous Wastes (3.0 cr)
•CE 4562 - Environmental Remediation Technology (3.0 cr)
•IE 5513 - Engineering Safety (4.0 cr)

Other Technical Electives
Select at least 9 credits, with at least one course chosen from BIOL 3007W, BIOL 3407, EEB 3001, or EBB 5601. Take 3 or more course(s) totaling 9 or more credit(s) from the following:
•BIOL 3007W - Plant, Algal, and Fungal Diversity and Adaptation [WI] (4.0 cr)
•BIOL 3407 - Ecology (3.0 cr)
•EEB 3001 - Ecology and Society [ENV] (3.0 cr)
•EEB 5601 - Limnology (3.0 cr)
•ESPM 3603 - Environmental Life Cycle Analysis (3.0 cr)
•ESPM 3606W - Pollution Prevention: Principles, Technologies, and Practices [WI] (3.0 cr)
•ESPM 3612W - Soil and Environmental Biology [WI] (3.0 cr)
•BBE 4608 - Environmental and Industrial Microbiology (3.0 cr)
•ESPM 4609 - Air Pollution Impacts, Management, and Ethical Challenges [CIV] (3.0 cr)
•FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)
•SOIL 3416 - Plant Nutrients in the Environment (3.0 cr)

EIP
This sub-plan is optional and does not fulfill the sub-plan requirement for this program.

This option provides students with hands-on work experience after freshman year of the degree program. Students can take up to two semesters of intern work with one or more employers. An example may be two summers and one semester. This may be adjusted to suit individual needs. Students have an opportunity to assist in design work and apply their knowledge to practical problem solving. The experience helps students choose a career and select electives for the degree.

During the academic portion of the intern program, students are expected to take a normal load of 11-13 credits. Graduation may be delayed because of the intern experience. It is important to plan ahead, since biosystems and agricultural engineering classes are usually offered only once per year, and in some cases, alternating years. Students registering for BBE 4900 must first submit a proposed plan of study with the intern coordinator.
Internship
A total of 4 BBE 4900 intern experience credits may be taken and applied toward the degree program as general engineering electives, but not as BBE electives.

BBE 4900 - Intern Reports (2.0 cr)

Food Engineering

Emphasis Courses
BBE 4402 - Bio-based Products Engineering Lab I (1.0 cr)
BBE 4713 - Biological Process Engineering (3.0 cr)
BBE 4723 - Food Process Engineering (3.0 cr)
VBS 2032 - General Microbiology With Laboratory (5.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
BIOC 3021 - Biochemistry (3.0 cr)

Take 3 or more course(s) from the following:
• BBE 4401 - Bioproducts Engineering (3.0 cr)
• BBE 4533 - Sustainable Waste Management Engineering (3.0 cr)
• BBE 4733 - Renewable Energy Technologies [TS] (3.0 cr)
• IE 5441 - Financial Decision Making (4.0 cr)
• IE 5513 - Engineering Safety (4.0 cr)

Technical Electives
Select 9 credits from BBE 4401, BBE 4533, BBE 4733, IE 5513, IE 5441 if not taken above, and from the following list of courses.
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
• BBE 4001 - Chemistry of Biomass and Biomass Conversion to Fuels and Products [ENV] (4.0 cr)
• FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
• FSCN 1112 - Principles of Nutrition (3.0 cr)
• FSCN 3102 - Introduction to Food Science (3.0 cr)
• FSCN 4112 - Food Chemistry and Functional Foods (3.0 cr)
• FSCN 4121 - Food Microbiology (3.0 cr)
• FSCN 4332 - Food Processing Operations (3.0 cr)
Twin Cities Campus

Chemical Engineering B.Ch.E.

Chemical Engineering & Materials Science

College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 125
- Required credits within the major: 70
- Degree: Bachelor of Chemical Engineering

Chemical engineering deals with operations such as materials handling, mixing, fluid flow and metering, extrusion, coating, heat exchange, filtration, drying, evaporation, distillation, absorption, extraction, ion exchange, combustion, catalysis, and processing in chemical and biochemical reactors.

Because many industries are based on some chemical or physical transformation of matter, chemical engineers are much in demand. They may work in the manufacture of inorganic products (fertilizers, paints, ceramics, electronic materials); in the manufacture of organic products (polymers, films, papers, petrochemicals); in the manufacture of batteries and fuel cells; in the processing of minerals and materials; in food processing and fermentation; or in the production of antibiotics and biochemical products.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 14 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Mathematics
Honors math (MATH 1571H, 1572H, 2573H, 2574H) may be taken in place of the listed courses.
MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)
or MATH 1372 - CSE Calculus II (4.0 cr)
MATH 2263 - Multivariable Calculus (4.0 cr)
or MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)

Physical Sciences
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
or CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
or CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
or CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)

Additional Lower Division Chemistry
CHEM 2301 - Organic Chemistry I (3.0 cr)

Physics
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

Chemical Engineering Lower Division
CHEN 2001 - Material and Energy Balances (4.0 cr)
Freshman Writing
WRIT 1301 - University Writing (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students interested in chemical engineering are encouraged to take CHEN 1001.

Additional Mathematics
MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
or MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)

Major Courses
CHEM 4501 - Introduction to Thermodynamics, Kinetics, and Statistical Mechanics (3.0 cr)
CHEM 4502 - Introduction to Quantum Mechanics and Spectroscopy (3.0 cr)
CHEM 2121 - Process Analytical Chemistry (3.0 cr)
CHEM 2302 - Organic Chemistry II (3.0 cr)
CHEM 2311 - Organic Lab (4.0 cr)
or CHEM 2312H - Honors Organic Lab (5.0 cr)
CHEN 3701 - Introduction to Biomolecular Engineering (3.0 cr)
CHEN 3006 - Mass Transport and Separation Processes (4.0 cr)
CHEN 3101 - Chemical Engineering Thermodynamics (4.0 cr)
CHEN 3102 - Reaction Kinetics and Reactor Engineering (4.0 cr)
CHEN 3201 - Numerical methods in ChEn applications (3.0 cr)
CHEN 4401W - Senior Chemical Engineering Lab [WI] (3.0 cr)
CHEN 4501W - Chemical Engineering Design I [WI] (3.0 cr)
CHEN 4502W - Chemical Engineering Design II [WI] (2.0 cr)
CHEN 4601 - Process Control (3.0 cr)
MATS 3011 - Introduction to Materials Science and Engineering (3.0 cr)
CHEN 3005 - Transport Phenomena: Momentum and Heat (4.0 cr)
CHEN 3401W - Junior Chemical Engineering Lab [WI] (2.0 cr)

Technical Electives
Take 12 credits of electives. These normally include CHEN 4214 and 3 other courses selected with the aid of an adviser.
BBE 4723 - Food Process Engineering (3.0 cr)
or BBE 4733 - Renewable Energy Technologies [TS] (3.0 cr)
or BIOC 3021 - Biochemistry (3.0 cr)
or BIOC 4521 - Introduction to Physical Biochemistry (3.0 cr)
or BIOC 5527 - Introduction to Modern Structural Biology (4.0 cr)
or BIOL 4003 - Genetics (3.0 cr)
or BIOL 4004 - Cell Biology (3.0 cr)
or BMEN 5001 - Advanced Biomaterials (3.0 cr)
or BMEN 5041 - Tissue Engineering (3.0 cr)
or BMEN 5311 - Advanced Biomedical Transport Processes (3.0 - 4.0 cr)
or BMEN 5371 {Inactive} (3.0 - 4.0 cr)
or BMEN 5501 - Biology for Biomedical Engineers (3.0 cr)
or CE 4502 - Water and Wastewater Treatment (3.0 cr)
or CE 4561 - Solid Hazardous Wastes (3.0 cr)
or CE 4562 - Environmental Remediation Technology (3.0 cr)
or CHEM 4001 - Chemistry of Biomass and Biomass Conversion to Fuels and Products (4.0 cr)
or CHEM 4011 - Mechanisms of Chemical Reactions (3.0 cr)
or CHEM 4021 - Computational Chemistry (3.0 cr)
or CHEM 4066 - Chemistry of Industry (3.0 cr)
or CHEM 4201 - Materials Chemistry (3.0 cr)
or CHEM 4301 - Applied Surface and Colloid Science (3.0 cr)
or CHEM 4311W - Advanced Organic Chemistry Lab [WI] (4.0 cr)
or CHEM 4321 - Organic Synthesis (3.0 cr)
or CHEM 4322 - Advanced Organic Chemistry (3.0 cr)
or CHEM 4411 - Introduction to Chemical Biology (3.0 cr)
or CHEM 4413 - Nucleic Acids (3.0 cr)
or CHEM 4511W - Advanced Physical Chemistry Lab [WI] (3.0 cr)
or CHEM 4701 - Inorganic Chemistry (3.0 cr)
or CHEM 4711W - Advanced Inorganic Chemistry Lab [WI] (3.0 cr)
or CHEM 4725 - Organometallic Chemistry (3.0 cr)
or CHEM 4745 - Advanced Inorganic Chemistry (3.0 cr)
or CHEM 5210 - Materials Characterization (4.0 cr)
or CHEM 4214 - Polymers (3.0 cr)
or CHEM 4701 - Advanced Undergraduate Applied Math I: Linear Analysis (3.0 cr)
or CHEM 4702 - Advanced Undergraduate Rheology (2.0 cr)
or CHEM 4704 - Advanced Undergraduate Physical Rate Processes I: Transport (3.0 cr)
or CHEM 4706 - Advanced Undergraduate Physical and Chemical Thermodynamics (3.0 cr)
or CHEM 4707 - Advanced Undergraduate Statistical Thermodynamics and Kinetics (3.0 cr)
or CHEM 4708 - Advanced Undergraduate Chemical Rate Processes: Analysis of Chemical Reactors (3.0 cr)
or CHEM 5531 - Electrochemical Engineering and Renewable Energy (3.0 cr)
or CHEM 5551 - Survey of Renewable Energy Technologies (3.0 cr)
or CHEM 5751 - Biochemical Engineering (3.0 cr)
or CHEM 5753 - Biological Transport Processes (3.0 - 4.0 cr)
or CHEM 5771 - Colloids and Dispersions (3.0 cr)
or CSCI 5304 - Computational Aspects of Matrix Theory (3.0 cr)
or CSCI 5451 - Introduction to Parallel Computing: Architectures, Algorithms, and Programming (3.0 cr)
or EE 3015 - Signals and Systems (3.0 cr)
or EE 3161 - Semiconductor Devices (3.0 cr)
or EE 4231 - Linear Control Systems: Designed by Input/Output Methods (3.0 cr)
or EE 5171 - Microelectronic Fabrication (4.0 cr)
or EE 5173 - Basic Microelectronics Laboratory (1.0 cr)
or EE 5653 - Physical Principles of Magnetic Materials (3.0 cr)
or EE 5655 - Magnetic Recording (3.0 cr)
or FSCN 5441 - Introduction to New Product Development (2.0 cr)
or IE 3521 - Statistics, Quality, and Reliability (4.0 cr)
or IE 5441 - Financial Decision Making (4.0 cr)
or IE 5513 - Engineering Safety (4.0 cr)
or IE 5522 - Quality Engineering and Reliability (4.0 cr)
or MATH 2283 - Sequences, Series, and Foundations (3.0 cr)
or MATH 4567 - Applied Fourier Analysis (4.0 cr)
or MATH 5445 - Mathematical Analysis of Biological Networks (4.0 cr)
or MATH 5485 - Introduction to Numerical Methods I (4.0 cr)
or MATH 5486 - Introduction To Numerical Methods II (4.0 cr)
or MATS 3013 - Electrical and Magnetic Properties of Materials (3.0 cr)
or MATS 4212 - Ceramics (3.0 cr)
or MATS 4301W - Materials Processing [WI] (4.0 cr)
or MATS 4511W - Corrosion and Electrochemistry of Corrosion [WI] (4.0 cr)
or MATS 5531 - Electrochemical Engineering (3.0 cr)
or ME 4431W - Energy Conversion Systems Laboratory [WI] (4.0 cr)
or ME 5113 - Aerosol/Particle Engineering (4.0 cr)
or ME 5223 - Materials in Design (4.0 cr)
or ME 5446 - Introduction to Combustion (4.0 cr)
or MICB 3301 - Biology of Microorganisms (5.0 cr)
or BIOL 4121 - Microbial Ecology and Applied Microbiology (3.0 cr)
or MICB 4131 - Immunology (3.0 cr)
or NSCI 3101 - Introduction to Neurobiology I: Molecular, Cellular, and Systems (3.0 cr)
or PHAR 6163 (Inactive)(3.0 cr)
or PHAR 6164 - Biopharmaceutics (3.0 cr)
or PHAR 6224 - Pharmacogenomics: Genetic Basis for Variability in Drug Response (2.0 cr)
or PHCL 5110 - Introduction to Pharmacology (3.0 cr)
or PHS 5061 - Principles of Physiology for Biomedical Engineering (4.0 cr)
or PHYS 4911 - Introduction to Biopolymer Physics (3.0 cr)
or CHEM 4223W - Polymer Laboratory [WI] (2.0 cr)
or CHEM 4223W - Polymer Laboratory [WI] (2.0 cr)
or MATS 4223W - Polymer Laboratory [WI] (2.0 cr)
or BBE 4301 - Applied Surface and Colloid Science (3.0 cr)
or MATS 4214 - Polymers (3.0 cr)
or CHEM 4214 - Polymers (3.0 cr)
Twin Cities Campus
Chemistry B.S.Chem.
Chemistry
College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 41
- Degree: Bachelor of Science in Chemistry

The mission of the Department of Chemistry is to enrich the science of chemistry through the education of students from all disciplines, the training of future professional chemists, and the pursuit of knowledge.

Chemistry probes the fundamental concepts of nature and helps us understand the world around us. It deals with all substances at the molecular level: their composition, their properties, and how they are transformed into new substances. Chemistry is a central science of great importance to society. It provides a broad range of opportunities in many specialized fields, including biotechnology, polymer chemistry, environmental chemistry, materials chemistry, and medicine.

After graduating with a bachelor's degree, many chemistry majors go on to graduate or professional schools to pursue advanced degrees. Other graduates find employment in industry, education, or government.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 10 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Mathematics
MATH 1271 - Calculus I [MATH] (4.0 cr)
  or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)
  or MATH 1372 - CSE Calculus II (4.0 cr)
MATH 2263 - Multivariable Calculus (4.0 cr)
  or MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)

Physical Sciences
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
  or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
  or CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
  or CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
  or CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
  or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
  or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Additional Math, Science, or Statistics
Students must take an additional course in math or statistics. If the student takes the honors math sequence, this requirement is automatically fulfilled.
- MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
- or MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
- or PHYS 2303 - Physics III: Physics of Matter (4.0 cr)
- or PHYS 2403H - Honors Physics III (4.0 cr)
- or STAT 3021 - Introduction to Probability and Statistics (3.0 cr)

Major Courses
- CHEM 4501 - Introduction to Thermodynamics, Kinetics, and Statistical Mechanics (3.0 cr)
- CHEM 4502 - Introduction to Quantum Mechanics and Spectroscopy (3.0 cr)
- CHEM 4701 - Inorganic Chemistry (3.0 cr)
- CHEM 2101 - Introductory Analytical Chemistry Lecture (3.0 cr)
  CHEM 2111 - Introductory Analytical Chemistry Lab (2.0 cr)
- CHEM 2302 - Organic Chemistry II (3.0 cr)
Lab can be taken concurrent with or after taking CHEM 2302
  CHEM 2311 - Organic Lab (4.0 cr)

Electives
Take 3 or more course(s) from the following:
- CHEM 4094W - Directed Research [WI] (1.0 - 5.0 cr)
- CHEM 4111W - Modern Instrumental Methods of Chemical Analysis Lab [WI] (2.0 cr)
- CHEM 4311W - Advanced Organic Chemistry Lab [WI] (4.0 cr)
- CHEM 4511W - Advanced Physical Chemistry Lab [WI] (3.0 cr)
- CHEM 4711W - Advanced Inorganic Chemistry Lab [WI] (3.0 cr)
- CHEM 4223W - Polymer Laboratory [WI] (2.0 cr)
Select one course (3 credits) from any non-required upper division course in chemistry.
  CHEM 4xxx
  or CHEM 5xxx

Technical Electives
Take two 3xxx or higher courses of 3 credits or more in any field of science (at least 6 credits).
Technical Elective 1
Technical Elective 2
Civil engineering deals with the science and art of engineering applied to solving problems and designing systems related to infrastructure and the environment. Principal fields within civil engineering are structural engineering, environmental engineering, water resources engineering, transportation engineering, and geotechnical engineering. The upper division civil engineering program requires students to take introductory courses in all of the above areas. In addition, students may emphasize a special interest in one of the areas by selecting appropriate technical electives in consultation with their adviser.

**Admission Requirements**

Students must complete 10 courses before admission to the program.

Freshman and transfer students are usually admitted to pre-major status before admission to this major.

It is recommended that students take GEO 1001 and CE 1101, but these courses are not required to be admitted to the program.

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](http://www.registrar.umn.edu/admissions).

**Required prerequisites**

**Mathematics**

Honors math (MATH 1571H, 1572H, 2573H, 2574H) may be taken in place of the listed courses.

- MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
  - or MATH 1271 - Calculus I [MATH] (4.0 cr)
- MATH 1372 - CSE Calculus II (4.0 cr)
  - or MATH 1272 - Calculus II (4.0 cr)
- MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
  - or MATH 2263 - Multivariable Calculus (4.0 cr)

**Physical Science and Mechanics**

- AEM 2011 - Statics (3.0 cr)
- AEM 3031 - Deformable Body Mechanics (3.0 cr)
- CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
  - or CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
- CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
- CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
  - or CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
- CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
  - or CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)
- PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
  - or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
- PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
  - or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

**CE Requirements**

- CE 3101 - Computer Applications in Civil Engineering I (3.0 cr)
- STAT 3021 may be substituted for CE 3102 with approval of the director of undergraduate studies.
- CE 3102 - Uncertainty and Decision Analysis in Civil Engineering (3.0 cr)
  - or STAT 3021 - Introduction to Probability and Statistics (3.0 cr)
General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Major Courses

- CE 3201 - Transportation Engineering (3.0 cr)
- CE 3301 - Soil Mechanics I (3.0 cr)
- CE 3401 - Linear Structural Analysis (3.0 cr)
- CE 3402W - Civil Engineering Materials [WI] (3.0 cr)
- CE 3501 - Environmental Engineering [ENV] (3.0 cr)
- CE 3502 - Fluid Mechanics (4.0 cr)
- CE 4102W - Capstone Design [WI] (4.0 cr)
- CE 4301 - Soil Mechanics II (3.0 cr)
- CE 4401 - Steel and Reinforced Concrete Design (4.0 cr)
- CE 4501 - Hydrologic Design (4.0 cr)
- CE 4502 - Water and Wastewater Treatment (3.0 cr)
- AEM 2012 - Dynamics (3.0 cr)
  or CHEM 2301 - Organic Chemistry I (3.0 cr)
  or EE 2001 - Introduction to Circuits and Electronics (3.0 cr)
  or MATS 2001 - Introduction to the Science of Engineering Materials (3.0 cr)
  or CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
  or ME 3331 - Thermal Sciences I (3.0 cr)
- MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
  or MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)

Electives

Although most civil engineers in practice need to be well versed in a number of specialty fields, some specialization (21 cr technical electives) is included in the B.C.E. degree program, as follows:

Take 21 or more credit(s) including exactly 2 sub-requirements(s) from the following:

Students must take 10 credits of 4xxx or higher electives offered by the Department of Civil Engineering. All 4xxx or higher Civil Engineering courses can be used as technical electives. In addition, CE 1101, CE 3111, and CE 3202 can be used as technical electives.

Take exactly 10 credit(s) from the following:

- CE 4xxx
- AEM 5xxx
- CE 1101 - Orientation to Civil, Environmental, and Geo-Engineering (1.0 cr)
- CE 3202 - Surveying and Mapping (2.0 cr)
- CE 3111 - CADD for Civil Engineers (2.0 cr)

• Students must take an additional 11 credits of technical electives. All 4xxx or higher courses from the College of Science and Engineering (including Civil Engineering) are acceptable as technical electives. Other courses can be used as technical electives with specific approval from CE adviser.

Take 11 or more credit(s) from the following:

• AEM 4xxx
• AEM 5xxx
• AST 4xxx
• AST 5xxx
• BBE 4xxx
• BBE 5xxx
• BMEN 4xxx
• BMEN 5xxx
• CE 3xxx
• CE 4xxx
• CE 5xxx
• CHEM 4xxx
• CHEM 5xxx
• CHEN 4xxx
• CHEN 5xxx
• CMPE 4xxx
• CMPE 5xxx
• CSCI 4xxx
• CSCI 5xxx
• EE 4xxx
• EE 5xxx
• ESCI 4xxx
• ESCI 5xxx
• GEOE 4xxx
• GEOE 5xxx
• IE 4xxx
• IE 5xxx
• MATH 4xxx
• MATH 5xxx
• MATS 4xxx
• MATS 5xxx
• ME 4xxx
• ME 5xxx
• PHYS 4xxx
• PHYS 5xxx
• STAT 4xxx
• STAT 5xxx
Twin Cities Campus
Computer Engineering B.Comp.E.
Electrical and Computer Engineering
College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 124
- Required credits within the major: 69 to 70
- Degree: Bachelor of Computer Engineering

The mission of the computer engineering program is to educate students in core topics, as well as in a broad set of specialties of computer engineering; to impart students with professional attributes that characterize a well-schooled engineer and citizen; and to provide students with opportunities for research experience in one of the leading computer engineering centers of scholarship.

The field of computer engineering resulted from the tremendous development of computers and, in particular, the evolution of microprocessors. The design process for almost every electronic system includes the specification and development of the control program for the system's microprocessor. A particular computer engineering job can be more closely related to hardware or software, to functional design or detailed design. The B.Comp.Eng. degree provides the background necessary for persons, with continuing study, to work in many computer engineering subfields. The bachelor's degree itself does not, however, provide highly specialized knowledge in any particular subfield.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 9 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major

Students interested in pursuing a degree in computer engineering or electrical engineering are encouraged to take EE 1001 in their first year.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Mathematics
- MATH 1271 - Calculus I [MATH] (4.0 cr)
  or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
  or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
- MATH 1272 - Calculus II (4.0 cr)
  or MATH 1372 - CSE Calculus II (4.0 cr)
  or MATH 1572H - Honors Calculus II (4.0 cr)
- MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
  or MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
  or MATH 2573H - Honors Calculus III (4.0 cr)

Physics
- PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
  or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
- PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
  or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

Lower Division Core Courses Required for Admission to Upper Division
- CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
- CSCI 1913 - Introduction to Algoritms, Data Structures, and Program Development (4.0 cr)
- EE 2001 - Introduction to Circuits and Electronics (3.0 cr)
- EE 2301 - Introduction to Digital System Design (4.0 cr)
General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students interested in pursuing computer engineering or electrical engineering as a major are encouraged to take EE 1001 during their first year.

Additional Lower Division Courses
Mathematics
- MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
- MATH 2263 - Multivariable Calculus (4.0 cr)
- MATH 2574H - Honors Calculus IV (4.0 cr)
- MATH 3584H - Honors Calculus IV: Advanced Placement (5.0 cr)

Lower Division Core Courses
- EE 2002 - Introductory Circuits and Electronics Laboratory (1.0 cr)
- EE 2011 - Linear Systems, Circuits, and Electronics (3.0 cr)
- EE 2361 - Introduction to Microcontrollers (4.0 cr)
- CSCI 2011 - Discrete Structures of Computer Science (4.0 cr)

Upper Division Required Courses
Computer Science Core
- CSCI 4041 - Algorithms and Data Structures (4.0 cr)
- CSCI 4061 - Introduction to Operating Systems (4.0 cr)

Electrical Engineering Core
- EE 3015 - Signals and Systems (3.0 cr)
- EE 3025 - Statistical Methods in Electrical and Computer Engineering (3.0 cr)
- EE 3101 - Circuits and Electronics Laboratory I (2.0 cr)
- EE 3102 - Circuits and Electronics Laboratory II (2.0 cr)
- EE 3115 - Analog Electronics (3.0 cr)
- EE 4363 - Computer Architecture and Machine Organization (4.0 cr)

CompE Technical Electives
Students must complete 28 technical elective credits, with a minimum of 22 coming from EE 4xxx, EE 5xxx, CSCI 4xxx, or CSCI 5xxx courses. Of the technical electives, one course must be chosen from four of the specialty areas, and at least two courses must be chosen from one of the specialty areas. A senior design project is also required, as are two additional approved lab courses. Students who complete the two-semester senior honors project only need to take one additional EE lab course.

Lab Courses
Take 2 or more course(s) from the following:

- EE 4111 - Advanced Analog Electronics Design (4.0 cr)
- EE 4235 - Linear Control Systems Laboratory (1.0 cr)
- EE 4237 - State Space Control Laboratory (1.0 cr)
- EE 4301 - Digital Design With Programmable Logic (4.0 cr)
- EE 4341 - Embedded System Design (4.0 cr)
- EE 4505 - Communications Systems Laboratory (1.0 cr)
- EE 4703 - Electric Drives Laboratory (1.0 cr)
- EE 4722 - Power System Analysis Laboratory (1.0 cr)
- EE 4743 - Switch-Mode Power Electronics Laboratory (1.0 cr)
- EE 4930 - Special Topics in Electrical and Computer Engineering Laboratory (1.0 - 2.0 cr)
- EE 5141 - Introduction to Microsystem Technology (4.0 cr)
- EE 5173 - Basic Microelectronics Laboratory (1.0 cr)
- EE 5327 - VLSI Design Laboratory (3.0 cr)
- EE 5545 - Digital Signal Processing Design (3.0 cr)
• EE 5613 - RF/Microwave Circuit Design Laboratory (2.0 cr)
• EE 5622 - Physical Optics Laboratory (1.0 cr)
• EE 5628 - Fiber Optics Laboratory (1.0 cr)
• EE 5657W - Physical Principles of Thin Film Technology [WI] (4.0 cr)
• CSCI 4511W - Introduction to Artificial Intelligence [WI] (4.0 cr)
• CSCI 5511 - Artificial Intelligence I (3.0 cr)
• CSCI 5551 - Introduction to Intelligent Robotic Systems (3.0 cr)

• Breadth and Depth Requirements (Specialty Areas)
  One course chosen from four specialty areas and two courses chosen from one specialty area.

  **Computer Architecture**
  Take 0 or more course(s) from the following:
  • EE 4389W - Introduction to Predictive Learning [WI] (3.0 cr)
  • EE 5364 - Advanced Computer Architecture (3.0 cr)
  • EE 5371 - Computer Systems Performance Measurement and Evaluation (3.0 cr)
  • EE 5393 - Circuits, Computation, and Biology (3.0 cr)
  • CSCI 5104 (Inactive) (3.0 cr)

  **Robotics and Embedded System Design**
  Take 0 or more course(s) from the following:
  • EE 4231 - Linear Control Systems: Designed by Input/Output Methods (3.0 cr)
  • EE 4233 - State Space Control System Design (3.0 cr)
  • EE 4341 - Embedded System Design (4.0 cr)
  • CSCI 4511W - Introduction to Artificial Intelligence [WI] (4.0 cr)
  • CSCI 5143 - Real-Time and Embedded Systems (3.0 cr)
  • CSCI 5551 - Introduction to Intelligent Robotic Systems (3.0 cr)
  • CSCI 5552 - Sensing and Estimation in Robotics (3.0 cr)
  • CSCI 5511 - Artificial Intelligence I (3.0 cr)
  • CSCI 5512 - Artificial Intelligence II (3.0 cr)
  • CSCI 5521 - Introduction to Machine Learning (3.0 cr)
  • CSCI 5561 - Computer Vision (3.0 cr)
  • CSCI 5525 - Machine Learning (3.0 cr)

  **VLSI and CAD**
  Take 0 or more course(s) from the following:
  • EE 4301 - Digital Design With Programmable Logic (4.0 cr)
  • EE 5301 - VLSI Design Automation I (3.0 cr)
  • EE 5302 - VLSI Design Automation II (3.0 cr)
  • EE 5323 - VLSI Design I (3.0 cr)
  • EE 5324 - VLSI Design II (3.0 cr)
  • EE 5327 - VLSI Design Laboratory (3.0 cr)
  • EE 5329 - VLSI Digital Signal Processing Systems (3.0 cr)
  • EE 5333 - Analog Integrated Circuit Design (3.0 cr)

  **Networks and Communication**
  Take 0 or more course(s) from the following:
  • EE 4501 - Communications Systems (3.0 cr)
  • CSCI 4131 - Internet Programming (3.0 cr)
  • CSCI 4211 - Introduction to Computer Networks (3.0 cr)
  • CSCI 5131 (Inactive) (3.0 cr)
  • CSCI 5211 - Data Communications and Computer Networks (3.0 cr)
  • CSCI 5221 - Foundations of Advanced Networking (3.0 cr)
  • EE 5583 - Error Control Coding (3.0 cr)
  • CSCI 5271 - Introduction to Computer Security (3.0 cr)
  • CSCI 5321 - Wireless and Sensor Networks (3.0 cr)
  • EE 5381 - Telecommunications Networks (3.0 cr)

  **Systems and Software Design**
  Take 0 or more course(s) from the following:
  • CSCI 4707 - Practice of Database Systems (3.0 cr)
  • CSCI 5103 - Operating Systems (3.0 cr)
  • CSCI 5105 - Introduction to Distributed Systems (3.0 cr)
  • CSCI 5106 - Programming Languages (3.0 cr)
  • CSCI 5115 - User Interface Design, Implementation and Evaluation (3.0 cr)
  • CSCI 5161 - Introduction to Compilers (3.0 cr)
  • CSCI 5708 - Architecture and Implementation of Database Management Systems (3.0 cr)
  • CSCI 5801 - Software Engineering I (3.0 cr)
  • CSCI 5802 - Software Engineering II (3.0 cr)
  • CSCI 4011 - Formal Languages and Automata Theory (4.0 cr)
  • CSCI 4107 (Inactive) (3.0 cr)
- CSCI 5271 - Introduction to Computer Security (3.0 cr)
- CSCI 5421 - Advanced Algorithms and Data Structures (3.0 cr)
- CSCI 5607 - Fundamentals of Computer Graphics 1 (3.0 cr)
- CSCI 5707 - Principles of Database Systems (3.0 cr)

**Computational Science**
Take 0 or more course(s) from the following:

- CSCI 5609 - Visualization (3.0 cr)
- CSCI 5302 - Analysis of Numerical Algorithms (3.0 cr)
- CSCI 5304 - Computational Aspects of Matrix Theory (3.0 cr)
- CSCI 5451 - Introduction to Parallel Computing: Architectures, Algorithms, and Programming (3.0 cr)
- CSCI 5461 - Functional Genomics, Systems Biology, and Bioinformatics (3.0 cr)
- CSCI 5481 - Computational Techniques for Genomics (3.0 cr)
- CSCI 5523 - Introduction to Data Mining (3.0 cr)

**Other Approved Technical Electives**
Up to 6 credits can count from the following courses, fulfilling a portion of the required 28 technical elective credits.

- AEM 2011 - Statics (3.0 cr)
  or AEM 2012 - Dynamics (3.0 cr)
  or AEM 2021 - Statics and Dynamics (4.0 cr)
  or AEM 4601 - Instrumentation Laboratory (3.0 cr)
  or BBE 3013 - Engineering Principles of Molecular and Cellular Processes (3.0 cr)
  or BIOC 3021 - Biochemistry (3.0 cr)
  or BMEN 5401 - Advanced Biomedical Imaging (3.0 cr)
  or CE 3502 - Fluid Mechanics (4.0 cr)
  or CHEM 2301 - Organic Chemistry I (3.0 cr)
  or CHEM 2302 - Organic Chemistry II (3.0 cr)
  or CHEM 2311 - Organic Lab (4.0 cr)
  or IE 5441 - Financial Decision Making (4.0 cr)
  or IE 5511 - Human Factors and Work Analysis (4.0 cr)
  or IE 5512 [Inactive] (4.0 cr)
  or IE 5513 - Engineering Safety (4.0 cr)
  or IE 5522 - Quality Engineering and Reliability (4.0 cr)
  or IE 5531 - Engineering Optimization I (4.0 cr)
  or IE 5541 - Project Management (4.0 cr)
  or IE 5551 - Production Planning and Inventory Control (4.0 cr)
  or IE 5552 [Inactive] (4.0 cr)
  or IE 5553 - Simulation (4.0 cr)
  or MATH 3283W - Sequences, Series, and Foundations: Writing Intensive [WI] (4.0 cr)
  or MATH 4xxx
  or MATH 5xxx
  or MATS 3011 - Introduction to Materials Science and Engineering (3.0 cr)
  or MATS 3012 - Metals and Alloys (3.0 cr)
  or MATS 3013 - Electrical and Magnetic Properties of Materials (3.0 cr)
  or MATS 3851W - Materials Properties Lab [WI] (4.0 cr)
  or ME 3324 - Introduction to Thermal Science (3.0 cr)
  or ME 3331 - Thermal Sciences I (3.0 cr)
  or ME 3332 - Thermal Sciences II (3.0 cr)
  or ME 3333 - Thermal Sciences III (3.0 cr)
  or PHSL 3061 - Principles of Physiology (4.0 cr)
  or PHYS 2303 - Physics III: Physics of Matter (4.0 cr)
  or PHYS 2403H - Honors Physics III (4.0 cr)
  or PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)
  or PHYS 2601 - Quantum Physics (4.0 cr)
  or PHYS 2605 - Quantum Physics Laboratory (3.0 cr)
  or PHYS 4101 - Quantum Mechanics (4.0 cr)
  or PHYS 4201 - Statistical and Thermal Physics (3.0 cr)
  or STAT 5041 - Bayesian Decision Making (3.0 cr)
  or STAT 5101 - Theory of Statistics I (4.0 cr)
  or STAT 5102 - Theory of Statistics II (4.0 cr)
  or BMEN 5101 - Advanced Bioelectricity and Instrumentation (3.0 cr)
  or BMEN 5111 - Biomedical Ultrasound (3.0 cr)
  or BMEN 5151 - Introduction to BioMEMS and Medical Microdevices (2.0 cr)
  or BMEN 5421 - Introduction to Biomedical Optics (3.0 cr)
  or IE 5111 - Systems Engineering I (2.0 cr)
  or IE 5112 - Introduction to Operations Research (3.0 cr)
  or IE 5113 - Systems Engineering II (4.0 cr)
or Students must complete EE 3041 and EE 4043W to receive credit. The third course in the sequence, EE 4044, is optional.

EE 3041 - Industrial Assignment I (2.0 cr)
EE 4043W - Industrial Assignment II [WI] (4.0 cr)

or Other Business, Law, and Entrepreneurial Related Courses

Students may take a maximum of 4 credits from the following courses in partial fulfillment of the technical elective requirements

BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
or MOT 4001 - Leadership, Professionalism and Business Basics for Engineers (2.0 cr)
or MGMT 4080W - Applied Technology Entrepreneurship [WI] (4.0 cr)

or Management Minor

Students must complete a management minor to receive any credit. Only the following courses count.

ACCT 3001 - Introduction to Management Accounting (3.0 cr)
or FINA 3001 - Finance Fundamentals (3.0 cr)
or MGMT 3001 - Fundamentals of Management (3.0 cr)
or MKTG 3001 - Principles of Marketing (3.0 cr)
or HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
or MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)
or SCO 3001 - Introduction to Operations Management (3.0 cr)
or PA 3003 - Nonprofit and Public Financial Management (3.0 cr)
or PA 4101 - Nonprofit Management and Governance (3.0 cr)
or IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)

or Accounting Minor

Students must complete an accounting minor to receive any credit. Only the following courses count.

ACCT 5101 - Intermediate Accounting I (4.0 cr)
or ACCT 5102W - Intermediate Accounting II [WI] (4.0 cr)
or ACCT 3201 - Intermediate Management Accounting (2.0 cr)
or ACCT 5135 - Fundamentals of Federal Income Tax (4.0 cr)
or ACCT 5160 - Financial Statement Analysis (2.0 cr)
or ACCT 5180 - Consolidations and Advanced Reporting (2.0 cr)
or ACCT 5310 - International Accounting (2.0 cr)

or Biochemistry Minor

Students must complete a biochem minor to receive any credit. Only the following courses count.

BIOC 4331 - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
or BIOC 4332 - Biochemistry II: Molecular Mechanisms of Signal Transduction and Gene Expression (4.0 cr)
or BIOC 4025 - Laboratory in Biochemistry (2.0 cr)

or Biology Minor

Students must complete a biology minor to receive any credit. On

BIOL 3xxx
or BIOL 4xxx
or BIOL 5xxx

or Other Minors as approved by director of UG studies

Other minors may count toward technical electives if approved by the ECE director of UG studies.
Twin Cities Campus

Computer Science B.S. Comp.Sc.

Computer Science and Engineering

College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 77 to 79
- Degree: Bachelor of Science in Computer Science

Computer science is concerned with the study of hardware, software, and theoretical aspects of high-speed computing devices and with the application of these devices to scientific, technological, and business problems.

A bachelor's degree gives students a basic understanding of computer science. After completing a required set of fundamental courses, students arrange their subsequent work around one of several upper division tracks within either computer science or an interdisciplinary area involving computer applications. The degree prepares students for graduate work or for various industrial, governmental, and business positions involving the use of computers.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 5 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Mathematics Core
MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
  or MATH 1271 - Calculus I [MATH] (4.0 cr)
MATH 1372 - CSE Calculus II (4.0 cr)
  or MATH 1272 - Calculus II (4.0 cr)

Computer Science Introductory Core
CSCI 2011 - Discrete Structures of Computer Science (4.0 cr)

Options
Option 1
CSCI 1133 - Introduction to Computing and Programming Concepts (4.0 cr)
CSCI 1933 - Introduction to Algorithms and Data Structures (4.0 cr)

Option 2
CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)
  or CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
CSCI 1913 - Introduction to Algorithms, Data Structures, and Program Development (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Science Core
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
  or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
Take 1 or more course(s) from the following:
• PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
• PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)
• ESCI 2201 - Solid Earth Dynamics (4.0 cr)
• PSY 3011 - Introduction to Learning and Behavior (3.0 cr)
• GCD 3022 - Genetics (3.0 cr)

• Chemistry 1
  • CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
  • CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)

• Chemistry 1 Honors
  • CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
  • CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)

• Chemistry 2
  • CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
  • CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)

• Chemistry 2 Honors
  • CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
  • CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)

or CSci adviser-approved science course.

Computer Science Core
CSCI 2021 - Machine Architecture and Organization (4.0 cr)
CSCI 2033 - Elementary Computational Linear Algebra (4.0 cr)
CSCI 2041 - Advanced Programming Principles (4.0 cr)
CSCI 3081W - Program Design and Development [WI] (4.0 cr)
CSCI 4041 - Algorithms and Data Structures (4.0 cr)
CSCI 4061 - Introduction to Operating Systems (4.0 cr)
STAT 3021 - Introduction to Probability and Statistics (3.0 cr)

Upper Division Math Oriented Requirement
Students must take an adviser approved upper division math oriented course.

Upper Division Track
Take 20 credits of an upper division track. Sample tracks listed below represent possible options; more information may be found at www.cs.umn.edu.

Architecture and Hardware Systems
A track is 20 credits, split into two parts. Take 13 credits from the course list below, including the two required courses: CSCI 4203 and CSCI 5204. And 7 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

CSCI 4203 - Computer Architecture (4.0 cr)
CSCI 5204 - Advanced Computer Architecture (3.0 cr)

Architecture and Hardware Systems Sublist
Take 2 or more course(s) from the following:
• CSCI 4211 - Introduction to Computer Networks (3.0 cr)
• CSCI 5103 - Operating Systems (3.0 cr)
• CSCI 5161 - Introduction to Compilers (3.0 cr)
• CSCI 5451 - Introduction to Parallel Computing: Architectures, Algorithms, and Programming (3.0 cr)
• EE 4341 - Embedded System Design (4.0 cr)

-OR-

Artificial Intelligence/Robotics
A track is 20 credits, split into two parts. Take 13 credits from the course list below, including the two required courses: CSCI 4511W and CSCI 5512. And 7 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

CSCI 4511W - Introduction to Artificial Intelligence [WI] (4.0 cr)
CSCI 5512 - Artificial Intelligence II (3.0 cr)

Artificial Intelligence/Robotics Sublist
Take 2 or more course(s) from the following:
• CSCI 5521 - Introduction to Machine Learning (3.0 cr)
• CSCI 5523 - Introduction to Data Mining (3.0 cr)
• CSCI 5551 - Introduction to Intelligent Robotic Systems (3.0 cr)
• CSCI 5552 - Sensing and Estimation in Robotics (3.0 cr)
• CSCI 5561 - Computer Vision (3.0 cr)

-OR-
Big Data
A track is 20 credits, split into two parts. Take 12 credits from the course list below, including the two required courses CSci 4707 (or CSci 5105) and CSci 5521 (or CSci 5523). And 8 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

Requirement 1
CSCI 4707 - Practice of Database Systems (3.0 cr)
or CSCI 5105 - Introduction to Distributed Systems (3.0 cr)

Requirement 2
CSCI 5521 - Introduction to Machine Learning (3.0 cr)
or CSCI 5523 - Introduction to Data Mining (3.0 cr)

Big Data Sublist
Take 2 or more course(s) from the following:
• CSCI 4511W - Introduction to Artificial Intelligence [WI] (4.0 cr)
• CSCI 5451 - Introduction to Parallel Computing: Architectures, Algorithms, and Programming (3.0 cr)
• CSCI 5481 - Computational Techniques for Genomics (3.0 cr)
• CSCI 5512 - Artificial Intelligence II (3.0 cr)
• INET 4061 - Introduction to Business Intelligence and Data Warehousing (3.0 cr)
• MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)

-OR-

Bioinformatics and Computational Biology
A track is 20 credits, split into two parts. Take 12 credits from the course list below, including the two required courses CSci 5461 and CSci 5481. And 8 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

CSCI 5461 - Functional Genomics, Systems Biology, and Bioinformatics (3.0 cr)
CSCI 5481 - Computational Techniques for Genomics (3.0 cr)

Bioinformatics and Computational Biology Sublist
Take 2 or more course(s) from the following:
• CSCI 4707 - Practice of Database Systems (3.0 cr)
• CSCI 5521 - Introduction to Machine Learning (3.0 cr)
• CSCI 5523 - Introduction to Data Mining (3.0 cr)
• CSCI 5421 - Advanced Algorithms and Data Structures (3.0 cr)

-OR-

Computational Science
A track is 20 credits, split into two parts. Take 12 credits from the course list below, including the two required courses: CSCI 5302 and CSCI 5304. And 8 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

CSCI 5302 - Analysis of Numerical Algorithms (3.0 cr)
CSCI 5304 - Computational Aspects of Matrix Theory (3.0 cr)

Computational Science Sublist
Take 2 or more course(s) from the following:
• CSCI 5609 - Visualization (3.0 cr)
• CSCI 5451 - Introduction to Parallel Computing: Architectures, Algorithms, and Programming (3.0 cr)
• CSCI 5461 - Functional Genomics, Systems Biology, and Bioinformatics (3.0 cr)
• CSCI 5481 - Computational Techniques for Genomics (3.0 cr)
• CSCI 5523 - Introduction to Data Mining (3.0 cr)
• AST 4101 - Computational Methods in the Physical Sciences (4.0 cr)
• MATH 5075 - Mathematics of Options, Futures, and Derivative Securities I (4.0 cr)
• MATH 5467 - Introduction to the Mathematics of Image and Data Analysis (4.0 cr)
• MATH 5587 - Elementary Partial Differential Equations I (4.0 cr)
• MATH 5588 - Elementary Partial Differential Equations II (4.0 cr)
• MATH 5711 - Linear Programming and Combinatorial Optimization (4.0 cr)

-OR-

Databases
A track is 20 credits, split into two parts. Take 12 credits from the course list below, including the two required courses CSci 4707 and CSci 5708. And 8 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

CSCI 4707 - Practice of Database Systems (3.0 cr)
CSCI 5708 - Architecture and Implementation of Database Management Systems (3.0 cr)

Databases Sublist
Take 2 or more course(s) from the following:
• CSCI 4131 - Internet Programming (3.0 cr)
• CSCI 4211 - Introduction to Computer Networks (3.0 cr)
• CSCI 5103 - Operating Systems (3.0 cr)
• CSCI 5421 - Advanced Algorithms and Data Structures (3.0 cr)
• CSCI 4511W - Introduction to Artificial Intelligence [WI] (4.0 cr)
• CSCI 5523 - Introduction to Data Mining (3.0 cr)
• INET 4061 - Introduction to Business Intelligence and Data Warehousing (3.0 cr)

- OR -

Geographical Information Systems
A track is 20 credits, split into two parts. Take 12 credits from the course list below, including the two required courses CSci 4707 and CSci 5708. And 8 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

CSCI 4707 - Practice of Database Systems (3.0 cr)
CSCI 5708 - Architecture and Implementation of Database Management Systems (3.0 cr)

Geographical Information Systems Sublist
Take 2 or more course(s) from the following:
• CSCI 5715 - From GPS and Virtual Globes to Spatial Computing (3.0 cr)
• FNRM 5131 - Geographical Information Systems (GIS) for Natural Resources (4.0 cr)
• FNRM 5262 - Remote Sensing of Natural Resources and Environment (3.0 cr)
• FNRM 5412 - Digital Remote Sensing (3.0 cr)
• CSCI 4611 - Programming Interactive Computer Graphics and Games (3.0 cr)
  or CSCI 5607 - Fundamentals of Computer Graphics 1 (3.0 cr)

- OR -

Graphics and Visualization
A track is 20 credits, split into two parts. Take 12 credits from the course list below, including the two required courses CSci 4611 (or 5607) and CSci 5608 (or 5609). And 8 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

Requirement 1
CSCI 4611 - Programming Interactive Computer Graphics and Games (3.0 cr)
  or CSCI 5607 - Fundamentals of Computer Graphics 1 (3.0 cr)

Requirement 2
CSCI 5608 - Fundamentals of Computer Graphics II (3.0 cr)
  or CSCI 5609 - Visualization (3.0 cr)

Graphics and Visualization Sublist
Take 2 or more course(s) from the following:
• CSCI 5609 - Visualization (3.0 cr)
• CSCI 5611 - Animation & Planning in Games (3.0 cr)
• CSCI 5619 - Virtual Reality and 3D Interaction (3.0 cr)
• CSCI 5115 - User Interface Design, Implementation and Evaluation (3.0 cr)
• CSCI 5125 - Collaborative and Social Computing (3.0 cr)
• CSCI 5302 - Analysis of Numerical Algorithms (3.0 cr)
• CSCI 5523 - Introduction to Data Mining (3.0 cr)
• CSCI 5561 - Computer Vision (3.0 cr)

- OR -

Human Computer Interaction
A track is 20 credits, split into two parts. Take 12 credits from the course list below, including the two required courses CSci 5115 and CSci 5125. And 8 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

CSCI 5115 - User Interface Design, Implementation and Evaluation (3.0 cr)
CSCI 5125 - Collaborative and Social Computing (3.0 cr)

Human Computer Interaction Sublist
Take 2 or more course(s) from the following:
• CSCI 5609 - Visualization (3.0 cr)
• CSCI 5117 - Developing the Interactive Web (3.0 cr)
• CSCI 5129 (Inactive) (3.0 cr)
• KIN 5001 - Foundations of Human Factors/Ergonomics (3.0 cr)

- OR -

Networks
A track is 20 credits, split into two parts. Take 12 credits from the course list below, including the two required courses CSci 4211 and CSci 5221. And 8 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

CSCI 4211 - Introduction to Computer Networks (3.0 cr)
CSCI 5221 - Foundations of Advanced Networking (3.0 cr)

Networks Sublist
Take 2 or more course(s) from the following:
• CSCI 5103 - Operating Systems (3.0 cr)
• CSCI 5104 (Inactive) (3.0 cr)

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Information current as of December 12, 2014
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<th>Course Code</th>
<th>Course Title</th>
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<td>CSCI 5105</td>
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<tr>
<td>CSCI 5231</td>
<td>Wireless and Sensor Networks</td>
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<td>CSCI 5271</td>
<td>Introduction to Computer Security</td>
<td>3.0</td>
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<td>CSCI 5471</td>
<td>Modern Cryptography</td>
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<td>MATH 5251</td>
<td>Error-Correcting Codes, Finite Fields, Algebraic Curves</td>
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<td>INET 4011</td>
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**Security**
A track is 20 credits, split into two parts. Take 12 credits from the course list below, including the two required courses CSci 4211 and CSci 5271. And 8 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

- **CSCI 4211** - Introduction to Computer Networks (3.0 cr)
- **CSCI 5271** - Introduction to Computer Security (3.0 cr)

**Security Sublist**
Take 2 or more course(s) from the following:
- **CSCI 5103** - Operating Systems (3.0 cr)
- **CSCI 5471** - Modern Cryptography (3.0 cr)
- **CSCI 5801** - Software Engineering I (3.0 cr)
- **MATH 5248** - Cryptology and Number Theory (4.0 cr)
- **INET 4011** - Network Administration (4.0 cr)

- **Software and Data Systems Development**
A track is 20 credits, split into two parts. Take 12 credits from the course list below, including the two required courses CSci 4707 and CSci 5801. And 8 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

- **CSCI 4707** - Practice of Database Systems (3.0 cr)
- **CSCI 5801** - Software Engineering I (3.0 cr)

**Software and Data Systems Development Sublist**
Take 2 or more course(s) from the following:
- **CSCI 4131** - Internet Programming (3.0 cr)
- **CSCI 4211** - Introduction to Computer Networks (3.0 cr)
- **CSCI 5103** - Operating Systems (3.0 cr)
- **CSCI 5106** - Programming Languages (3.0 cr)
- **CSCI 5115** - User Interface Design, Implementation and Evaluation (3.0 cr)
- **CSCI 5161** - Introduction to Compilers (3.0 cr)
- **CSCI 5271** - Introduction to Computer Security (3.0 cr)
- **CSCI 5708** - Architecture and Implementation of Database Management Systems (3.0 cr)
- **CSCI 5802** - Software Engineering II (3.0 cr)
- **INET 4061** - Introduction to Business Intelligence and Data Warehousing (3.0 cr)

- **Software Engineering/Programming Languages**
A track is 20 credits, split into two parts. Take 12 credits from the course list below, including the two required courses: CSCI 5106 and CSCI 5801. And 8 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

- **CSCI 5106** - Programming Languages (3.0 cr)
- **CSCI 5801** - Software Engineering I (3.0 cr)

**SE/PL Sublist**
Take 2 or more course(s) from the following:
- **CSCI 4011** - Formal Languages and Automata Theory (4.0 cr)
- **CSCI 5161** - Introduction to Compilers (3.0 cr)
- **CSCI 5802** - Software Engineering II (3.0 cr)
- **MATH 5165** - Mathematical Logic I (4.0 cr)

- **Systems**
A track is 20 credits, split into two parts. Take 12 credits from the course list below, including the two required courses: CSCI 4211 and CSCI 5103. And 8 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

- **CSCI 4211** - Introduction to Computer Networks (3.0 cr)
- **CSCI 5103** - Operating Systems (3.0 cr)

**Systems Sublist**
Take 2 or more course(s) from the following:
• CSCI 4131 - Internet Programming (3.0 cr)
• CSCI 5104 (Inactive) (3.0 cr)
• CSCI 5105 - Introduction to Distributed Systems (3.0 cr)
• CSCI 5143 - Real-Time and Embedded Systems (3.0 cr)
• CSCI 5161 - Introduction to Compilers (3.0 cr)
• CSCI 5221 - Foundations of Advanced Networking (3.0 cr)
• CSCI 5231 - Wireless and Sensor Networks (3.0 cr)
• CSCI 5271 - Introduction to Computer Security (3.0 cr)
• CSCI 5551 - Introduction to Intelligent Robotic Systems (3.0 cr)

-OR-

Theory
A track is 20 credits, split into two parts. Take 13 credits from the course list below, including the two required courses: CSCI 4011 and CSCI 5421. And 7 credits from the following: advisor-approved CSci 4xxx, CSci 5xxx or other adviser-approved courses.

CSCI 4011 - Formal Languages and Automata Theory (4.0 cr)
CSCI 5421 - Advanced Algorithms and Data Structures (3.0 cr)

Theory Sublist
Take 2 or more course(s) from the following:
• CSCI 5403 (Inactive) (3.0 cr)
• CSCI 5451 - Introduction to Parallel Computing: Architectures, Algorithms, and Programming (3.0 cr)
• CSCI 5471 - Modern Cryptography (3.0 cr)
• CSCI 5481 - Computational Techniques for Genomics (3.0 cr)
• MATH 5165 - Mathematical Logic I (4.0 cr)
• MATH 5166 - Mathematical Logic II (4.0 cr)
• MATH 5707 - Graph Theory and Non-enumerative Combinatorics (4.0 cr)
• MATH 5711 - Linear Programming and Combinatorial Optimization (4.0 cr)

-OR-

Custom Track
In rare instances, students may create their own track. Such tracks must be approved by a CSci advisor before the elective courses constituting it are taken. Approval is not automatic; in particular, custom tracks must be highly coherent, sufficiently advanced, in accordance with a computer science degree, and aligned with the student's career goals.
Earth sciences is the study of the composition, structure, and history of the Earth and of the processes that operate on and within it, with emphasis on the crust, oceans, and atmosphere. The department's programs emphasize applications of physics, chemistry, and biology to understanding the Earth.

Earth scientists are employed in a wide range of fields, including exploration for and development of natural resources (hydrocarbons, minerals, groundwater); environmental science; urban planning; education; and oceanography. Potential employers include the oil, gas, and minerals industries; environmental consultants; federal and private research institutions; universities; schools; and government agencies. An advanced degree is usually required for a career in research or teaching.

Admission Requirements
Students must complete 5 courses before admission to the program.

Freshman and transfer students are usually admitted to pre-major status before admission to this major

Students interested in the earth sciences as a major may want to consider taking ESCI 1001 or other ESCI 1xxx course, which can be counted as an elective.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Mathematics
MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
MATH 1372 - CSE Calculus II (4.0 cr)
or MATH 1272 - Calculus II (4.0 cr)

Chemistry
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)

Physics
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
or PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)

Earth Sciences
ESCI 2201 - Solid Earth Dynamics (4.0 cr)
ESCI 2301 - Mineralogy (3.0 cr)
General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Mathematics
- MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
- or MATH 2263 - Multivariable Calculus (4.0 cr)
- or MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
- or MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)

Chemistry
- CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
  or CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
- or CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
  or CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)

Physics
- PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
  or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

Major Courses
Major core courses required for all focus groups.
- ESCI 2202 - Earth History (4.0 cr)
- ESCI 2203 - Earth Surface Dynamics (4.0 cr)
- ESCI 3202 - Fluid Earth Dynamics (4.0 cr)
- ESCI 3303W - Geochemical Principles [WI] (4.0 cr)
- ESCI 3891 - Field Methods (2.0 cr)

Fieldwork
Take introductory field geology (ESCI 3911) and choose one advanced field course from advanced field geology (ESCI 4911) or field hydrogeology (ESCI 4971W).
- ESCI 3911 - Introductory Field Geology (4.0 cr)
- ESCI 4911 - Advanced Field Geology (4.0 cr)
  or ESCI 4971W - Field Hydrogeology [WI] (4.0 cr)

Technical Electives
Take 8 credits of additional elective courses in physical and natural sciences or mathematics, chosen in consultation with an adviser.

Elective sciences

Upper Division Requirements
The general requirement for completion of upper division is 26 credits in consultation with the director of undergraduate studies. Students may choose one of six focus groups (geology, geophysics, biogeoscience, hydrogeology, geochemistry, or environmental geology) for a recommended list of upper division courses.

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
- Take 0 - 1 course(s) from the following:
  - ESCI 3303W - Geochemical Principles [WI] (4.0 cr)
  - ESCI 4102W - Vertebrate Paleontology: Evolutionary History and Fossil Records of Vertebrates [WI] (3.0 cr)
  - ESCI 4103W - Fossil Record of Mammals [WI] (3.0 cr)
  - ESCI 4971W - Field Hydrogeology [WI] (4.0 cr)
  - ESCI 5504W - Neotectonics [WI] (3.0 cr)
  - ESCI 5601W - Advanced Sedimentology [WI] (4.0 cr)

Earth Sciences Focus Groups
Geology
- ESCI 2302 - Petrology (3.0 cr)
- ESCI 4501 - Structural Geology (3.0 cr)
ESCI 4602 - Sedimentology and Stratigraphy (3.0 cr)
ESCI 4702 - General Hydrogeology (3.0 cr)
ESCI 4701 - Geomorphology (3.0 - 4.0 cr)
  or ESCI 4703 - Glacial Geology (4.0 cr)
10-11 additional ESCI credits with at least 7 credits at 4xxx or 5xxx levels.

-OR-

Geophysics
ESCI 2302 - Petrology (3.0 cr)
ESCI 4211 - Solid Earth Geophysics I (3.0 cr)
ESCI 4501 - Structural Geology (3.0 cr)
MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
PHYS 2303 - Physics III: Physics of Matter (4.0 cr)
  or PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)
Choice of two from
Take 2 or more course(s) from the following:
•ESCI 4203 - Principles of Geophysical Exploration (3.0 cr)
•ESCI 4204 - Geomagnetism and Paleomagnetism (3.0 cr)
•ESCI 4212 - Solid Earth Geophysics II (3.0 cr)
•ESCI 5203 - Mineral and Rock Physics (3.0 cr)
•ESCI 5205 - Fluid Mechanics in Earth and Environmental Sciences (3.0 cr)
Take 3 or more credit(s) from the following:
•ESCI 4xxx
•ESCI 5xxx

-OR-

Biogeoscience
ESCI 4602 - Sedimentology and Stratigraphy (3.0 cr)
ESCI 4801 - Geomicrobiology (3.0 cr)
ESCI 5302 - Isotope Geology (3.0 cr)
ESCI 4401 - Aqueous Environmental Geochemistry (3.0 cr)
  or ESCI 4402 - Biogeochemical Cycles in the Ocean (3.0 cr)
14 additional ESCI credits at least 9 at 4xxx or 5xxx

-OR-

Hydrogeology
ESCI 4602 - Sedimentology and Stratigraphy (3.0 cr)
ESCI 4702 - General Hydrogeology (3.0 cr)
ESCI 4401 - Aqueous Environmental Geochemistry (3.0 cr)
  or ESCI 4701 - Geomorphology (3.0 - 4.0 cr)
  or ESCI 4703 - Glacial Geology (4.0 cr)
16-17 additional ESCI credits with at least 9 credits at 4xxx or 5xxx.

-OR-

Geochemistry
ESCI 2302 - Petrology (3.0 cr)
ESCI 4501 - Structural Geology (3.0 cr)
ESCI 4801 - Geomicrobiology (3.0 cr)
ESCI 5302 - Isotope Geology (3.0 cr)
ESCI 4401 - Aqueous Environmental Geochemistry (3.0 cr)
  or ESCI 4402 - Biogeochemical Cycles in the Ocean (3.0 cr)
11 additional ESCI credits with at least 9 credits at 4xxx or 5xxx.

-OR-

Environmental Geology
ESCI 4401 - Aqueous Environmental Geochemistry (3.0 cr)
ESCI 4402 - Biogeochemical Cycles in the Ocean (3.0 cr)
ESCI 4702 - General Hydrogeology (3.0 cr)
ESCI 4703 - Glacial Geology (4.0 cr)
  or ESCI 4801 - Geomicrobiology (3.0 cr)
13-14 additional ESCI credits with at least 9 credits at 4xxx or 5xxx.
Twin Cities Campus
Ecological Engineering Minor
Bioproducts and Biosystems Engineering
College of Science and Engineering

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18 to 20
- Twin Cities only

Ecological engineering integrates traditional engineering concepts with ecological principles such as resiliency, adaptation, and community dynamics. The ecological engineering minor prepares students to design sustainable systems integrating human activities with the natural environment, including watershed management and enhancement; waste treatment systems; phytoremediation and bioremediation; industrial ecology; constructed and restored wetlands; mitigation of non-point source contamination; and increase of ground water recharge through "low impact" design and other methods.

The minor, offered by faculty in the Department of Bioproducts and Biosystems Engineering and administered through the Institute of Technology, involves courses in bioproducts and biosystems engineering; civil engineering; ecology, evolution, and behavior; environmental sciences, policy and management; forest resources; and geology.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Core Group Courses
Students must take 9 or more credits from the list of courses selecting at least one course in each of the three core areas of ecological sciences, hydrologic sciences, and ecological engineering design. Acceptable courses in each of the core areas are shown below.

Ecological Sciences
At least one course from this subgroup
- BIOL 3407 - Ecology (3.0 cr)
- or BIOL 3408W - Ecology [WI] (3.0 cr)
- or BIOL 3807 - Ecology (4.0 cr)

Hydrologic Sciences
At least one course from this subgroup
- CE 4501 - Hydrologic Design (4.0 cr)
- or BBE 5513 - Watershed Engineering (3.0 cr)
- or FNRM 3114 - Hydrology and Watershed Management (3.0 cr)

Ecological Engineering Design
At least one course from this subgroup
- BBE 4523 - Ecological Engineering Design (3.0 cr)
- or BBE 5523 - Ecological Engineering Design (3.0 cr)

Additional Courses
In addition to the core courses, the students must take 9 or more credits from the following list of courses.
- BBE 3023 - Ecological Engineering Principles (3.0 cr)
- or BBE 4013 - Transport in Biological Processes II (3.0 cr)
- or BBE 4533 - Sustainable Waste Management Engineering (3.0 cr)
- or BBE 5535 - Assessment and Diagnosis of Impaired Waters (3.0 cr)
- or CE 3301 - Soil Mechanics I (3.0 cr)
- or CE 3501 - Environmental Engineering [ENV] (3.0 cr)
- or CE 4351 - Groundwater Mechanics (3.0 cr)
- or CE 4352 - Groundwater Modeling (3.0 cr)
- or CE 4502 - Water and Wastewater Treatment (3.0 cr)
- or CE 4512 - Open Channel Hydraulics (4.0 cr)
- or CE 4561 - Solid Hazardous Wastes (3.0 cr)
- or CE 4562 - Environmental Remediation Technology (3.0 cr)
- or CE 5541 - Environmental Water Chemistry (3.0 cr)
- or EEB 3001 - Ecology and Society [ENV] (3.0 cr)
or EEB 3603 - Science, Protection, and Management of Aquatic Environments (3.0 cr)
or EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
or EEB 4611 - Biogeochemical Processes (3.0 cr)
or EEB 5601 - Limnology (3.0 cr)
or ESPM 3101 - Conservation of Plant Biodiversity (3.0 cr)
or ESPM 3111 - Hydrology and Water Quality Field Methods (3.0 cr)
or ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
or ESPM 3251 - Natural Resources in Sustainable International Development [GP] (3.0 cr)
or ESPM 3603 - Environmental Life Cycle Analysis (3.0 cr)
or ESPM 3604 - Environmental Management Systems and Strategy (3.0 cr)
or ESPM 4216 - Contaminant Hydrology (3.0 cr)
or BBE 4608 - Environmental and Industrial Microbiology (3.0 cr)
or ESPM 5111 - Hydrology and Water Quality Field Methods (3.0 cr)
or FNRM 3104 - Forest Ecology (4.0 cr)
or FNRM 3204 - Landscape Ecology and Management (3.0 cr)
or FNRM 5153 - Forest Hydrology & Watershed Biogeochemistry (3.0 cr)
or ESCI 3005 - Earth Resources (3.0 cr)
or ESCI 5205 - Fluid Mechanics in Earth and Environmental Sciences (3.0 cr)
or SUST 3003 - Sustainable People, Sustainable Planet [ENV] (3.0 cr)
Twin Cities Campus

Electrical Engineering B.E.E.
Electrical and Computer Engineering
College of Science and Engineering

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 126
• Required credits within the major: 65 to 70
• Degree: Bachelor of Electrical Engineering

The mission of the electrical engineering program is to educate students in core topics, as well as in a broad set of specialties of electrical engineering. The program will impart students with professional attributes that characterize a well-schooled engineer and citizen and provide opportunities for research experience in one of the leading electrical engineering centers of scholarship.

Electrical engineers work in highly diverse areas such as computers, telecommunications, semiconductors, electric energy, consumer and entertainment electronics, biomedical technology, defense and aerospace systems, and automotive electronics. They design and develop components, software, and systems, and work in research, management, and sales. The bachelor of electrical engineering prepares students for immediate entry into professional work, for graduate study and further specialization in engineering, for advanced work in business and management, or for study in a different direction such as medicine.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 10 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major

Students interested in pursuing a degree in computer engineering or electrical engineering are encouraged to take EE 1001 in their first year.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Mathematics
MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
  or MATH 1271 - Calculus I [MATH] (4.0 cr)
MATH 1372 - CSE Calculus II (4.0 cr)
  or MATH 1272 - Calculus II (4.0 cr)
MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
  or MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
  or Honors Curriculum

For those students pursuing Latin Honors
MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
MATH 1572H - Honors Calculus II (4.0 cr)
MATH 2573H - Honors Calculus III (4.0 cr)
or MATH 2582H (Inactive) (5.0 cr)
MATH 2583H (Inactive) (5.0 cr)

Chemistry and Physics
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
  or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
  or CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
  or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
  or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)
Computer Science
EE 1301 - Introduction to Computing Systems (4.0 cr)

Lower Division Core Courses
EE 2001 - Introduction to Circuits and Electronics (3.0 cr)
EE 2301 - Introduction to Digital System Design (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Additional Lower Division Courses
Mathematics
- MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
  or MATH 2263 - Multivariable Calculus (4.0 cr)
  or MATH 2574H - Honors Calculus IV (4.0 cr)
  or MATH 3584H - Honors Calculus IV: Advanced Placement (5.0 cr)

Physics or Chemistry
- PHYS 2303 - Physics III: Physics of Matter (4.0 cr)
  or PHYS 2311 - Modern Physics (4.0 cr)
  or PHYS 2403H - Honors Physics III (4.0 cr)
  or PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)

Chemistry 2
- CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
  or CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
- CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
  or CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)

Lower Division Core Courses
EE 2002 - Introductory Circuits and Electronics Laboratory (1.0 cr)
EE 2011 - Linear Systems, Circuits, and Electronics (3.0 cr)
EE 2361 - Introduction to Microcontrollers (4.0 cr)

Upper Division Required Courses
EE 3015 - Signals and Systems (3.0 cr)
EE 3025 - Statistical Methods in Electrical and Computer Engineering (3.0 cr)
EE 3101 - Circuits and Electronics Laboratory I (2.0 cr)
EE 3102 - Circuits and Electronics Laboratory II (2.0 cr)
EE 3115 - Analog Electronics (3.0 cr)
EE 3161 - Semiconductor Devices (3.0 cr)
EE 3601 - Transmission Lines, Fields, and Waves (3.0 cr)

EE Technical Electives
Students must complete 34 technical elective credits with a minimum of 22 coming from EE 4xxx or 5xxx courses. Of the technical electives, one course must be chosen from four of the specialty areas, and at least two courses must be chosen from one of the specialty areas. A senior design project is also required, as are two additional EE lab courses. Students who complete the two-semester senior honors project instead of the senior design project only need to take one additional EE lab course.

Take 34 or more credit(s) from the following:
- AEM 2021 - Statics and Dynamics (4.0 cr)
- AEM 4601 - Instrumentation Laboratory (3.0 cr)
- BBE 3013 - Engineering Principles of Molecular and Cellular Processes (3.0 cr)
- BIOC 3021 - Biochemistry (3.0 cr)
- BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
- BMEN 5401 - Advanced Biomedical Imaging (3.0 cr)
- CE 3502 - Fluid Mechanics (4.0 cr)
- CE 4101W (inactive)[WI] (3.0 cr)
- CHEM 2301 - Organic Chemistry I (3.0 cr)
- CHEM 2302 - Organic Chemistry II (3.0 cr)
- CHEM 2311 - Organic Lab (4.0 cr)
- CSCI 4xxx
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<th>Course Title</th>
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<td>CSCI 5xxx</td>
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<td>IE 5441</td>
<td>Human Factors and Work Analysis</td>
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<td>Engineering Safety</td>
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<td>IE 5513</td>
<td>Quality Engineering and Reliability</td>
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<td>IE 5511 Inactive</td>
<td>Engineering Optimization I</td>
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<td>Project Management</td>
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<td>Production Planning and Inventory Control</td>
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<td>Metals and Alloys</td>
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<td>MATH 3283W</td>
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<td>Industrial Assignment II [WI]</td>
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**Management Minor**

Students must complete a management minor to receive any credit. Only the following courses count.

- **ACCT 3001** - Introduction to Management Accounting (3.0 cr)
- **FINA 3001** - Finance Fundamentals (3.0 cr)
- **MGMT 3001** - Fundamentals of Management (3.0 cr)
- **MKTG 3001** - Principles of Marketing (3.0 cr)
- **HRIR 3021** - Human Resource Management and Industrial Relations (3.0 cr)
- **MGMT 3010** - Introduction to Entrepreneurship (4.0 cr)
- **SCO 3001** - Introduction to Operations Management (3.0 cr)
- **PA 3003** - Nonprofit and Public Financial Management (3.0 cr)
- **PA 4101** - Nonprofit Management and Governance (3.0 cr)

**Accounting Minor**

Students must complete an accounting minor to receive any credit. Only the following courses count.

- **ACCT 5101** - Intermediate Accounting I (4.0 cr)
- **ACCT 5102W** - Intermediate Accounting II [WI] (4.0 cr)
- **ACCT 3201** - Intermediate Management Accounting (2.0 cr)
- **ACCT 5135** - Fundamentals of Federal Income Tax (4.0 cr)
- **ACCT 5160** - Financial Statement Analysis (2.0 cr)
- **ACCT 5180** - Consolidations and Advanced Reporting (2.0 cr)
- **ACCT 5310** - International Accounting (2.0 cr)

**Biochemistry Minor**

Students must complete a biochem minor to receive any credit. Only the following courses count.

- **BIOC 4331** - Biochemistry I: Structure, Catalysis, and Metabolism in Biological Systems (4.0 cr)
- **BIOC 4332** - Biochemistry II: Molecular Mechanisms of Signal Transduction and Gene Expression (4.0 cr)
or BIQC 4025 - Laboratory in Biochemistry (2.0 cr)

• Biology Minor
Students must complete a biology minor to receive any credit. Only the following courses count.
• BIOL 3xxx
or BIOL 4xxx
or BIOL 5xxx

• Other minors as approved by director of undergraduate studies
Other minors may count toward Technical Electives if approved by ECE director of UG studies.

• Department Electives
Take 22 or more credit(s) including 0 or more sub-requirements(s) from the following:

**Senior Design Project**
A senior design project is required.
• EE 4951W - Senior Design Project [WI] (4.0 cr)
or EE 4981H - Senior Honors Project I (2.0 cr)
  EE 4982V - Senior Honors Project II [WI] (2.0 cr)

• Lab Courses
Two additional EE lab courses are required. Senior honors project students only need to take one.
Take 2 or more course(s) from the following:
• EE 4111 - Advanced Analog Electronics Design (4.0 cr)
• EE 4235 - Linear Control Systems Laboratory (1.0 cr)
• EE 4237 - State Space Control Laboratory (1.0 cr)
• EE 4301 - Digital Design With Programmable Logic (4.0 cr)
• EE 4341 - Embedded System Design (4.0 cr)
• EE 4505 - Communications Systems Laboratory (1.0 cr)
• EE 4703 - Electric Drives Laboratory (1.0 cr)
• EE 4722 - Power System Analysis Laboratory (1.0 cr)
• EE 4743 - Switch-Mode Power Electronics Laboratory (1.0 cr)
• EE 4930 - Special Topics in Electrical and Computer Engineering Laboratory (1.0 - 2.0 cr)
• EE 5141 - Introduction to Microsystem Technology (4.0 cr)
• EE 5173 - Basic Microelectronics Laboratory (1.0 cr)
• EE 5327 - VLSI Design Laboratory (3.0 cr)
• EE 5545 - Digital Signal Processing Design (3.0 cr)
• EE 5613 - RF/Microwave Circuit Design Laboratory (2.0 cr)
• EE 5622 - Physical Optics Laboratory (1.0 cr)
• EE 5628 - Fiber Optics Laboratory (1.0 cr)
• EE 5657W - Physical Principles of Thin Film Technology [WI] (4.0 cr)
• EE 4163 - Energy Conversion and Storage Laboratory (1.0 cr)

• Breadth and Depth Requirements (Specialty Areas)
One course chosen from four specialty areas, and two courses chosen from one specialty area.

**Communications, Signal Processing, and Biomedical**
Take 0 or more course(s) from the following:
• EE 4501 - Communications Systems (3.0 cr)
• EE 4541 - Digital Signal Processing (3.0 cr)
• EE 5381 - Telecommunications Networks (3.0 cr)
• EE 5501 - Digital Communication (3.0 cr)
• EE 5505 - Wireless Communication (3.0 cr)
• EE 5531 - Probability and Stochastic Processes (3.0 cr)
• EE 5542 - Adaptive Digital Signal Processing (3.0 cr)
• EE 5545 - Digital Signal Processing Design (3.0 cr)
• EE 5549 - Digital Signal Processing Structures for VLSI (3.0 cr)
• EE 5551 - Multiscale and Multirate Signal Processing (3.0 cr)
• EE 5561 - Image Processing and Applications (3.0 cr)
• EE 5581 - Information Theory and Coding (3.0 cr)
• EE 5583 - Error Control Coding (3.0 cr)
• EE 5585 - Data Compression (3.0 cr)

**Controls**
Take 0 or more course(s) from the following:
• EE 4231 - Linear Control Systems: Designed by Input/Output Methods (3.0 cr)
• EE 4233 - State Space Control System Design (3.0 cr)
• EE 5231 - Linear Systems and Optimal Control (3.0 cr)
• EE 5235 - Robust Control System Design (3.0 cr)
• EE 5239 - Introduction to Nonlinear Optimization (3.0 cr)

**Digital Systems and Computer Architecture**
Take 0 or more course(s) from the following:
• EE 4301 - Digital Design With Programmable Logic (4.0 cr)
EE 4341 - Embedded System Design (4.0 cr)
EE 4363 - Computer Architecture and Machine Organization (4.0 cr)
EE 4389W - Introduction to Predictive Learning [WI] (3.0 cr)
EE 4609 - Digital Signal Integrity (3.0 cr)
EE 5364 - Advanced Computer Architecture (3.0 cr)
EE 5371 - Computer Systems Performance Measurement and Evaluation (3.0 cr)
EE 5393 - Circuits, Computation, and Biology (3.0 cr)
EE 5863 (inactive) (2.0 cr)

VLSI and CAD
Take 0 or more course(s) from the following:
• EE 5301 - VLSI Design Automation I (3.0 cr)
• EE 5302 - VLSI Design Automation II (3.0 cr)
• EE 5323 - VLSI Design I (3.0 cr)
• EE 5324 - VLSI Design II (3.0 cr)
• EE 5327 - VLSI Design Laboratory (3.0 cr)
• EE 5329 - VLSI Digital Signal Processing Systems (3.0 cr)
• EE 5333 - Analog Integrated Circuit Design (3.0 cr)

Electronics, Microelectronics, and Semiconductor Devices
Take 0 or more course(s) from the following:
• EE 4111 - Advanced Analog Electronics Design (4.0 cr)
• EE 5121 - Transistor Device Modeling for Circuit Simulation (3.0 cr)
• EE 5141 - Introduction to Microsystem Technology (4.0 cr)
• EE 5163 - Semiconductor Properties and Devices I (3.0 cr)
• EE 5164 - Semiconductor Properties and Devices II (3.0 cr)
• EE 5171 - Microelectronic Fabrication (4.0 cr)
• EE 5181 - Introduction to Nanotechnology (4.0 cr)
• EE 5161W - Energy Conversion and Storage [WI] (3.0 cr)
• EE 5657W - Physical Principles of Thin Film Technology [WI] (4.0 cr)

Power and Energy
Take 0 or more course(s) from the following:
• EE 4701 - Electric Drives (3.0 cr)
• EE 4721 - Introduction to Power System Analysis (3.0 cr)
• EE 4741 - Power Electronics (3.0 cr)
• EE 5705 - Electric Drives in Sustainable Energy Systems (3.0 cr)
• EE 5721 - Power Generation Operation and Control (3.0 cr)
• EE 5725 - Power Systems Engineering (3.0 cr)
• EE 5741 - Advanced Power Electronics (3.0 cr)

Magnetics, Optics, and RF
Take 0 or more course(s) from the following:
• EE 4607 - Wireless Hardware System Design (3.0 cr)
• EE 5601 - Introduction to RF/Microwave Engineering (3.0 cr)
• EE 5602 - RF/Microwave Circuit Design (3.0 cr)
• EE 5611 - Plasma-Aided Manufacturing (4.0 cr)
• EE 5613 - RF/Microwave Circuit Design Laboratory (2.0 cr)
• EE 5616 - Antenna Theory and Design (3.0 cr)
• EE 5621 - Physical Optics (3.0 cr)
• EE 5624 - Optical Electronics (4.0 cr)
• EE 5627 - Optical Fiber Communication (3.0 cr)
• EE 5628 - Fiber Optics Laboratory (1.0 cr)
• EE 5629 - Optical System Design (2.0 cr)
• EE 5653 - Physical Principles of Magnetic Materials (3.0 cr)
• EE 5655 - Magnetic Recording (3.0 cr)

Program Sub-plans
A sub-plan is not required for this program.

Honors UHP
This is an honors sub-plan.

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.

Current departmental honors course offerings are listed at:

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Information current as of December 12, 2014
Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or with an honors directed studies or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.
The environmental engineering program seeks innovative and sustainable solutions to air, and water-related problems in natural and built systems. Focus areas of the program include water chemistry; water and wastewater treatment; water quality; hydrology; groundwater remediation; environmental microbiology; pollutant fate and transport; stream restoration, sustainable design, and air pollution. Environmental engineering is a broad and interdisciplinary field, and the program emphases are chemistry, microbiology, water resources, and fluid mechanics.

Admission Requirements
Students must complete 10 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Mathematics
Honors math (MATH 1571H, 1572H, 2573H, 2574H) may be taken in place of the listed courses.
MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
MATH 1372 - CSE Calculus II (4.0 cr)
or MATH 1272 - Calculus II (4.0 cr)
MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
or MATH 2263 - Multivariable Calculus (4.0 cr)

Physical Science and Mechanics
AEM 2011 - Statics (3.0 cr)
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
or CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
or CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
or CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
or CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

BEnvE Requirements
CE 3501 - Environmental Engineering [ENV] (3.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Major Courses
AEM 3031 - Deformable Body Mechanics (3.0 cr)
CE 3101 - Computer Applications in Civil Engineering I (3.0 cr)
CE 3102 - Uncertainty and Decision Analysis in Civil Engineering (3.0 cr)
CE 3301 - Soil Mechanics I (3.0 cr)
CE 3402W - Civil Engineering Materials [WI] (3.0 cr)
CE 3502 - Fluid Mechanics (4.0 cr)
CE 3541 - Environmental Engineering Laboratory (3.0 cr)
CE 4102W - Capstone Design [WI] (4.0 cr)
CE 4501 - Hydrologic Design (4.0 cr)
CE 4502 - Water and Wastewater Treatment (3.0 cr)
CHEM 4501 - Introduction to Thermodynamics, Kinetics, and Statistical Mechanics (3.0 cr)
ESCI 1101 - Introduction to Geology [ENV] (3.0 cr)
MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)

Selected Electives
Students should take 4 courses. Two from each category.
Students must take 2 courses from this category
BIOL 3408W - Ecology [WI] (3.0 cr)
or CE 4561 - Solid Hazardous Wastes (3.0 cr)
or CE 4562 - Environmental Remediation Technology (3.0 cr)
or CE 5541 - Environmental Water Chemistry (3.0 cr)
or CE 5551 - Environmental Microbiology (3.0 cr)
or ESCI 3303W - Geochemical Principles [WI] (4.0 cr)
or ESCI 4801 - Geomicrobiology (3.0 cr)
or LAAS 5311 - Soil Chemistry and Mineralogy (3.0 cr)
or MIOC 3301 - Biology of Microorganisms (5.0 cr)
Students must take 2 courses from this category
BBE 4523 - Ecological Engineering Design (3.0 cr)
or CE 4351 - Groundwater Mechanics (3.0 cr)
or CE 4512 - Open Channel Hydraulics (4.0 cr)
or CE 5511 - Urban Hydrology and Land Development (4.0 cr)
or CE 5543 - Introductory Environmental Fluid Mechanics (4.0 cr)
or CE 5561 - Air Quality Engineering (3.0 cr)
or CE 5571 - Acara Global Venture Design: Grand Challenges [GP] (3.0 - 4.0 cr)
or ESCI 3402 - Science and Politics of Global Warming [ENV] (3.0 cr)
or ESCI 3425 - Atmospheric Pollution: From Smog to Climate Change (3.0 cr)
or ESCI 4702 - General Hydrogeology (3.0 cr)

Tech Electives
Take 12 or more credit(s) from the following:
Take 12 or more credit(s) from the following:
• AEM 4xxx
• AEM 5xxx
• AST 4xxx
• AST 5xxx
• BBE 4xxx
• BBE 5xxx
• BMEN 4xxx
• BMEN 5xxx
• CE 3xxx
• CE 4xxx
• CE 5xxx
• CHEM 4xxx
• CHEM 5xxx
• CHEN 4xxx
• CHEN 5xxx
• CMPE 4xxx
• CMPE 5xxx
Twin Cities Campus

Geoengineering B.GeoE.
CSENG Civil, Envrm & Geo-Eng (CEGE)

College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 125
- Required credits within the major: 56 to 75
- This program requires summer terms.
- Degree: Bachelor of Geoengineering

The mission of the geoengineering program comprises three overlapping and mutually supportive components:
* Prepare students to become productive engineers and contributing members of their professional community.
* Prepare students for continual learning and professional development.
* Prepare students for formal advanced education.

The three objectives of ourgeoengineering program are that the graduates of the geoengineering program will:

1. practice technical proficiency and adaptability, and participate in lifelong learning to meet the challenges facing the profession in civil engineering/geoengineering industries, government agencies, academia, or other careers;
2. exhibit strong communication, interpersonal, and management skills as leaders and team members in their profession;
3. realize their role as ethical professionals that protect and sustain human health, welfare, and the environment.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 10 courses before admission to the program.

Freshman and transfer students are usually admitted to pre-major status before admission to this major.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Mathematics
Honors math (MATH 1571H, 1572H, 2573H, 2574H) may be taken in place of the listed courses.
MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
or
MATH 1271 - Calculus I [MATH] (4.0 cr)
MATH 1372 - CSE Calculus II (4.0 cr)
or
MATH 1272 - Calculus II (4.0 cr)
MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
or
MATH 2263 - Multivariable Calculus (4.0 cr)

Mechanics
AEM 2011 - Statics (3.0 cr)

Physical Sciences
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
or CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Earth Sciences
ESCI 2301 - Mineralogy (3.0 cr)
ESCI 2302 - Petrology (3.0 cr)
ESCI 3891 - Field Methods (2.0 cr)
ESCI 4501 - Structural Geology (3.0 cr)
ESCI 2201 - Solid Earth Dynamics (4.0 cr)
ESCI 3911 - Introductory Field Geology (4.0 cr)
or ESCI 4971W - Field Hydrogeology [WI] (4.0 cr)

Engineering
CE 3101 - Computer Applications in Civil Engineering I (3.0 cr)
CE 3502 - Fluid Mechanics (4.0 cr)
GEOE 4104W - Capstone Design for Geoengineering students [WI] (4.0 cr)
CE 3102 - Uncertainty and Decision Analysis in Civil Engineering (3.0 cr)
CE 3501 - Environmental Engineering [ENV] (3.0 cr)
GEOE 4121 - Computer Applications in Civil Engineering II (3.0 cr)
AEM 3031 - Deformable Body Mechanics (3.0 cr)
CE 4311 - Rock Mechanics (4.0 cr)
CE 3301 - Soil Mechanics I (3.0 cr)
or GEOE 3301 - Soil Mechanics I (3.0 cr)
AEM 2012 - Dynamics (3.0 cr)
or CHEM 2301 - Organic Chemistry I (3.0 cr)
or EE 2001 - Introduction to Circuits and Electronics (3.0 cr)
or MATS 2001 - Introduction to the Science of Engineering Materials (3.0 cr)
or CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
or ME 3331 - Thermal Sciences I (3.0 cr)

Linear Algebra and Differential Equations
MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
or MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)

GeoE Technical Electives
Take 19 or more credit(s) including exactly 3 sub-requirements(s) from the following:
A minimum of one ESCI course, 3 credits or more at a 4xxx level or greater
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• ESCI 4xxx
• ESCI 5xxx
• Take a minimum of 1 course from the following:
  Take exactly 1 course(s) including exactly 1 sub-requirements(s) from the following:
  • GEOE 4301 - Soil Mechanics II (3.0 cr)
  • GEOE 4351 - Groundwater Mechanics (3.0 cr)
  • CE 3402W - Civil Engineering Materials [WI] (3.0 cr)
  • CE 4501 - Hydrologic Design (4.0 cr)
  • CE 4502 - Water and Wastewater Treatment (3.0 cr)
• Take 11 or more credits from approved electives including any CSE course 4XXX or higher, and others listed on the Department of Civil Engineering website.
  Take 11 or more credit(s) from the following:
  • AEM 4xxx
  • AEM 5xxx
  • AST 4xxx
  • AST 5xxx
• BBE 4xxx
• BBE 5xxx
• BMEN 4xxx
• BMEN 5xxx
• CE 4xxx
• CE 5xxx
• CHEM 4xxx
• CHEM 5xxx
• CHEN 4xxx
• CHEN 5xxx
• CMPE 4xxx
• CMPE 5xxx
• CSCI 4xxx
• CSCI 5xxx
• EE 4xxx
• EE 5xxx
• ESCI 4xxx
• ESCI 5xxx
• GEOE 4xxx
• GEOE 5xxx
• IE 4xxx
• IE 5xxx
• MATH 4xxx
• MATH 5xxx
• MATS 4xxx
• MATS 5xxx
• ME 4xxx
• ME 5xxx
• PHYS 4xxx
• PHYS 5xxx
• STAT 4xxx
• STAT 5xxx
• BIOL 3407 - Ecology (3.0 cr)
• EEB 5601 - Limnology (3.0 cr)
• ESPM 5605 - Recycling: Extending Raw Materials Supplies (3.0 cr)
• ESPM 5606 - Pollution Prevention: Principles, Technologies, and Practices (3.0 cr)
• FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)
• GEOG 3523 - Digital Mapping: Introduction to Making Online Maps for the Humanities and Sciences (3.0 cr)
• GEOG 3531 - Numerical Spatial Analysis (4.0 cr)
• GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
• GEOG 5563 - Advanced Geographic Information Science (3.0 cr)
• GEOG 5564 - Urban Geographic Information Science and Analysis (3.0 cr)
• MICB 3301 - Biology of Microorganisms (5.0 cr)
• PA 4200 - Urban and Regional Planning (3.0 cr)
• PA 5013 - Law and Urban Land Use (1.5 cr)
• PA 5204 - Urban Spatial and Social Dynamics (3.0 cr)
• PA 5213 - Introduction to Site Planning (3.0 cr)
Program Type: Baccalaureate
Requirements for this program are current for Fall 2014
Required credits to graduate with this degree: 122
Required credits within the major: 82
Degree: Bachelor of Industrial and Systems Engineering

The Industrial & Systems Engineering curriculum combines analytics (optimization, simulation, probability, and statistics) and management (project management, economics, marketing, and quality and reliability) to support the modeling, design, and optimization of systems across a wide range of applications and domains.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 10 courses before admission to the program.

Freshmen students are usually admitted to pre-major status before admission to this major

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Mathematics
Honors math (MATH 1571H, 1572H, 2573H, 2574H) may be taken in place of the listed courses.
MATH 1372 - CSE Calculus II (4.0 cr)
or
MATH 1272 - Calculus II (4.0 cr)
MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
or
MATH 1271 - Calculus I [MATH] (4.0 cr)

Physical Sciences
Physics and Chemistry requirements
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Non-ISyE Required Courses
CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
MKTG 3001 - Principles of Marketing (3.0 cr)
MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
or
MATH 2263 - Multivariable Calculus (4.0 cr)
MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
or
MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)

ISyE Courses
IE 1101 - Foundations of Industrial and Systems Engineering (4.0 cr)
IE 2021 - Engineering Economics (4.0 cr)
IE 3553 - Simulation (4.0 cr)
IE 3011 - Optimization I (4.0 cr)
IE 4011 - Stochastic Models (4.0 cr)
IE 3522 - Quality Engineering and Reliability (4.0 cr)
IE 4551 - Production and Inventory Control (4.0 cr)
IE 3012 - Optimization II (4.0 cr)
IE 4511 - Human Factors (4.0 cr)
IE 4541W - Project Management [WI] (4.0 cr)
IE 4041 - Senior Design (4.0 cr)
IE 3521 - Statistics, Quality, and Reliability (4.0 cr)

Technical Electives
Complete 15 credits of technical electives to be approved by an ISyE faculty adviser.
Twin Cities Campus

Information Technology Minor
Computer Science and Engineering

College of Science and Engineering

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 16

This interdisciplinary minor requires at least 16 credits, including two core courses from the College of Science & Engineering and three breadth courses from the Colleges of Liberal Arts or Design. The minor enables students in nontechnical disciplines to supplement their major with a practical set of courses focused on information technology.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
Take exactly 2 course(s) from the following:
• CSCI 1001 - Overview of Computer Science [MATH, TS] (4.0 cr)
• CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)

Breadth Courses
Some of the courses below have prerequisites or require instructor permission. Please see the course catalog or a Department of Computer Science and Engineering adviser for more information.
Take 3 or more course(s) from the following:
• COMM 3201 - Introduction to Electronic Media Production (3.0 - 4.0 cr)
• COMM 3211 - Introduction to U.S. Electronic Media (3.0 cr)
• COMM 4235 - Electronic Media and Ethnic Minorities--A World View (3.0 cr)
• COMM 4291 - New Telecommunication Media (3.0 cr)
• GDES 2334 {Inactive} (3.0 cr)
• GDES 4334 {Inactive} (3.0 cr)
• GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
• GEOG 5563 - Advanced Geographic Information Science (3.0 cr)
• GEOG 5564 - Urban Geographic Information Science and Analysis (3.0 cr)
• JOUR 3004W - Information for Mass Communication [WI] (3.0 cr)
• JOUR 3614 - History of Media Communication [HIS, TS] (3.0 cr)
• JOUR 3776 - Mass Communication Law (3.0 cr)
Twin Cities Campus
Materials Science and Engineering B.Mat.S.E.
Chemical Engineering & Materials Science
College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 123 to 124
- Required credits within the major: 76
- Degree: Bachelor of Materials Science and Engineering

The program in materials science and engineering leads to a bachelor's degree that enables students to immediately enter the profession. The program develops an understanding of the properties and the origin of these properties in a broad range of materials, including metals, ceramics, semiconductors, polymers, and composites. Because the program is broadly based, graduates find employment across a range of industries, including the automotive, chemical, electronics, energy, and medical technology industries. Graduates also find positions in consulting, research, technical management, and teaching.

The Materials Science and Engineering (MSE) program is designed to prepare students to achieve the following career and professional accomplishments after graduation:
* Be employed as a materials engineer or a related engineering or science position, using and developing his or her skills based on the demands of the job.
* Enter into a graduate or professional program, applying his or her knowledge and experience toward an advanced or professional degree.
* Be an effective team member, using and developing communication and teamwork skills.
* Be a responsible engineer/scientist or professional, demonstrating ethical and professional responsibility and continuing to learn through formal and informal educational experiences.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 11 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major

Students interested in materials science and engineering are recommended to take MATS 1001/CHEN 1001 to learn more about the field.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Mathematics
- MATH 1271 - Calculus I [MATH] (4.0 cr)
- MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
- MATH 1272 - Calculus II (4.0 cr)
- MATH 1372 - CSE Calculus II (4.0 cr)
- MATH 2263 - Multivariable Calculus (4.0 cr)
- MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)

Physical Sciences
- CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
- CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
- CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
- CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
- CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
- CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
- CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
- CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)
- PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
- PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
**PHYS 1302W** - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)

*or*  
**PHYS 1402V** - Honors Physics II [PHYS, WI] (4.0 cr)

**Introduction to Materials Science and Engineering**  
**MATS 3011** - Introduction to Materials Science and Engineering (3.0 cr)

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**General Requirements**

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the [liberal education requirements](#). Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

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**Program Requirements**

**Major Courses**

Students may wish to take **Mats 1001** Advances in Chemical Engineering and Materials Science (1 credit, S-N) in fall of their freshman year as an optional course to learn more about what materials science and chemical engineers do in the field.

- **AEM 3031** - Deformable Body Mechanics (3.0 cr)
- **AEM 4511** - Mechanics of Composite Materials (3.0 cr)
- **CHEM 2301** - Organic Chemistry I (3.0 cr)
- **CE 3101** - Computer Applications in Civil Engineering I (3.0 cr)
- **AEM 2011** - Statics (3.0 cr)
- **MATS 3012** - Metals and Alloys (3.0 cr)
- **MATS 3801** - Structural Characterization Lab (4.0 cr)
- **MATS 3851W** - Materials Properties Lab [WI] (4.0 cr)
- **MATS 3001** - Thermodynamics of Materials (3.0 cr)
- **MATS 3002** - Mass Transport and Kinetics (3.0 cr)
- **MATS 3013** - Electrical and Magnetic Properties of Materials (3.0 cr)
- **MATS 4212** - Ceramics (3.0 cr)
- **MATS 4214** - Polymers (3.0 cr)
- **MATS 4221** - Materials Performance (4.0 cr)
- **MATS 4301W** - Materials Processing [WI] (4.0 cr)
- **MATS 4400** - Senior Design Project (3.0 cr)
- **MATH 2373** - CSE Linear Algebra and Differential Equations (4.0 cr)
  
  *or* **MATH 2243** - Linear Algebra and Differential Equations (4.0 cr)

  **CHEM 4502** - Introduction to Quantum Mechanics and Spectroscopy (3.0 cr)

  *or*  
  **PHYS 2303** - Physics III: Physics of Matter (4.0 cr)

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**Technical Electives**

Students must take 13 credits of technical electives. See an adviser for a list of possible courses.
Twin Cities Campus
Mathematics B.S.Math.
School of Mathematics
College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 52 to 80
- Degree: Bachelor of Science in Mathematics

The mission of the program is to provide high-quality mathematics instruction in a stimulating intellectual atmosphere. The goal is to educate students at all levels to provide cultural enrichment, to give them the analytic tools they need to become responsible citizens, and to prepare them for careers involving mathematics.

The School of Mathematics offers a program leading to the bachelor of science degree. The course of study is flexible and may be adapted to satisfy a wide variety of interests and needs. Students may prepare for graduate study in mathematics or emphasize various fields of interest, such as preparation for secondary school teaching, actuarial science, or programs in applied mathematics, including industrial mathematics, biology, mathematics applicable to computer science, and numerical analysis.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 5 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major

Successful completion of five (5) courses is required for admission to upper division as a Math major: three (3) Calculus courses: Calculus I (1371/1271/1571H), Calculus II (1372/1272/1572H), and one 2xxx level Calculus course - either Linear Algebra & Differential Equations (2373/2243/2574H) or Multivariable Calculus (2374/2263/2573H) - plus two (2) Calculus-based Physics courses (see list below).

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Calculus Sequence
CSE Calculus Sequence
Either MATH 2373 Linear Algebra & Differential Equations (here) or MATH 2374 Multivariable Calculus (see program requirements) can be taken to meet the requirement for admission to upper division.

Calculus I
MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)

Calculus II
MATH 1372 - CSE Calculus II (4.0 cr)
or MATH 1272 - Calculus II (4.0 cr)
or MATH 1572H - Honors Calculus II (4.0 cr)

2xxx Level Calculus Course
MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
or MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
or MATH 2574H - Honors Calculus IV (4.0 cr)

Physics
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)
General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students must complete eight (8) upper division math courses at 4xxx and above plus a Computer Science course (see list below) and two (2) technical elective courses at the 3xxx level or above with the prerequisite of Calculus I. The School of Mathematics will accept STAT 5101 and 5102 as part of the eight-course upper division mathematics requirement. The content of STAT 5101 is the same as MATH 5651. No other courses from other departments may be used as part of the eight-course math requirement, although other courses may be used as technical electives.

MATH 3113, 3116, 3118, 4113, 4116, 4118, 3283W, 4005, 4067W, 49xx and 59xx math courses neither satisfy upper division math course requirement nor the technical electives requirement.

In addition to the specializations described below, students who wish to pursue a pure mathematics track or are planning to go to graduate school in mathematics should consult their adviser about appropriate course choices.

Remaining Required Lower Division Calculus Courses
2xxx Level Calculus Course
MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
or MATH 2263 - Multivariable Calculus (4.0 cr)
or MATH 2573H - Honors Calculus III (4.0 cr)
Sequences, Series, & Foundations
MATH 3283W - Sequences, Series, and Foundations: Writing Intensive [WI] (4.0 cr)
or MATH 2283 - Sequences, Series, and Foundations (3.0 cr)

Specializations in Mathematics

Mathematics (No Specialization)
Students who do not choose one of the specializations must complete the basic Mathematics Major course requirements listed here.

For the technical electives requirement, students must take at least 6 credits of courses that meet the following criteria: prerequisite of calculus; 3xxx level or higher; courses form a coherent part of the student's program.

Algebra Requirement
Both courses can be from the Theoretical Algebra list. 
Take 2 or more course(s) from the following:

Theoretical Algebra
Take 1 or more course(s) from the following:
- MATH 4281 - Introduction to Modern Algebra (4.0 cr)
- MATH 5248 - Cryptology and Number Theory (4.0 cr)
- MATH 5251 - Error-Correcting Codes, Finite Fields, Algebraic Curves (4.0 cr)
- MATH 5285H - Honors: Fundamental Structures of Algebra I (4.0 cr)
- MATH 5286H - Honors: Fundamental Structures of Algebra II (4.0 cr)
- MATH 5385 - Introduction to Computational Algebraic Geometry (4.0 cr)

Applied Algebra
Take 0 or more course(s) from the following:
- MATH 4242 - Applied Linear Algebra (4.0 cr)
- MATH 5705 - Enumerative Combinatorics (4.0 cr)
- MATH 5707 - Graph Theory and Non-enumerative Combinatorics (4.0 cr)
- MATH 5711 - Linear Programming and Combinatorial Optimization (4.0 cr)
- MATH 5485 - Introduction to Numerical Methods I (4.0 cr)

Analysis Requirement
Take 2 or more course(s) from the following:
- MATH 4567 - Applied Fourier Analysis (4.0 cr)
- MATH 4603 - Advanced Calculus I (4.0 cr)
- MATH 4604 - Advanced Calculus II (4.0 cr)
- MATH 5486 - Introduction To Numerical Methods II (4.0 cr)
- MATH 5525 - Introduction to Ordinary Differential Equations (4.0 cr)
- MATH 5535 - Dynamical Systems and Chaos (4.0 cr)
- MATH 5583 - Complex Analysis (4.0 cr)
- MATH 5587 - Elementary Partial Differential Equations I (4.0 cr)
- MATH 5588 - Elementary Partial Differential Equations II (4.0 cr)
• MATH 5615H - Honors: Introduction to Analysis I (4.0 cr)
• MATH 5616H - Honors: Introduction to Analysis II (4.0 cr)
• MATH 5652 - Introduction to Stochastic Processes (4.0 cr)
• MATH 5654 - Prediction and Filtering (4.0 cr)
• MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)
or STAT 5101 - Theory of Statistics I (4.0 cr)

Computer Science Requirement
CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)
or CSCI 1113 - Introduction to C/ C++ Programming for Scientists and Engineers (4.0 cr)
or CSCI 1901 (inactive) (4.0 cr)

Third Semester Physics Requirement
PHYS 2303 - Physics III: Physics of Matter (4.0 cr)
or PHYS 2311 - Modern Physics (4.0 cr)
or PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)

Mathematics Electives Requirement
Courses from the Algebra and Analysis lists which have not already used to fulfill those requirements may be taken to fulfill the Mathematics Elective requirement.

4xxx/5xxx Level Mathematics Courses
Take 4 or more course(s) from the following:
• MATH 4xxx
• MATH 5xxx

Technical Electives Requirement
Complete 6 credits of technical elective courses at the 3xxx level or above which have Calculus I (1271/1371/1571H) as a prerequisite. Technical Electives are selected by consultation with and approval of the Math Faculty Adviser. Earliest semester: Y3 Fall; latest semester: Y4 Spring. Courses for this requirement must form a coherent part of a student's program.
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
• Technical Elective Courses
  - OR -

Actuarial Specialization
Complete the requirements for the actuarial sub-plan.
  - OR -

Mathematics Education Specialization
Complete the requirements for the mathematics education sub-plan.
  - OR -

Computer Applications Specialization
Complete the requirements for the computer applications sub-plan.
  - OR -

Mathematical Biology: Genomics
Complete the requirements for the genomics sub-plan.
  - OR -

Mathematical Biology: Physiology
Complete the requirements for the physiology sub-plan.

Program Sub-plans
A sub-plan is not required for this program.

Actuarial Science
The BS-Mathematics with Actuarial Specialization requires a minimum of 8 upper division (4xxx level and above) Mathematics courses, as indicated in the lists below. Students pursuing the Actuarial Specialization may want to include MATH 4067W, which fulfills an upper division writing intensive requirement, although it does not fulfill any of the upper division Math course requirements. It is recommended for in this specialization to plan for a Summer Internship after the Junior Year.

For the Actuarial Specialization, students must complete specific courses in Economics, Accounting, Insurance, and Finance. Thus, these required courses in Economics and Finance take the place of a Technical Electives package for students who successfully complete the Actuarial Specialization.

For the Computer Science requirement, students with the Actuarial Specialization should only take either 1103 or 1113. A third semester of Physics is not required for the Actuarial Specialization.
Mathematics Course Requirements

Algebra Requirement

Theoretical Algebra
Take 1 or more course(s) from the following:
• MATH 4281 - Introduction to Modern Algebra (4.0 cr)
• MATH 5248 - Cryptology and Number Theory (4.0 cr)
• MATH 5251 - Error-Correcting Codes, Finite Fields, Algebraic Curves (4.0 cr)
• MATH 5285H - Honors: Fundamental Structures of Algebra I (4.0 cr)
• MATH 5286H - Honors: Fundamental Structures of Algebra II (4.0 cr)
• MATH 5385 - Introduction to Computational Algebraic Geometry (4.0 cr)

Applied Algebra
MATH 4242 - Applied Linear Algebra (4.0 cr)

Analysis Requirement
STAT 5102 does not fulfill the Analysis Requirement.

Theory of Probability & Statistics
MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)
or STAT 5101 - Theory of Statistics I (4.0 cr)

Stochastic Processes
MATH 5652 - Introduction to Stochastic Processes (4.0 cr)

Actuarial Mathematics Requirement
MATH 4065 - Theory of Interest (4.0 cr)
MATH 5067 - Actuarial Mathematics I (4.0 cr)
MATH 5068 - Actuarial Mathematics II (4.0 cr)

Additional Math Requirements for Actuarial Specialization
Courses recommended for this Specialization are MATH 4428, 5485, 5075, 5076.

4xxx or 5xxx Level Math Courses
Take 1 or more course(s) from the following:
• MATH 4xxx
• MATH 5xxx

Computer Science Requirement
CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)
or CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)

Economics and Business

Introductory Economics

Intro Economics
ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
ECON 1102 - Principles of Macroeconomics (4.0 cr)

Economics and Finance
ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
ECON 3101 - Intermediate Microeconomics (4.0 cr)
ECON 4261 - Introduction to Econometrics (4.0 cr)
FINA 3001 - Finance Fundamentals (3.0 cr)

Insurance
Take 2 or more course(s) from the following:
• INS 4100 - Corporate Risk Management (2.0 cr)
• INS 4101 - Employee Benefits (2.0 cr)
• INS 4200 - Insurance Theory and Practice (2.0 cr)

Computer Applications
The upper division (4xxx level or above) Mathematics courses, a 3rd semester of physics, and a minimum 24 credits of math and computer science courses relating to computer applications (from the courses listed below) are needed to fulfill the requirements for the BS-Mathematics with Computer Applications Specialization. Students who complete the Computer Applications Specialization may meet the requirements for a Minor in Computer Science.

Mathematics Course Requirements for Computer Applications

Algebra Requirements

Theoretical Algebra
Take 1 or more course(s) from the following:
• MATH 4281 - Introduction to Modern Algebra (4.0 cr)
• MATH 5248 - Cryptology and Number Theory (4.0 cr)
• MATH 5251 - Error-Correcting Codes, Finite Fields, Algebraic Curves (4.0 cr)
• MATH 5285H - Honors: Fundamental Structures of Algebra I (4.0 cr)
• MATH 5286H - Honors: Fundamental Structures of Algebra II (4.0 cr)
•MATH 5385 - Introduction to Computational Algebraic Geometry (4.0 cr)

Applied Algebra

MATH 5485 - Introduction to Numerical Methods I (4.0 cr)

Analysis Requirements

Numerical Methods

MATH 5486 - Introduction To Numerical Methods II (4.0 cr)

Additional Analysis Course

Take 1 or more course(s) from the following:
•MATH 4567 - Applied Fourier Analysis (4.0 cr)
•MATH 4603 - Advanced Calculus I (4.0 cr)
•MATH 4604 - Advanced Calculus II (4.0 cr)
•MATH 5535 - Dynamical Systems and Chaos (4.0 cr)
•MATH 5525 - Introduction to Ordinary Differential Equations (4.0 cr)
•MATH 5583 - Complex Analysis (4.0 cr)
•MATH 5587 - Elementary Partial Differential Equations I (4.0 cr)
•MATH 5588 - Elementary Partial Differential Equations II (4.0 cr)
•MATH 5652 - Introduction to Stochastic Processes (4.0 cr)
•MATH 5654 - Prediction and Filtering (4.0 cr)
•MATH 5615H - Honors: Introduction to Analysis I (4.0 cr)
•MATH 5616H - Honors: Introduction to Analysis II (4.0 cr)
•MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)
•MATH 5652 - Introduction to Computational Algebraic Geometry (4.0 cr)
•MATH 5705 - Enumerative Combinatorics (4.0 cr)
•MATH 5707 - Graph Theory and Non-enumerative Combinatorics (4.0 cr)
•MATH 5711 - Linear Programming and Combinatorial Optimization (4.0 cr)
•MATH 5701 - Theory of Statistics I (4.0 cr)

or

STAT 5101 - Theory of Statistics I (4.0 cr)

Mathematics Electives

Mathematics courses in the Algebra, Analysis, or Computing-Related Mathematics lists which are not used to fulfill those requirements may be taken as Mathematics Elective courses.
Take 2 or more course(s) from the following:
•MATH 4xxx
•MATH 5xxx

Computing-Related Mathematics

Mathematical Logic Requirement

MATH 5165 - Mathematical Logic I (4.0 cr)

Computer-Related Mathematics Electives

Take 1 or more course(s) from the following:
•MATH 4242 - Applied Linear Algebra (4.0 cr)
•MATH 5166 - Mathematical Logic II (4.0 cr)
•MATH 5248 - Cryptology and Number Theory (4.0 cr)
•MATH 5251 - Error-Correcting Codes, Finite Fields, Algebraic Curves (4.0 cr)
•MATH 5285H - Honors: Fundamental Structures of Algebra I (4.0 cr)
•MATH 5286H - Honors: Fundamental Structures of Algebra II (4.0 cr)
•MATH 5385 - Introduction to Computational Algebraic Geometry (4.0 cr)
•MATH 5705 - Enumerative Combinatorics (4.0 cr)
•MATH 5707 - Graph Theory and Non-enumerative Combinatorics (4.0 cr)
•MATH 5711 - Linear Programming and Combinatorial Optimization (4.0 cr)

Computer Applications Lower Division Requirements

Introduction to Computer Programming

CSCI 1901 *(inactive)* (4.0 cr)

Structure of Computer Programming

CSCI 1902 *(inactive)* (4.0 cr)

Discrete Structures

CSCI 2011 - Discrete Structures of Computer Science (4.0 cr)

Computer Science Courses & Technical Electives

Upper division computer science courses may be counted as technical electives.
Take 2 or more course(s) from the following:
•CSCI 4011 - Formal Languages and Automata Theory (4.0 cr)
•CSCI 4041 - Algorithms and Data Structures (4.0 cr)
•CSCI 4205 *(inactive)* (3.0 cr)
•CSCI 4511W - Introduction to Artificial Intelligence [WI] (4.0 cr)
•CSCI 5607 - Fundamentals of Computer Graphics 1 (3.0 cr)
•CSCI 5608 - Fundamentals of Computer Graphics II (3.0 cr)
•CSCI 5403 *(inactive)* (3.0 cr)
•CSCI 5421 - Advanced Algorithms and Data Structures (3.0 cr)
•CSCI 5451 - Introduction to Parallel Computing: Architectures, Algorithms, and Programming (3.0 cr)
•CSCI 5511 - Artificial Intelligence I (3.0 cr)
•CSCI 5512 - Artificial Intelligence II (3.0 cr)
•CSCI 5521 - Introduction to Machine Learning (3.0 cr)
Third Semester Physics Requirement
A physics course from the following list should be taken during the the second year to fulfill this requirement.

- PHYS 2303 - Physics III: Physics of Matter (4.0 cr)
- PHYS 2311 - Modern Physics (4.0 cr)
- PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)

Mathematics Education
Preparation for teaching Mathematics in secondary education.

The eight (8) required upper division (4xxx level or above) Mathematics courses for the Mathematics Education Specialization include seven (7) Math courses, which meet admission requirements for the Secondary Teaching Licensure Program in Mathematics. Additional requirements for the BS-Mathematics with Mathematics Education Specialization include a 3rd semester of Physics, a minimum of one (1) Computer Science course, and a Technical Electives course package.

MATH 4653 is recommended to meet admission requirements for the Math Education Licensure Program, but it does not fulfill the analysis requirement for the major.

Courses that are recommended for this specialization (but not required) include MATH 5652 Stochastic Processes, STAT 5102 Theory of Statistics II, and MATH 5336 Geometry II.

Mathematics Education Specialization Requirements
Algebra Requirements
Theoretical Algebra
- MATH 4281 - Introduction to Modern Algebra (4.0 cr)
- MATH 5285H - Honors: Fundamental Structures of Algebra I (4.0 cr)

Applied Algebra
Combinatorics
- MATH 4707 - Introduction to Combinatorics and Graph Theory (4.0 cr)
- MATH 5705 - Enumerative Combinatorics (4.0 cr)
- MATH 5707 - Graph Theory and Non-enumerative Combinatorics (4.0 cr)

Geometry
- MATH 5335 - Geometry I (4.0 cr)

Probability and Statistics
MATH 5651 or STAT 5101 may be used to fulfill this requirement.

- MATH 4653 - Elementary Probability (4.0 cr)

Analysis Requirements
Take 2 or more course(s) from the following:
- MATH 4567 - Applied Fourier Analysis (4.0 cr)
- MATH 4603 - Advanced Calculus I (4.0 cr)
- MATH 4604 - Advanced Calculus II (4.0 cr)
- MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)
- STAT 5101 - Theory of Statistics I (4.0 cr)

Mathematics Education Electives Requirement
Recommended Math Elective courses for this specialization are MATH 5336, MATH 4242, MATH 5652, STAT 5102. Courses from the Algebra or Analysis lists not used to fulfill those requirements may also be taken to fulfill this Math Electives requirement.

Take 2 or more course(s) from the following:
- MATH 4xxx
- MATH 5xxx

Computer Science Requirement
- CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)
- CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
- CSCI 1901 (Inactive) (4.0 cr)

Third Semester Physics Requirement
Take one of the following physics courses in the third semester (fall semester of the second year).

- PHYS 2303 - Physics III: Physics of Matter (4.0 cr)
- PHYS 2311 - Modern Physics (4.0 cr)
- PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)

Technical Electives
Students must complete 6 credits of courses at the 3xxx level or above which have Calculus I (1271, 1371, 1571H) as a prerequisite and which form a coherent part of student's program. Technical Electives are selected by consultation and approval of your Math adviser. Earliest semester: Y3 fall; latest semester: Y4 spring.
Mathematical Biology: Genomics

Mathematics Requirements for MathBio: Genomics

Mathematical Modeling Requirement
MATH 4428 - Mathematical Modeling (4.0 cr)

Algebra Requirements

Theoretical Algebra
Take 1 or more course(s) from the following:
• MATH 4281 - Introduction to Modern Algebra (4.0 cr)
• MATH 5248 - Cryptology and Number Theory (4.0 cr)
• MATH 5251 - Error-Correcting Codes, Finite Fields, Algebraic Curves (4.0 cr)
• MATH 5285H - Honors: Fundamental Structures of Algebra I (4.0 cr)
• MATH 5286H - Honors: Fundamental Structures of Algebra II (4.0 cr)
• MATH 5385 - Introduction to Computational Algebraic Geometry (4.0 cr)

Applied Algebra
MATH 4242 - Applied Linear Algebra (4.0 cr)

Analysis Requirements

Genomics Analysis Requirement
Take 1 or more course(s) from the following:
• MATH 5552 - Introduction to Ordinary Differential Equations (4.0 cr)
• MATH 5553 - Dynamical Systems and Chaos (4.0 cr)

Theory of Probability & Statistics I
MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)
or
STAT 5101 - Theory of Statistics I (4.0 cr)

Mathematics Electives
Mathematics courses from the Algebra, Analysis, and Genomics Electives lists which were not used to fulfill those requirements may be taken as Mathematics Electives to meet the 8 course requirement for the major.
Take 3 or more course(s) from the following:
• MATH 4xxx
• MATH 5xxx
• MATH 5445 - Mathematical Analysis of Biological Networks (4.0 cr)

Computer Science Requirements for Genomics

Computer Science Lower Division Requirement
CSCI 1901 (Inactive) (4.0 cr)
CSCI 1902 (Inactive) (4.0 cr)

5xxx Level CSCI Course Requirements
CSCI 2011 & CSCI 4041 may together serve as the substitute prerequisite courses for CSCI 5461.

Functional Genomics, Systems Biol., Bioinformatics
CSCI 5461 - Functional Genomics, Systems Biology, and Bioinformatics (3.0 cr)
CSCI 3003 - Introduction to Computing in Biology (3.0 cr)
or
Computational Techniques for Genomics
CSCI 5481 - Computational Techniques for Genomics (3.0 cr)
CSCI 4041 - Algorithms and Data Structures (4.0 cr)
CSCI 2011 - Discrete Structures of Computer Science (4.0 cr)

Genomics, Biology Requirements; Chemistry Elective or Prerequisite
If the Genomics Elective Course chosen does not require a Chemistry sequence, then it is still recommended that one semester of Chemistry is taken (CHEM 1061 & CHEM 1065 Lab).

1xxx Level Biology
BIOL 1009H may be substituted.
BIOL 1009 - General Biology [BIOL] (4.0 cr)

Genomics Course Requirement
GCD 3022 - Genetics (3.0 cr)

Genomics Elective Requirement
The 5xxx level CSCI course which was not taken to fulfill the Computer Science requirement may (with its prerequisites) be used to fulfill the Genomics Elective Requirement.
MATH 5445 may be used to fulfill this requirement.
Take 1 or more course(s) from the following:
• EEB 5042 - Quantitative Genetics (3.0 cr)
• GCD 4143 - Human Genetics (3.0 cr)
• MATH 5445 - Mathematical Analysis of Biological Networks (4.0 cr)

• Plant Genomics
PBIO 5301 has additional prerequisite courses: CHEM 1061, CHEM 1065 (lab), CHEM 1062, CHEM 1066 (lab), CHEM 2301, BIOL 3021.
• PBIO 5301 - Plant Genomics (3.0 cr)

• Molecular Biology of Cancer
GCD 4151 has additional prerequisite courses: CHEM 1061, CHEM 1065 (lab), CHEM 1062, CHEM 1066 (lab), CHEM 2301, BIOC 3021, BIOL 4033.

- **GCD 4151** - Molecular Biology of Cancer (3.0 cr)

### Mathematical Biology: Physiology

#### Mathematics Requirements for MathBio: Physiology

**Mathematical Modeling Requirement**
- **MATH 4428** - Mathematical Modeling (4.0 cr)

**Biological Networks or Neuroscience**
- **MATH 5445** - Mathematical Analysis of Biological Networks (4.0 cr)
  or **MATH 5447** - Theoretical Neuroscience (4.0 cr)

**Theoretical Algebra**
- Take 1 or more course(s) from the following:
  - **MATH 4281** - Introduction to Modern Algebra (4.0 cr)
  - **MATH 5248** - Cryptology and Number Theory (4.0 cr)
  - **MATH 5251** - Error-Correcting Codes, Finite Fields, Algebraic Curves (4.0 cr)
  - **MATH 5285H** - Honors: Fundamental Structures of Algebra I (4.0 cr)
  - **MATH 5286H** - Honors: Fundamental Structures of Algebra II (4.0 cr)
  - **MATH 5385** - Introduction to Computational Algebraic Geometry (4.0 cr)

**Applied Algebra Requirement**
- **MATH 4242** - Applied Linear Algebra (4.0 cr)

**Analysis Requirements**

**Physiology Analysis Requirement**
- Take 1 or more course(s) from the following:
  - **MATH 5525** - Introduction to Ordinary Differential Equations (4.0 cr)
  - **MATH 5535** - Dynamical Systems and Chaos (4.0 cr)

**Theory of Probability & Statistics**
- **MATH 5651** - Basic Theory of Probability and Statistics (4.0 cr)
  or **STAT 5101** - Theory of Statistics I (4.0 cr)

### Mathematics Electives

Mathematics courses from the Algebra, Analysis or required Mathematics for Physiology lists which were not used to fulfill those requirements may be used to fulfill this requirement.
- Take 2 or more course(s) from the following:
  - **MATH 4xxx**
  - **MATH 5xxx**

#### Lower Division Computer Science Requirement

**CSCI 1103** - Introduction to Computer Programming in Java (4.0 cr)
  or **CSCI 1113** - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
  or **CSCI 1901** *(Inactive)* (4.0 cr)

#### Physiology, Biology, Chemistry Requirements

**Physiology Requirement**
- **PHSL 3061** - Principles of Physiology (4.0 cr)

**1xxx Level Biology Requirement**
- **BIOL 1009H** may be substituted.
- **BIOL 1009** - General Biology [BIOL] (4.0 cr)

**1xxx Level Chemistry Requirements**
- **CHEM 1061** - Chemical Principles I [PHY S] (3.0 cr)
- **CHEM 1065** - Chemical Principles I Laboratory [PHY S] (1.0 cr)
- **CHEM 1062** - Chemical Principles II [PHY S] (3.0 cr)
- **CHEM 1066** - Chemical Principles II Laboratory [PHY S] (1.0 cr)

**Physiology Electives**
Whichever course - Math 5445 or Math 5447 - was not taken to fulfill the Mathematics requirement can be taken to fulfill this Electives requirement.
- Take 1 or more course(s) from the following:
  - **BIOL 4700** *(Inactive)* (3.0 cr)
  - **PHSL 5444** - Muscle (3.0 cr)

- **NSC 5202** has additional prerequisite courses: CHEM 2301, BIOC 3021, NSCI 3101, NSCI 3102.
  - **NSC 5202** - Theoretical Neuroscience: Systems and Information Processing (3.0 cr)
Twin Cities Campus
Mechanical Engineering B.M.E.
Mechanical Engineering
College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 125
- Required credits within the major: 74
- This program is 9 terms (4½ years) long.
- This program requires summer terms.
- Degree: Bachelor of Mechanical Engineering

The Department of Mechanical Engineering is committed to offering undergraduate and graduate education of the highest quality in mechanical and industrial engineering, to conducting significant basic and applied research in selected areas, and to providing professional service to the appropriate constituencies of a major land grant university.

Mechanical engineering is involved in most technological activities of society and dominates many, including automotive, transportation and materials handling, environmental and pollution control systems, refrigeration and cryogenics, power systems design, automation, system dynamics and control, computer-aided design and manufacturing, and machinery/consumer products production. A mechanical engineer may be engaged in design, development, research, testing, manufacturing, administration, marketing, consulting, or education.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 10 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Mathematics
Honors math (MATH 1571H, 1572H, 2573H, 2574H) may be taken in place of the listed courses.
MATH 1271 - Calculus I [MATH] (4.0 cr)
  or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)
  or MATH 1372 - CSE Calculus II (4.0 cr)
MATH 2263 - Multivariable Calculus (4.0 cr)
  or MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)

Physical Sciences
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
  or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
  or CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
  or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
  or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

Statics and Dynamics
AEM 2021 - Statics and Dynamics (4.0 cr)
  or take the following course pair
  AEM 2011 - Statics (3.0 cr)
  AEM 2012 - Dynamics (3.0 cr)

Material Science
MATS 2001 - Introduction to the Science of Engineering Materials (3.0 cr)

Course Group 4: Biology
BIOL 1009 - General Biology [BIOL] (4.0 cr)

or Based on transfer credits or working with advisor

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Linear Algebra & Differential Equations
MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)

or MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)

Major Courses
CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
MATS 2002 - Introduction to the Science of Engineering Materials Laboratory (1.0 cr)
AEM 3031 - Deformable Body Mechanics (3.0 cr)
EE 3005 - Fundamentals of Electrical Engineering (4.0 cr)
EE 3006 - Fundamentals of Electrical Engineering Laboratory (1.0 cr)
IE 3521 - Statistics, Quality, and Reliability (4.0 cr)
ME 2011 - Introduction to Engineering (4.0 cr)
ME 3221 - Design and Manufacturing I: Engineering Materials and Manufacturing Processes (4.0 cr)
ME 3222 - Design and Manufacturing II (4.0 cr)
ME 3281 - System Dynamics and Control (4.0 cr)
ME 3331 - Thermal Sciences I (3.0 cr)
ME 3332 - Thermal Sciences II (3.0 cr)
ME 3333 - Thermal Sciences III (3.0 cr)
ME 4031W - Basic Mechanical Measurements Laboratory [WI] (4.0 cr)
ME 4054W - Design Projects [WI] (4.0 cr)

Electives
ME 4131W - Thermal Environmental Engineering Laboratory [WI] (4.0 cr)

or ME 4231 - Motion Control Laboratory (4.0 cr)

or ME 4232 - Fluid Power Control Lab (4.0 cr)

or ME 4331 - Thermal Energy Engineering Laboratory (4.0 cr)

or ME 4431W - Energy Conversion Systems Laboratory [WI] (4.0 cr)

Technical Electives
Complete 15 credits of upper division technical electives, with at least 8 credits in ME, or 4 credits in ME and 11 credits in IE. Students may choose options in power and propulsion, design and manufacturing, thermodynamics and heat transfer, environment, or select electives in consultation with their adviser.

Program Sub-plans
A sub-plan is not required for this program.

EIP
ME EIP program (engineering intern program or co-op program) is available during the last two years of study. Upper division status and a satisfactory GPA are required for admission. The co-op program provides applied engineering training in selected established industries during semesters of supervised assignments that alternate with semesters of University studies.

Students in the ME EIP program (engineering intern program or Co-op program) register for three industrial assignment courses. ME 3041 (2 credits), ME 4043W (4 credits), and ME 4044 (2 credits) for a total of 8 credits. These courses are used in place of two technical electives.

Students register for industrial assignments as they would for regular classes. Requirements for the course include writing a summary of an article in a technical journal, attending a workshop (ME 3041, ME 4043W), submitting a report draft, and writing a final report. The course grade is based on writing; work performance cannot be considered in assigning a grade. The second industrial assignment, ME
4043W, is oriented toward solving a design problem and fulfills a 4-credit intensive writing course requirement. Cooperation from company personnel is required in accomplishing most reports, particularly the ME 4043W reports.

**Internship**
- ME 3041 - Industrial Assignment I (2.0 cr)
- ME 4043W - Industrial Assignment II [WI] (4.0 cr)
- ME 4044 - Industrial Assignment III (2.0 cr)
Twin Cities Campus  
Physics B.S. Phys.  
School of Physics & Astronomy  
College of Science and Engineering

- Program Type: Baccalaureate  
- Requirements for this program are current for Fall 2014  
- Required credits to graduate with this degree: 120  
- Required credits within the major: 86 to 94  
- Degree: Bachelor of Science in Physics

The physics program prepares students for employment, often in industrial or governmental laboratories, or for further study at graduate or professional schools in physics, engineering, biophysics, medicine, education, law, or business.

The program integrates a broad foundation in physics that can be flexibly combined with coursework in other technical disciplines or used to specialize in physics. Students should consult a physics adviser to help formulate objectives for study.

Program Delivery  
This program is available:  
- via classroom (the majority of instruction is face-to-face)

Admission Requirements  
Students must complete 7 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites  
Core Coursework
All of the sub-plans start with a common foundation in physics and mathematics. This basic core of physics and math, taken during the first two years, provides the necessary tools to move into one of the sub-plans within physics.

The freshman and sophomore years give students a broad introduction to the fundamental ideas of physics. During this same period students learn the mathematical techniques that they will need for advanced work in physics and other sciences.

Introductory Physics Core Requirement

**Physics I**  
- PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)  
  or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)

**Physics II**  
- PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)  
  or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

**Physics III**  
Note: PHYS 2503 and 2403H offered only fall semester.  
- PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)  
  or PHYS 2403H - Honors Physics III (4.0 cr)

**Lower Division Core Physics Requirement**  
- PHYS 2201 - Introductory Thermodynamics and Statistical Physics (3.0 cr)

Mathematics Requirements

**Calculus I**  
- MATH 1271 - Calculus I [MATH] (4.0 cr)  
  or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)  
  or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)

**Calculus II**  
- MATH 1272 - Calculus II (4.0 cr)  
  or MATH 1372 - CSE Calculus II (4.0 cr)  
  or MATH 1572H - Honors Calculus II (4.0 cr)

**Calculus III or IV**  
- MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)  
  or MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)  
  or MATH 2574H - Honors Calculus IV (4.0 cr)
General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
In addition to the core coursework, students must select one of the five sub-plans (professional, biological, computational, teaching, engineering) and complete the respective additional programmatic requirements (48-52 cr). These requirements are subject to departmental review for each student. Requirements for each sub-plan are detailed below.

Students intending to pursue graduate study in physics are strongly encouraged to take PHYS 4303.

Core Coursework

**Lower Division Core Physics Requirements**
- PHYS 2601 - Quantum Physics (4.0 cr)
- PHYS 2605 - Quantum Physics Laboratory (3.0 cr)

**Remaining Calculus III or IV Course**
- MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
- MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
- MATH 2574H - Honors Calculus IV (4.0 cr)
- MATH 2263 - Multivariable Calculus (4.0 cr)
- MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)
- MATH 2573H - Honors Calculus III (4.0 cr)

Program Sub-plans

Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

**Professional**
This sub-plan is ideal for students who want the strongest possible grounding in physics. It is designed to suit the needs of students who are interested in fundamental physics or astrophysics, applying physics to the workplace, or who are planning on continuing their physics education in graduate school.

**Professional Physics Sub-plan: Additional Programmatic Requirements (50 cr)**
- PHYS 4001 - Analytical Mechanics (4.0 cr)
- PHYS 4002 - Electricity and Magnetism (4.0 cr)
- PHYS 4101 - Quantum Mechanics (4.0 cr)
- PHYS 4201 - Statistical and Thermal Physics (3.0 cr)
- PHYS 4051 - Methods of Experimental Physics I (5.0 cr)
- PHYS 4052W - Methods of Experimental Physics II [WI] (5.0 cr)

**Technical Electives (25 cr)**
Take technical electives with the approval of your adviser. These are in addition to any courses listed above. Technical electives must include at least one upper division physics elective (3-4 cr) and at least one upper division math elective (3-4 cr). A physics elective is any course with a PHYS designator at 3xxx and above. PHYS 4303 is strongly recommended for those intending to pursue graduate study.

Technical electives must total 25 credits. A technical elective is any course in CSE or CBS at 3xxx and above. A 1xxx CSCI programming course in java and C++ is also accepted.

**Biological**
Students who are interested in entering the biological sciences or medicine will find this sub-plan an attractive option. Physics applies to biology at all levels, from the basics of biosystems to biomedical engineering. This option can be very useful to students who want to pursue a career in biomedical industry. It also provides a strong foundation for students interested in pursuing an advanced degree in biophysics, molecular biology, physiology, medical physics, biomedical engineering, or medical school. Combined with the physics core curriculum this biological sub-plan gives students powerful tools to achieve their goals.
Biological Sub-plan: Additional Programmatic Requirements (54 cr)

Chemistry Requirements
- CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
- CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
- CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
- CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
- CHEM 2301 - Organic Chemistry I (3.0 cr)

Biochemistry Requirements
- BIOC 3021 - Biochemistry (3.0 cr)

Biology Requirements
- Counted in the CLE requirement.
- BIOL 1009 - General Biology [BIOL] (4.0 cr)

Upper Division Physics Requirements
- Up to 2 of these may be replaced by similar courses in other departments with adviser approval.
- PHYS 4001 - Analytical Mechanics (4.0 cr)
- PHYS 4002 - Electricity and Magnetism (4.0 cr)
- PHYS 4101 - Quantum Mechanics (4.0 cr)
- PHYS 4201 - Statistical and Thermal Physics (3.0 cr)

Methods of Experimental Physics
- PHYS 4051 - Methods of Experimental Physics I (5.0 cr)
- PHYS 4052W - Methods of Experimental Physics II [WI] (5.0 cr)

Technical Electives (11 cr)
- Take technical electives in biology and related areas with approval of adviser. These are in addition to any courses listed above. When choosing the appropriate courses for the biology requirement, students should consult with faculty who have expertise in these areas. It is strongly recommended that the technical electives include PHYS 4911.
- Technical electives must total 11 credits. A technical elective is any course in CSE or CBS at 3xxx or above. A 1xxx CSCI programming course in java and C++ is also accepted.

Computational
- This sub-plan is ideal for students who seek a strong grounding in physics and the computational techniques used in physics research. Computational physics connects physics, computer science, and applied mathematics to provide scientific solutions to realistic and often complex problems. Students who are interested in moving directly into industry, as well as those who want to pursue a graduate degree in physics will find this program valuable.

Computational Sub-plan: Additional Programmatic Requirements (50-52 cr)

Upper Division Physics Requirements
- PHYS 4001 - Analytical Mechanics (4.0 cr)
- PHYS 4002 - Electricity and Magnetism (4.0 cr)
- PHYS 4101 - Quantum Mechanics (4.0 cr)
- PHYS 4201 - Statistical and Thermal Physics (3.0 cr)

Methods of Experimental Physics
- PHYS 4051 - Methods of Experimental Physics I (5.0 cr)
- PHYS 4052W - Methods of Experimental Physics II [WI] (5.0 cr)

Approved PHYS 4994 (3+ cr) project with significant computational component may be substituted for 4052W.

Computer Programming
- Intro to C/C++
  - CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)
  - A comparable computer language course may be substituted for CSCI 1113.

Structure of Computer Programming
- CSCI 1901 (Inactive) (4.0 cr)

Technical Electives (19 cr)
- Take technical electives with approval of adviser. These are in addition to any courses listed above. AST 4101/PHYS 4041 is strongly recommended. At least one of the electives must be a course emphasizing the application of computational methods. For example: CHEM 4021 and AEM 5251.
- Technical electives must total 19 credits. A technical elective is any course in CSE or CBS at 3xxx and above.

Teaching
- For students who are interested in teaching secondary school physics, this program offers a versatile broad-based education. It is particularly useful to students who are planning on teaching in Minnesota, as it has been optimized to fit well with the new state licensure procedures. And, should a student's needs or plans change, this program combined with the physics core curriculum also prepares him or her for a variety of other career tracks, including graduate study in physics.

Teaching Sub-plan: Additional Programmatic Requirements (55 cr)

Upper Division Physics Requirements
Take 2 or more course(s) from the following:
• PHYS 4001 - Analytical Mechanics (4.0 cr)
• PHYS 4002 - Electricity and Magnetism (4.0 cr)
• PHYS 4101 - Quantum Mechanics (4.0 cr)

Methods of Experimental Physics
PHYS 4051 - Methods of Experimental Physics I (5.0 cr)
PHYS 4052W - Methods of Experimental Physics II [WI] (5.0 cr)

Historical and Social Perspectives of Science
Take 1 or more course(s) from the following:
• PHYS 4121W - History of 20th-Century Physics [WI] (3.0 cr)
• HSCI 3814 - Revolutions in Science: The Babylonians to Newton [HIS, GP] (3.0 - 4.0 cr)
• HSCI 3815 - Revolutions in Science: Lavoisier, Darwin, and Einstein [HIS, GP] (3.0 - 4.0 cr)

General Psychology
Meets Lib Ed requirement of Social Sciences; therefore, credits do not count towards major.
Take 1 or more course(s) from the following:
• PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
• PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)

Philosophical Foundations
Take 1 or more course(s) from the following:
• PHIL 1005 - Scientific Reasoning (4.0 cr)
• PHIL 3601W - Scientific Thought [WI] (4.0 cr)

Technical Electives (26 cr)
Take technical electives in physics and related areas with adviser approval. These are in addition to any courses listed above.
Students who intend to pursue physics graduate school are strongly encouraged to take all 4 upper division core courses: PHYS 4001, 4002, 4101, 4201. Up to 8 credits will count toward intro CHEM or BIO requirements for the general teaching licensure. Note: Courses used to satisfy liberal ed requirements cannot be counted as technical electives.
Technical Electives must total 26 credits. A technical elective is any course in CSE or CBS at 3xxx and above. A 1xxx CSCI programming course in java and C++ is also accepted.

Engineering
Students who are interested in the practical application of physics to the engineering fields, but who would like a less specialized education than they would find in an engineering department, will find that this sub-plan provides them with a solid education. In addition to the strong physics core curriculum, students can either focus on one area of engineering or explore a broad range of interests across a number of engineering fields. Students who are interested in moving directly into industry, as well as those who want to pursue a graduate degree in either engineering or physics will find this program valuable.

Engineering Sub-plan: Additional Programmatic Requirements (50 cr)
Note that CHEM 1061 and 1065, which are required for several of the engineering majors, are strongly recommended.

Upper Division Physics Requirements
Up to 2 of these may be replaced by courses covering related material in other CSE departments with adviser approval.
PHYS 4001 - Analytical Mechanics (4.0 cr)
PHYS 4002 - Electricity and Magnetism (4.0 cr)
PHYS 4101 - Quantum Mechanics (4.0 cr)
PHYS 4201 - Statistical and Thermal Physics (3.0 cr)

Methods of Experimental Physics
PHYS 4051 - Methods of Experimental Physics I (5.0 cr)
PHYS 4052W - Methods of Experimental Physics II [WI] (5.0 cr)

Technical Electives (25 cr)
Take technical electives in engineering and related areas with approval of adviser. These are in addition to any courses listed above.
In filling the engineering portion of the technical electives, credits can be taken in a single area or distributed across several engineering fields, depending on a student's interest.
Technical Electives must total 25 credits. A technical elective is any course in CSE or CBS at 3xxx and above. A 1xxx CSCI programming course in java and C++ is also accepted.
Twin Cities Campus
College of Science and Engineering - Adm
College of Science and Engineering

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 54 to 60
- Degree: Bachelor of Science in Statistics

This program gives students an understanding of the theory of statistics, trains them in basic use of the most important types of statistical methods, and prepares them for graduate work or for jobs in such diverse areas as marketing analysis, quality management, and support for scientific research.

The program provides a broad foundation in statistics that can be combined with coursework in other technical disciplines or as a basis for further specialization in statistics.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 4 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Mathematics
MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)
or MATH 1372 - CSE Calculus II (4.0 cr)
MATH 2263 - Multivariable Calculus (4.0 cr)
or MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)

Statistics
STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
or STAT 3021 - Introduction to Probability and Statistics (3.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Mathematics
MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)

Major Courses
MATH 4242 - Applied Linear Algebra (4.0 cr)
STAT 3022 - Data Analysis (4.0 cr)
STAT 4893W - Senior Project [WI] (3.0 cr)
Take one of the following pairs of courses.
STAT 4101 - Theory of Statistics I (4.0 cr)
STAT 4102 - Theory of Statistics II (4.0 cr)
or STAT 5101 - Theory of Statistics I (4.0 cr)
STAT 5102 - Theory of Statistics II (4.0 cr)
or STAT 5101 - Theory of Statistics I (4.0 cr)
MATH 5651 - Basic Theory of Probability and Statistics (4.0 cr)

Computer and Physical Sciences

CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)
or CSCI 1902 \textit{(inactive)} (4.0 cr)
or CSCI 1113 - Introduction to C/C++ Programming for Scientists and Engineers (4.0 cr)

Students must complete 3 science courses with a lab component, chosen from at least 2 of the fields of physics, chemistry, biology.

Take 3 or more course(s) including 2 or more sub-requirements(s) from the following:

Take 0 - 1 course(s) from the following:

- BIOL 1009 - General Biology [BIOL] (4.0 cr)
- BIOL 1009H - Honors: General Biology [BIOL] (4.0 cr)

Take 0 - 4 course(s) from the following:

- CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
or CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
- CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
or CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)

Take 0 - 2 course(s) from the following:

- PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
- PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)

Electives

Take 3 or more courses from the following:

Take 3 or more course(s) from the following:

- STAT 5031 - Statistical Methods for Quality Improvement (4.0 cr)
- STAT 5041 - Bayesian Decision Making (3.0 cr)
- STAT 5201 - Sampling Methodology in Finite Populations (3.0 cr)
- STAT 5302 - Applied Regression Analysis (4.0 cr)
- STAT 5303 - Designing Experiments (4.0 cr)
- STAT 5401 - Applied Multivariate Methods (3.0 cr)
- STAT 5421 - Analysis of Categorical Data (3.0 cr)
- STAT 5601 - Nonparametric Methods (3.0 cr)
- STAT 5511 - Time Series Analysis (3.0 cr)

Technical Electives

Students complete 10 credits of adviser-approved courses in computer science, biostatistics, industrial engineering, mathematics, or other areas.

Technical Elective
Twin Cities Campus
University Honors Program

The University Honors Program (UHP) assists high-achieving students in making the most of their undergraduate education. Our students are driven to excel both inside and outside the classroom, but we challenge them to go one step further.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, as well as degree program requirements. For any course required in a degree program, UHP students are expected to register for the honors version of courses associated with their discipline, when offered. These courses are designed to meet degree and UHP requirements.

To remain in the honors program, students must maintain a grade point average of 3.5 and complete a set number of Honors Experiences per year (May and summer sessions included).

Freshman Year
Students build a solid foundation of knowledge to serve them throughout their undergraduate career. Most students complete first-year Honors Experiences primarily through honors courses. Courses can be found here: http://www.honors.umn.edu/experiences/courses-and-tutoring/index.php

Two honors courses
Two honors courses (honors seminars, departmental honors courses, or freshman seminars totalling at least six credits)

Two other Honors Experiences
Two other Honors Experiences (courses or non-course experiences)

Sophomore Year
Students continue to take advantage of the curriculum while expanding their education beyond the classroom. Through non-course Honors Experiences they begin to apply their knowledge in the laboratory, studio, or community. Examples of these experiences can be found here: http://www.honors.umn.edu/experiences/non-course-experiences/index.php.

Two honors courses
Two honors courses (totalling at least six credits)

Two other Honors Experiences
Two other Honors Experiences (courses or non-course experiences)

Junior Year
Students engage in research, scholarship, or creative activity with a faculty mentor--an important step toward the development of a project for the honors thesis--while deepening and broadening their knowledge and skill base. The honors thesis guide can be found here: http://www.honors.umn.edu/latin-honors/thesis-guide/index.php.

One honors course
Two other Honors Experiences
Two other Honors Experiences (courses or non-course experiences)

Senior Year
The honors education culminates in the writing of an honors thesis. Through this thesis, students demonstrate mastery of their field of study, along with the ability to think creatively and independently.

One honors course
One additional Honors Experience
The Honors Thesis
Twin Cities Campus
Accounting B.S.B.

Accounting
Curtis L. Carlson School of Management

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 81 to 82
- Degree: Bachelor of Science in Business

Accounting is the process of gathering financial information and presenting it in a manner that will help others make better decisions. Accountants are also frequently called upon to analyze financial information and provide important business advice. The terms and definitions that have emerged from the discipline are used widely. In fact, accounting is commonly described as the "language of business."

With increased automation over the years, the role of accountants has changed dramatically. Accountants have become recognized as valued business advisers and important members of an organization's management team.

The major areas of study within the accounting curriculum are financial accounting, management accounting, income taxation, auditing, and business law.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshman and transfer students students are usually admitted to pre-major status before admission to this major.

A GPA above 2.0 is preferred for the following:
- 3.00 transferring from another University of Minnesota college
- 3.00 transferring from outside the University

Students in the school have no restrictions on declaring the major but must complete the tool courses before continuing with the major requirements. Students from outside of the school must meet overall admission standards to enter this major, including completion of the tool courses. Students entering as sophomores should complete microeconomics, macroeconomics, and calculus prior to transfer. Students entering as juniors should complete microeconomics, macroeconomics, calculus, statistics, and accounting prior to transfer.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Tool Courses
Microeconomics
- ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or APEC 1101H - Principles of Microeconomics [SOCS, GP] (4.0 cr)

Macroeconomics
- ECON 1102 - Principles of Macroeconomics (4.0 cr)
or APEC 1102 - Principles of Macroeconomics (3.0 cr)
or APEC 1102H - Honors: Principles of Macroeconomics (4.0 cr)

Calculus
- MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)

Statistics
- SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
or SCO 2550H (inactive) (4.0 cr)

Accounting
- ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
or ACCT 2050H - Honors: Introduction to Financial Reporting (4.0 cr)
General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Effective July 1, 2006: Students who wish to earn the Certified Public Accountant (CPA) certification will need to complete 150 credit hours of coursework.

Lower Division Requirements
Students entering the program as freshmen or sophomores take MGMT 1001. Students who transfer in as juniors complete MGMT 3001 instead.

- PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
- BA 3000 - Career Skills (1.0 cr)
- MGMT 1005 - Corporate Responsibility and Ethics [CIV] (3.0 cr)
- MGMT 1001 - Contemporary Management (3.0 cr)
  or MGMT 3001 - Fundamentals of Management (3.0 cr)

Immersion Core
Students complete the Immersion Core as a cohort.

- FINA 3001 - Finance Fundamentals (3.0 cr)
- MKTG 3001 - Principles of Marketing (3.0 cr)
- SCO 3001 - Introduction to Operations Management (3.0 cr)
- MGMT 3004 - Business Strategy (3.0 cr)

Additional Core Requirements

- ACCT 3001 - Introduction to Management Accounting (3.0 cr)
- IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)
- HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
- MGMT 3033W - Business Communication [WI] (3.0 cr)
  or MGMT 3033V (Inactive) [WI] (3.0 cr)

Major Courses

- ACCT 5101 - Intermediate Accounting I (4.0 cr)
- ACCT 5102W - Intermediate Accounting II [WI] (4.0 cr)
- ACCT 5125 - Auditing Principles and Procedures (4.0 cr)
- ACCT 5135 - Fundamentals of Federal Income Tax (4.0 cr)
- ACCT 3201 - Intermediate Management Accounting (2.0 cr)
- BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
- ACCT 3150 - Role of the Accountant in Today's Finance Function (1.0 cr)

Electives
Take 4 or more credit(s) from the following:
- ACCT 5160 - Financial Statement Analysis (2.0 cr)
- ACCT 5180 - Consolidations and Advanced Reporting (2.0 cr)
- ACCT 5236 - Introduction to Taxation of Business (2.0 cr)
- ACCT 5310 - International Accounting (2.0 cr)
- ACCT 5320 - Current Topics in Accounting (2.0 cr)
- IDSC 4411 - Accounting Information Systems and IT Governance (2.0 cr)
- ACCT 5126 - Internal Auditing (2.0 cr)
- ACCT 5281 - Special Topics in Financial Reporting (2.0 cr)

International Experience
Students must complete an international experience as part of the program requirements. Short-term programs or semester-length programs may be used to meet this requirement. Students participate in International Experience (IE) 101 early in their program to begin planning.
Twin Cities Campus
Accounting Minor
Curtis L. Carlson School of Management

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 12
- This program requires summer terms.

See major description for more information.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
This minor is only available to students admitted to the undergraduate degree program in the Carlson School of Management.

Minor Courses
ACCT 5101 - Intermediate Accounting I (4.0 cr)
ACCT 5102W - Intermediate Accounting II [WI] (4.0 cr)
Take 4 or more credit(s) from the following:
- ACCT 3201 - Intermediate Management Accounting (2.0 cr)
- ACCT 5135 - Fundamentals of Federal Income Tax (4.0 cr)
- ACCT 5160 - Financial Statement Analysis (2.0 cr)
- ACCT 5180 - Consolidations and Advanced Reporting (2.0 cr)
- ACCT 5310 - International Accounting (2.0 cr)
- ACCT 5126 - Internal Auditing (2.0 cr)
- ACCT 5281 - Special Topics in Financial Reporting (2.0 cr)
Twin Cities Campus
Entrepreneurial Management B.S.B.
Strategic Management & Entrepreneur
Curtis L. Carlson School of Management

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 77
- Degree: Bachelor of Science in Business

The entrepreneurial management major provides current and future business professionals with the necessary skills and tools to successfully form and develop businesses and function as entrepreneurs or as productive members of entrepreneurial, emerging, or aggressively-positioned companies. These organizations require individuals that have the ability to manage risk, multitask across functional boundaries, and creatively engage and adapt to an environment that is constantly changing.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshman and transfer students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 3.00 transferring from another University of Minnesota college
- 3.00 transferring from outside the University

Students have no restrictions on declaring the major but must complete the tool courses before continuing the major requirements. Students from outside of the school must meet overall admission standards to enter this major, including completion of the tool courses. Students entering as sophomores should complete microeconomics, macroeconomics, and calculus prior to transfer. Students entering as juniors should complete microeconomics, macroeconomics, calculus, statistics, and accounting prior to transfer.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Tool Courses

Microeconomics
- ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1101H - Honors: Principles of Microeconomics [SOCS, GP] (4.0 cr)

Macroeconomics
- ECON 1102 - Principles of Macroeconomics (4.0 cr)
- or APEC 1102 - Principles of Macroeconomics (3.0 cr)
- or APEC 1102H - Honors: Principles of Macroeconomics (4.0 cr)

Calculus
- MATH 1142 - Short Calculus [MATH] (4.0 cr)
- or MATH 1271 - Calculus I [MATH] (4.0 cr)
- or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
- or Math 1371

Statistics
- SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
- or SCO 2550H (Inactive) (4.0 cr)

Accounting
- ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
- or ACCT 2050H - Honors: Introduction to Financial Reporting (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Lower Division Requirements
Students entering the program as freshmen or sophomores take MGMT 1001. Students who transfer in as juniors complete MGMT 3001 instead.

- PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
- BA 3000 - Career Skills (1.0 cr)
- MGMT 1005 - Corporate Responsibility and Ethics [CIV] (3.0 cr)
- MGMT 1001 - Contemporary Management (3.0 cr)
  or MGMT 1001H - Honors: Contemporary Management (3.0 cr)
  or MGMT 3001 - Fundamentals of Management (3.0 cr)

Immersion Core
Students complete the Immersion Core as a cohort.

- FINA 3001 - Finance Fundamentals (3.0 cr)
- MKTG 3001 - Principles of Marketing (3.0 cr)
- SCO 3001 - Introduction to Operations Management (3.0 cr)
- MGMT 3004 - Business Strategy (3.0 cr)

Additional Core Requirements

- ACCT 3001 - Introduction to Management Accounting (3.0 cr)
- IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)
- HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
- MGMT 3033W - Business Communication [WI] (3.0 cr)
  or MGMT 3033V (inactive) [WI] (3.0 cr)

Major Courses

- MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)
- MGMT 4006 - Entrepreneurial Management (4.0 cr)
- MGMT 4050 - Management of Innovation and Change (2.0 cr)
- MGMT 4170W - New Business Feasibility and Planning [WI] (4.0 cr)
  or MGMT 4171W - Entrepreneurship in Action I [WI] (4.0 cr)
  or MGMT 4080W - Applied Technology Entrepreneurship [WI] (4.0 cr)

Electives

Choose 8 credits from the list below. Courses may not double count in the required category and elective category.

Take 8 or more credit(s) from the following:

- ACCT 3201 - Intermediate Management Accounting (2.0 cr)
- ACCT 5160 - Financial Statement Analysis (2.0 cr)
- BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
- FINA 4221 - Principles of Corporate Finance (2.0 cr)
- FINA 4422 - Financial Modeling (2.0 cr)
- HRIR 3031 - Staffing and Selection: Strategic and Operational Concerns (2.0 cr)
- HRIR 4100W - HRIR Capstone: Personal and Organizational Leadership [WI] (4.0 cr)
- IDSC 3202 - Analysis and Modeling for Business Systems Development (4.0 cr)
- INS 4100 - Corporate Risk Management (2.0 cr)
- MKTG 3010 - Marketing Research (4.0 cr)
- MKTG 4030 - Sales Management (4.0 cr)
- MKTG 4050 - Integrated Marketing Communications (4.0 cr)
- SCO 3041 - Project Management (2.0 cr)
- SCO 3056 - Supply Chain Planning and Control (4.0 cr)
- MGMT 4000 - Issues in Nonprofit Management (4.0 cr)
- MGMT 4002 - Managerial Psychology (4.0 cr)
- MGMT 4040 - Negotiation Strategies (4.0 cr)
- MGMT 4100 - Topics in Management (2.0 - 4.0 cr)
- MGMT 4170W - New Business Feasibility and Planning [WI] (4.0 cr)
- MGMT 4171W - Entrepreneurship in Action I [WI] (4.0 cr)
- MGMT 4172 - Entrepreneurship in Action II (4.0 cr)
- MGMT 4080W - Applied Technology Entrepreneurship [WI] (4.0 cr)
- BA 4503 - Carlson Ventures Enterprise (2.0 cr)
- PDES 3701 - Creativity, Idea Generation, and Innovation (3.0 cr)
• PDES 3711 - Toy Product Design (4.0 cr)
• CE 5571 - Acara Global Venture Design: Grand Challenges [GP] (3.0 - 4.0 cr)
• CE 5572 - Acara Social Venture Launchpad: Ideas to Impact (2.0 cr)
• ANTH 4121 - Business Anthropology (3.0 cr)

International Experience
Students must complete an international experience as part of the program requirements. Short-term programs or semester-length programs may be used to meet this requirement. Students participate in International Experience (IE) 101 early in their program to begin planning.
Twin Cities Campus
Entrepreneurial Management Minor
Strategic Management & Entrepreneur
Curtis L. Carlson School of Management

• Program Type: Undergraduate minor related to major
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 16

See major description for more information.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
This minor is only available for students pursuing a B.S.B. degree in the Carlson School of Management.

Minor Courses
Students must complete a minimum of 10 credits in the required section, plus additional credits from the elective section or required section for a total of 16 credits.
MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)
MGMT 4008 - Entrepreneurial Management (4.0 cr)
MGMT 4050 - Management of Innovation and Change (2.0 cr)
or MGMT 4170W - New Business Feasibility and Planning [WI] (4.0 cr)
or MGMT 4171W - Entrepreneurship in Action I [WI] (4.0 cr)
or MGMT 4080W - Applied Technology Entrepreneurship [WI] (4.0 cr)

Electives
Choose courses from the list below or courses not chosen above.
Take 4 - 6 credit(s) from the following:
• ACCT 3201 - Intermediate Management Accounting (2.0 cr)
• ACCT 5160 - Financial Statement Analysis (2.0 cr)
• BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
• FINA 4221 - Principles of Corporate Finance (2.0 cr)
• FINA 4422 - Financial Modeling (2.0 cr)
• HRIR 3031 - Staffing and Selection: Strategic and Operational Concerns (2.0 cr)
• HRIR 4100W - HRIR Capstone: Personal and Organizational Leadership [WI] (4.0 cr)
• IDSC 3202 - Analysis and Modeling for Business Systems Development (4.0 cr)
• INS 4100 - Corporate Risk Management (2.0 cr)
• MKTG 3010 - Marketing Research (4.0 cr)
• MKTG 4030 - Sales Management (4.0 cr)
• MKTG 4050 - Integrated Marketing Communications (4.0 cr)
• SCO 3041 - Project Management (2.0 cr)
• SCO 3056 - Supply Chain Planning and Control (4.0 cr)
• MGMT 4000 - Issues in Nonprofit Management (4.0 cr)
• MGMT 4002 - Managerial Psychology (4.0 cr)
• MGMT 4040 - Negotiation Strategies (4.0 cr)
• MGMT 4100 - Topics in Management (2.0 - 4.0 cr)
• MGMT 4170W - New Business Feasibility and Planning [WI] (4.0 cr)
• MGMT 4171W - Entrepreneurship in Action I [WI] (4.0 cr)
• MGMT 4172 - Entrepreneurship in Action II (4.0 cr)
• MGMT 4080W - Applied Technology Entrepreneurship [WI] (4.0 cr)
• BA 4503 - Carlson Ventures Enterprise (2.0 cr)
• PDES 3701 - Creativity, Idea Generation, and Innovation (3.0 cr)
• PDES 3711 - Toy Product Design (4.0 cr)
• CE 5571 - Acara Global Venture Design: Grand Challenges [GP] (3.0 - 4.0 cr)
• CE 5572 - Acara Social Venture Launchpad: Ideas to Impact (2.0 cr)
• ANTH 4121 - Business Anthropology (3.0 cr)
Twin Cities Campus

Finance & Risk Management Insurance B.S.B.

Finance
Curtis L. Carlson School of Management

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 77
- Degree: Bachelor of Science in Business

Risk management is the practice of identifying the risks that affect a company's business and finding ways to mitigate and offset those risks. Risk management tools and techniques help corporations deal with many types of issues, legal concerns, and human resources changes.

This major introduces students to the risk management discipline and multiple career paths, including corporate risk manager, benefits manager, insurance agent/broker, underwriter, loss adjuster, consultant, and personal financial planner.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshman and transfer students students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 3.00 transferring from another University of Minnesota college
- 3.00 transferring from outside the University

Students in the school have no restrictions on declaring the major but must complete the tool courses before starting the major coursework. Students from outside the school must meet overall admission standards to enter this major, including completion of the tool courses. Students entering as sophomores should complete microeconomics, macroeconomics, and calculus prior to transfer. Students entering as juniors should complete microeconomics, macroeconomics, calculus, statistics, and accounting prior to transfer.

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](http://www.umn.edu/admissions).

Required prerequisites

**Tool Courses**

**Microeconomics**
- ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1101H - Principles of Microeconomics [SOCS, GP] (4.0 cr)

**Macroeconomics**
- ECON 1102 - Principles of Macroeconomics (4.0 cr)
- or APEC 1102 - Principles of Macroeconomics (3.0 cr)
- or APEC 1102H - Honors: Principles of Macroeconomics (4.0 cr)

**Calculus**
- MATH 1142 - Short Calculus [MATH] (4.0 cr)
- or MATH 1271 - Calculus I [MATH] (4.0 cr)
- or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
- or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)

**Statistics**
- SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
- or SCO 2550H (inactive) (4.0 cr)

**Accounting**
- ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
- or ACCT 2050H - Honors: Introduction to Financial Reporting (4.0 cr)
General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Lower Division Requirements
Students entering the program as freshmen or sophomores take MGMT 1001. Students who transfer in as juniors complete MGMT 3001 instead.

PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
BA 3000 - Career Skills (1.0 cr)
MGMT 1005 - Corporate Responsibility and Ethics [CIV] (3.0 cr)
MGMT 1001 - Contemporary Management (3.0 cr)

or MGMT 1001H - Honors: Contemporary Management (3.0 cr)

or MGMT 3001 - Fundamentals of Management (3.0 cr)

Immersion Core
Students complete the Immersion Core as a cohort.
FINA 3001 - Finance Fundamentals (3.0 cr)
MKTG 3001 - Principles of Marketing (3.0 cr)
SCO 3001 - Introduction to Operations Management (3.0 cr)
MGMT 3004 - Business Strategy (3.0 cr)

Additional Core Requirements
ACCT 3001 - Introduction to Management Accounting (3.0 cr)
IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)
HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
MGMT 3033W - Business Communication [WI] (3.0 cr)

or MGMT 3033V [Inactive] [WI] (3.0 cr)

Major Courses
ACCT 5101 - Intermediate Accounting I (4.0 cr)
FINA 4121 - Financial Markets and Interest Rates (2.0 cr)
FINA 4221 - Principles of Corporate Finance (2.0 cr)
FINA 4321 - Portfolio Management and Performance Evaluation (2.0 cr)
FINA 4422 - Financial Modeling (2.0 cr)
FINA 4522 - Options & Derivatives I (2.0 cr)
INS 4100 - Corporate Risk Management (2.0 cr)
INS 4101 - Employee Benefits (2.0 cr)
INS 4200 - Insurance Theory and Practice (2.0 cr)

Take 2 or more credit(s) from the following:
- BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
- FINA 4122 - Banking Institutions (2.0 cr)
- FINA 4224 - Real Options: Valuing Strategic Flexibility (2.0 cr)
- FINA 4242W - Corporate Investment Decisions [WI] (4.0 cr)
- FINA 4325 - Behavioral Finance (2.0 cr)
- FINA 4329 - Security Analysis Capstone (2.0 cr)
- FINA 4529 - Derivatives II Capstone (2.0 cr)
- FINA 4621 - The Global Economy (Macro) (2.0 cr)
- FINA 4622 - International Finance (2.0 cr)
- FINA 4920 [Inactive] (2.0 cr)
- HRIR 5654 - Public Policies on Employee Benefits: Social Safety Nets (2.0 cr)
- MATH 4065 - Theory of Interest (4.0 cr)
- MATH 5067 - Actuarial Mathematics I (4.0 cr)

International Experience
Students must complete an international experience as part of the program requirements. Short-term or semester-length programs may be used to meet this requirement. Students participate in International Experience (IE) 101 early in their program to begin planning.
Twin Cities Campus
Finance B.S.B.

Curtis L. Carlson School of Management

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 77
- Degree: Bachelor of Science in Business

The finance major develops a student's understanding of principles and techniques of effective financial decision making. It provides the skills and knowledge required to assist businesses, governments, or individuals in answering questions regarding improving the value of the company, evaluating projects, measuring financial risk, raising funds, making investments, and understanding capital markets.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshman and transfer students students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 3.00 transferring from another University of Minnesota college
- 3.00 transferring from outside the University

Students have no restrictions on declaring the major but must complete the tool courses before starting major coursework. Students from outside the school must meet overall admission standards to enter this major, including completion of the tool courses. Students entering as sophomores should complete microeconomics, macroeconomics, and calculus. Students entering as juniors should complete microeconomics, macroeconomics, calculus, statistics, and accounting prior to transfer.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Tool Courses

**Microeconomics**

- ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1101H - Principles of Microeconomics [SOCS, GP] (4.0 cr)

**Macroeconomics**

- ECON 1102 - Principles of Macroeconomics (4.0 cr)
- or APEC 1102 - Principles of Macroeconomics (3.0 cr)
- or APEC 1102H - Honors: Principles of Macroeconomics (4.0 cr)

**Calculus**

- MATH 1142 - Short Calculus [MATH] (4.0 cr)
- or MATH 1271 - Calculus I [MATH] (4.0 cr)
- or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
- or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)

**Operations and Management Science**

- SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
- or SCO 2550H (Inactive) (4.0 cr)

**Accounting**

- ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
- or ACCT 2050H - Honors: Introduction to Financial Reporting (4.0 cr)

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).
Program Requirements

Lower Division Requirements
Students entering the program as freshmen or sophomores take MGMT 1001. Students who transfer in as juniors complete MGMT 3001 instead.
- **BA 3000 - Career Skills (1.0 cr)**
- **PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)**
- **MGMT 1005 - Corporate Responsibility and Ethics [CIV] (3.0 cr)**
- **MGMT 1001 - Contemporary Management (3.0 cr)**
- or **MGMT 1001H - Honors: Contemporary Management (3.0 cr)**
- or **MGMT 3001 - Fundamentals of Management (3.0 cr)**

Immersion Core
Students complete the Immersion Core as a cohort.
- **FINA 3001 - Finance Fundamentals (3.0 cr)**
- **MKTG 3001 - Principles of Marketing (3.0 cr)**
- **SCO 3001 - Introduction to Operations Management (3.0 cr)**
- **MGMT 3004 - Business Strategy (3.0 cr)**

Additional Core Requirements
- **ACCT 3001 - Introduction to Management Accounting (3.0 cr)**
- **IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)**
- **HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)**
- **MGMT 3033W - Business Communication [WI] (3.0 cr)**
  - or **MGMT 3033V [Inactive] [WI] (3.0 cr)**

Major Courses
- **ACCT 5101 - Intermediate Accounting I (4.0 cr)**
- **FINA 4121 - Financial Markets and Interest Rates (2.0 cr)**
- **FINA 4221 - Principles of Corporate Finance (2.0 cr)**
- **FINA 4321 - Portfolio Management and Performance Evaluation (2.0 cr)**
- **FINA 4422 - Financial Modeling (2.0 cr)**
- **FINA 4522 - Options & Derivatives I (2.0 cr)**

Electives
Take 8 or more credit(s) from the following:
- **FINA 4122 - Banking Institutions (2.0 cr)**
- **FINA 4621 - The Global Economy (Macro) (2.0 cr)**
- **FINA 4622 - International Finance (2.0 cr)**
- **FINA 4329 - Security Analysis Capstone (2.0 cr)**
- **FINA 4242W - Corporate Investment Decisions [WI] (4.0 cr)**
- **FINA 4529 - Derivatives II Capstone (2.0 cr)**
- **FINA 4920 [Inactive] (2.0 cr)**
- **ACCT 5160 - Financial Statement Analysis (2.0 cr)**
- **FINA 4224 - Real Options: Valuing Strategic Flexibility (2.0 cr)**
- **FINA 4325 - Behavioral Finance (2.0 cr)**

International Experience
Students must complete an international experience as part of the program requirements. Short-term or semester-length programs may be used to meet this requirement. Students participate in International Experience (IE) 101 early in their program to begin planning.
Twin Cities Campus

Finance Minor

Curtis L. Carlson School of Management

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 12

See major description for more information.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

This minor is only available for students pursuing a B.S.B. in the Carlson School of Management.

Minor Courses

- FINA 4221 - Principles of Corporate Finance (2.0 cr)
- FINA 4121 - Financial Markets and Interest Rates (2.0 cr)
  or FINA 4121H - Financial Markets and Interest Rates (2.0 cr)
- FINA 4321 - Portfolio Management and Performance Evaluation (2.0 cr)
  or FINA 4321H - Portfolio Management and Performance Evaluation (2.0 cr)

Electives

Take 6 or more credit(s) from the following:
- FINA 4122 - Banking Institutions (2.0 cr)
- FINA 4224 - Real Options: Valuing Strategic Flexibility (2.0 cr)
- FINA 4325 - Behavioral Finance (2.0 cr)
- FINA 4329 - Security Analysis Capstone (2.0 cr)
- FINA 4422 - Financial Modeling (2.0 cr)
- FINA 4522 - Options & Derivatives I (2.0 cr)
- FINA 4529 - Derivatives II Capstone (2.0 cr)
- FINA 4621 - The Global Economy (Macro) (2.0 cr)
- FINA 4622 - International Finance (2.0 cr)
- FINA 4242W - Corporate Investment Decisions [WI] (4.0 cr)
Twin Cities Campus

Human Resources and Industrial Relations B.S.B.

Industrial Relations Center
Curtis L. Carlson School of Management

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 75
- Degree: Bachelor of Science in Business

The human resources and industrial relations (HRIR) major prepares graduates for positions involving the recruitment and/or selection of new employees, identification of training needs among new and current workers, the functional operation of compensation systems and benefits packages, and the management of employee relations.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshman and transfer students students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 3.00 transferring from another University of Minnesota college
- 3.00 transferring from outside the University

Students have no restrictions on declaring the major but must complete the tool courses before starting the major. Students from outside the school must meet overall admission standards to enter this major, including completion of the tool courses. Students entering as sophomores should complete microeconomics, macroeconomics and calculus prior to transfer. Students entering as juniors should complete microeconomics, macroeconomics, calculus, statistics, and accounting prior to transfer.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Tool Courses

Microeconomics
- ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1101H - Principles of Microeconomics [SOCS, GP] (4.0 cr)

Macroeconomics
- ECON 1102 - Principles of Macroeconomics (4.0 cr)
- or APEC 1102 - Principles of Macroeconomics (3.0 cr)
- or APEC 1102H - Honors: Principles of Macroeconomics (4.0 cr)

Calculus
- MATH 1142 - Short Calculus [MATH] (4.0 cr)
- or MATH 1271 - Calculus I [MATH] (4.0 cr)
- or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
- or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)

Statistics
- SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
- or SCO 2550H (Inactive) (4.0 cr)

Accounting
- ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
- or ACCT 2050H - Honors: Introduction to Financial Reporting (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).
Program Requirements

Lower Division Requirements
Students entering the program as freshmen or sophomores take MGMT 1001. Students who transfer in as juniors complete MGMT 3001 instead.

- PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
- BA 3000 - Career Skills (1.0 cr)
- MGMT 1005 - Corporate Responsibility and Ethics [CIV] (3.0 cr)
- MGMT 1001 - Contemporary Management (3.0 cr)
  or MGMT 3001 - Fundamentals of Management (3.0 cr)

Immersion Core
Students complete the Immersion Core as a cohort.

- FINA 3001 - Finance Fundamentals (3.0 cr)
- MKTG 3001 - Principles of Marketing (3.0 cr)
- SCO 3001 - Introduction to Operations Management (3.0 cr)
- MGMT 3004 - Business Strategy (3.0 cr)

Additional Core Requirements

- ACCT 3001 - Introduction to Management Accounting (3.0 cr)
- HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
- IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)
- MGMT 3033W - Business Communication [WI] (3.0 cr)
  or MGMT 3033V (Inactive) [WI] (3.0 cr)

Major Courses

- HRIR 3031 - Staffing and Selection: Strategic and Operational Concerns (2.0 cr)
- HRIR 3041 - The Individual in the Organization (2.0 cr)
- HRIR 3051 - Compensation: Theory and Practice (2.0 cr)
- HRIR 3071 - Union Organizing and Labor Relations (2.0 cr)
- HRIR 4100W - HRIR Capstone: Personal and Organizational Leadership [WI] (4.0 cr)

Electives
Take 8 or more credit(s) from the following:

- HRIR 3032 - Training and Development (2.0 cr)
- HRIR 3042 - The Individual and Organizational Performance (2.0 cr)
- HRIR 3072 - Collective Bargaining and Dispute Resolution (2.0 cr)
- HRIR 5222 - Managing Diversity (2.0 cr)
- HRIR 5252 - Employment and Labor Law for the HRIR Professional (2.0 cr)
- HRIR 5225 (Inactive) (2.0 cr)
- HRIR 5654 - Public Policies on Employee Benefits: Social Safety Nets (2.0 cr)
- HRIR 5655 - Public Policies on Work and Pay (3.0 cr)
- HRIR 5662 - Personnel Economics (2.0 cr)
- HRIR 5000 - Topics in Human Resources and Industrial Relations (2.0 cr)
- INS 4101 - Employee Benefits (2.0 cr)

International Experience
Students must complete an international experience as part of the program requirements. Short-term or semester-length programs may be used to meet this requirement. Students participate in International Experience (IE) 101 early in their program to begin planning.
Twin Cities Campus

Human Resources and Industrial Relations Minor
Industrial Relations Center
Curtis L. Carlson School of Management

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 12

See major description for more information.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Course Group 0

Minor Requirements
This minor is only available to students pursuing a B.S.B. degree in the Carlson School of Management and assumes students have completed HRIR 3021.

Minor
Take 3 or more course(s) totaling 6 or more credit(s) from the following:
- HRIR 3031 - Staffing and Selection: Strategic and Operational Concerns (2.0 cr)
- HRIR 3051 - Compensation: Theory and Practice (2.0 cr)
- HRIR 3041 - The Individual in the Organization (2.0 cr)
- HRIR 3071 - Union Organizing and Labor Relations (2.0 cr)
Take 6 or more credit(s) from the following:
- HRIR 3032 - Training and Development (2.0 cr)
- HRIR 3042 - The Individual and Organizational Performance (2.0 cr)
- HRIR 3072 - Collective Bargaining and Dispute Resolution (2.0 cr)
- HRIR 5222 - Managing Diversity (2.0 cr)
- HRIR 5252 - Employment and Labor Law for the HRIR Professional (2.0 cr)
- HRIR 5225 (Inactive) (2.0 cr)
- HRIR 5654 - Public Policies on Employee Benefits: Social Safety Nets (2.0 cr)
- HRIR 5655 - Public Policies on Work and Pay (3.0 cr)
- HRIR 5662 - Personnel Economics (2.0 cr)
- INS 4101 - Employee Benefits (2.0 cr)
- HRIR 5000 - Topics in Human Resources and Industrial Relations (2.0 cr)
- HRIR 4100W - HRIR Capstone: Personal and Organizational Leadership [WI] (4.0 cr)
Twin Cities Campus
International Business B.S.B.
Strategic Management & Entrepreneur
Curtis L. Carlson School of Management

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120 to 132
- Required credits within the major: 20
- Degree: Bachelor of Science in Business

The international business major provides students with a rigorous foundation for success in today's global business environment. Recognizing that career placement and early stage career success depends on strong functional skills (e.g., accounting, marketing, finance, human resources, operations, information systems, or entrepreneurship), the international business major must be completed with another major in Carlson. The international business major enhances any functional major with a comprehensive understanding of the additional complexity and contingencies required when conducting business across national borders.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshman and transfer students students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 3.00 transferring from another University of Minnesota college
- 3.00 transferring from outside the University

Students in the school have no restrictions on declaring the major but must complete the tool courses before starting the major. Students from outside of the school must meet overall admission standards to enter this major, including completion of the tool courses. Students entering as sophomores should complete microeconomics, macroeconomics, and calculus prior to transfer. Students entering as juniors should complete microeconomics, macroeconomics, calculus, statistics, and accounting prior to transfer.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Tool Courses
- Microeconomics
  - ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
  - or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
  - or APEC 1101H - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- Macroeconomics
  - ECON 1102 - Principles of Macroeconomics (4.0 cr)
  - or APEC 1102 - Principles of Macroeconomics (3.0 cr)
  - or APEC 1102H - Honors: Principles of Macroeconomics (4.0 cr)
- Calculus
  - MATH 1142 - Short Calculus [MATH] (4.0 cr)
  - or MATH 1271 - Calculus I [MATH] (4.0 cr)
  - or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
  - or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
- Statistics
  - SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
  - or SCO 2550H (inactive) (4.0 cr)
- Accounting
  - ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
  - or ACCT 2050H - Honors: Introduction to Financial Reporting (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students are required to take 4 semester(s) of any second language.

The international business major must be completed with another major within the Carlson School.

Lower Division Requirements
Students entering the program as freshmen or sophomores take MGMT 1001. Students who transfer in as juniors complete MGMT 3001 instead.
- PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
- BA 3000 - Career Skills (1.0 cr)
- MGMT 1001 - Contemporary Management (3.0 cr)
  or MGMT 3001 - Fundamentals of Management (3.0 cr)

Immersions Core
Students complete the Immersion Core as a cohort.
- FINA 3001 - Finance Fundamentals (3.0 cr)
- MKTG 3001 - Principles of Marketing (3.0 cr)
- SCO 3001 - Introduction to Operations Management (3.0 cr)
- MGMT 3004 - Business Strategy (3.0 cr)

Additional Core Requirements
ACCT 3001 - Introduction to Management Accounting (3.0 cr)
IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)
HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
MGMT 3033W - Business Communication [WI] (3.0 cr)
  or MGMT 3033V (inactive) [WI] (3.0 cr)

Major Courses
International Business Foundations
The international business foundations courses must be completed at the Carlson School.
- MGMT 3040 - Understanding the International Environment of Firms: International Business (2.0 cr)

CSOM International Courses
One course only may be double counted for the primary major and IB major.
Take 2 or more course(s) from the following:
- MGMT 3900 - International Business Communication [GP] (3.0 cr)
- ACCT 5310 - International Accounting (2.0 cr)
- FINA 4621 - The Global Economy (Macro) (2.0 cr)
- FINA 4622 - International Finance (2.0 cr)
- HRIR 5225 (inactive) (2.0 cr)
- MKTG 4080W - Marketing Strategy [WI] (4.0 cr)
- IBUS 4090 - Corporate Strategy in Emerging Europe (4.0 cr)
- IBUS 4082W - Brand Management [WI] (4.0 cr)
- IBUS 3010 - Introduction to Global Entrepreneurship in China (4.0 cr)
- IBUS 4050 - Management of Innovation and Change (4.0 cr)
- IBUS 4010 - Management of Technology in the Middle East (3.0 cr)
- IBUS 4080 - Health Care Industry Dynamics in Africa—An International Business Perspective (4.0 cr)
- IBUS 3080 - Sustainability and Corporate Social Responsibility in Costa Rica (4.0 cr)

International Environment Breadth
May be completed abroad with advising and department approval.
Take 2 or more course(s) totaling 6 or more credit(s) from the following:

International Political Economy Survey Course
Take 1 or more course(s) from the following:
- POL 3410 - Topics in Comparative Politics (3.0 cr)
- POL 3835 - International Relations [SOCS, GP] (3.0 cr)
- POL 4481 - Governments and Markets (3.0 - 4.0 cr)
- ECON 4401 - International Economics [GP] (3.0 cr)
- ECON 4307 - Comparative Economic Systems (3.0 cr)
- APEC 3007 - Applied Macroeconomics: Policy, Trade, and Development [GP] (3.0 cr)
- APEC 5751 - Global Trade and Policy (3.0 cr)
• **GEOG 3331** - Geography of the World Economy [SOCS, GP] (3.0 cr)
• **GLOS 3415** - Global Institutions of Power: World Bank, International Monetary Fund, and World Trade Organization (3.0 cr)
• **HIST 3419** - History of Capitalism: Uneven Development Since 1500 (3.0 cr)

**Sociocultural Survey Course**
Take 1 or more course(s) from the following:
• **GEOG 3379** - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
• **GLOS 4802** (Inactive) (4.0 cr)
• **GLOS 3602** - Other Worlds: Globalization and Culture (3.0 cr)
• **GLOS 4221** - Globalize This! Understanding Globalization Through Sociology [GP] (3.0 cr)
• **ANTH 3003** - Cultural Anthropology (3.0 cr)
• **ANTH 4031W** - Anthropology and Social Justice [CIV, WI] (4.0 cr)
• **ANTH 4053** - Economy, Culture, and Critique [SOCS, GP] (3.0 cr)
• **ANTH 4065** - The Anthropology of Development (3.0 cr)
• **AMST 4301** - Workers and Consumers in the Global Economy [DSJ] (3.0 cr)

**International Business Environment Depth**
May be completed abroad with advising and department approval. Courses may not count in more than one area of Depth, Breadth, or Business Foundations.
Take 2 or more course(s) from the following:
• **MGMT 3900** - International Business Communication [GP] (3.0 cr)
• **ACCT 5310** - International Accounting (2.0 cr)
• **FINA 4621** - The Global Economy (Macro) (2.0 cr)
• **FINA 4622** - International Finance (2.0 cr)
• **HRIR 5225** (Inactive) (2.0 cr)
• **MKTG 4080W** - Marketing Strategy [WI] (4.0 cr)
• **POL 3477** - Political Economy of Development [SOCS, GP] (3.0 - 4.0 cr)
• **GLO3415** - Global Institutions of Power: World Bank, International Monetary Fund, and World Trade Organization (3.0 cr)
• **GEOG 3378** (Inactive) (3.0 cr)
• **PA 4414** - Child Human Rights: Work and Education (3.0 cr)
• **HIST 3468** - Social Change in Modern China (3.0 cr)
• **PSY 3301** - Introduction to Cultural Psychology (3.0 cr)
• **ANTH 3023** - Culture and Society of India [GP, SOCS] (3.0 cr)
• **GEOG 3379** - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
• **OLPD 3380** - Developing Intercultural Competence (3.0 cr)

**Senior Seminar in International Business**
MGMT 4500 - Senior Seminar in International Business (2.0 cr)

**International Experience**
Students in the International Business major will complete a study abroad experience of at least one full semester in length. OR They may complete a study abroad experience of any length, PLUS an internship with an international organization. (Please speak with an adviser about acceptable internships.)

**Program Sub-plans**
A sub-plan is not required for this program.

**Honors UHP**
This is an honors sub-plan.

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.

Current departmental honors course offerings are listed at:
http://www.honors.umn.edu/academics/curriculum/dept_courses_current.html

Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or with an honors directed studies, or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.
Twin Cities Campus
International Business Minor
Strategic Management & Entrepreneur
Curtis L. Carlson School of Management

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 12 to 16

The international business minor provides students with a vital foundation for success in today's global business environment. It enhances any functional major with a broad understanding of the additional complexity and contingencies required when conducting business across international borders.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshman and transfer students students are usually admitted to pre-major status before admission to this major

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
This minor is only available for students admitted to a degree program in the Carlson School of Management.

International Business Foundation
The International Business Foundation courses must be completed at the Carlson School. Students who study abroad for a semester may choose to complete Mgmt 4500 as one course in the Foundations category.

MGMT 3040 - Understanding the International Environment of Firms: International Business (2.0 cr)
Take 2 or more course(s) from the following:
- MGMT 3900 - International Business Communication [GP] (3.0 cr)
- ACCT 5310 - International Accounting (2.0 cr)
- FINA 4621 - The Global Economy (Macro) (2.0 cr)
- FINA 4622 - International Finance (2.0 cr)
- HRIR 5225 (Inactive) (2.0 cr)
- MKTG 4080W - Marketing Strategy [WI] (4.0 cr)
- IBUS 4080 - Corporate Strategy in Emerging Europe (4.0 cr)
- IBUS 4082W - Brand Management [WI] (4.0 cr)
- IBUS 3010 - Introduction to Global Entrepreneurship in China (4.0 cr)
- IBUS 4050 - Management of Innovation and Change (4.0 cr)
- IBUS 4010 - Management of Technology in the Middle East (3.0 cr)
- IBUS 4080 - Health Care Industry Dynamics in Africa—An International Business Perspective (4.0 cr)
- IBUS 3080 - Sustainability and Corporate Social Responsibility in Costa Rica (4.0 cr)
- MGMT 4500 - Senior Seminar in International Business (2.0 cr)

International Environment Breadth
The International Environment Breadth courses may be completed abroad with advising and departmental approval. Students may choose to complete this category with one depth course from the IB major and one breadth course, or two breadth courses. Business language courses may not be used in the minor.

International Political Economy Survey course
Take 1 or more course(s) from the following:
- APEC 3007 - Applied Macroeconomics: Policy, Trade, and Development [GP] (3.0 cr)
- APEC 5751 - Global Trade and Policy (3.0 cr)
- ECON 4307 - Comparative Economic Systems (3.0 cr)
- ECON 4401 - International Economics [GP] (3.0 cr)
- GEOG 3331 - Geography of the World Economy [SOCS, GP] (3.0 cr)
- GLOS 3415 - Global Institutions of Power: World Bank, International Monetary Fund, and World Trade Organization (3.0 cr)
- HIST 3419 - History of Capitalism: Uneven Development Since 1500 (3.0 cr)
- POL 3410 - Topics in Comparative Politics (3.0 cr)
• POL 3835 - International Relations [SOCS, GP] (3.0 cr)
• POL 4481 - Governments and Markets (3.0 - 4.0 cr)

Sociocultural Survey course
Students may choose to complete a credit-bearing internship with an academic seminar component during the semester or summer abroad to complete this category.

Take 1 or more course(s) from the following:
• AMST 4301 - Workers and Consumers in the Global Economy [DSJ] (3.0 cr)
• ANTH 3003 - Cultural Anthropology (3.0 cr)
• ANTH 4031W - Anthropology and Social Justice [CIV, WI] (4.0 cr)
• ANTH 4053 - Economy, Culture, and Critique [SOCS, GP] (3.0 cr)
• ANTH 4065 - The Anthropology of Development (3.0 cr)
• ANTH 4121 - Business Anthropology (3.0 cr)
• GEOG 3379 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
• GLOS 3303 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
• GLOS 3602 - Other Worlds: Globalization and Culture (3.0 cr)
• GLOS 4221 - Globalize This! Understanding Globalization Through Sociology [GP] (3.0 cr)

International Experience Requirement
An international experience requirement that meets the Carlson School's requirement of all students will fulfill the minor requirement.
Twin Cities Campus
Management Information Systems B.S.B.
Information & Decision Sciences
Curtis L. Carlson School of Management

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 120
• Required credits within the major: 77
• Degree: Bachelor of Science in Business

The management information systems (MIS) major prepares students to be leaders in conceptualizing, prescribing, developing, and delivering leading-edge information system applications that support business processes and management decision making. It provides students with an understanding of the functions of information systems in organizations and detailed knowledge of information system analysis, design, and operation.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshman and transfer students students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
• 3.00 transferring from another University of Minnesota college
• 3.00 transferring from outside the University

Students in the school have no restrictions on declaring the major but must complete the tool courses before starting the major coursework. Students from outside of the school must meet overall admission standards to enter this major, including completion of the tool courses. Students entering as sophomores should complete microeconomics, macroeconomics, and calculus prior to transfer. Students entering as juniors should complete microeconomics, macroeconomics, calculus, statistics, and accounting prior to transfer.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Tool Courses
Microeconomics
ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or APEC 1101H - Principles of Microeconomics [SOCS, GP] (4.0 cr)

Macroeconomics
ECON 1102 - Principles of Macroeconomics (4.0 cr)
or APEC 1102 - Principles of Macroeconomics (3.0 cr)
or APEC 1102H - Honors: Principles of Macroeconomics (4.0 cr)

Calculus
MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)

Statistics
SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
or SCO 2550H (Inactive) (4.0 cr)

Accounting
ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
or ACCT 2050H - Honors: Introduction to Financial Reporting (4.0 cr)

General Requirements

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Information current as of December 12, 2014
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Lower Division Requirements
Students entering the program as freshmen or sophomores take MGMT 1001. Students who transfer in as juniors complete MGMT 3001 instead.
- PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
- BA 3000 - Career Skills (1.0 cr)
- MGMT 1005 - Corporate Responsibility and Ethics [CIV] (3.0 cr)
- MGMT 1001 - Contemporary Management (3.0 cr)
  or MGMT 3001 - Fundamentals of Management (3.0 cr)

Immersion Core
Students complete the Immersion Core as a cohort.
- FINA 3001 - Finance Fundamentals (3.0 cr)
- MKTG 3001 - Principles of Marketing (3.0 cr)
- SCO 3001 - Introduction to Operations Management (3.0 cr)
- MGMT 3004 - Business Strategy (3.0 cr)

Additional Core Requirements
- ACCT 3001 - Introduction to Management Accounting (3.0 cr)
- IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)
- HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
- MGMT 3033W - Business Communication [WI] (3.0 cr)
  or MGMT 3033V [WI] (3.0 cr)

Major Courses
- IDSC 3101 - Introduction to Programming (2.0 cr)
- IDSC 3102 - Intermediate Programming (2.0 cr)
- IDSC 3103 - Data Modeling and Databases (2.0 cr)
- IDSC 3104 - Enterprise Systems (2.0 cr)
- IDSC 3202 - Analysis and Modeling for Business Systems Development (4.0 cr)
- IDSC 4204W - Information Services Management [WI] (4.0 cr)
- IDSC 4301 - Information Systems Capstone Course: A Live Case (2.0 cr)

Electives
Take 4 or more credit(s) from the following:
- IDSC 4401 - Information Security (2.0 cr)
- IDSC 4411 - Accounting Information Systems and IT Governance (2.0 cr)
- IDSC 4421 - Financial Information Systems and Technologies (2.0 cr)
- IDSC 4431 - Advanced Database Design (2.0 cr)
- IDSC 4441 - Electronic Commerce (2.0 cr)
- IDSC 4444 - Business Analytics (2.0 cr)
- IDSC 4455 - Web 2.0: The Business of Social Media (2.0 cr)
- IDSC 4490 - Information Systems Special Topics (2.0 cr)
- IDSC 4491 - Independent Study in Information Systems (1.0 - 4.0 cr)

International Experience
Students must complete an international experience as part of the program requirements. Short term or semester-length programs may be used to meet this requirement. Students participate in International Experience (IE) 101 early in their program to begin planning.
Management Information Systems Minor
Information & Decision Sciences
Curtis L. Carlson School of Management

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 12

See the major for a detailed description.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

IDSC 3202 - Analysis and Modeling for Business Systems Development (4.0 cr)

Electives
Take 8 or more credit(s) from the following:
- IDSC 3101 - Introduction to Programming (2.0 cr)
- IDSC 3102 - Intermediate Programming (2.0 cr)
- IDSC 3103 - Data Modeling and Databases (2.0 cr)
- IDSC 3104 - Enterprise Systems (2.0 cr)
- IDSC 4204W - Information Services Management [WI] (4.0 cr)
- IDSC 4301 - Information Systems Capstone Course: A Live Case (2.0 cr)
- IDSC 4401 - Information Security (2.0 cr)
- IDSC 4411 - Accounting Information Systems and IT Governance (2.0 cr)
- IDSC 4421 - Financial Information Systems and Technologies (2.0 cr)
- IDSC 4431 - Advanced Database Design (2.0 cr)
- IDSC 4441 - Electronic Commerce (2.0 cr)
- IDSC 4444 - Business Analytics (2.0 cr)
- IDSC 4455 - Web 2.0: The Business of Social Media (2.0 cr)
- IDSC 4490 - Information Systems Special Topics (2.0 cr)
- IDSC 4491 - Independent Study in Information Systems (1.0 - 4.0 cr)
The management minor is available to students enrolled in a college outside of the Carlson School on the Twin Cities campus of the University of Minnesota. In addition to giving students broad exposure to the basic elements of business and management, the minor is an excellent preparation for law school, an MBA program, or many career fields.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

Students must complete 3 courses before admission to the program.

A GPA above 2.0 is preferred for the following:
- 3.00 already admitted to the degree-granting college
- 3.00 transferring from another University of Minnesota college
- 3.00 transferring from outside the University

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](https://www.undergraduate.umn.edu/admissions/). 

**Required prerequisites**

**Economics, Math, and Statistics Courses**

ECON 1102 is recommended but not required.

**Economics**

ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)

**Math**

MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)

or a higher level math course may be taken in place of MATH 1031.

**Statistics**

SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)

or an adviser-approved statistics course may be substituted for SCO 2550.

**Minor Requirements**

**Minor Courses**

ACCT 2050 - Introduction to Financial Reporting (4.0 cr)

Take 12 or more credit(s) from the following:
- ACCT 3001 - Introduction to Management Accounting (3.0 cr)
- FINA 3001 - Finance Fundamentals (3.0 cr)
- HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
- IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)
- MGMT 3001 - Fundamentals of Management (3.0 cr)
- MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)
- MKTG 3001 - Principles of Marketing (3.0 cr)
- SCO 3001 - Introduction to Operations Management (3.0 cr)
- PA 3003 - Nonprofit and Public Financial Management (3.0 cr)
- PA 4101 - Nonprofit Management and Governance (3.0 cr)
Marketing B.S.B.

Marketing
Curtis L. Carlson School of Management

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 79
- Degree: Bachelor of Science in Business

Marketing focuses on the flow of goods and services through the economy and the distribution of both industrial and consumer goods. Because more than one half of the consumer dollar goes to pay for marketing services, marketing is a significant part of the economy, and the efficiency with which marketing activities are carried out has major social and economic implications.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshman and transfer students students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 3.00 transferring from another University of Minnesota college
- 3.00 transferring from outside the University

Students have no restrictions on declaring the major but must complete the tool courses before starting upper division major requirements. Students from outside of the school must meet overall admission standards to enter this major, including completion of the tool courses. Students entering as sophomores should complete microeconomics, macroeconomics, and calculus prior to transfer. Students entering as juniors should complete microeconomics, macroeconomics, calculus, statistics, and accounting prior to transfer.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites

Tool Courses
Microeconomics
- ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1101H - Principles of Microeconomics [SOCS, GP] (4.0 cr)

Macroeconomics
- ECON 1102 - Principles of Macroeconomics (4.0 cr)
- or APEC 1102 - Principles of Macroeconomics (3.0 cr)
- or APEC 1102H - Honors: Principles of Macroeconomics (4.0 cr)

Calculus
- MATH 1142 - Short Calculus [MATH] (4.0 cr)
- or MATH 1271 - Calculus I [MATH] (4.0 cr)
- or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
- or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)

Statistics
- SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
- or SCO 2550H (Inactive) (4.0 cr)

Accounting
- ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
- or ACCT 2050H - Honors: Introduction to Financial Reporting (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).
Program Requirements

Lower Division Requirements
Students entering the program as freshmen or sophomores take MGMT 1001. Students who transfer in as juniors complete MGMT 3001 instead.
PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
BA 3000 - Career Skills (1.0 cr)
MGMT 1005 - Corporate Responsibility and Ethics [CIV] (3.0 cr)
MGMT 1001 - Contemporary Management (3.0 cr)
or MGMT 3001 - Fundamentals of Management (3.0 cr)

Immersion Core
Students complete the Immersion Core as a cohort.
FINA 3001 - Finance Fundamentals (3.0 cr)
MGMT 3001 - Principles of Marketing (3.0 cr)
SCO 3001 - Introduction to Operations Management (3.0 cr)
MGMT 3004 - Business Strategy (3.0 cr)

Additional Core Requirements
ACCT 3001 - Introduction to Management Accounting (3.0 cr)
IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)
HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
MGMT 3033W - Business Communication [WI] (3.0 cr)
or MGMT 3033V {Inactive} [WI] (3.0 cr)

Major requirements
MGMT 3010 - Marketing Research (4.0 cr)
MGMT 3040 - Buyer Behavior (4.0 cr)
MGMT 4080W - Marketing Strategy [WI] (4.0 cr)
Take 12 or more credit(s) from the following:
• MKTG 4030 - Sales Management (4.0 cr)
• MKTG 4050 - Integrated Marketing Communications (4.0 cr)
• MKTG 4060 - Marketing Channels (4.0 cr)
• MKTG 4082W - Brand Management [WI] (4.0 cr)
• MKTG 4090 {Inactive} (2.0 - 4.0 cr)

International Experience
Students must complete an international experience as part of the program requirements. Short-term or semester-length programs may be used to meet this requirement. Students participate in International Experience (IE) 101 early in their program to begin planning.
Twin Cities Campus
Marketing Minor
Marketing
Curtis L. Carlson School of Management

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 12

See major description for more information.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
This minor is only available for students admitted to a degree program in the Carlson School of Management.

Minor Courses
MKTG 3010 - Marketing Research (4.0 cr)
MKTG 3040 - Buyer Behavior (4.0 cr)
Take 4 or more credit(s) from the following:
  - MKTG 4030 - Sales Management (4.0 cr)
  - MKTG 4050 - Integrated Marketing Communications (4.0 cr)
  - MKTG 4060 - Marketing Channels (4.0 cr)
  - MKTG 4080W - Marketing Strategy [WI] (4.0 cr)
  - MKTG 4082W - Brand Management [WI] (4.0 cr)
  - MKTG 4090 (Inactive) (2.0 - 4.0 cr)
Twin Cities Campus
Public & Nonprofit Management B.S.B
Curtis L. Carlson School of Management

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 75 to 76
- Degree: Bachelor of Science in Business

The nonprofit sector is one of the most important components of American life, yet one of the most misunderstood. Nonprofit organizations vary enormously in scope and scale, ranging from grassroots charitable groups to multimillion dollar foundations, university, and health care organizations. There is little doubt that every American is directly or indirectly touched by the services of nonprofits in their daily life.

The nonprofit major blends general management-focused courses from the Carlson School with nonprofit-focused courses from the Humphrey Institute of Public Affairs. All students complete an additional major within Carlson; therefore, every student is able to apply their functional specialty of business to the intricacies of the nonprofit sector.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshman and transfer students students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 3.00 transferring from another University of Minnesota college
- 3.00 transferring from outside the University

Students in the school have no restrictions on declaring the major but must complete the five tool courses before continuing with the major requirements. Students from outside of the school must meet overall admission standards to enter this major, including completion of microeconomics, macroeconomics, and calculus prior to admission. Transfer students will also need to complete statistics and financial accounting before starting on the major coursework but may do so after admission.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Tool Courses
Microeconomics
- ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- or APEC 1101H - Principles of Microeconomics [SOCS, GP] (4.0 cr)

Macroeconomics
- ECON 1102 - Principles of Macroeconomics (4.0 cr)
- or APEC 1102 - Principles of Macroeconomics (3.0 cr)
- or APEC 1102H - Honors: Principles of Macroeconomics (4.0 cr)

Calculus
- MATH 1142 - Short Calculus [MATH] (4.0 cr)
- or MATH 1271 - Calculus I [MATH] (4.0 cr)
- or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
- or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)

Statistics
- SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)

Accounting
- ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
- or ACCT 2050H - Honors: Introduction to Financial Reporting (4.0 cr)
General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
This major may only be completed as a second major within the Carlson School.

Lower Division Requirements
Students who enter the program as freshmen or sophomores take MGMT 1001. Students who transfer in as juniors take MGMT 3001 instead.
BA 3000 - Career Skills (1.0 cr)
PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
  or PSY 1001H - Honors Introduction to Psychology [SOCS] (4.0 cr)
MGMT 1001 - Contemporary Management (3.0 cr)
  or MGMT 1001H - Honors: Contemporary Management (3.0 cr)
  or MGMT 3001 - Fundamentals of Management (3.0 cr)
MGMT 1005 - Corporate Responsibility and Ethics [CIV] (3.0 cr)
  or MGMT 1005H - Corporate Responsibility and Ethics [CIV] (3.0 cr)

Immersion Core
Students complete the immersion core as a cohort.
FINA 3001 - Finance Fundamentals (3.0 cr)
MKTG 3001 - Principles of Marketing (3.0 cr)
SCO 3001 - Introduction to Operations Management (3.0 cr)
MGMT 3004 - Business Strategy (3.0 cr)

Additional Core Requirements
ACCT 3001 - Introduction to Management Accounting (3.0 cr)
MGMT 3033W - Business Communication [WI] (3.0 cr)
HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
  or HRIR 3021H - Human Resource Management and Industrial Relations (3.0 cr)
IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)
  or IDSC 3001H - Honors: Information Systems for Business Processes and Management (3.0 cr)

Major requirements
PA 3003 - Nonprofit and Public Financial Management (3.0 cr)
PA 4101 - Nonprofit Management and Governance (3.0 cr)
MGMT 4000 - Issues in Nonprofit Management (4.0 cr)
Nonprofit elective
Choose one course from the following list:
PA 3002 - Basic Methods of Policy Analysis [SOCS] (3.0 cr)
  or PA 3990 - General Topics in Public Policy (1.0 - 3.0 cr)
  or PA 4144 - Social Entrepreneurship (3.0 cr)
  or PA 5123 - Philanthropy in America: History, Practice, and Trends (3.0 cr)
Business Elective
Take 8 or more credit(s) from the following:
• MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)
• MGMT 4008 - Entrepreneurial Management (4.0 cr)
• MGMT 4050 - Management of Innovation and Change (2.0 cr)
• MGMT 4170W - New Business Feasibility and Planning [WI] (4.0 cr)
• MGMT 4002 - Managerial Psychology (4.0 cr)
• MGMT 4040 - Negotiation Strategies (4.0 cr)
• PA 5920 - Skills Workshop (0.5 - 4.0 cr)

International Experience
Students must complete an international experience as part of the program requirements. Short-term or semester-length programs may be used to meet this requirement. Students participate in International Experience (IE) 101 early in their program to begin planning.
Twin Cities Campus
Risk Management and Insurance Minor
Finance
Curtis L. Carlson School of Management

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 12

See major description for more information.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
This minor is only available to students who are pursuing a B.S.B. degree in the Carlson School or to students who are pursuing an actuarial science emphasis in the math major.

Minor Courses
INS 4100 - Corporate Risk Management (2.0 cr)
INS 4101 - Employee Benefits (2.0 cr)
INS 4200 - Insurance Theory and Practice (2.0 cr)

Electives
Take 6 or more credit(s) from the following:
- ACCT 5101 - Intermediate Accounting I (4.0 cr)
- BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
- FINA 4121 - Financial Markets and Interest Rates (2.0 cr)
- FINA 4122 - Banking Institutions (2.0 cr)
- FINA 4221 - Principles of Corporate Finance (2.0 cr)
- FINA 4224 - Real Options: Valuing Strategic Flexibility (2.0 cr)
- FINA 4321 - Portfolio Management and Performance Evaluation (2.0 cr)
- FINA 4325 - Behavioral Finance (2.0 cr)
- FINA 4329 - Security Analysis Capstone (2.0 cr)
- FINA 4422 - Financial Modeling (2.0 cr)
- FINA 4522 - Options & Derivatives I (2.0 cr)
- FINA 4529 - Derivatives II Capstone (2.0 cr)
- FINA 4621 - The Global Economy (Macro) (2.0 cr)
- FINA 4622 - International Finance (2.0 cr)
- FINA 4242W - Corporate Investment Decisions [WI] (4.0 cr)
- HRIR 5654 - Public Policies on Employee Benefits: Social Safety Nets (2.0 cr)
- MATH 4065 - Theory of Interest (4.0 cr)
- MATH 5067 - Actuarial Mathematics I (4.0 cr)
Twin Cities Campus
Supply Chain & Operations Management B.S.B.
Supply Chain & Operations
Curtis L. Carlson School of Management

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 77
- Degree: Bachelor of Science in Business

The supply chain and operations program in the Carlson School of Management focuses on process excellence from both intra-organizational and inter-organizational points of view and is led by an award-winning faculty. The program leverages strong relationships with the Supply Chain and Operations Advisory Board to provide significant experiential learning opportunities for students.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Freshman and transfer students are usually admitted to pre-major status before admission to this major.

A GPA above 2.0 is preferred for the following:
- 3.00 transferring from another University of Minnesota college
- 3.00 transferring from outside the University

Students in the school have no restrictions on declaring the major. Students from outside of the school must meet overall admission standards to enter this major, including completion of the tool courses. Students entering as sophomores should complete microeconomics, macroeconomics, and calculus prior to transfer. Students entering as juniors should complete microeconomics, macroeconomics, calculus, statistics, and accounting prior to transfer.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Tool Courses
Microeconomics
ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or APEC 1101H - Principles of Microeconomics [SOCS, GP] (4.0 cr)
Macroeconomics
ECON 1102 - Principles of Macroeconomics (4.0 cr)
or APEC 1102 - Principles of Macroeconomics (3.0 cr)
or APEC 1102H - Honors: Principles of Macroeconomics (4.0 cr)

Calculus
MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)

Statistics
SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
or SCO 2550H [Inactive] (4.0 cr)

Accounting
ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
or ACCT 2050H - Honors: Introduction to Financial Reporting (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).
Program Requirements

Lower Division Requirements
Students entering the program as freshmen or sophomores take MGMT 1001. Students who transfer in as juniors complete MGMT 3001 instead.

PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
BA 3000 - Career Skills (1.0 cr)
MGMT 1005 - Corporate Responsibility and Ethics [CIV] (3.0 cr)
MGMT 1001 - Contemporary Management (3.0 cr)
  or MGMT 3001 - Fundamentals of Management (3.0 cr)

Immersion Core
Students complete the Immersion Core as a cohort.
FINA 3001 - Finance Fundamentals (3.0 cr)
MKTG 3001 - Principles of Marketing (3.0 cr)
MGMT 3004 - Business Strategy (3.0 cr)
SCO 3001 - Introduction to Operations Management (3.0 cr)

Additional Core Requirements
ACCT 3001 - Introduction to Management Accounting (3.0 cr)
IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)
HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
MGMT 3033W - Business Communication [WI] (3.0 cr)
  or MGMT 3033V (Inactive) [WI] (3.0 cr)

Major Requirements
SCO 3056 - Supply Chain Planning and Control (4.0 cr)
SCO 3059 - Quality Management and Lean Six Sigma (4.0 cr)
SCO 3045 - Sourcing and Supply Management (2.0 cr)
SCO 3048 - Transportation and Logistics Management (2.0 cr)
SCO 3072 - Managing Technologies in the Supply Chain (2.0 cr)
SCO 4065W - Supply Chain and Operations Strategy [WI] (4.0 cr)

Major electives
Take 1 or more course(s) totaling 4 or more credit(s) from the following:
• SCO 3041 - Project Management (2.0 cr)
• SCO 3051 - Service Management (2.0 cr)
• SCO 3061 - Lean Thinking (2.0 cr)
• MKTG 4060 - Marketing Channels (4.0 cr)
• IDSC 3202 - Analysis and Modeling for Business Systems Development (4.0 cr)
• BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
• MGMT 4040 - Negotiation Strategies (4.0 cr)

International Experience
Students must complete an international experience as part of the program requirements. Short-term or semester-length programs may be used to meet this requirement. Students are encouraged to start planning with their adviser early in the program.
Twin Cities Campus
Supply Chain & Operations Management Minor
Supply Chain & Operations
Curtis L. Carlson School of Management

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 12

Supply chain and operations management focuses on process excellence from both intra-organizational and inter-organizational points of view.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
This minor is only available to Carlson School of Management students pursuing a BSB degree within the school.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Minor Requirements

SCO 3056 - Supply Chain Planning and Control (4.0 cr)
SCO 3059 - Quality Management and Lean Six Sigma (4.0 cr)
Take 2 or more course(s) totaling 4 or more credit(s) from the following:
  • SCO 3041 - Project Management (2.0 cr)
  • SCO 3045 - Sourcing and Supply Management (2.0 cr)
  • SCO 3048 - Transportation and Logistics Management (2.0 cr)
  • SCO 3051 - Service Management (2.0 cr)
  • SCO 3061 - Lean Thinking (2.0 cr)
  • SCO 3072 - Managing Technologies in the Supply Chain (2.0 cr)
Twin Cities Campus
University Honors Program

University Honors Program

College of Biological Sciences, College of Continuing Education, College of Design, College of Education and Human Development, College of Food, Agricultural and Natural Resource Sciences, College of Liberal Arts, Curtis L. Carlson School of Management, School of Nursing, College of Science and Engineering

- Program Type: Other
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 14 to 44
- This program is 8 terms (4 years) long.

The University Honors Program (UHP) assists high-achieving students in making the most of their undergraduate education. Our students are driven to excel both inside and outside the classroom, but we challenge them to go one step further.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, as well as degree program requirements. For any course required in a degree program, UHP students are expected to register for the honors version of courses associated with their discipline, when offered. These courses are designed to meet degree and UHP requirements.

To remain in the honors program, students must maintain a grade point average of 3.5 and complete a set number of Honors Experiences per year (May and summer sessions included).

Freshman Year
Students build a solid foundation of knowledge to serve them throughout their undergraduate career. Most students complete first-year Honors Experiences primarily through honors courses. Courses can be found here: http://www.honors.umn.edu/experiences/courses-and-tutoring/index.php

- Two honors courses
  - Two honors courses (honors seminars, departmental honors courses, or freshman seminars totalling at least six credits)
- Two other Honors Experiences
  - Two other Honors Experiences (courses or non-course experiences)

Sophomore Year
Students continue to take advantage of the curriculum while expanding their education beyond the classroom. Through non-course Honors Experiences they begin to apply their knowledge in the laboratory, studio, or community. Examples of these experiences can be found here: http://www.honors.umn.edu/experiences/non-course-experiences/index.php.

- Two honors courses
  - Two honors courses (totalling at least six credits)
- Two other Honors Experiences
  - Two other Honors Experiences (courses or non-course experiences)

Junior Year
Students engage in research, scholarship, or creative activity with a faculty mentor—an important step toward the development of a project for the honors thesis—while deepening and broadening their knowledge and skill base. The honors thesis guide can be found here: http://www.honors.umn.edu/latin-honors/thesis-guide/index.php.

- One honors course
Two other Honors Experiences
Two other Honors Experiences (courses or non-course experiences)

Senior Year
The honors education culminates in the writing of an honors thesis. Through this thesis, students demonstrate mastery of their field of study, along with the ability to think creatively and independently.

One honors course
One additional Honors Experience
The Honors Thesis
Twin Cities Campus
Dental Hygiene B.S.D.H.
School of Dentistry

Program Type: Baccalaureate
Requirements for this program are current for Fall 2014
Required credits to graduate with this degree: 130
Required credits within the major: 84
This program requires summer terms.
Students will have some clinical experiences in community clinics affiliated with the University of MN, School of Dentistry.
Degree: Bachelor of Science in Dental Hygiene

Within the University's liberal arts curriculum, the baccalaureate program provides advanced knowledge and practice in both general university courses and dental hygiene theory and research methodology. It prepares the dental hygienist to assume roles in many different health care environments, such as general and specialty practices, public schools, community health clinics, insurance companies, dental hygiene educational programs, extended care facilities, and in the health products industry.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 37 credits before admission to the program.

Freshmen students are usually admitted to pre-major status before admission to this major.

All prerequisite courses must be taken A-F. Biology and chemistry must be taken within five years of entry into the program and one or the other must be completed prior to application so grades are on the transcript submitted at the time of application. In addition, applicants are strongly encouraged to have completed composition and psychology and/or sociology prior to application so grades are on the transcript submitted at the time of application.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Dental Hygiene Admissions Requirements: Fall (16 cr.)
BiOL 1009 - General Biology [BIOL] (4.0 cr)
or BiOL 2002 - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
or BiOL 2002H - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
or PSTL 1131 - Principles of Biological Science [BIOL] (4.0 cr)
Chemistry
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
Chem 1017 - Introductory Chemistry: Laboratory (1.0 cr)
or CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
Psychology
PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
or PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
Composition
WRIT 1301 - University Writing (4.0 cr)
or Equivalent Course

Dental Hygiene Admissions Requirements: Spring (14-15 cr.)
ANAT 3001 - Human Anatomy (3.0 cr)
or ANAT 3601 - Principles of Human Anatomy (3.0 cr)
or ANAT 3611 - Principles of Human Anatomy (3.0 cr)
or PSTL 1135 - Essentials of Human Anatomy and Physiology [BIOL] (4.0 cr)
Sociology
SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)
or PSTL 1211 - Sociological Perspectives: A Multicultural America [SOCS, DSJ] (4.0 cr)
Microbiology
FSCN 2021 - Introductory Microbiology (4.0 cr)

Communications
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)

Dental Hygiene Admissions Requirements: Summer (7 cr.)

Physiology
PHSL 3050 - Physiology From Cells to Systems (3.0 cr)
or PHAR 3601 - Basic Human Physiology for the Health Professions (3.0 cr)

Statistics
STAT 1001 - Introduction to the Ideas of Statistics [MATH] (4.0 cr)
or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
or STAT 3021 - Introduction to Probability and Statistics (3.0 cr)
or PSTL 1004 - Statistics: Understanding and Applying Data [MATH] (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
The B.S. in Dental Hygiene requires that students take six consecutive terms of courses, including summer terms.

Dental Hygiene: Term 1 (15 cr.)
DH 2111 - Dental Anatomy (2.0 cr)
DH 2121 - The Dental Hygiene Care Process Clinical Application I (5.0 cr)
DH 2132 - Head and Neck Anatomy (1.0 cr)
BIOC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)
FSCN 1112 - Principles of Nutrition (3.0 cr)
DH 4310 - Foundations of Interprofessional, Professionalism, Communication, and Collaboration (1.0 cr)

Dental Hygiene: Term 2 (15 cr.)
DH 2212 - Communication for Oral Health Providers (2.0 cr)
DH 2215 - Oral Histology and Embryology (2.0 cr)
DH 2221 - Periodontology (3.0 cr)
DH 2222 - Dental Hygiene Care Process Clinical Application II (3.0 cr)
DH 2231 - Cariology and Applied Nutrition in Dental Hygiene Care (3.0 cr)
DH 3151 - Oral and Maxillofacial Radiology (2.0 cr)

Dental Hygiene: Term 3 (13 cr.)
DH 3121 - Local Anesthesia and Pain Management (2.0 cr)
DH 3123 - The Dental Hygiene Care Process Clinical Application III (4.0 cr)
DH 3126 - Oral and Maxillofacial Radiology Clinic I (0.0 cr)
DH 3133 - Pharmacology (2.0 cr)
DH 3134 - Pediatric Dentistry (1.0 cr)
DH 3211 - Biomaterials and Principles of Restorative Techniques I (4.0 cr)

Dental Hygiene: Term 4 (13 cr.)
DH 3224W - Dental Hygiene Care Process: Clinical Application IV [WI] (6.0 cr)
DH 3120 - General and Oral Pathology (2.0 cr)
DH 3227 - Oral and Maxillofacial Radiology Clinic II (0.0 cr)
DH 3238 - Dental Public Health and Academic Service Learning (3.0 cr)
DH 3234 - Oral and Maxillofacial Radiology: Theory, Principles, and Radiographic Analysis (1.0 cr)
DH 3228 - Ethics and Jurisprudence for the Dental Hygienist (1.0 cr)

Dental Hygiene: Term 5 (14 cr.)
DH 4135W - Research Methods in Dental Hygiene [WI] (3.0 cr)
DH 4125W - Dental Hygiene Care Process: Clinical Application V [DSJ, WI] (6.0 cr)
DH 4128 - Oral and Maxillofacial Radiology Clinic III (0.0 cr)
DH 4136 - Periodontology III Lecture (1.0 cr)
DH 4130 - Management and Supervision of a Dental Practice (2.0 cr)

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Information current as of December 12, 2014
DH 4139 - Dental Public Health and Academic Service Learning II (2.0 cr)

Dental Hygiene: Term 6 (14 cr.)
DH 4229 - Oral and Maxillofacial Radiology Clinic IV (3.0 cr)
DH 4211 - Principles of Restorative Techniques II (3.0 cr)
DH 4234 - Leadership and Professional Development (2.0 cr)
DH 4226 - Dental Hygiene Care Process Clinical Application VI (6.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
- DH 3224W - Dental Hygiene Care Process: Clinical Application IV [WI] (6.0 cr)
- DH 4135W - Research Methods in Dental Hygiene [WI] (3.0 cr)
- DH 4125W - Dental Hygiene Care Process: Clinical Application V [DSJ, WI] (6.0 cr)
Twin Cities Campus

Dental Therapy B.S.
School of Dentistry - Adm

School of Dentistry

• Program Type: Baccalaureate
• Requirements for this program are current for Fall 2014
• Required credits to graduate with this degree: 129
• Required credits within the major: 80 to 97
• This program requires summer terms.
• Part of the program includes clinical outreach experiences. Students will perform dental procedures on patients in community clinics affiliated with the University of Minnesota School of Dentistry.
• Degree: Bachelor of Science

The program blends a strong dental therapy education with the study of the biological, behavioral, and social sciences, as well as liberal arts. It provides didactic, laboratory, and clinical experiences required in assessment and treatment of specified dental procedures.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 7 courses before admission to the program.

A GPA above 2.0 is preferred for the following:
• 3.00 already admitted to the degree-granting college
• 3.00 transferring from another University of Minnesota college
• 3.00 transferring from outside the University

Personal interview.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Biomedical Courses

Biomedical Courses
BIOC 2011 - Biochemistry for the Agricultural and Health Sciences (3.0 cr)
BIOL 1009 - General Biology [BIOL] (4.0 cr)
PSTL 1135 - Essentials of Human Anatomy and Physiology [BIOL] (4.0 cr)
PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
STAT 1001 - Introduction to the Ideas of Statistics [MATH] (4.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Biomedical Courses
MICB 3303 - Biology of Microorganisms (3.0 cr)

Physiology
PHSL 3051 - Human Physiology (4.0 cr)
  or PHAR 3601 - Basic Human Physiology for the Health Professions (3.0 cr)

Clinical Courses
DT 3110 - Periodontology I (1.0 cr)
DT 3130 - Preclinical Pediatric Dentistry (2.0 cr)
DT 3211 - Applied Pharmacology for the Dental Therapist (2.0 cr)
DT 3212 - Local Anesthesia and Pain Management (2.0 cr)
DT 3239 - Oral and Maxillofacial Radiology (2.0 cr)
DT 3232 - Oral and Maxillofacial Radiology Preclinical Laboratory (0.0 cr)
DT 3250 - Oral Histology and Embryology (2.0 cr)
DT 3331 - Provider Patient Relationships (2.0 cr)
DT 3332 - Cariology and Applied Nutrition in Dental Therapy Care (3.0 cr)
DT 3333 (Inactive) (3.0 cr)
DT 3334W (Inactive) [WI] (4.0 cr)
DT 3336 (Inactive) (1.0 cr)
DT 4337 - Dental Public Health and Service Learning II (2.0 cr)
DT 4338W - Research Methods in Dental Therapy [WI] (3.0 cr)
DT 3430 (Inactive) (2.0 cr)
DT 3431 (Inactive) (3.0 cr)
DT 3432 - Operative Dentistry I (2.0 cr)
DT 3433 - Operative Dentistry I Pre-Clinic Laboratory (2.0 cr)
DT 3434 (Inactive) (1.0 cr)
DT 4140 - Preventive Pediatric Dentistry Clinic (1.0 cr)
DT 4335 - Dental Practice Management (2.0 cr)
DT 4241 - Oral Radiology Clinic II (1.0 cr)
DT 4443 - Operative Clinic III (4.0 cr)
DT 3210 (Inactive) (1.0 cr)
DT 3429 (Inactive) (1.0 cr)
DT 3330 (Inactive) (3.0 cr)
DT 3231 (Inactive) (1.0 cr)
DT 3471 (Inactive) (2.0 cr)
DT 3435 (Inactive) (1.0 cr)
DT 4320 - Comprehensive Care Clinic (4.0 cr)
DT 4141 - Clinical Pediatric Dentistry III (2.0 cr)
DT 3521 (Inactive) (2.0 cr)
DT 4460 - Essentials of Clinical Care I For the Dental Therapist (1.0 - 12.0 cr)
DT 4960 - Essentials of Clinical Care II for Dental Therapists (5.0 - 10.0 cr)
DT 3521 (Inactive) (1.0 cr)
DT 3410 (Inactive) (1.0 cr)
DT 4360 - Outreach Experiences in Dental Therapy (1.0 cr)
DT 4361 - Outreach Experiences II (2.0 cr)
Program Type: Baccalaureate
Requirements for this program are current for Fall 2014
Required credits to graduate with this degree: 120
Required credits within the major: 81 to 88
Degree: Bachelor of Science

Apparel design students learn to design, produce, and market apparel products by developing the creative thinking and technical expertise to address contemporary issues while using industry technologies, communicating design ideas, and gaining an understanding of the global apparel industry. The program incorporates custom design and industry production approaches and features projects that emphasize fashion and function. The program focuses on a research-based design process used by many design industries, and courses incorporate industry-sponsored projects and community service projects. Studio courses closely replicate the professional working methods of apparel designers. In addition to providing a strong liberal arts curriculum, courses offer essential background in costume history, consumer behavior, and social and cultural meanings of apparel. A required internship and mentor experience provides students with professional experience. An annual fashion show presents students’ achievements to the professional community.

Students enter the program as pre-apparel design majors. To attain full major status, they must complete six required pre-apparel design courses with a grade of at least C-, maintain a 2.50 GPA, and pass a competitive portfolio review.

To complete the major, students must take six sequential apparel design studio courses. They are also encouraged to use the liberal education categories to explore multicultural themes and to strengthen knowledge that supports their major coursework.

Graduates of the program work in various settings, including product development and quality assurance for large retail companies, product design for small and large manufacturers, protective clothing and wearable technology design, theater and film design, and custom design.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 7 courses before admission to the program.

Freshman and transfer students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
• 2.50 already admitted to the degree-granting college
• 2.50 transferring from another University of Minnesota college
• 2.50 transferring from outside the University

Admission to the pre-major status is done by a competitive holistic review. Students must maintain a GPA of 2.50 during pre-major coursework. In addition, students must receive a minimum grade of C- or better in the required pre-major courses before going through portfolio review (not just a 2.50 GPA). Once students have achieved major status, they must maintain a GPA of 2.00.

Students must pass a portfolio review to be admitted into the degree program.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Pre-Apparel Design Courses
Students must demonstrate competence in basic apparel construction skills by successfully completing ADES 1221.

Note: Students must be admitted to pre-major status to take most of these courses.
ADES 1221 - Apparel Assembly Fundamentals (3.0 cr)
ADES 2211 - Fashion Illustration and Portfolio Development (4.0 cr)
ADES 2221 - Apparel Design Studio I (4.0 cr)
DES 1101W - Introduction to Design Thinking [AH, WI] (4.0 cr)
DES 2101 - Design and Visual Presentation (3.0 cr)
GDES 1312 - Foundations: Color and Design in Two and Three Dimensions (4.0 cr)
RM 1201 - Fashion, Ethics, and Consumption [CIV] (3.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All coursework in the major must be taken A-F (with the exception of the internship).

Communication Course
WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
  or WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
  or ENGL 3027W - The Essay [WI] (4.0 cr)

Major Courses
ADES 2213 - Textile Analysis (4.0 cr)
ADES 2214 - Softlines Analysis (3.0 cr)
ADES 2222 - Apparel Design Studio II (4.0 cr)
ADES 3217 - Fashion: Trends and Communication (3.0 cr)
ADES 3223 - Apparel Design Studio III (4.0 cr)
ADES 3224 - Apparel Design Studio IV (4.0 cr)
ADES 3225 - Apparel Design Research (1.0 cr)
ADES 3227 - Technical Design Studio (4.0 cr)
ADES 4121 - History of Costume (4.0 cr)
ADES 4196 - Internship in Apparel Design (1.0 - 4.0 cr)
ADES 4215 - Product Development: Softlines (4.0 cr)
ADES 4225 - Apparel Design Studio V (4.0 cr)
DES 3201 - Career and Internship Preparation for Design (1.0 cr)
GDES 3312 - Color and Form in Surface Design (4.0 cr)
RM 2215 - Introduction to Retail Merchandising (3.0 cr)
RM 4212W - Dress, Society, and Culture [WI] (3.0 cr)
DES 5185 - Human Factors in Design (3.0 cr)
  or GDES 4330 - Surface Fabric Design Workshop (4.0 cr)
  or RM 3196 - Field Study: National or International (1.0 - 4.0 cr)
  or ADES 4218W - Fashion, Design, and the Global Industry [WI] (3.0 cr)
  or Fiber-based Split Rock course

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ADES 4218W - Fashion, Design, and the Global Industry [WI] (3.0 cr)
• ENGL 3027W - The Essay [WI] (4.0 cr)
• RM 4212W - Dress, Society, and Culture [WI] (3.0 cr)
• WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
• WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
Twin Cities Campus
Architecture B.D.A.
School of Architecture
College of Design

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 48
- Degree: Bachelor of Design in Architecture

The bachelor of design in architecture (B.D.A.) is a flexible design degree that thinks through architecture. The program requires an understanding of social, cultural, and physical contexts as a foundation for the examination of the methods, values, precedents, and material reality characteristic of the process of shaping natural and built environments. It includes many architectural electives and priority access to design workshops. The B.D.A. is the best option for those interested in exploring the breadth of the architectural discipline.

All major coursework must be taken A-F.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 30 credits before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.80 already admitted to the degree-granting college
- 2.80 transferring from another University of Minnesota college
- 2.80 transferring from outside the University

Students must complete 30 credits before admission to the program. Freshmen and transfers are usually admitted to pre-major status before admission to this major.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Prerequisite Courses, Primary Core
It is required that students complete the following classes prior to admission to the BDA:
ARCH 1281 - Design Fundamentals I [AH] (4.0 cr)
ARCH 2281 - Design Fundamentals II (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Additional Classes, B.D.A. Primary Core
ARCH 3411W - Architectural History to 1750 [HIS, GP, WI] (3.0 cr)
ARCH 3412 - Architectural History Since 1750 [HIS, GP] (3.0 cr)

B.D.A. Secondary Core
These courses provide introductions to curricular core areas within the school. Select three courses from the following list, which includes Arch 3701 OR Arch 3702 (courses under development).
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
• ARCH 3611 - Design in the Digital Age (3.0 cr)
• ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
• ARCH 4561 - Architecture and Ecology (3.0 cr)
• ARCH 4671 - Historic Preservation (3.0 cr)
• ARCH 4701W - Introduction to Urban Form and Theory [WI] (3.0 cr)

Design Core
Take a minimum of 12 credits but not more than 18.
Take 12 or more credit(s) from the following:
• ARCH 3250 - Design Workshop (1.0 - 6.0 cr)

Architecture Electives
Take 3 courses, 9 credits minimum.
Take 9 or more credit(s) from the following:
• ARCH 3xxx
• ARCH 4xxx
• ARCH 5xxx
• LA 3501 - Environmental Design and Its Biological and Physical Context [ENV] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ARCH 3411W - Architectural History to 1750 [HIS, GP, WI] (3.0 cr)
• ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
• ARCH 4701W - Introduction to Urban Form and Theory [WI] (3.0 cr)

Program Sub-plans
A sub-plan is not required for this program.

Accelerated
Students accepted to this track join first-year M. Arch students in their classes while enrolled as undergraduate students. Courses taken in their final year as an undergraduate count as elective credits toward the B.D.A. degree, and if accepted into the graduate program will continue to year two (of three) of the M. Arch program.

Students may apply at the end of their junior year of the B.D.A. program (within 32 credits of completing the degree requirements) and apply and the end of their senior year to the graduate school to formally join the graduate program. At that time, all liberal education requirements and all required B.D.A. coursework must be completed or in progress slated to be completed by the end of the semester of application. Eligibility to apply is based on B.D.A. GPA as well as overall GPA. The preferred B.D.A. GPA is 3.8 or higher.

Students with a GPA of 3.5 to 3.8 may apply but must also submit a G.R.E. score. Application to the accelerated program must include all materials needed to apply for the M. Arch. program (portfolio, letters of recommendation, writing samples). Students advancing to the second year of the three-year M. Arch program will apply to the graduate school during the normal application time (see http://arch.design.umn.edu/admissions/graduate/). At that time, the application will only include the online graduate school application to the graduate program. (No portfolio, letters of recommendation, writing samples, or G.R.E.)
Twin Cities Campus
Architecture B.S.
School of Architecture
College of Design

● Program Type: Baccalaureate
● Requirements for this program are current for Fall 2014
● Required credits to graduate with this degree: 120
● Required credits within the major: 99 to 100
● Degree: Bachelor of Science

The School of Architecture at the University exposes students to the formal, socio-cultural, material, environmental, and historical factors that shape built environments. Students develop visual literacy by thinking and working through the design process in design studios and workshops, by researching historical precedents, and by analyzing theoretical texts about the physical environment. Our undergraduate programs foster a sense of stewardship for the local and global built environments by providing opportunities for students to engage with College of Design faculty and research centers, to enroll in service learning courses, and to study abroad.

The Bachelor of Science (with a major in Architecture) is a pre-professional architecture degree program that offers studio-based design education and a rigorous program of history/theory and building technology courses. Students are eligible to apply to this degree program from within the College of Design after completing all required first-year courses. Admissions are highly competitive, with a portfolio requirement as part of the application process. Students in this revised B.S. Degree Program (major in Architecture) will take five required 6-credit design studios, a sequence of history/theory and building technology courses, and 9 credits of upper-level architecture electives. Graduates of this B.S. Degree Program (major in Architecture) will be well prepared to apply to the second year of the School of Architecture's Graduate program, as well as other Graduate degree programs at peer institutions, per their admissions requirements.

Program Delivery
This program is available:
● via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 12 credits before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
● 2.80 already admitted to the degree-granting college
● 2.80 transferring from another University of Minnesota college
● 2.80 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Prereqs for the B.D.A. or B.S.
ARCH 1281 - Design Fundamentals I [AH] (4.0 cr)
ARCH 2301 - Introduction to Drawing in Architecture (4.0 cr)
ARCH 2281 - Design Fundamentals II (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Major coursework
ARCH 3281 - Undergraduate Architecture Studio I (6.0 cr)
ARCH 3282 - Undergraduate Architecture Studio II (6.0 cr)
ARCH 3611 - Design in the Digital Age (3.0 cr)
ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
ARCH 4283 - Undergraduate Architecture Studio III (6.0 cr)
ARCH 4284 - Undergraduate Architecture Studio IV (6.0 cr)
ARCH 4511 - Materials and Methods I (3.0 cr)
ARCH 4521 - Environmental Technology I (3.0 cr)
ARCH 4561 - Architecture and Ecology (3.0 cr)
ARCH 4571 - Architectural Structures I (3.0 cr)
ARCH 4701W - Introduction to Urban Form and Theory [WI] (3.0 cr)
ARCH 5212 - Undergraduate Architecture Studio 05: Advanced Design (6.0 cr)
ARCH 3411W - Architectural History to 1750 [HIS, GP, WI] (3.0 cr)
or ARCH 3411V - Architectural History to 1750 [HIS, GP, WI] (3.0 cr)
ARCH 3412 - Architectural History Since 1750 [HIS, GP] (3.0 cr)
or ARCH 3412H - Honors: Architectural History Since 1750 [HIS, GP] (3.0 cr)

Courses to be completed prior to year three of the program

Calculus
MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)

Physics
PHYS 1101W - Introductory College Physics I [PHYS, WI] (4.0 cr)
or PHYS 1201W - Introductory Physics for Biology and Pre-medicine I [PHYS, WI] (5.0 cr)
or PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)

Architectural history elective
ARCH 4421W - Architecture and Interpretation: The Cave and the Light [WI] (3.0 cr)
or ARCH 4423 - Gothic Architecture (3.0 cr)
or ARCH 4424 - Renaissance Architecture (3.0 cr)
or ARCH 4425 - Baroque Architecture (3.0 cr)
or ARCH 4428 - Byzantium/Istanbul: Crossroads of East and West [HIS, GP] (3.0 cr)
or ARCH 4432 - Modern Architecture (3.0 cr)
or ARCH 4441 - Minnesota: Architecture and Landscapes (3.0 cr)
or ARCH 4445W - Suburbia [WI] (3.0 cr)
or ARCH 4461 - North American Indian Architecture (3.0 cr)
or Arch 44XX Architecture History

Architecture electives
Nine upper division architecture credits not used elsewhere.
Take exactly 9 credit(s) from the following:
• ARCH 3xxx
• ARCH 4xxx

Upper division credits outside the major
Take 9 upper division credits outside the major

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ARCH 3411W - Architectural History to 1750 [HIS, GP, WI] (3.0 cr)
• ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
• ARCH 4701W - Introduction to Urban Form and Theory [WI] (3.0 cr)
• ARCH 4421W - Architecture and Interpretation: The Cave and the Light [WI] (3.0 cr)
• ARCH 4445W - Suburbia [WI] (3.0 cr)

Program Sub-plans
A sub-plan is not required for this program.

Accelerated Program
Accelerated status in architecture is a competitive opportunity for qualified undergraduates to complete the B.S. with a major in architecture and the M.Arch. degree in six years rather than seven. Accelerated status applicants must complete all but 15 credits of upper division architecture courses before their senior year.
Students complete the first year of the graduate professional degree program in their senior year; courses carry upper division credit and complete the B.S.

To be considered for accelerated status, students must be enrolled at the University as a B.S. major in architecture, have completed one year of architecture design studio (ARCH 3281, ARCH 3282), have completed 90 credits, and have earned an overall GPA of 3.50. Admission to accelerated status does not guarantee admission to the graduate professional program; separate requirements, such as the Graduate Record Examination (GRE) and other application documents, must be submitted in January of the year admission to the graduate program is sought. See the director of graduate studies in the School of Architecture for additional criteria. Deadline for consideration is June 15.
Twin Cities Campus

Architecture Minor

School of Architecture

College of Design

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 19

An undergraduate minor in architecture introduces the foundational ideas of the discipline as social, cultural, historic, and environmental constructs.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

A maximum of 9 transfer credits may be used toward the minor. A maximum of three courses taken for a major may also be used toward the minor. Students must earn a C- or better in all minor coursework.

Architecture minor coursework

ARCH 1281 - Design Fundamentals I [AH] (4.0 cr)
ARCH 3411W - Architectural History to 1750 [HIS, GP, WI] (3.0 cr)
  or ARCH 3412 - Architectural History Since 1750 [HIS, GP] (3.0 cr)

Take 2 or more course(s) from the following:
- ARCH 3611 - Design in the Digital Age (3.0 cr)
- ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
- ARCH 4561 - Architecture and Ecology (3.0 cr)
- ARCH 4671 - Historic Preservation (3.0 cr)
- ARCH 4701W - Introduction to Urban Form and Theory [WI] (3.0 cr)

Arch electives

Take 2 or more course(s) from the following:
- ARCH 3xxx
- ARCH 4xxx
Twin Cities Campus
Design Minor
DESIGN Intrdiscp Assoc Dean
College of Design

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

The design minor is an interdisciplinary program that shows how design can be used as a catalyst for exploration and research. Choosing from a selection of both lecture and studio courses, students are introduced to the history, theory, and practice of design across multiple design disciplines. With the design minor, students may compose their own individual program in which they will understand the interdisciplinary nature of the design process, appreciate the role design plays in everyday life, experience design thinking and action, explore and expand their own design interests, and understand how to work with designers in their chosen field. The design minor provides an integrated education in design where students enhance their learning by making connections between traditional design courses and nontraditional views of design.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Two courses may double-dip with the student's major or other minor. The minor requires a minimum of 18 total credits. DES 1111 may be taken S/N.

Category A: Introductory Design Thinking “Big Picture”
Courses from this category introduce students to the scope of design thinking. These courses combine lectures with projects or case studies.

- **DES 1000 - D@MN: Design@Minnesota [AH]** (3.0 cr)
- or **DES 1101V - Honors: Introduction to Design Thinking [AH, WI]** (4.0 cr)
- or **DES 1101W - Introduction to Design Thinking [AH, WI]** (4.0 cr)
- or **LA 1001 - Sustainability by Design [ENV]** (3.0 cr)
- or **LA 1401 - The Designed Environment** (3.0 cr)
- or **LA 1601 - Design and Equity [DSJ, AH]** (3.0 cr)
- or **LA 3601 - Design and Equity [DSJ, AH]** (3.0 cr)

Category B: Introductory Design Thinking “Hands-on”
Courses from this category introduce students to design thinking and making in a studio setting.

- **ARCH 1281 - Design Fundamentals I [AH]** (4.0 cr)
- or **DES 1111 - Creative Problem Solving** (3.0 cr)
- or **DES 1111H - Honors: Creative Problem Solving** (3.0 cr)
- or **DES 2101 - Design and Visual Presentation** (3.0 cr)
- or **GDES 1311 - Foundations: Drawing and Design in Two and Three Dimensions** (4.0 cr)
- or **GDES 1312 - Foundations: Color and Design in Two and Three Dimensions** (4.0 cr)
- or **GDES 1315 - Foundations: The Graphic Studio** (4.0 cr)
- or **GDES 3312 - Color and Form in Surface Design** (4.0 cr)
- or **LA 1301 - Introduction to Landscape Architecture Drawing [AH]** (3.0 cr)
- or **ME 2011 - Introduction to Engineering** (4.0 cr)
- or **PDES 3702 - Concept Sketching and Rendering** (3.0 cr)
- or **PDES 3711 - Toy Product Design** (4.0 cr)
- or **PDES 5702 - Concept Sketching and Rendering** (3.0 cr)
- or **PDES 5711 - Toy Product Design** (4.0 cr)

Category C: Electives
Courses from this category allow students to explore design from a variety of perspectives. Take three or four courses to complete the total required credits for the minor (18).
Take 3 - 4 course(s) totaling 10 - 12 credit(s) from the following:
- **ADES 4121 - History of Costume** (4.0 cr)
- **ADES 4218W - Fashion, Design, and the Global Industry [WI]** (3.0 cr)
• ARCH 3411V - Architectural History to 1750 [HIS, GP, WI] (3.0 cr)
• ARCH 3411W - Architectural History to 1750 [HIS, GP, WI] (3.0 cr)
• ARCH 3412 - Architectural History Since 1750 [HIS, GP] (3.0 cr)
• ARCH 3412H - Honors: Architectural History Since 1750 [HIS, GP] (3.0 cr)
• ARCH 3511 - Material Transformations: Technology and Change in the Built Environment [TS] (3.0 cr)
• ARCH 3611 - Design in the Digital Age (3.0 cr)
• ARCH 3641 - Introduction to Heritage Preservation (3.0 cr)
• ARCH 3711V - Honors: Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
• ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
• ARCH 4423 - Gothic Architecture (3.0 cr)
• ARCH 4424 - Renaissance Architecture (3.0 cr)
• ARCH 4425 - Baroque Architecture (3.0 cr)
• ARCH 4432 - Modern Architecture (3.0 cr)
• ARCH 4434 - Contemporary Architecture (3.0 cr)
• ARCH 4461 - North American Indian Architecture (3.0 cr)
• ARCH 4561 - Architecture and Ecology (3.0 cr)
• ARCH 4701W - Introduction to Urban Form and Theory [WI] (3.0 cr)
• BBE 4413 - Systems Approach to Residential Construction (4.0 cr)
• DES 2101 - Design and Visual Presentation (3.0 cr)
• DES 3131 - User Experience in Design (4.0 cr)
• DES 3141 - Technology, Design, and Society [TS] (3.0 cr)
• DES 3160 - Topics in Design (1.0 - 4.0 cr)
• DES 3170 - Topics in Design (1.0 - 4.0 cr)
• DES 3309 - Storytelling and Design (3.0 cr)
• DES 3311 - Travels in Typography (3.0 cr)
• DES 3321 - Furniture Design: Exploration (3.0 cr)
• DES 3331 - Street Life Urban Design Seminar (3.0 cr)
• DES 3341 - (un)Wrapping It Up: New Materials for Design, Design for New Materials (3.0 cr)
• DES 3351 - Phenomenon of Everyday Design (3.0 cr)
• DES 4160 - Topics in Design (1.0 - 4.0 cr)
• DES 4165 - Design and Globalization [DSJ] (3.0 cr)
• DES 4301 - Metaphor and Design (3.0 cr)
• DES 5160 - Topics in Design (1.0 - 4.0 cr)
• DES 5185 - Human Factors in Design (3.0 cr)
• GDES 2342 - Web Design (3.0 cr)
• GDES 2345 - Typography (4.0 cr)
• GDES 2350 - Design Material Topics (1.0 - 4.0 cr)
• GDES 2361 - Design Process: Photography (3.0 cr)
• GDES 2399W - Design and its Discontents: Design, Society, Economy and Culture [WI] (3.0 cr)
• GDES 3311 - Illustration (3.0 cr)
• GDES 3312 - Color and Form in Surface Design (4.0 cr)
• GDES 4131W - History of Graphic Design [WI] (4.0 cr)
• GDES 4330 - Surface Fabric Design Workshop (4.0 cr)
• GDES 4343 - Data Visualization I: Mapping Information (3.0 cr)
• GDES 4345 - Advanced Typography (4.0 cr)
• GDES 4352 - Design Process: Bookmaking (3.0 cr)
• GDES 5311 - Illustration (3.0 cr)
• GDES 5341 - Interactive Design (3.0 cr)
• GDES 5342 - Web and Interface Design (3.0 cr)
• GDES 5343 - Data Visualization II: Interactive Information (3.0 cr)
• GDES 5383 - Digital Illustration and Animation (3.0 cr)
• GDES 5386 - Fundamentals of Game Design (3.0 cr)
• GDES 5399 - Theory of Electronic Design (3.0 cr)
• HSG 3482 - Sustainable Housing: Community, Environment, and Technology [TS] (3.0 cr)
• HSG 4413 - A Systems Approach to Residential Construction (4.0 cr)
• HSG 5481 - Promoting Independence in Housing and Community (3.0 cr)
• IDES 2612 - Interior Materials and Specifications [ENV] (4.0 cr)
• IDES 3161 - History of Interiors and Furnishings: Ancient to 1750 [GP] (4.0 cr)
• IDES 3162 - History of Interiors and Furnishings: 1750 to Present [HIS] (4.0 cr)
• JOUR 3745 - Mass Media and Popular Culture [AH, DSJ] (3.0 cr)
• LA 3505 - Intro to Human-Centered Design (3.0 cr)
• LA 1001 - Sustainability by Design [ENV] (3.0 cr)
• LA 3001 - Understanding and Creating Landscape Space (3.0 cr)
• LA 3002 - Informants of Creating Landscape Space (3.0 cr)
• LA 3003 - Case Studies in Sustainable Landscape Planning and Design (3.0 cr)
• LA 3413 - Introduction to Landscape Architectural History [HIS, GP] (3.0 cr)
• LA 3501 - Environmental Design and Its Biological and Physical Context [ENV] (3.0 cr)
• LA 3514 - Making the Mississippi [CIV] (3.0 cr)
• LA 4755 - Infrastructure, Natural Systems, and Space of Inhabited Landscapes [TS] (3.0 cr)
• PDES 3170 - Topics in Product Design (1.0 - 4.0 cr)
• PDES 3701 - Creativity, Idea Generation, and Innovation (3.0 cr)
• PDES 3702 - Concept Sketching and Rendering (3.0 cr)
• PDES 3703 - Product Form and Model Making (4.0 cr)
• PDES 3711 - Toy Product Design (4.0 cr)
• PDES 3715 - Design and Food (4.0 cr)
• PDES 5170 - Topics in Product Design (1.0 - 4.0 cr)
• PDES 5701 - Creativity, Idea Generation, and Innovation (3.0 cr)
• PDES 5702 - Concept Sketching and Rendering (3.0 cr)
• PDES 5703 - Product Form and Model Making (4.0 cr)
• PDES 5711 - Toy Product Design (4.0 cr)
• RM 3243 - Visual Merchandising (3.0 cr)
• RM 4117W - Retail Environments and Human Behavior [WI] (3.0 cr)
• RM 4212W - Dress, Society, and Culture [WI] (3.0 cr)
Twin Cities Campus
Fashion Studies Minor
Design, Housing & Apparel
College of Design

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15 to 16

The fashion studies minor provides students who have an interest in fashion the opportunity to gain knowledge about fashion product, theory, and industry specific practices. Fashion is a major global industry with a broad range of career opportunities from business and design to engineering and chemistry.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
This major is not available for apparel design or retail merchandising majors. Transfer courses must be approved by the fashion studies minor adviser. No more than one transfer course may be used toward the minor. Transfer coursework may be accepted for prerequisite courses upon review: this is not included in the one-course limit.

Required courses
ADES 3217 - Fashion: Trends and Communication (3.0 cr)
ADES 4121 - History of Costume (4.0 cr)
RM 4212W - Dress, Society, and Culture [WI] (3.0 cr)
Choose two courses from this list
  - RM 1201 - Fashion, Ethics, and Consumption [CIV] (3.0 cr)
  - ADES 2214 - Softlines Analysis (3.0 cr)
  - or RM 2215 - Introduction to Retail Merchandising (3.0 cr)
  - or ADES 3196 - Field Study: National or International (1.0 - 10.0 cr)
  - or ADES 4218W - Fashion, Design, and the Global Industry [WI] (3.0 cr)
Twin Cities Campus
Graphic Design B.F.A.
Design, Housing & Apparel
College of Design

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 80 to 91
- Degree: Bachelor of Fine Arts

The graphic design program educates students in design thinking, design methods, design theory, creative problem solving, and visual and verbal literacy. An emphasis is placed on visual components: how humans communicate, perceive, interpret, and understand visual information. The program fosters flexibility, which enables graduates to adapt to social, cultural, and technological change in graphic design. The program's foundation is broadly based. Students begin with courses in fundamental aspects of visual studies. Upper division courses prepare them for graphic design positions in print and electronic media. An internship of 1-3 credits is required.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 5 courses before admission to the program.

Freshman and transfer students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

Admission to pre-major status is decided by a competitive holistic review. Students must maintain an overall GPA of 2.50 during pre-major coursework. In addition, students must receive a minimum grade of C- or better in the required pre-major courses before going through portfolio review (not just a 2.50 GPA). Once students have achieved major status, they must maintain a GPA of 2.00.

Students must be admitted to the pre-major status program to take most of the pre-graphic design coursework.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Pre-Graphic Design Courses
- DES 1101W - Introduction to Design Thinking [AH, WI] (4.0 cr)
- GDES 1311 - Foundations: Drawing and Design in Two and Three Dimensions (4.0 cr)
- GDES 1312 - Foundations: Color and Design in Two and Three Dimensions (4.0 cr)
- GDES 1315 - Foundations: The Graphic Studio (4.0 cr)
- DES 2101 - Design and Visual Presentation (3.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All coursework must be taken A-F (with the exception of the internship).

Communication Courses
- COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
or DES 3309 - Storytelling and Design (3.0 cr)
WRT 3562W - Technical and Professional Writing [WI] (4.0 cr)
or ENGL 3027W - The Essay [WI] (4.0 cr)
or WRT 3029W - Business and Professional Writing [WI] (3.0 cr)

Art History Courses
ARCH 3411W - Architectural History to 1750 [HIS, GP, WI] (3.0 cr)
or ARCH 3412 - Architectural History Since 1750 [HIS, GP] (3.0 cr)
or ARTH 1xxx
or ARTH 2xxx
or ARTH 3xxx
or ARTH 4xxx
or ARTH 5xxx
or ADES 4121 - History of Costume (4.0 cr)
or IDES 3161 - History of Interiors and Furnishings: Ancient to 1750 [GP] (4.0 cr)

Business, Economics, or Marketing Courses
Students must select one course in either business, economics, or marketing.
ACCT 1xxx
or ACCT 2xxx
or ACCT 3xxx
or ACCT 4xxx
or ACCT 5xxx
or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or APEC 1102 - Principles of Macroeconomics (3.0 cr)
or APEC 1251 - Principles of Accounting (3.0 cr)
or ECON 1xxx
or ECON 2xxx
or ECON 3xxx
or ECON 4xxx
or ECON 5xxx
or MGMT 3xxx
or MKTG 3xxx

Photography Courses
ARTS 1701 - Photography [AH] (4.0 cr)
or GDES 2361 - Design Process: Photography (3.0 cr)

Major Courses
Basic Design Requirements
GDES 2342 - Web Design (3.0 cr)
GDES 2345 - Typography (4.0 cr)
Advanced Design Requirements
GDES 3201 - Career and Internship Preparation for Design (1.0 cr)
GDES 2399W - Design and its Discontents: Design, Society, Economy and Culture [WI] (3.0 cr)
GDES 3312 - Color and Form in Surface Design (4.0 cr)
GDES 3351 - Text and Image (3.0 cr)
GDES 3352 - Identity and Symbols (3.0 cr)
GDES 3353 - Packaging and Display (3.0 cr)
GDES 4131W - History of Graphic Design [WI] (4.0 cr)
GDES 4196 - Internship in Graphic Design (1.0 - 3.0 cr)
GDES 4345 - Advanced Typography (4.0 cr)
GDES 4361W - Thesis Studio and Writing [WI] (4.0 cr)
GDES 4362 - Senior Thesis and Exhibition (4.0 cr)

Electives
Other GDES topics courses or GDES field study may be used for this requirement. See your adviser.
Take exactly 3 course(s) from the following:
• DES 3131 - User Experience in Design (4.0 cr)
• DES 3311 - Travels in Typography (3.0 cr)
• DES 3341 - (un)Wrapping It Up: New Materials for Design, Design for New Materials (3.0 cr)
• DES 5165 - Design and Globalization (3.0 cr)
• DES 5168 - Evidence-Based Design (3.0 cr)
• DES 5185 - Human Factors in Design (3.0 cr)
• GDES 2350 - Design Material Topics (1.0 - 4.0 cr)
• GDES 2361 - Design Process: Photography (3.0 cr)
• GDES 3311 - Illustration (3.0 cr)
• GDES 4330 - Surface Fabric Design Workshop (4.0 cr)
• GDES 4343 - Data Visualization I: Mapping Information (3.0 cr)
• GDES 4350 - Advanced Design Material Topics (1.0 - 4.0 cr)
• GDES 4352 - Design Process: Bookmaking (3.0 cr)
• GDES 4355 - Graphic Design Portfolio (3.0 cr)
• GDES 5311 - Illustration (3.0 cr)
• GDES 5341 - Interactive Design (3.0 cr)
• GDES 5342 - Web and Interface Design (3.0 cr)
• GDES 5343 - Data Visualization II: Interactive Information (3.0 cr)
• GDES 5383 - Digital Illustration and Animation (3.0 cr)
• GDES 5386 - Fundamentals of Game Design (3.0 cr)
• GDES 5388 - Graphic Design Research (3.0 cr)
• GDES 5399 - Theory of Electronic Design (3.0 cr)
• PDES 3701 - Creativity, Idea Generation, and Innovation (3.0 cr)
• PDES 3702 - Concept Sketching and Rendering (3.0 cr)
• PDES 3711 - Toy Product Design (4.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ARCH 3411W - Architectural History to 1750 [HIS, GP, WI] (3.0 cr)
• ENGL 3027W - The Essay [WI] (4.0 cr)
• GDES 4131W - History of Graphic Design [WI] (4.0 cr)
• GDES 4361W - Thesis Studio and Writing [WI] (4.0 cr)
• WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
• WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Program Sub-plans
A sub-plan is not required for this program.

Honors UHP
This is an honors sub-plan.

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements.

Current departmental honors course offerings are listed at:

Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or with an honors directed studies, or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.
Twin Cities Campus

Housing and Community Development Minor
DHA Housing Studies
College of Design

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

The Housing and Community Development Undergraduate Minor allows students to study shelter in its multiple dimensions. Courses from which to select include content in physical, social, economic, and psychological aspects of housing in urban, rural, and global communities; public policy; building systems and sustainability; housing development and financing; multifamily housing management; analysis of housing data; and housing for select populations.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
HSG 1461 - Introduction to Housing (3.0 cr)
HSG 2463 - Housing and Community Development (3.0 cr)
Take 3 or more course(s) from the following:
- HSG 4461 - Housing Development and Management (3.0 cr)
- HSG 4465 - Housing in a Global Perspective (3.0 cr)
- HSG 3482 - Sustainable Housing: Community, Environment, and Technology [TS] (3.0 cr)
- HSG 5463 - Housing Policy (3.0 cr)
- HSG 4467W - Housing and the Social Environment [WI] (4.0 cr)
- HSG 5464 - Understanding Housing: Assessment and Analysis (3.0 cr)
- HSG 5481 - Promoting Independence in Housing and Community (3.0 cr)
- HSG 5484 - Rural Housing Issues (3.0 cr)
Twin Cities Campus

Housing Studies B.S.
Design, Housing & Apparel
College of Design

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 68 to 80
- This program requires summer terms.
- Degree: Bachelor of Science

The housing studies program allows students to study shelter in its multiple dimensions. Coursework in the program includes social and behavioral sciences, economics, public policy, planning, and technology.

After first acquiring a broad background of housing courses, students select one of four areas of concentration: community development and policy, sustainability, management and finance, or selected populations.

The housing studies program provides the academic background and professional preparation needed for graduate studies leading to college teaching, research, or planning/administrative positions.

Depending upon prior coursework, the housing studies major requirements can often be completed in two years. Students are encouraged to meet with an adviser to discuss their specific situations.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All coursework in the major must be taken A-F (with the exception of the internship).

Communication Courses
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
  or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
  or ENGL 3027W - The Essay [WI] (4.0 cr)
  or WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)

Required Major Coursework
An internship of at least 300 hours in a situation related to the student's area of specialization is required. Students must complete at least half of the required core program courses before enrolling in the internship (HSG 4196).
HSG 1461 - Introduction to Housing (3.0 cr)
HSG 2463 - Housing and Community Development (3.0 cr)
HSG 4196 - Internship in Housing Studies (1.0 - 4.0 cr)
HSG 4461 - Housing Development and Management (3.0 cr)
HSG 4467W - Housing and the Social Environment [WI] (4.0 cr)
HSG 5463 - Housing Policy (3.0 cr)
DES 1101W - Introduction to Design Thinking [AH, WI] (4.0 cr)
  or ARCH 1281 - Design Fundamentals I [AH] (4.0 cr)
  or LA 1201 - Learning from the Landscape [AH, DSJ] (3.0 cr)
HSG 4465 - Housing in a Global Perspective (3.0 cr)
or HSG 5484 - Rural Housing Issues (3.0 cr)
HSG 5481 - Promoting Independence in Housing and Community (3.0 cr)
or HSG 3482 - Sustainable Housing: Community, Environment, and Technology [TS] (3.0 cr)
APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or APEC 1102 - Principles of Macroeconomics (3.0 cr)
or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or APEC 1102 - Principles of Macroeconomics (4.0 cr)
or APEC 3701 - Money and Banking (3.0 cr)
or AECN 3801 - Elements of Public Economics (3.0 cr)
FSOS 3101 - Personal and Family Finances (3.0 cr)
or FSOS 3102 - Family Systems and Diversity [SOCS, DSJ] (3.0 cr)
or FSOS 4106 - Family Resource Management (3.0 cr)
GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
or PA 4200 - Urban and Regional Planning (3.0 cr)
EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)
or PSTL 1004 - Statistics: Understanding and Applying Data [MATH] (4.0 cr)
or SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
or STAT 1001 - Introduction to the Ideas of Statistics [MATH] (4.0 cr)
or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
HSG 4413 - A Systems Approach to Residential Construction (4.0 cr)
or BBE 4413 - Systems Approach to Residential Construction (4.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
• BIOL 3408W - Ecology [WI] (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• ENGL 3027W - The Essay [WI] (4.0 cr)
• ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
• ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
• FSOS 4154W - Families and Aging [WI] (3.0 cr)
• GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
• HSG 4467W - Housing and the Social Environment [WI] (4.0 cr)
• SOC 3211W - American Race Relations [DSJ, WI] (3.0 cr)
• SOC 3251W - Sociological Perspectives on Race, Class, and Gender [SOCS, DSJ, WI] (3.0 cr)
• SOC 3451W - Cities & Social Change [WI] (3.0 cr)
• SOC 3613W - Stuffed and Starved: The Politics of Eating [SOCS, GP, WI] (3.0 cr)
• URBS 3301W - American Cities As Settings for Cultural Diversity [WI] (3.0 cr)
• WRIT 3029W - Business and Professional Writing [WI] (3.0 cr)
• WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
• WRIT 4573W - Writing Proposals and Grant Management [WI] (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Management/Finance
Courses in economics and business prepare students to work in public and private housing management, state finance agencies, commercial banks, and mortgage and title companies.

Students must complete at least 20 credits for the concentration.

Management and Finance Concentration
Courses listed below are suggested, but not inclusive. Students should consult with an adviser for other appropriate courses. Concentration courses must be primarily upper division and must be taken A-F. A minimum grade of C- is required. Note: a course may be used only once to satisfy program requirements.

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Information current as of December 12, 2014
Completion of a minor in applied economics, economics, entrepreneurial management, or management may be used toward the credit requirements in this concentration.

Take 20 or more credit(s) from the following:

- APEC 3001 - Applied Microeconomics: Consumers, Producers, and Markets (4.0 cr)
- APEC 3002 - Applied Microeconomics: Managerial Economics (4.0 cr)
- APEC 3006 - Applied Macroeconomics: Government and the Economy (3.0 cr)
- APEC 5341 - Public Finance (3.0 cr)
- BLAW 3058 - The Law of Contracts and Agency (4.0 cr)
- HSG 3482 - Sustainable Housing: Community, Environment, and Technology [TS] (3.0 cr)
- HSG 4465 - Housing in a Global Perspective (3.0 cr)
- HSG 5464 - Understanding Housing: Assessment and Analysis (3.0 cr)
- HSG 5481 - Promoting Independence in Housing and Community (3.0 cr)
- HSG 5484 - Rural Housing Issues (3.0 cr)
- ECON 3701 - Money and Banking (3.0 cr)
- ECON 3801 - Elements of Public Economics (3.0 cr)
- FINA 3001 - Finance Fundamentals (3.0 cr)
- GEOG 5361 - Geography and Real Estate (4.0 cr)
- MGMT 3001 - Fundamentals of Management (3.0 cr)
- MGMT 4002 - Managerial Psychology (4.0 cr)
- MKTG 3001 - Principles of Marketing (3.0 cr)
- MKTG 3010 - Marketing Research (4.0 cr)
- MKTG 3040 - Buyer Behavior (4.0 cr)
- WRIT 4573W - Writing Proposals and Grant Management [WI] (3.0 cr)
- APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
  or ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
- APEC 1102 - Principles of Macroeconomics (3.0 cr)
  or ECON 1102 - Principles of Macroeconomics (4.0 cr)
- APEC 1251 - Principles of Accounting (3.0 cr)
  or ACCT 2050 - Introduction to Financial Reporting (4.0 cr)

Selected Populations
An area of concentration in selected populations may be fulfilled in two ways.

Option One and Option Two

Option One
Complete an appropriate minor along with additional credits in supporting courses. A concentration can be done in such minors as African-American and African studies; American Indian studies; Chicano studies; family social science; gay, lesbian, bi-sexual, and transgendered minor; gender, women, and sexuality studies; global studies; Latin American studies; social justice; or youth studies. For admission procedures and minor requirements, contact the department offering the minor.

Minor and coursework to total 20 credits

-OR-

Option Two
Concentrate on one or more special populations for which no specific undergraduate minor is offered. Choose courses from selected populations: older persons, low income, communities of color, and households with children. Courses from either list are approved for selected populations option two.

Selected Populations: older persons
Take 20 or more credit(s) from the following:

- HSG 5481 - Promoting Independence in Housing and Community (3.0 cr)
- HSG 5484 - Rural Housing Issues (3.0 cr)
- FSOS 4154W - Families and Aging [WI] (3.0 cr)
- GERO 5105 - Multidisciplinary Perspectives on Aging (3.0 cr)
- KIN 5385 - Exercise for Healthy Aging & Disease Prevention and Management (3.0 cr)
- PA 5412 - Aging and Disability Policy (3.0 cr)
- PUBH 3001 - Personal and Community Health (2.0 cr)
- WRIT 4573W - Writing Proposals and Grant Management [WI] (3.0 cr)
- SW 1001 - Introduction to the World of Social Work: A Global Perspective (3.0 cr)
- SW 5313 - Social Work with Older Adults (2.0 cr)
- GWSS 4201 - The Older Woman: A Feminist Perspective (3.0 cr)

or Selected Populations: low income, communities of color, and households with children
Take 20 or more credit(s) from the following:

- HSG 5464 - Understanding Housing: Assessment and Analysis (3.0 cr)
- HSG 5484 - Rural Housing Issues (3.0 cr)
Sustainability

Courses in sustainability prepare students to work in government, housing construction and development firms, and in organizations focused on sustainability, including energy, conservation, housing inspections, and historic preservation organizations.

Option 1: Sustainability: Housing and Community

Courses listed below are suggested but not inclusive. Students should consult with an adviser for other appropriate courses. Concentration courses must be primarily upper division and must be taken A-F. A minimum grade of C- is required. Note: a course may be used only once to satisfy housing studies program requirements. Sustainability Studies minor and coursework to total 20 credits.

Take 20 or more credit(s) from the following:

• AFEE 5361 - World Development Problems (3.0 cr)
• AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• AGRO 5321 - Ecology of Agricultural Systems (3.0 cr)
• ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
• ANTH 3041 - Ecological Anthropology (3.0 cr)
• ANTH 4053 - Economy, Culture, and Critique [SOCS, GP] (3.0 cr)
• APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
• APEC 5611 - Economic Aspects of Environmental Management (3.0 cr)
• ARCH 4561 - Architecture and Ecology (3.0 cr)
• BBE 4733 - Renewable Energy Technologies [TS] (3.0 cr)
• BIOL 3407 - Ecology (3.0 cr)
• BIOL 3408W - Ecology [WI] (3.0 cr)
• CE 3501 - Environmental Engineering [ENV] (3.0 cr)
• CE 4561 - Solid Hazardous Wastes (3.0 cr)
• CE 5212 - Transportation Policy, Planning, and Deployment (4.0 cr)
• CE 5214 - Transportation Systems Analysis (4.0 cr)
• CHEN 5551 - Survey of Renewable Energy Technologies (3.0 cr)
• EEB 3001 - Ecology and Society [ENV] (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• EEB 5146 - Science and Policy of Global Environmental Change (3.0 cr)
• ENGL 3501 - Public Discourse: Coming to Terms With the Environment [LITR, ENV] (3.0 cr)
• ESMP 3011W - Ethics in Natural Resources [WI] (3.0 cr)
• ESMP 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
• ESMP 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
• ESMP 3251 - Natural Resources in Sustainable International Development [GP] (3.0 cr)
• ESMP 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
• ESMP 3601 - Sustainable Housing--Community, Environment, and Technology [TS] (3.0 cr)
• ESMP 3602 - Regulations and Corporate Environmental Management (3.0 cr)
• ESMP 3603 - Environmental Life Cycle Analysis (3.0 cr)
• ESMP 3604 - Environmental Management Systems and Strategy (3.0 cr)
• ESMP 5245 - Sustainable Land Use Planning and Policy (3.0 cr)
Option 2: Sustainability: Housing Technology

Courses listed below are suggested, but not inclusive. Students should consult with an adviser for other appropriate courses. Concentration courses must be primarily upper division and must be taken A-F. A minimum grade of C- is required. Note: a course may be used only once to satisfy program requirements.

- OR -

ARCH 3412 - Architectural History Since 1750 [HIS, GP] (3.0 cr)
or ARCH 4671 - Historic Preservation (3.0 cr)
or ARCH 4672 - Historic Building Conservation (3.0 cr)
or ARCH 5673 - Historic Property Research and Documentation (3.0 cr)
or ARTH 5546 - American Architecture: 1840 to 1914 (3.0 cr)
or BBE 4416 - Building Testing and Diagnostics (2.0 cr)
or HSG 3482 - Sustainable Housing: Community, Environment, and Technology [TS] (3.0 cr)
or HSG 4465 - Housing in a Global Perspective (3.0 cr)
or HSG 5464 - Understanding Housing: Assessment and Analysis (3.0 cr)
or HSG 5481 - Promoting Independence in Housing and Community (3.0 cr)
or HSG 5484 - Rural Housing Issues (3.0 cr)
or IDES 2612 - Interior Materials and Specifications [ENV] (4.0 cr)
or IDES 2613 - Interior Structures, Systems, and Life Safety (4.0 cr)
or PUBH 3001 - Personal and Community Health (2.0 cr)
or PUBH 3004 - Basic Concepts in Personal and Community Health (4.0 cr)
or PUBH 3102 - Issues in Environmental and Occupational Health (3.0 cr)
or WRIT 4573W - Writing Proposals and Grant Management [WI] (3.0 cr)

Comm Dev/Policy

Courses in planning, geography, political science, and urban studies prepare students to work with housing and redevelopment authorities, city or regional planning departments, and nonprofit organizations in policy making, planning, and housing development.

HSG 5464 and 17 credits from a variety of courses are required.

Community Development and Policy Concentration

Courses listed below are suggested, but not inclusive. Students should consult with an adviser for other appropriate courses. Concentration courses must be primarily upper division and must be taken A-F. A minimum grade of C- is required. Note: A course may be used only once to satisfy program requirements.

Completion of a minor in landscape design and planning, geography, social justice, or urban studies may be used toward the credit requirements in this concentration.

HSG 5464 - Understanding Housing: Assessment and Analysis (3.0 cr)
Take 17 or more credit(s) from the following:
- FSOS 3102 - Family Systems and Diversity [SOCS, DSJ] (3.0 cr)
- GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
- GEOG 3373 - Changing Form of the City [HIS, GP] (3.0 cr)
• GEOG 5361 - Geography and Real Estate (4.0 cr)
• HSG 3482 - Sustainable Housing: Community, Environment, and Technology [TS] (3.0 cr)
• HSG 4465 - Housing in a Global Perspective (3.0 cr)
• HSG 5481 - Promoting Independence in Housing and Community (3.0 cr)
• HSG 5484 - Rural Housing Issues (3.0 cr)
• PA 4200 - Urban and Regional Planning (3.0 cr)
• PA 5002 - Introduction to Policy Analysis (1.5 cr)
• PA 5004 - Introduction to Planning (3.0 cr)
• PA 5013 - Law and Urban Land Use (1.5 cr)
• PA 5212 - Managing Urban Growth and Change (3.0 cr)
• POL 1001 - American Democracy in a Changing World [SOCS] (4.0 cr)
• SOC 1001 - Introduction to Sociology [SOCS, DSJ] (4.0 cr)
• SOC 3201 - Inequality: Introduction to Stratification (3.0 cr)
• SOC 3211W - American Race Relations [DSJ, WI] (3.0 cr)
• SOC 3451W - Cities & Social Change [WI] (3.0 cr)
• URBS 1001W - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)
• URBS 3301W - American Cities As Settings for Cultural Diversity [WI] (3.0 cr)
• URBS 3751 - Understanding the Urban Environment [ENV] (3.0 cr)
• URBS 5101 - The City and the Metropolis: An Exploration (3.0 cr)
• WRIT 4573W - Writing Proposals and Grant Management [WI] (3.0 cr)
**Twin Cities Campus**  
**Interior Design B.S.**  
*Design, Housing & Apparel*  
**College of Design**

- Program Type: Baccalaureate  
- Requirements for this program are current for Fall 2014  
- Required credits to graduate with this degree: 120  
- Required credits within the major: 100  
- Degree: Bachelor of Science

Interior design is a professional program accredited by the Council for Interior Design Accreditation (CIDA). Its focus is providing for human welfare by improving the quality of life and protecting human health and safety through design of the interior environment. Students study fundamentals, theory, process, communication, research, and technology to identify and solve problems related to people and their use of interior space. They analyze human behavior to determine a client's functional, aesthetic, social, and psychological needs. They design various types of interiors, such as hospitals, offices, schools, residences, restaurants, hotels, and entertainment facilities. To do this, students acquire:

- a foundation in basic design;  
- understanding of the relationship between individuals and their environments;  
- understanding of the contextual relationship of the site, the building, and its systems to the interior;  
- knowledge of regulations that govern their practice of interior design;  
- the ability to research user needs and apply findings to problem identification and solution;  
- understanding of historical precedent and contemporary design theories;  
- technical knowledge and communication skills;  
- understanding of business issues and professional ethics; and  
- a sense of responsibility to society, especially in the use of resources.

**Program Delivery**

This program is available:

- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

Students must complete 7 courses before admission to the program.

Freshman and transfer students students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:

- 2.50 already admitted to the degree-granting college  
- 2.50 transferring from another University of Minnesota college  
- 2.50 transferring from outside the University

Admission to the pre-major status is done by a competitive holistic review. Students must maintain a GPA of 2.50 during pre-major coursework. In addition, students must receive a minimum grade of C- or better in the required pre-major courses before going through portfolio review (not just a 2.50 GPA). Once students have achieved major status, they must maintain a GPA of 2.00.

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](#).

**Required prerequisites**

**Pre-Interior Design Courses**

Students must complete freshman composition and at least one additional liberal education course in addition to the required coursework below to be admitted to major status in the interior design program.

Note: Students must be admitted to a pre-major status to take most of these courses.  
**DES 1101W** - Introduction to Design Thinking [AH, WI] (4.0 cr)  
**GDES 1311** - Foundations: Drawing and Design in Two and Three Dimensions (4.0 cr)  
**GDES 1312** - Foundations: Color and Design in Two and Three Dimensions (4.0 cr)  
**IDES 1601** - Interior Design Studio I (4.0 cr)  
**IDES 1602** - Interior Design Studio II (4.0 cr)
General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students must complete a 200-hour internship (IDES 4196) after completing IDES 3606. All coursework in the major must be taken A-F (with the exception of the internship).

Communication Course
WRIT 3577W - Rhetoric, Technology, and the Internet [TS, WI] (3.0 cr)

Psychology Courses
PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
or PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)

Major Courses
ADES 2213 - Textile Analysis (4.0 cr)
ARCH 3412 - Architectural History Since 1750 [HIS, GP] (3.0 cr)
ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
ARTH 1001 - Introduction to Art History: Prehistoric to Contemporary [AH] (4.0 cr)
DES 3201 - Career and Internship Preparation for Design (1.0 cr)
DES 4165 - Design and Globalization [DSJ] (3.0 cr)
IDES 2603 - Interior Design Studio III (4.0 cr)
IDES 2604 - Interior Design Studio IV (4.0 cr)
IDES 2612 - Interior Materials and Specifications [ENV] (4.0 cr)
IDES 2613 - Interior Structures, Systems, and Life Safety (4.0 cr)
IDES 2622 - Computer Applications I (2.0 cr)
IDES 3161 - History of Interiors and Furnishings: Ancient to 1750 [GP] (4.0 cr)
IDES 3162 - History of Interiors and Furnishings: 1750 to Present [HIS] (4.0 cr)
IDES 3605 - Interior Design Studio V (4.0 cr)
IDES 3606 - Interior Design Studio VI (4.0 cr)
IDES 3612 - Lighting Design (3.0 cr)
IDES 3614 - Interior Design Ethics and Professional Practice [CIV] (4.0 cr)
IDES 3622 - Computer Applications II (2.0 cr)
IDES 4196 - Internship in Interior Design (1.0 cr)
IDES 4607 - Interior Design Studio VII (4.0 cr)
IDES 4608 - Interior Design Thesis (4.0 cr)
IDES 4615W - Interior Design Research [WI] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
• IDES 4615W - Interior Design Research [WI] (3.0 cr)
• WRIT 3577W - Rhetoric, Technology, and the Internet [TS, WI] (3.0 cr)
Twin Cities Campus
Interior Environments Minor
DHA Interior Design
College of Design

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

The Interior Environments minor introduces students to the discipline's core principles and the question of how health and well-being are impacted by the social, cultural, historical, and technological forces behind the design of interior environments.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Required courses
- IDES 2612 - Interior Materials and Specifications [ENV] (4.0 cr)
- DES 1101W - Introduction to Design Thinking [AH, WI] (4.0 cr)
  or DES 1101V - Honors: Introduction to Design Thinking [AH, WI] (4.0 cr)

History of Interiors
- IDES 3161 - History of Interiors and Furnishings: Ancient to 1750 [GP] (4.0 cr)
  or IDES 3162 - History of Interiors and Furnishings: 1750 to Present [HIS] (4.0 cr)

Electives
Select one of the following courses to complete a minimum of 15 credits.
- IDES 1601 - Interior Design Studio I (4.0 cr)
  or IDES 2613 - Interior Structures, Systems, and Life Safety (4.0 cr)
  or IDES 3612 - Lighting Design (3.0 cr)
  or IDES 3614 - Interior Design Ethics and Professional Practice [CIV] (4.0 cr)
  or DES 4165 - Design and Globalization [DSJ] (3.0 cr)
  or Interior history alternative
  Students may complete IDES 3161 or IDES 3162 if not used for the minor requirement.
Twin Cities Campus

Landscape Design and Planning B.E.D.

Landscape Architecture

College of Design

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 77 to 83
- Degree: Bachelor of Environmental Design

Landscape design and planning focuses on creating livable communities that sustain ecological function; fulfill human aspirations for community development, public health, and safety; and are artistically evocative and meaningful. Core courses in design and planning introduce students to the history, theory, and practice of landscape design and planning at various geographic scales and in diverse settings. Students create integrative, collaborative, and beautiful designs for regions, communities, and sites to conserve ecosystems services and water and air resources, protect biodiversity, and to reduce dependence on fossil fuels.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
A GPA above 2.0 is preferred for the following:
- 2.80 already admitted to the degree-granting college
- 2.80 transferring from another University of Minnesota college
- 2.80 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Design
- LA 1201 - Learning from the Landscape [AH, DSJ] (3.0 cr)
- LA 1401 - The Designed Environment (3.0 cr)
- LA 3001 - Understanding and Creating Landscape Space (3.0 cr)
- LA 3002 - Informants of Creating Landscape Space (3.0 cr)
- LA 3003 - Case Studies in Sustainable Landscape Planning and Design (3.0 cr)
- LA 4001 - Sustainable Landscape Design and Planning Practices (3.0 cr)
- LA 4002 - Implementation of Sustainable Landscape Design and Planning Practices (3.0 cr)
- LA 4096 - Internship in Landscape Design and Planning (1.0 cr)
- LA 4755 - Infrastructure, Natural Systems, and Space of Inhabited Landscapes [TS] (3.0 cr)

Design Communication
- LA 1301 - Introduction to Landscape Architecture Drawing [AH] (3.0 cr)
- LA 2301 - Advanced Representation for Environmental Design (3.0 cr)
- LA 2302 - Computer-Aided Representation for Environmental Design (3.0 cr)

Ecosystem Pattern and Process Core
- ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
- HORT 1001 - Plant Propagation [BIOL] (4.0 cr)
- LA 3501 - Environmental Design and Its Biological and Physical Context [ENV] (3.0 cr)
- LA 3204 - Holistic Landscape Ecology and Bioregional Practice (3.0 cr)
- LA 3571 - Landscape Construction: Site Systems and Engineering (3.0 cr)
Social and Cultural Systems Core
LA 3413 - Introduction to Landscape Architectural History [HIS, GP] (3.0 cr)
ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
• ARCH 4445W - Suburbia [WI] (3.0 cr)
• ARCH 4701W - Introduction to Urban Form and Theory [WI] (3.0 cr)
• EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
• ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
• FNRM 4232W - Managing Recreational Lands [WI] (4.0 cr)
• FW 5603W - Habitats and Regulation of Wildlife [WI] (3.0 cr)
• GEOG 3361W - Geography and Public Policy [WI] (3.0 cr)
• GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
• HORT 3005W - Environmental Effects on Horticultural Crops [WI] (4.0 cr)
• HORT 4061W - Turfgrass Management [WI] (3.0 cr)
• URBS 3001W - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)
• URBS 3301W - American Cities As Settings for Cultural Diversity [WI] (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Accelerated Program
This sub-plan is optional and does not fulfill the sub-plan requirement for this program.

The accelerated status option admits a limited number of students annually and allows qualified undergraduates to complete the B.E.D. and M.L.A. in six years rather than seven years.

Applicants for the accelerated status must complete the first three years of the B.E.D. degree requirements before their senior year. Students must complete the first year of the professional degree program in their undergraduate senior year. These courses carry upper division credit and satisfy senior year B.E.D. requirements.

Accelerated status is granted on a competitive basis and does not admit any student to the graduate professional program. Separate requirements, such as letters of recommendation, a letter of interest, and other application documents, must be submitted in January of the year that students are seeking admission to the graduate program. B.E.D. graduates who have completed the accelerated status option and applied to the M.L.A. professional degree program will receive advanced standing in the M.L.A. program upon acceptance by the Department of Landscape Architecture and the Graduate School.

Landscape Design
The design track prepares students for a career in the design of sustainable landscapes at the residential and small-scale commercial level.

The landscape design track also requires students to take courses in biological science, plant materials, landscape management, and small business management.

Landscape Design--Ecosystem Pattern and Process
HORT 1015 - Woody and Herbaceous Plants (4.0 cr)
HORT 3005W - Environmental Effects on Horticultural Crops [WI] (4.0 cr)
HORT 4061W - Turfgrass Management [WI] (3.0 cr)
MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
or MATH 1051 - Precalculus I [MATH] (3.0 cr)
or MATH 1142 - Short Calculus [MATH] (4.0 cr)
CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
CHEM 1017 - Introductory Chemistry: Laboratory (1.0 cr)

Landscape Design--Social and Cultural Systems
**Landscape Planning**

The landscape planning track prepares students for work planning sustainable landscape at the urban and regional scale.

The landscape planning track requires additional courses in urban geography, urban and regional planning, natural resource planning and management, as well as biological and physical sciences. Students in this track should select GEOG 1502 to complete the mathematical thinking requirement.

**Landscape Planning—Ecosystem Pattern and Process**

- **FNRM 3131** - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)
- **LA 3004** - Regional Landscape Planning (3.0 cr)
- **LA 3514** - Making the Mississippi [CIV] (3.0 cr)

Take 2 or more course(s) from the following:

- **BBE 3023** - Ecological Engineering Principles (3.0 cr)
- **BBE 5513** - Watershed Engineering (3.0 cr)
- **BIOL 3407** - Ecology (3.0 cr)
- **BIOL 3409** - Evolution (3.0 cr)
- **CE 3501** - Environmental Engineering [ENV] (3.0 cr)
- **EEB 3603** - Science, Protection, and Management of Aquatic Environments (3.0 cr)
- **EEB 4609W** - Ecosystem Ecology [ENV, WI] (3.0 cr)
- **ESCI 3002** - Climate Change and Human History [ENV] (3.0 cr)
- **ESCI 3004** - Water and Society (3.0 cr)
- **ESCI 3005** - Earth Resources (3.0 cr)
- **ESCI 4701** - Geomorphology (3.0 - 4.0 cr)
- **ESCI 4703** - Glacial Geology (4.0 cr)
- **ESPM 3101** - Conservation of Plant Biodiversity (3.0 cr)
- **ESPM 3111** - Hydrology and Water Quality Field Methods (3.0 cr)
- **ESPM 3221** - Soil Conservation and Land-Use Management (3.0 cr)
- **ESPM 3575** - Wetlands (3.0 cr)
- **ESPM 4061W** - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
- **FNRM 3104** - Forest Ecology (4.0 cr)
- **FNRM 3114** - Hydrology and Watershed Management (3.0 cr)
- **FNRM 3203** - Forest Fire and Disturbance Ecology (3.0 cr)
- **FNRM 5146** - Science and Policy of Global Environmental Change (3.0 cr)
- **FNRM 5153** - Forest Hydrology & Watershed Biogeochemistry (3.0 cr)
- **FW 5603W** - Habitats and Regulation of Wildlife [WI] (3.0 cr)
- **GEOG 3401** - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
- **HORT 5071** - Ecological Restoration (4.0 cr)
- **LA 5574** - Identification of Minnesota Flora (3.0 cr)
- **LAAS 5515** - Soil Formation: Earth Surface Processes and Biogeochemistry (3.0 cr)
- **PBIO 4321** - Minnesota Flora (3.0 cr)
- **SOIL 5555** - Wetland Soils (3.0 cr)
- **URBS 3751** - Understanding the Urban Environment [ENV] (3.0 cr)

**Landscape Planning—Social and Cultural Systems**

- **ARCH 4446W** - Suburbia [WI] (3.0 cr)
- **ARCH 4671** - Historic Preservation (3.0 cr)
- **ARCH 4701W** - Introduction to Urban Form and Theory [WI] (3.0 cr)
- **DES 3331** - Street Life Urban Design Seminar (3.0 cr)
- **ESPM 3245** - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
- **FNRM 4501** - Urban Forest Management: Managing Greenspaces for People (3.0 cr)
- **GEOG 3361W** - Geography and Public Policy [WI] (3.0 cr)
- **GEOG 3373** - Changing Form of the City [HIS, GP] (3.0 cr)
- **GEOG 3376** - Political Ecology of North America [ENV] (3.0 cr)
- **GEOG 3973** - Geography of the Twin Cities [SOCS] (3.0 cr)
- **GEOG 5393** - Rural Landscapes and Environments (4.0 cr)
- **LA 4755** - Infrastructure, Natural Systems, and Space of Inhabited Landscapes [TS] (3.0 cr)
- **PA 4200** - Urban and Regional Planning (3.0 cr)
- **PA 5013** - Law and Urban Land Use (1.5 cr)
- **PA 5211** - Land Use Planning (3.0 cr)
- **PA 5221** - Private Sector Development (3.0 cr)
- **PA 5251** - Strategic Planning and Management (3.0 cr)
or PA 5253 - Designing Planning and Participation Processes (3.0 cr)
or FNRM 4232W - Managing Recreational Lands [WI] (4.0 cr)
or URBS 3001W - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)
or URBS 3301W - American Cities As Settings for Cultural Diversity [WI] (3.0 cr)
or URBS 3751 - Understanding the Urban Environment [ENV] (3.0 cr)
Twin Cities Campus

Landscape Design and Planning Minor
Landscape Architecture
College of Design

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 21

The landscape design and planning minor introduces students to the history, theory, and practice of landscape design and planning at various geographic scales and in diverse settings. Landscape design and planning focuses on the creation of livable communities that sustain ecological function, fulfill human aspirations for community development, public health, and safety, and are artistically evocative and meaningful.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
A maximum of 9 transfer credits may be used for the minor and a maximum of three courses taken for a major degree may also be used toward the minor. A minimum grade of C- is required in all minor coursework.

Required courses
LA 1401 - The Designed Environment (3.0 cr)
LA 3001 - Understanding and Creating Landscape Space (3.0 cr)
LA 3003 - Case Studies in Sustainable Landscape Planning and Design (3.0 cr)
LA 3413 - Introduction to Landscape Architectural History [HIS, GP] (3.0 cr)

Electives
Take 9 or more credit(s) from the following:

- ARCH 3711W - Environmental Design and the Sociocultural Context [SOCS, CIV, WI] (3.0 cr)
- EEB 3001 - Ecology and Society [ENV] (3.0 cr)
- ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
- LA 1201 - Learning from the Landscape [AH, DSJ] (3.0 cr)
- LA 1301 - Introduction to Landscape Architecture Drawing [AH] (3.0 cr)
- LA 2301 - Advanced Representation for Environmental Design (3.0 cr)
- LA 2302 - Computer-Aided Representation for Environmental Design (3.0 cr)
- LA 3002 - Informants of Creating Landscape Space (3.0 cr)
- LA 3004 - Regional Landscape Planning (3.0 cr)
- LA 3204 - Holistic Landscape Ecology and Bioregional Practice (3.0 cr)
- LA 3501 - Environmental Design and Its Biological and Physical Context [ENV] (3.0 cr)
- LA 3514 - Making the Mississippi [CIV] (3.0 cr)
- LA 3571 - Landscape Construction: Site Systems and Engineering (3.0 cr)
- LA 4001 - Sustainable Landscape Design and Planning Practices (3.0 cr)
- LA 4002 - Implementation of Sustainable Landscape Design and Planning Practices (3.0 cr)
- LA 4755 - Infrastructure, Natural Systems, and Space of Inhabited Landscapes [TS] (3.0 cr)
- LA 8302 - Professional Practice (3.0 cr)
Twin Cities Campus
Product Design Minor
Design, Housing & Apparel
College of Design

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 18

Product design is inherently creative and interdisciplinary, blending design, engineering, business, art, and other humanities. The program focuses on physically crafting the future in the form of new objects, systems and services. This minor will provide students with a tool set for innovation that can be applied to their major area of study.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
A GPA above 2.0 is preferred for the following:
• 2.80 already admitted to the degree-granting college
• 2.80 transferring from another University of Minnesota college

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Required core
PDES 3701 - Creativity, Idea Generation, and Innovation (3.0 cr)
PDES 3702 - Concept Sketching and Rendering (3.0 cr)
PDES 3711 - Toy Product Design (4.0 cr)

Select from the following to reach 18 total credits for the minor.
ANTH 4121 - Business Anthropology (3.0 cr)
or PDES 3715 - Design and Food (4.0 cr)
or DES 3131 - User Experience in Design (4.0 cr)
or DES 3321 - Furniture Design: Exploration (3.0 cr)
or DES 5185 - Human Factors in Design (3.0 cr)
or ESPM 3603 - Environmental Life Cycle Analysis (3.0 cr)
or ME 2011 - Introduction to Engineering (4.0 cr)
or MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)
or MGMT 4171W - Entrepreneurship in Action I [WI] (4.0 cr)
or MGMT 4172 - Entrepreneurship in Action II (4.0 cr)
or PDES 3170 - Topics in Product Design (1.0 - 4.0 cr)
or PDES 3703 - Product Form and Model Making (4.0 cr)
or PDES 3704 - Innovative Computer Modeling and Rendering for Design (3.0 cr)
or PDES 4193 - Directed Study in Product Design (1.0 - 4.0 cr)
or PDES 5170 - Topics in Product Design (1.0 - 4.0 cr)
Twin Cities Campus
Retail Merchandising B.S.
Design, Housing & Apparel
College of Design

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 81 to 95
- Degree: Bachelor of Science

The retail merchandising program offers a wide range of educational and career opportunities, including visits to international retailers, travel to foreign and domestic retail centers, and professional experiences, such as study abroad and internships with national and international retailers. Program graduates begin their careers in store or corporate environments. Entry-level positions include merchandising, marketing, product development, distribution, store management, buying, advertising, sales promotion, and human resources.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Admission is competitive and space is limited.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
All coursework in the major must be taken A-F unless it is only offered S/N.

Design Courses
DES 1101W - Introduction to Design Thinking [AH, WI] (4.0 cr)
DES 1111 - Creative Problem Solving (3.0 cr)
DES 2101 - Design and Visual Presentation (3.0 cr)

Retail Merchandising Courses
RM 1201 - Fashion, Ethics, and Consumption [CIV] (3.0 cr)
RM 2215 - Introduction to Retail Merchandising (3.0 cr)
RM 3201 - Career and Internship Preparation for Retail Merchandising (1.0 cr)
RM 3242 - Retail Buying (3.0 cr)
RM 3243 - Visual Merchandising (3.0 cr)
RM 4196 - Internship in Retail Merchandising (1.0 - 2.0 cr)
RM 4216 - Retail Promotions (3.0 cr)
RM 4217 - International Retail Markets [GP] (3.0 cr)

Business Courses
HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
MGMT 3001 - Fundamentals of Management (3.0 cr)
MKTG 3001 - Principles of Marketing (3.0 cr)
MKTG 3010 - Marketing Research (4.0 cr)
PSTL 1571 - Computer Literacy and Problem Solving (4.0 cr)
ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
or APEC 1251 - Principles of Accounting (3.0 cr)
ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
or APEC 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)
ECON 1102 - Principles of Macroeconomics (4.0 cr)
or APEC 1102 - Principles of Macroeconomics (3.0 cr)
PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
or PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
or SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)
or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)

Communication Courses
COMM 1101 - Introduction to Public Speaking [CIV] (3.0 cr)
or PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)
or ENGL 3027W - The Essay [WI] (4.0 cr)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• ADES 4218W - Fashion, Design, and the Global Industry [WI] (3.0 cr)
• ENGL 3027W - The Essay [WI] (4.0 cr)
• RM 4117W - Retail Environments and Human Behavior [WI] (3.0 cr)
• RM 4212W - Dress, Society, and Culture [WI] (3.0 cr)
• WRIT 3562W - Technical and Professional Writing [WI] (4.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

Retail merchandising general emphasis

Merchandising Advanced Courses
RM 4247 - Advanced Buying and Sourcing (3.0 cr)
RM 4117W - Retail Environments and Human Behavior [WI] (3.0 cr)

Business Advanced Course
APEC 3451 - Food and Agricultural Sales (3.0 cr)
or APEC 3821 - Retail Center Management (3.0 cr)
or MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)
or MGMT 4002 - Managerial Psychology (4.0 cr)
or MKTG 4030 - Sales Management (4.0 cr)
or RM 3196 - Field Study: National or International (1.0 - 4.0 cr)
or RM 4123 - Living in a Consumer Society (3.0 cr)
or RM 4124 - Consumers of Design (3.0 cr)
or RM 4248 - Creative Leadership in Retailing (3.0 cr)

Retail merchandising apparel emphasis

Advanced Retail Merchandising Courses
ADES 2213 - Textile Analysis (4.0 cr)
ADES 2214 - Softlines Analysis (3.0 cr)
RM 4212W - Dress, Society, and Culture [WI] (3.0 cr)

Softlines or Fashion, Design, and the Global Industry
ADES 4215 - Product Development: Softlines (4.0 cr)
or ADES 4218W - Fashion, Design, and the Global Industry [WI] (3.0 cr)
ADES 3217 - Fashion: Trends and Communication (3.0 cr)
or ADES 4121 - History of Costume (4.0 cr)
or RM 3196 - Field Study: National or International (1.0 - 4.0 cr)
or RM 4123 - Living in a Consumer Society (3.0 cr)
or RM 4124 - Consumers of Design (3.0 cr)
or RM 4248 - Creative Leadership in Retailing (3.0 cr)
Twin Cities Campus
Retail Merchandising Minor
DHA Retail Merchandising
College of Design

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15 to 17

Minors in retail merchandising are introduced to basic merchandising principles. The minor provides the opportunity to explore several facets of the retail industry, including retail buying, visual merchandising, and multichannel retailing. Outstanding opportunities are provided to students who meet minor requirements, including travel to domestic and international market centers.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Minor Courses
RM 1201 - Fashion, Ethics, and Consumption [CIV] (3.0 cr)
RM 2215 - Introduction to Retail Merchandising (3.0 cr)
Take 3 or more course(s) from the following:
- RM 3196 - Field Study: National or International (1.0 - 4.0 cr)
- RM 3242 - Retail Buying (3.0 cr)
- RM 3243 - Visual Merchandising (3.0 cr)
- RM 4117W - Retail Environments and Human Behavior [WI] (3.0 cr)
- RM 4123 - Living in a Consumer Society (3.0 cr)
- RM 4124 - Consumers of Design (3.0 cr)
- RM 4216 - Retail Promotions (3.0 cr)
- RM 4217 - International Retail Markets [GP] (3.0 cr)
- RM 4247 - Advanced Buying and Sourcing (3.0 cr)
**University Honors Program**

The University Honors Program assists high-achieving students in making the most of their undergraduate education. Our students are driven to excel both inside and outside the classroom, but we challenge them to go one step further.

### Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

### Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

### General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

### Program Requirements

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, as well as degree program requirements. For any course required in a degree program, UHP students are expected to register for the honors version of courses associated with their discipline, when offered. These courses are designed to meet degree and UHP requirements.

To remain in the honors program, students must maintain a grade point average of 3.5 and complete a set number of Honors Experiences per year (May and summer sessions included).

#### Freshman Year

Students build a solid foundation of knowledge to serve them throughout their undergraduate career. Most students complete first-year Honors Experiences primarily through honors courses. Courses can be found here: [http://www.honors.umn.edu/experiences/courses-and-tutoring/index.php](http://www.honors.umn.edu/experiences/courses-and-tutoring/index.php)

**Two honors courses**
- Two honors courses (honors seminars, departmental honors courses, or freshman seminars totalling at least six credits)

**Two other Honors Experiences**
- Two other Honors Experiences (courses or non-course experiences)

#### Sophomore Year

Students continue to take advantage of the curriculum while expanding their education beyond the classroom. Through non-course Honors Experiences they begin to apply their knowledge in the laboratory, studio, or community. Examples of these experiences can be found here: [http://www.honors.umn.edu/experiences/non-course-experiences/index.php](http://www.honors.umn.edu/experiences/non-course-experiences/index.php)

**Two honors courses**
- Two honors courses (totalling at least six credits)

**Two other Honors Experiences**
- Two other Honors Experiences (courses or non-course experiences)

#### Junior Year

Students engage in research, scholarship, or creative activity with a faculty mentor—an important step toward the development of a project for the honors thesis—while deepening and broadening their knowledge and skill base. The honors thesis guide can be found here: [http://www.honors.umn.edu/latin-honors/thesis-guide/index.php](http://www.honors.umn.edu/latin-honors/thesis-guide/index.php)

**One honors course**
Two other Honors Experiences
Two other Honors Experiences (courses or non-course experiences)

Senior Year
The honors education culminates in the writing of an honors thesis. Through this thesis, students demonstrate mastery of their field of study, along with the ability to think creatively and independently.

One honors course
One additional Honors Experience
The Honors Thesis
Twin Cities Campus
Mortuary Science B.S.
Medical School - Adm
Medical School

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 85
- This program requires summer terms.
- N/A
- Degree: Bachelor of Science

The Program of Mortuary Science at the University of Minnesota, established in 1908, was the first program of its kind to be organized at a state university.

For detailed information, please visit the program's website (www.mortuaryscience.umn.edu), or contact the program office 612-624-6464.

Accreditation:
The Mortuary Science program at University of Minnesota is accredited by the American Board of Funeral Service Education (ABFSE), 3414 Ashland Avenue, Suite G, St. Joseph, Missouri 64506 (816) 233-3747. Web: www.abfse.org. The annual passage rate of first-time takers on the National Board Examination (NBE) for the most recent three-year period for this institution and all ABFSE accredited funeral service education programs is posted on the ABFSE Web site (www.abfse.org).

Mission:
Funeral directors are health care professionals who serve others during a time of loss, pain, and grief. The mission of the program is to skillfully combine the study of behavioral, physical, and applied sciences for the goal of preparing graduates for careers as knowledgeable, skilled, and innovative funeral service professionals. Program graduates will be prepared to serve bereaved members of their communities in a manner that is proficient, dignified, and caring.

Aims:
The Program of Mortuary Science states the importance of funeral service personnel as
1. members of a human services profession;
2. members of the community in which they serve;
3. participants in the relationship between bereaved families and those engaged in the funeral service profession;
4. professionals knowledgeable of and compliant with federal, state, provincial/territorial, and local regulatory guidelines in the geographic area where they practice;
5. professionals sensitive to the responsibility for public health, safety, and welfare in caring for human remains.

Objectives:
The program recognizes an obligation to students, the profession, and the community. Its objectives have been adopted by the Program's Advisory Board and conform with the accreditation standards set forth by the American Board of Funeral Service Education.

The objectives of the program are:
1. To enlarge the background and knowledge of students about the funeral service profession;
2. To educate students in every phase of funeral service, and to help enable them to develop proficiency and skills necessary for the profession;
3. To educate students concerning the responsibilities of the funeral service profession to the community at large;
4. To emphasize high standards of ethical conduct;
5. To provide a curriculum at the post-secondary level of instruction;
6. To encourage student and faculty research in the field of funeral service;
7. To encourage faculty and students to be advocates for the profession of funeral service.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 60 credits before admission to the program.
Freshman and transfer students are usually admitted to pre-major status before admission to this major.

A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

Upon admission, students are required to submit proof of certain immunizations and vaccinations. Students must submit a professional statement and two letters of recommendation as part of the admission process. Criteria for the essay and letters of recommendation are available on the program's web site: www.mortuaryscience.umn.edu.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

**Required prerequisites**

**Pre-Mortuary Science Courses**

Students usually enter the program at the beginning of their junior year. Freshmen and sophomores are urged to contact the program office for counsel in planning an appropriate preprofessional program. The following courses are required for admission to the B.S. program (except PUBH 3001 and PHAR 1002, which are not required but strongly recommended).

- **BIOL 1001** - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
  - or **BIOL 1009** - General Biology [BIOL] (4.0 cr)
  - or **BIOL 2002** - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)
- **BIOL 2003** - Foundations of Biology for Biological Sciences Majors, Part II (3.0 cr)
- **CHEM 1015** - Introductory Chemistry: Lecture (3.0 cr)
  - or **CHEM 1017** - Introductory Chemistry: Laboratory (1.0 cr)
  - or **CHEM 1061** - Chemical Principles I [PHYS] (3.0 cr)
  - or **CHEM 1065** - Chemical Principles I Laboratory [PHYS] (1.0 cr)
- **PSTL 1135** - Essentials of Human Anatomy and Physiology [BIOL] (4.0 cr)
  - or **ANAT 3001** - Human Anatomy (3.0 cr)
  - or **ANAT 3601** - Principles of Human Anatomy (3.0 cr)
  - or **ANAT 3611** - Principles of Human Anatomy (3.0 cr)
- **ACCT 2050** - Introduction to Financial Reporting (4.0 cr)
- **COMM 3402** - Introduction to Interpersonal Communication (3.0 cr)
- **PSY 1001** - Introduction to Psychology [SOCS] (4.0 cr)
- **SOC 1001** - Introduction to Sociology [SOCS, DSJ] (4.0 cr)
- **WRIT 1301** - University Writing (4.0 cr)
- **BIOL 3272** - Applied Biostatistics (3.0 cr)
  - or **EPSY 3264** - Basic and Applied Statistics [MATH] (3.0 cr)
  - or **EPSY 5261** - Introductory Statistical Methods (3.0 cr)
  - or **PSTL 1004** - Statistics: Understanding and Applying Data [MATH] (4.0 cr)
  - or **PSY 3801** - Introduction to Psychological Measurement and Data Analysis [MATH] (4.0 cr)
  - or **SOC 3811** - Basic Social Statistics [MATH] (4.0 cr)
  - or **STAT 1001** - Introduction to the Ideas of Statistics [MATH] (4.0 cr)
  - or **STAT 3011** - Introduction to Statistical Analysis [MATH] (4.0 cr)

**Letters of Recommendation, Personal Statement**

Applicants must provide the program with two letters of recommendation and a personal statement as part of the application process. Criteria for the letters of recommendation and personal statement are found on the program's Web site: www.mortuaryscience.umn.edu.

**General Requirements**

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

**Program Requirements**

60 credits of upper division coursework are required.

Students must take the National Board Examination of the International Conference of Funeral Service Examining Boards as a requirement for graduation, as per American Board of Funeral Service Education Accreditation Standard 11.5.

**Junior Year Courses**
MORT 3018 - History & Practice of Funeral Directing I: Antiquity - 1861 (3.0 cr)
MORT 3021W - Funeral Service Psychology [WI] (3.0 cr)
MORT 3171 - Human Anatomy Laboratory (2.0 cr)
MORT 3370 - Death and Dying Across Cultures and Religions (3.0 cr)
PHAR 1002 - Medical Terminology (2.0 cr)
MORT 3014 - Funeral Service Rules and Regulations (2.0 cr)
MORT 3048 - Microbiology and Pathology for Funeral Service (4.0 cr)
MORT 3065 - Embalming Chemistry (2.0 cr)
PUBH 3001 - Personal and Community Health (2.0 cr)

Senior Year Courses
MORT 3016 - Funeral Service Marketing and Merchandising (3.0 cr)
MORT 3025 - Business Law (3.0 cr)
MORT 3051 - Restorative Art (2.0 cr)
MORT 3061 - Embalming Theory (3.0 cr)
MORT 3151 - Restorative Art Laboratory (1.0 cr)
MORT 3161 - Embalming Laboratory (1.0 cr)
MORT 3012W - Organization and Management of Funeral Business [WI] (3.0 cr)
MORT 3019 - History & Practice of Funeral Directing II: 1861 - Present (3.0 cr)
MORT 3022W - Funeral Service Arrangements [WI] (3.0 cr)
MORT 3030 - Funeral Service Law (2.0 cr)
MORT 3379 - Clinical Funeral Service Rotation (1.0 - 4.0 cr)

Senior Year Summer Courses
MORT 3379 - Clinical Funeral Service Rotation (1.0 - 4.0 cr)

After January 1, 2004, each accredited program in funeral service education must require that each funeral service student take the National Board Examination (NBE) as a requirement for graduation. (ABFSE Accreditation Standard 11.5)

Upper-division Writing Intensive within the major
Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
• MORT 3012W - Organization and Management of Funeral Business [WI] (3.0 cr)
• MORT 3022W - Funeral Service Arrangements [WI] (3.0 cr)
Twin Cities Campus
Nursing B.S.N.
School of Nursing

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 73 to 79
- University of Minnesota Rochester
- Degree: Bachelor of Science in Nursing

The four-year B.S.N. program consists of one year of prerequisite courses and a three-year nursing sequence. Students are admitted to the three-year sequence after completing the prerequisites. Admission is once a year for the upcoming fall semester. The program has a full-time, primarily day school curriculum.

The program prepares students to be professional nurses who think critically and analytically as they encounter today's complex health care issues and a wide variety of client needs. Graduates are eligible to take the registered nurse (R.N.) licensure examination and be certified as public health nurses. The School of Nursing is accredited by the Commission on Collegiate Nursing Education (CCNE).

The School of Nursing at the University of Minnesota is improving nursing care through nursing education, research, and community service. The school is proud to offer students opportunities to learn from internationally renowned faculty who emphasize inquiry, critical thinking and analysis, clinical excellence, and leadership. Throughout their education, undergraduate and graduate students have the opportunity to collaborate with faculty on research projects as well as serve the vibrant communities that surround them. Nursing courses at both the Twin Cities and Rochester locations include advanced use of the Internet, interactive television, and other technology-enhanced delivery methods.

As a part of one of the nation's most extensive interdisciplinary academic health centers, the University of Minnesota's School of Nursing is located in the heart of two of the most progressive health care communities. The school prepares nurses to the best of its ability by providing them with the technical and human-interaction skills necessary to integrate cutting-edge research into practice.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 6 courses before admission to the program.

A GPA above 2.0 is preferred for the following:
- 2.80 already admitted to the degree-granting college
- 2.80 transferring from another University of Minnesota college
- 2.80 transferring from outside the University

Send an application for B.S.N. to School of Nursing.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Prerequisite Courses
Students must maintain at least a 2.80 GPA in the required prerequisite courses. A minimum of 4 of the required prerequisite courses must be taken using the A-F grading basis.

- FSCN 1112 - Principles of Nutrition (3.0 cr)
- BIOL 1009 - General Biology [BIOL] (4.0 cr)
- or BIOL 1010 - Human Biology: Concepts and Current Ethical Issues [BIOL, CIV] (4.0 cr)
- or PSTL 1131 - Principles of Biological Science [BIOL] (4.0 cr)
- PSY 1001 - Introduction to Psychology [SOCS] (4.0 cr)
- or PSTL 1281 - Principles of Psychology [SOCS] (4.0 cr)
- CHEM 1015 - Introductory Chemistry: Lecture (3.0 cr)
- or CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
- CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
- NURS 2001 - Human Growth and Development: A Life Span Approach (3.0 cr)
or FSOS 1201 - Human Development in Families: Lifespan [SOCS, DSJ] (4.0 cr)
or Take exactly 2 course(s) from the following:
• NURS 3690 - Life Span, Growth, and Development I (2.0 cr)
• NURS 3691 - Life Span, Growth, and Development II (1.0 cr)

Freshman Composition
WRIT 1301 - University Writing (4.0 cr)
or WRIT 1401 - Writing and Academic Inquiry (4.0 cr)

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Major Requirements
PHSL 3051 - Human Physiology (4.0 cr)
NURS 3801 - Patient Centered Care of Adults and Older Adults I (3.0 cr)
NURS 3703 - Assessment and Beginning Interventions: Nursing Lab 1 (3.0 cr)
NURS 3806 - Nurse as Professional (2.0 cr)
NURS 3803 - Application of Genetics in Nursing (2.0 cr)
PHAR 3800 - Pharmacotherapy for the Health Professions (3.0 cr)
NURS 3705 - Nursing Interventions (2.0 cr)
NURS 4106 - Nurse as Collaborator (1.0 cr)
NURS 4305 - Practicum: Community-based Care of Families Across Life Span (3.0 cr)
NURS 4104 - Ethical Sensitivity and Reasoning in Health Care (2.0 cr)
NURS 4312 - Patient Centered Care: Nursing Care of Families II (4.0 cr)
NURS 4301 - Person Centered Care of Adults and Older Adults II (4.0 cr)
NURS 3115 - Health Informatics and Information Technology [TS] (3.0 cr)
NURS 4321 - Public Health Nursing (2.0 cr)
NURS 4303 - Practicum: Person Centered Care of Adults in Acute Care (3.0 cr)
NURS 4703 - Specialty Focused Practicum I (4.0 cr)
NURS 4705 - Specialty Focused Practicum II (6.0 cr)
NURS 4402 - Taking Ethical Action in Health Care [CIV] (1.0 cr)
NURS 3802 - Patient Centered Care: Nursing Care of Families I (3.0 cr)
NURS 4707 - Nursing Leadership: Professional Practice in Complex Systems (2.0 cr)
NURS 5010 - Foundations of Interprofessional Communication and Collaboration (1.0 cr)
NURS 4706 - Transition to Practice (1.0 cr)
NURS 4704 - Continuum of Care Practicum (2.0 cr)
VBS 2032 - General Microbiology With Laboratory (5.0 cr)
or MICB 3301 - Biology of Microorganisms (5.0 cr)
ANAT 3001 - Human Anatomy (3.0 cr)
or ANAT 3601 - Principles of Human Anatomy (3.0 cr)
or ANAT 3611 - Principles of Human Anatomy (3.0 cr)
NURS 3710 - Statistics for Clinical Practice and Research [MATH] (3.0 cr)
or STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
or EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)
or SOC 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
or SOC 3811 - Basic Social Statistics [MATH] (4.0 cr)
or STAT 3021 - Introduction to Probability and Statistics (3.0 cr)
or STAT 4101 - Theory of Statistics I (4.0 cr)
or PSY 3801 - Introduction to Psychological Measurement and Data Analysis [MATH] (4.0 cr)
NURS 4205V - Honors: Nursing Theory and Research [WI] (3.0 cr)
or NURS 4205W - Nursing Theory and Research [WI] (3.0 cr)
NURS 4404V - Honors: Applied Research and Research Utilization [WI] (3.0 cr)
or NURS 4777W - Senior Project in the Nursing Major [WI] (3.0 cr)

Program Sub-plans
A sub-plan is not required for this program.
Rochester

The nursing major is available at two campus locations, the University of Minnesota, Twin Cities and the University of Minnesota, Rochester. Policies, application materials, and course content are the same at both campuses.

Please note that at the Rochester campus admission prerequisites differ slightly due to course availability at the University of Minnesota, Rochester (UMR). Students admitted to the Rochester location may have a slightly different course sequence, but the program requirements and timeline are the same at both the Twin Cities and Rochester locations. Contact the School of Nursing for specific information.
Twin Cities Campus
University Honors Program

College of Biological Sciences, College of Continuing Education, College of Design, College of Education and Human Development, College of Food, Agricultural and Natural Resource Sciences, College of Liberal Arts, Curtis L. Carlson School of Management, School of Nursing, College of Science and Engineering

- Program Type: Other
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 14 to 44
- This program is 8 terms (4 years) long.

The University Honors Program (UHP) assists high-achieving students in making the most of their undergraduate education. Our students are driven to excel both inside and outside the classroom, but we challenge them to go one step further.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements
All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements. Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements
Students admitted to the University Honors Program (UHP) must fulfill UHP requirements, as well as degree program requirements. For any course required in a degree program, UHP students are expected to register for the honors version of courses associated with their discipline, when offered. These courses are designed to meet degree and UHP requirements.

To remain in the honors program, students must maintain a grade point average of 3.5 and complete a set number of Honors Experiences per year (May and summer sessions included).

Freshman Year
Students build a solid foundation of knowledge to serve them throughout their undergraduate career. Most students complete first-year Honors Experiences primarily through honors courses. Courses can be found here: http://www.honors.umn.edu/experiences/courses-and-tutoring/index.php

Two honors courses
- Two honors courses (honors seminars, departmental honors courses, or freshman seminars totalling at least six credits)

Two other Honors Experiences
- Two other Honors Experiences (courses or non-course experiences)

Sophomore Year
Students continue to take advantage of the curriculum while expanding their education beyond the classroom. Through non-course Honors Experiences they begin to apply their knowledge in the laboratory, studio, or community. Examples of these experiences can be found here: http://www.honors.umn.edu/experiences/non-course-experiences/index.php.

Two honors courses
- Two honors courses (totalling at least six credits)

Two other Honors Experiences
- Two other Honors Experiences (courses or non-course experiences)

Junior Year
Students engage in research, scholarship, or creative activity with a faculty mentor—an important step toward the development of a project for the honors thesis—while deepening and broadening their knowledge and skill base. The honors thesis guide can be found here: http://www.honors.umn.edu/latin-honors/thesis-guide/index.php.

One honors course
Two other Honors Experiences
Two other Honors Experiences (courses or non-course experiences)

Senior Year
The honors education culminates in the writing of an honors thesis. Through this thesis, students demonstrate mastery of their field of study, along with the ability to think creatively and independently.

One honors course
One additional Honors Experience
The Honors Thesis
Twin Cities Campus
Medical Laboratory Sciences B.S.
Allied-Medical Technology
Academic Health Center Shared

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2014
- Required credits to graduate with this degree: 120
- Required credits within the major: 58
- This program is 9 terms (4½ years) long.
- This program requires summer terms.
- We have two performance sites - Twin Cities and Rochester.
- Degree: Bachelor of Science

The Medical Laboratory Sciences B.S. degree program consists of two years of prerequisite courses and a two and a half year professional program sequence. Students are typically admitted to the professional program sequence after completing the prerequisites. Students may also be admitted directly into the final professional year after completion of the prerequisites and the upper division science requirements. Admission is once a year for the upcoming fall semester. The program has a full-time hybrid delivery (more than 50% online delivery) format offered at both the Twin Cities and Rochester locations through online modules, interactive television, and other technology-enhanced delivery methods. The MLS program is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

The program prepares students to be professional laboratory practitioners who are not only able to perform medical laboratory testing but analyze and critique the accuracy and validity of testing results for the improvement of patient care or research design. Graduates are eligible to take the American Society for Clinical Pathology Board of Certification examination and be certified as medical laboratory scientists. In addition to the medical laboratory setting, graduates of this program are qualified to work in a variety of other laboratory facilities such as research, environmental, biomedical, public health, or forensic laboratories. With the curriculum emphasis on developing quality understanding of laboratory methods and their diagnostic interpretation, our graduates are also excellent candidates for graduate research degree programs or graduate medical professional schools. Graduates of the MLS Program are also prepared to be leaders in healthcare delivery, medical laboratory professional societies, or as members of a research and development team.

Since it began in 1922 as the first educational program for medical laboratory personnel, the MLS Program at the University of Minnesota has been a leader in the profession. Faculty in the program published the first article on quality control in the clinical laboratory, developed the first medical laboratory technician program, and established the first master's degree in clinical laboratory sciences. The program is proud to provide students with the opportunity to learn from faculty who focus on clinical excellence, critical thinking, analysis, evaluation, scientific inquiry, leadership, and professional and community service. Current faculty perform laboratory-based research as well as scholarship in the field of teaching and learning. Many faculty also hold national and state offices in professional organizations, including the American Society for Clinical Laboratory Science (ASCLS) and the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

As a part of one of the nation's most extensive interdisciplinary academic health centers, the University of Minnesota's MLS program provides opportunities for interaction with students from other health professions as you prepare for a progressive career in laboratory medicine.

Program Delivery
This program is available:
- partially online (between 50% to 80% of instruction is online)

Admission Requirements
Students must complete 10 courses before admission to the program.

- Freshmen students are usually admitted to pre-major status before admission to this major

- A GPA above 2.0 is preferred for the following:
  - 2.75 already admitted to the degree-granting college
  - 2.75 transferring from another University of Minnesota college
  - 2.75 transferring from outside the University

- Minimum prerequisite science GPA of 2.75 and comply with the Technical Standard (Essential Functions) requirements of the program.
- Pre-admission interview and skills test. Admitted students are required to pass a criminal background check and submit proof of immunizations required for U of MN Academic Health Center students.
For information about University of Minnesota admission requirements, visit the Office of Admissions website.

**Required prerequisites**

**Preparatory Courses**

Students must take one statistics course and either pre-calculus or calculus

- MATH 1151 - Precalculus II [MATH] (3.0 cr)
- or MATH 1142 - Short Calculus [MATH] (4.0 cr)
- or MATH 1271 - Calculus I [MATH] (4.0 cr)
- STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
- or EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)
- CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
- CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
- CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
- CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
- CHEM 2301 - Organic Chemistry I (3.0 cr)
- CHEM 2302 - Organic Chemistry II (3.0 cr)
- PHSL 3051 - Human Physiology (4.0 cr)
- BIOL 1009 - General Biology [BIOL] (4.0 cr)
- or BIOL 2002 - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)

**General Requirements**

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the [liberal education requirements](#). Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

**Program Requirements**

MICB 4131, LAMP 4177, and MLSP 1010 are highly recommended but not required for students pursuing a B.S. degree in medical laboratory sciences. Students are placed in a variety of clinical settings during their clinical coursework which may be in out-state Minnesota or surrounding states. In accordance with Minnesota law, a criminal background check is required of each student before clinical courses. The program arranges this background check.

**Junior Year Courses**

- BIOC 3021 - Biochemistry (3.0 cr)
- MLSP 5011W - Professional Issues in the Health Care Community [WI] (2.0 cr)
- MLSP 5311 - Fundamental Biomedical Laboratory Techniques (4.0 cr)
- MLSP 5511 - Principles of Immunobiology (3.0 cr)
- GCC 3022 - Genetics (3.0 cr)
- or BIOL 4003 - Genetics (3.0 cr)
- MICB 3301 - Biology of Microorganisms (5.0 cr)
- or VBS 2032 - General Microbiology With Laboratory (5.0 cr)

**Senior Year Courses**

- MLSP 5012 - Foundations in Interprofessional Communication and Collaboration (1.0 cr)
- MLSP 5013 - Scholarly Inquiry and Analysis in Medical Laboratory Sciences (1.0 cr)
- MLSP 5111 - Concepts of Diagnostic Microbiology (3.0 cr)
- MLSP 5112 - Application of Diagnostic Microbiology Principles (2.0 cr)
- MLSP 5211 - Fundamentals in Hematology & Hemostasis (3.0 cr)
- MLSP 5212 - Application of Hematology & Hemostasis Principles (1.0 cr)
- MLSP 5312 - Body Fluid Analysis (2.0 cr)
- MLSP 5113 - Advanced Concepts in Diagnostic Microbiology (3.0 cr)
- MLSP 5213 - Diagnostic Hematology (3.0 cr)
- MLSP 5214 - Advanced Hematology Morphology (1.0 cr)
- MLSP 5313 - Chemical Analysis in Health and Disease (3.0 cr)
- MLSP 5513 - Transfusion Medicine Principles and Methods (3.0 cr)
- MLSP 5514 - Application of Transfusion Medicine Principles (2.0 cr)

**Clinical Courses**

These courses should be completed during the clinical rotations in the summer and fall terms following the senior year, including clinical chemistry, hematology and coagulation, transfusion medicine, microbiology, and a specialty laboratory area.

- MLSP 5014W - Laboratory Operations and Management in Health Care Systems [WI] (2.0 cr)
MLSP 5701 - Clinical Experience in Microbiology (2.0 cr)
MLSP 5702 - Clinical Experience in Hematology and Hemostasis (2.0 cr)
MLSP 5703 - Clinical Experience in Clinical Chemistry and Urinalysis (2.0 cr)
MLSP 5704 - Clinical Experience in Transfusion Medicine (2.0 cr)

Upper-division Writing Intensive within the major

Students are required to take one upper-division Writing Intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.

Take 0 - 1 course(s) from the following:
- MLSP 5011W - Professional Issues in the Health Care Community [WI] (2.0 cr)
- MLSP 5014W - Laboratory Operations and Management in Health Care Systems [WI] (2.0 cr)

Program Sub-plans

A sub-plan is not required for this program.

Rochester

The medical laboratory sciences major is available at two campus locations, the University of Minnesota, Twin Cities, and the University of Minnesota, Rochester. Policies, application materials, and course content are the same at both campuses.

Prerequisites are the same for both performance locations.

Course Group 0
Twin Cities Campus
Agronomy Minor
Agronomy & Plant Genetics
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 17

This minor provides strong science-based courses emphasizing crop management in the context of sustainable ecosystems. It is well suited for students majoring in agriculture, food and environmental education; animal science; business and economics; environmental science, or for students seeking knowledge and principles of crop production. The minor allows students to complete coursework providing the minimal background needed to prepare for the Certified Crop Advisor (CCA) exams. Students must complete a minimum of 17 credits.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
- AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)
- SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)

Electives
Take 9 or more credit(s) from the following:
- AGRO 2501 - Plant Identification for Urban and Rural Landscapes (2.0 cr)
- AGRO 3305 - Agroecosystems of the world [GP] (3.0 cr)
- AGRO 3660 - Plant Genetic Resources: Identification, Conservation, and Utilization (3.0 cr)
- AGRO 4005 - Applied Crop Physiology and Development (4.0 cr)
- AGRO 4401 - Plant Genetics and Breeding (4.0 cr)
- AGRO 4505 - Biology, Ecology, and Management of Invasive Plants (3.0 cr)
- AGRO 4888 - Issues in Sustainable Agriculture (2.0 cr)
- CFAN 3001 - Pests and Crop Protection (3.0 cr)
- PLPA 2001 - Introductory Plant Pathology (3.0 cr)
- SOIL 3416 - Plant Nutrients in the Environment (3.0 cr)
Twin Cities Campus

Applied Psychology in Educational and Community Settings Minor

Educational Psychology

College of Education and Human Development

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

The applied psychology in educational and community settings (APECS) minor is an 18-credit program in the application of psychological theory (systems-ecological, developmental, behavioral, cognitive-behavioral) and scientific findings in educational settings to enhance the academic, social, and emotional competence of youth and adults. Emphasis areas include child/adolescent/adult learning and interpersonal, social, cultural, institutional, and economic contexts that shape cognition, motivation, and performance. Students gain direct experience by enrolling in either a research or community service practicum course. The APECS minor is designed to meet the needs of learners from diverse backgrounds and provide the tools necessary to keep pace with the increasing diversity found in schools and communities.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

APECS Required Courses

- EPSY 3301 - Introduction to Educational Psychology [SOCS] (3.0 cr)
- EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)
- EPSY 3132 - Psychology of Multiculturalism in Education [DSJ] (3.0 cr)
- EPSY 3302 - Introduction to Communication Skills for Educational and Community Settings (3.0 cr)

APECS Practicum

Complete 3 credits of practicum.

- EPSY 3133 - Practicum: Service Learning, Psychology of Multiculturalism in Education (1.0 - 3.0 cr)
  or EPSY 3303 - Educational Psychology Undergraduate Research Practicum (3.0 cr)

APECS Electives

- EPSY 3119 - Learning, Cognition, and Assessment (3.0 cr)
  or EPSY 5613 - Foundations of Special Education I (3.0 cr)
  or EPSY 5616 - Classroom Management and Behavior Analytic Problem Solving (3.0 cr)
  or EPSY 5461 - Cross-Cultural Counseling (3.0 cr)
  or EPSY 5401 - Counseling Procedures (3.0 cr)
  or EPSY 5432 - Foundations of Individual/Organizational Career Development (3.0 cr)
  or EPSY 5221 - Principles of Educational and Psychological Measurement (3.0 cr)
  or YOST 3234 - Youth Agencies, Organizations, and Youth Service Systems (3.0 cr)
  or YOST 3235 - Community Building, Civic Engagement, and Civic Youthwork (4.0 cr)
  or YOST 4315 - Youthwork in Schools (4.0 cr)
  or YOST 4317 - Youthwork in Contested Spaces (3.0 cr)
Twin Cities Campus
Asian American Studies Minor
Institute for Global Studies
College of Liberal Arts

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

The minor focuses on the history, politics, and culture of Americans of Asian descent. Courses explore the diversity of Asian American communities, and the history and present conditions of racial formation in the United States and other parts of the Americas. The minor draws from courses in a number of disciplines and academic approaches and encourages social awareness, critical thinking, the development of new perspectives, and artistic appreciation. Courses included in the minor allow students to develop their knowledge of Asian American issues in many different contexts. Some courses emphasize an in-depth study of Asian American history, literature and culture, social issues, politics, and psychology. Others include significant attention to Asian American studies topics in the course of broader discussions.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students are urged to take AAS 1101 before declaring the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students complete at least 15 credits of 3xxx-5xxx coursework, including one core course. Students interested in the minor should make an appointment with the Asian American Studies director (778 Social Sciences Building, 612-626-9812). Students may request credit towards the minor for other courses with Asian American studies content by submitting a course syllabus and proof of completion to the Asian American Studies director.

Core Courses
Take 1 or more course(s) from the following:
- AAS 3001 - Contemporary Perspectives on Asian America [DSJ] (3.0 cr)
  or AMST 3001 - Contemporary Perspectives on Asian America [DSJ] (3.0 cr)
- AAS 3301 - Asian America Through Arts and Culture [AH, DSJ] (3.0 cr)
  or ENGL 3301 - Asian America Through Arts and Culture [AH, DSJ] (3.0 cr)
- AAS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
  or GWSS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
- AAS 3877 - Asian American History, 1850 to Present [HIS, DSJ] (3.0 cr)
  or HIST 3877 - Asian American History, 1850-Present [HIS, DSJ] (3.0 cr)
- AAS 4311 - Asian American Literature and Drama [LITR, DSJ] (3.0 cr)
  or ENGL 4311 - Asian American Literature and Drama [LITR, DSJ] (3.0 cr)

Elective Courses
In addition to the required core course, take 12 or more credits of any 3xxx, 4xxx, or 5xxx AAS course (or other adviser-approved courses).
Take 12 or more credit(s) from the following:
- AAS 3001 - Contemporary Perspectives on Asian America [DSJ] (3.0 cr)
- AMST 3001 - Contemporary Perspectives on Asian America [DSJ] (3.0 cr)
- AMST 3113W - America's Diverse Cultures [DSJ, WI] (3.0 cr)
- SOC 3211W - American Race Relations [DSJ, WI] (3.0 cr)
- AAS 3251W - Sociological Perspectives on Race, Class, and Gender [SOCS, DSJ, WI] (3.0 cr)
- SOC 3251W - Sociological Perspectives on Race, Class, and Gender [SOCS, DSJ, WI] (3.0 cr)
- AAS 3301 - Asian America Through Arts and Culture [AH, DSJ] (3.0 cr)
- ENGL 3301 - Asian America Through Arts and Culture [AH, DSJ] (3.0 cr)
- AAS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
- GWSS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
• AAS 3483 - Hmong History Across the Globe (3.0 cr)
• HIST 3483 - Hmong History Across the Globe (3.0 cr)
• DNCE 3495 - Dance and Global Tourism [GP] (3.0 cr)
• AAS 3875W - Comparative Race and Ethnicity in U.S. History [WI] (3.0 - 4.0 cr)
• HIST 3875W - Comparative Race and Ethnicity in US History [HIS, DSJ, WI] (4.0 cr)
• AAS 3877 - Asian American History, 1850 to Present [HIS, DSJ] (3.0 cr)
• HIST 3877 - Asian American History, 1850 to Present [HIS, DSJ] (3.0 cr)
• AAS 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
• AFRO 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
• ENGL 4232 - American Drama by Writers of Color (3.0 cr)
• AAS 4311 - Asian American Literature and Drama [LITR, DSJ] (3.0 cr)
• ENGL 4311 - Asian American Literature and Drama [LITR, DSJ] (3.0 cr)
**Twin Cities Campus**  
**Austrian and Central European Studies Minor**  
*German, Scandinavian, & Dutch*  
**College of Liberal Arts**

- Program Type: Undergraduate free-standing minor  
- Requirements for this program are current for Fall 2014  
- Required credits in this minor: 16

The minor allows students to focus a group of electives on the study of Austrian and Central European culture, history, and society. Courses address specific social and political circumstances, cultural traditions, and shared history of Austria and other countries of Central Europe. The minor is supported by the Center for Austrian Studies, student exchange programs with universities in Vienna, Salzburg, and Graz, and visiting Austrian scholars sponsored by the Austrian-American Education Commission.

**Program Delivery**  
This program is available:  
• via classroom (the majority of instruction is face-to-face)

**Admission Requirements**  
For information about University of Minnesota admission requirements, visit the [Office of Admissions website](#).

**Required prerequisites**  
**Beginning and Intermediate German**

GER 1001, 1002, 1003, & 1004 are required pre-requisites for GER 3011W. These twenty credits do not factor into the overall length of credits in the minor.

- GER 1001 - Beginning German (5.0 cr)  
- GER 1002 - Beginning German (5.0 cr)  
- GER 1003 - Intermediate German (5.0 cr)  
- GER 1004 - Intermediate German (5.0 cr)

**Minor Requirements**  
Students are required to take 4 semester(s) of German.

The minor consists of a minimum of five courses and 16 credits. Students should take 3xxx, 4xxx (beyond 4004), and 5xxx courses with no more than one course being a directed or independent study. The four required semesters of a second language do not factor into the overall length of credits in the minor. All courses must be taken A-F and must be completed with a grade of C- or better. At least one course must be taken in the German program at the University of Minnesota - Twin Cities campus. Students with a German, Scandinavian, Dutch major may elect a minor in Austrian and Central European Studies (ACES), but no courses may count for both the major and the minor. The minor program must be approved by the director of undergraduate studies.

**Minor Courses**

- GER 3011W - Conversation and Composition [WI] (4.0 cr)  
- GER 3520 - Topics in Austrian and Central European Culture (3.0 cr)  
  Two courses in the art, culture, or literature of Austria and Central Europe.  
  One course in the history, politics, and society of Austria and Central Europe.
Twin Cities Campus
Classical and Near Eastern Archaeology Minor
Classical & Near Eastern Studies
College of Liberal Arts

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 16 to 17

The minor allows students to concentrate their studies on the material remains from the ancient civilizations of Greece, Rome, Egypt, and Biblical lands from ca. 3000 B.C.E through 650 C.E. The minor includes courses from the Departments of Classical and Near Eastern Studies, Anthropology, Art History, Geography, Geology, and History.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
Preparatory Courses
CNES 1043 {Inactive}(4.0 cr)
or CNES 3008 {Inactive}(4.0 cr)

Minor Courses
Take at least four courses, with one course each from groups 1-3. The remaining course may be selected from those in groups 1-3 not used to fulfill the three-course requirement, selected courses in anthropology or history, or any 3xxx-5xxx course in CNES or RELA. Course selections are subject to the approval of the director of undergraduate studies.
Take 4 or more course(s) totaling 12 or more credit(s) from the following:

Group 1 - The Classical World
Take 1 or more course(s) from the following:
• CNES 5108 {Inactive}(3.0 cr)
• CNES 5172 {Inactive}(3.0 cr)

Group 2 - The Near East
Take 1 or more course(s) from the following:
• CNES 3142 {Inactive}(4.0 cr)
• CNES 3172 {Inactive}(3.0 cr)

Group 3 - Field/Lab Work
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
• DUS-approved course or directed studies

Electives
Take 0 - 1 course(s) from the following:
• ANTH 3009 - Rise of Civilization [HIS] (3.0 cr)
• ANTH 3027W - Archaeology of Prehistoric Europe [HIS, WI] (3.0 cr)
• ANTH 3028 - Introduction to Historical Archaeology (3.0 cr)
• ANTH 5027W - Archaeology of Prehistoric Europe [HIS, WI] (3.0 cr)
• CNES 3xxx
• CNES 4xxx
• CNES 5xxx
• RELA 3xxx
• RELA 4xxx
• RELA 5xxx
**Twin Cities Campus**

**Climatology Minor**

*Soil, Water, & Climate*

**College of Food, Agricultural and Natural Resource Sciences**

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 20

The minor allows students to broaden their expertise in weather and climate studies. Students who will be working for any industry or agency that depends on understanding weather and climate change will find the minor useful. Students take a required course in meteorology and the atmosphere. Electives are in climate variations and change, atmospheric composition and air pollution, biometeorology, and global environmental change. Students must complete at least 20 credits to complete the minor.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Minor Requirements**

**Minor Courses**

- **ESPM 1425** - The Atmosphere [PHYS, ENV] (4.0 cr)

**Electives**

Take 16 or more credit(s) from the following:

- **ESPM 3425** - Atmospheric Pollution: From Smog to Climate Change (3.0 cr)
- **ESPM 3131** - Environmental Physics (3.0 cr)
- **ESPM 4609** - Air Pollution Impacts, Management, and Ethical Challenges [CIV] (3.0 cr)
- **ESPM 5402** - Biometeorology (3.0 cr)
- **LAAS 5425** - Atmospheric Processes I: Thermodynamics and Dynamics of the Atmosphere (3.0 cr)
- **LAAS 5426** - Atmospheric Processes II: Radiation, Composition, and Climate (3.0 cr)
- **EEB 5146** - Science and Policy of Global Environmental Change (3.0 cr)
- **GEOG 3401** - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
- **GEOG 5426** - Climatic Variations (3.0 cr)
- **ESCI 1006** - Oceanography [PHYS, ENV] (4.0 cr)
- **ESCI 3002** - Climate Change and Human History [ENV] (3.0 cr)
- **ESCI 3402** - Science and Politics of Global Warming [ENV] (3.0 cr)
Twin Cities Campus
Coaching Minor
Kinesiology, School of
College of Education and Human Development

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 20 to 23

The coaching minor offers an in-depth study of the theoretical and practical nature of coaching through a planned and integrated series of courses. Completion of the coaching minor also will qualify the student for the University of Minnesota Coaching Certificate.

Additional program offerings also include a certificate in coaching.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
A GPA above 2.0 is preferred for the following:
- 2.50 already admitted to the degree-granting college
- 2.50 transferring from another University of Minnesota college
- 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Admission is open to all University students. A Coaching Program Application Form must be submitted. Students must also maintain a 2.50 GPA in courses submitted for the completion of the coaching minor. There are 23 total credits required for the minor; however, if student has taken a H.S. anatomy course, it will fulfill the 3-credit human anatomy requirement.

Minor Courses
Students completing the minor are required to take the courses listed below.
Current CPR and AED Certification through national certification agency

Sport Training
The following 3 courses are required to complete the minor.
KIN 3114 - Prevention and Care of Athletic Injuries (3.0 cr)
KIN 4641 - Training and Conditioning for Sport (3.0 cr)
KIN 4697 - Student Coaching and Seminar (3.0 cr)

Organization and Management
KIN 3143 - Organization and Administration of Sport (3.0 cr)
KIN 5725 - Organization and Management of Physical Education and Sport (3.0 cr)
SMGT 3143 - Organization and Management of Sport (3.0 cr)

Human Anatomy
Take 1 of the following KIN, ANAT, or PSTL courses. If student has taken a H.S. anatomy course, that will fulfill the 3-credit human anatomy requirement.
KIN 3027 - Human Anatomy for Kinesiology Students (3.0 cr)
ANAT 3001 - Human Anatomy (3.0 cr)
ANAT 3601 - Principles of Human Anatomy (3.0 cr)
ANAT 3611 - Principles of Human Anatomy (3.0 cr)
PSTL 1135 - Essentials of Human Anatomy and Physiology [BIOL] (4.0 cr)

Electives
In addition to the courses below, any program-related course approved by the coaching program coordinator can be applied toward this minor.

Sport Psychology - Sociology
Take 1 course from the following list.
Take 1 or more course(s) from the following:
- KIN 3136 - Mental Skills Training for Sport (3.0 cr)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIN 5136</td>
<td>Psychology of Coaching (3.0 cr)</td>
<td></td>
</tr>
<tr>
<td>KIN 5371</td>
<td>Sport and Society (3.0 cr)</td>
<td></td>
</tr>
<tr>
<td>KIN 5375</td>
<td>Competitive Sport for Children and Youth (3.0 cr)</td>
<td></td>
</tr>
<tr>
<td>KIN 5723</td>
<td>Psychology of Sport Injury (3.0 cr)</td>
<td></td>
</tr>
<tr>
<td>KIN 5720</td>
<td>Special Topics in Kinesiology (2.0 - 4.0 cr)</td>
<td></td>
</tr>
</tbody>
</table>

**Sport Physical Sciences**

Take 1 course from the following list.

Take 1 or more course(s) from the following:

- KIN 4385 - Exercise Physiology (4.0 cr)
- KIN 4520 - Current Topics in Kinesiology (2.0 - 4.0 cr)
- KIN 4741 - Strength and Power Development and Program Design (3.0 cr)
- KIN 4841 - Athletic Performance and Environmental Considerations (3.0 cr)
- KIN 5142 - Applied Sport Nutrition for Athletic Performance (3.0 cr)
- KIN 5641 - Scientific Theory and Application of Training and Conditioning in Sport (3.0 cr)
- KIN 5720 - Special Topics in Kinesiology (2.0 - 4.0 cr)

**Coaching Theory**

Take 1 course from the following list. Please note: If coaching specialization course is not listed, alternatives can be made with the coaching program director.

Take 1 or more course(s) from the following:

- KIN 3168 - Soccer Coaching Theory and Skill Development (2.0 cr)
- KIN 3169 - Volleyball Coaching Theory and Skill Development (2.0 cr)
- KIN 3171 - Baseball Coaching Theory and Skill Development (2.0 cr)
- KIN 3172 - Basketball Coaching Theory and Skill Development (2.0 cr)
- KIN 3173 - Football Coaching Theory and Skill Development (2.0 cr)
- KIN 3176 - Tennis Coaching Theory and Skill Development (2.0 cr)
- KIN 3179 - Track and Field Coaching Theory and Skill Development (2.0 cr)
Comparative U.S. Race and Ethnicity Minor

This minor exposes students to key content, methodologies, and theories in the comparative study of African Americans, American Indians, Asian Americans, Chicanos, and Latinos in the United States. Students explore various methodologies and core concepts within the social sciences and humanities. Students develop a general knowledge of how diverse racial and ethnic individuals and groups have historically interacted with one another and might redefine themselves today. This minor draws from courses in a number of disciplines and academic approaches, and encourages social awareness, critical thinking, the development of new perspectives, and artistic appreciation.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Prospective minors are urged to enroll in 1xxx-level introductory courses offered under the AFRO, AMIN, AAS, and CHIC designators before officially declaring.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements

Core Course
Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- AFRO 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
- AMST 3113W - America's Diverse Cultures [DSJ, WI] (3.0 cr)
- ANTH 4047 - Anthropology of American Culture [SOCS] (3.0 cr)
- GWSS 3002W - Gender, Race, and Class in the U.S. [DSJ, WI] (3.0 cr)
- GWSS 3203W - Blood, Bodies and Science [TS, SOCS, WI] (3.0 cr)
- GWSS 3303W - Writing Differences: Literature by U.S. Women of Color [LITR, DSJ, WI] (3.0 cr)
- HIST 3875W - Comparative Race and Ethnicity in US History [HIS, DSJ, WI] (4.0 cr)
- SOC 3211W - American Race Relations [DSJ, WI] (3.0 cr)

Electives
Take 12 or more credit(s) from the following:
- AAS 3301 - Asian America Through Arts and Culture [AH, DSJ] (3.0 cr)
- AAS 4311 - Asian American Literature and Drama [LITR, DSJ] (3.0 cr)
- AFRO 3112 - In the Heart of the Beat: the Poetry of Rap (3.0 cr)
- AFRO 3251W - Sociological Perspectives on Race, Class, and Gender [WI] (3.0 cr)
- AFRO 3597W - Introduction to African American Literature and Culture I [LITR, WI] (4.0 cr)
- AFRO 3598W - Introduction to African American Literature and Culture II [LITR, WI] (4.0 cr)
- AFRO 3864 - African American History: 1619 to 1865 (3.0 - 4.0 cr)
- AFRO 3865 - African American History: 1865 to the Present (3.0 - 4.0 cr)
- AFRO 3866 - The Civil Rights and Black Power Movement, 1954-1984 (3.0 cr)
- AMIN 3201W - American Indian Literature [LITR, DSJ, WI] (3.0 cr)
- AMIN 3301 - American Indian Philosophies [AH, DSJ] (4.0 cr)
- AMIN 3409 - American Indian Women: Ethnographic and Ethnohistorical Perspectives [HIS, DSJ] (3.0 cr)
- AMIN 3501 - American Indian Tribal Governments and Politics [HIS, DSJ] (3.0 cr)
- AMIN 3601 - American Indian Oral Traditions (3.0 cr)
- AMIN 3871 - American Indian History: Pre-Contact to 1830 [HIS, DSJ] (3.0 cr)
- AMIN 3872 - American Indian History: 1830 to the Present (3.0 cr)
- AMST 3001 - Contemporary Perspectives on Asian America [DSJ] (3.0 cr)
- AMST 3117 - Latinos in America's Global Cities [SOCS, DSJ] (3.0 cr)
- CHIC 3212 - Chicana Studies: La Chicana in Contemporary Society [AH, DSJ] (3.0 cr)
• CHIC 3223 - Chicana/o and Latina/o Representation in Film [AH, DSJ] (3.0 cr)
• CHIC 3444 - Chicana and Chicano History: 1821-1945 [HIS, DSJ] (3.0 cr)
• CHIC 3446 - Chicana/o History II: WWII, El Movimiento, and the New Millennium [HIS, DSJ] (3.0 cr)
• CHIC 3452 - Xicana/Indigena Studies: History, Culture, and Politics [DSJ] (3.0 cr)
• CHIC 3507W - Introduction to Chicana/o Literature [LITR, DSJ, WI] (3.0 cr)
• CHIC 3752 - Chicanas and Chicanos in Contemporary Society [DSJ] (3.0 cr)
• GWSS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
• GWSS 4401 - Chicana/Latina Cultural Studies [AH, DSJ] (3.0 cr)
• HIST 3877 - Asian American History, 1850-Present [HIS, DSJ] (3.0 cr)
Twin Cities Campus
Design Minor
DESIGN Intrdiscp Assoc Dean
College of Design

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

The design minor is an interdisciplinary program that shows how design can be used as a catalyst for exploration and research. Choosing from a selection of both lecture and studio courses, students are introduced to the history, theory, and practice of design across multiple design disciplines. With the design minor, students may compose their own individual program in which they will understand the interdisciplinary nature of the design process, appreciate the role design plays in everyday life, experience design thinking and action, explore and expand their own design interests, and understand how to work with designers in their chosen field. The design minor provides an integrated education in design where students enhance their learning by making connections between traditional design courses and nontraditional views of design.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Two courses may double-dip with the student's major or other minor. The minor requires a minimum of 18 total credits. DES 1111 may be taken S/N.

Category A: Introductory Design Thinking "Big Picture"
Courses from this category introduce students to the scope of design thinking. These courses combine lectures with projects or case studies.

- DES 1000 - D@MN: Design@Minnesota [AH] (3.0 cr)
- or DES 1101V - Honors: Introduction to Design Thinking [AH, WI] (4.0 cr)
- or DES 1101W - Introduction to Design Thinking [AH, WI] (4.0 cr)
- or LA 1001 - Sustainability by Design [ENV] (3.0 cr)
- or LA 1401 - The Designed Environment (3.0 cr)
- or LA 1601 - Design and Equity [DSJ, AH] (3.0 cr)
- or LA 3601 - Design and Equity [DSJ, AH] (3.0 cr)

Category B: Introductory Design Thinking "Hands-on"
Courses from this category introduce students to design thinking and making in a studio setting.

- ARCH 1281 - Design Fundamentals I [AH] (4.0 cr)
- or DES 1111 - Creative Problem Solving (3.0 cr)
- or DES 1111H - Honors: Creative Problem Solving (3.0 cr)
- or DES 2101 - Design and Visual Presentation (3.0 cr)
- or GDES 1311 - Foundations: Drawing and Design in Two and Three Dimensions (4.0 cr)
- or GDES 1312 - Foundations: Color and Design in Two and Three Dimensions (4.0 cr)
- or GDES 1315 - Foundations: The Graphic Studio (4.0 cr)
- or GDES 3312 - Color and Form in Surface Design (4.0 cr)
- or LA 1301 - Introduction to Landscape Architecture Drawing [AH] (3.0 cr)
- or ME 2011 - Introduction to Engineering (4.0 cr)
- or PDES 3702 - Concept Sketching and Rendering (3.0 cr)
- or PDES 3711 - Toy Product Design (4.0 cr)
- or PDES 5702 - Concept Sketching and Rendering (3.0 cr)
- or PDES 5711 - Toy Product Design (4.0 cr)

Category C: Electives
Courses from this category allow students to explore design from a variety of perspectives. Take three or four courses to complete the total required credits for the minor (18).

Take 3 - 4 course(s) totaling 10 - 12 credit(s) from the following:
- ADES 4121 - History of Costume (4.0 cr)
- ADES 4218W - Fashion, Design, and the Global Industry [WI] (3.0 cr)

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Information current as of December 12, 2014
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<td>Architectural History to 1750 [HIS, GP, WI]</td>
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<td>ARCH 3411W</td>
<td>Architectural History to 1750 [HIS, GP, WI]</td>
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<td>ARCH 3412</td>
<td>Architectural History Since 1750 [HIS, GP]</td>
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<td>ARCH 3412H</td>
<td>Honors: Architectural History Since 1750 [HIS, GP]</td>
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<td>ARCH 3511</td>
<td>Material Transformations: Technology and Change in the Built Environment [TS]</td>
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<td>ARCH 3611</td>
<td>Design in the Digital Age</td>
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<td>ARCH 3641</td>
<td>Introduction to Heritage Preservation</td>
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<td>Environmental Design and the Sociocultural Context [SOCS, CIV, WI]</td>
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<td>Baroque Architecture</td>
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<td>ARCH 4461</td>
<td>North American Indian Architecture</td>
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<td>ARCH 4561</td>
<td>Architecture and Ecology</td>
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<td>Introduction to Urban Form and Theory [WI]</td>
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<td>Systems Approach to Residential Construction</td>
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<td>DES 3131</td>
<td>User Experience in Design</td>
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<td>DES 3141</td>
<td>Technology, Design, and Society [TS]</td>
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<td>DES 3160</td>
<td>Topics in Design (1.0 - 4.0 cr)</td>
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<td>Storytelling and Design (3.0 cr)</td>
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<td>Travels in Typography (3.0 cr)</td>
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<td>Furniture Design: Exploration (3.0 cr)</td>
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<td>DES 3341</td>
<td>Street Life Urban Design Seminar (3.0 cr)</td>
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<td>DES 3341</td>
<td>(un)Wrapping It Up: New Materials for Design, Design for New Materials (3.0 cr)</td>
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<td>DES 3351</td>
<td>Phenomenon of Everyday Design (3.0 cr)</td>
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<td>Design and Globalization [DSJ]</td>
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<td>DES 4301</td>
<td>Metaphor and Design (3.0 cr)</td>
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<td>DES 5185</td>
<td>Human Factors in Design (3.0 cr)</td>
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<td>GDES 2342</td>
<td>Web Design (3.0 cr)</td>
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<td>GDES 2345</td>
<td>Typography (4.0 cr)</td>
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<td>Design Material Topics (1.0 - 4.0 cr)</td>
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<td>GDES 2361</td>
<td>Design Process: Photography (3.0 cr)</td>
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<td>GDES 2399W</td>
<td>Design and its Discontents: Design, Society, Economy and Culture [WI]</td>
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<td>Surface Fabric Design Workshop (4.0 cr)</td>
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<td>Data Visualization I: Mapping Information (3.0 cr)</td>
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<td>GDES 4345</td>
<td>Advanced Typography (4.0 cr)</td>
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<td>GDES 4352</td>
<td>Design Process: Bookmaking (3.0 cr)</td>
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<td>GDES 5311</td>
<td>Illustration (3.0 cr)</td>
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<td>GDES 5341</td>
<td>Interactive Design (3.0 cr)</td>
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<td>Web and Interface Design (3.0 cr)</td>
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<td>GDES 5343</td>
<td>Data Visualization II: Interactive Information (3.0 cr)</td>
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<td>Digital Illustration and Animation (3.0 cr)</td>
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<td>Fundamentals of Game Design (3.0 cr)</td>
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<td>Theory of Electronic Design (3.0 cr)</td>
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<td>HSG 3482</td>
<td>Sustainable Housing: Community, Environment, and Technology [TS]</td>
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<td>History of Interiors and Furnishings: Ancient to 1750 [GP]</td>
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<td>Mass Media and Popular Culture [AH, DSJ]</td>
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<td>LA 3001</td>
<td>Understanding and Creating Landscape Space (3.0 cr)</td>
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<td>Informants of Creating Landscape Space (3.0 cr)</td>
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<td>LA 3003</td>
<td>Case Studies in Sustainable Landscape Planning and Design (3.0 cr)</td>
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• LA 3413 - Introduction to Landscape Architectural History [HIS, GP] (3.0 cr)
• LA 3501 - Environmental Design and Its Biological and Physical Context [ENV] (3.0 cr)
• LA 3514 - Making the Mississippi [CIV] (3.0 cr)
• LA 4755 - Infrastructure, Natural Systems, and Space of Inhabited Landscapes [TS] (3.0 cr)
• PDES 3170 - Topics in Product Design (1.0 - 4.0 cr)
• PDES 3701 - Creativity, Idea Generation, and Innovation (3.0 cr)
• PDES 3702 - Concept Sketching and Rendering (3.0 cr)
• PDES 3703 - Product Form and Model Making (4.0 cr)
• PDES 3711 - Toy Product Design (4.0 cr)
• PDES 3715 - Design and Food (4.0 cr)
• PDES 5170 - Topics in Product Design (1.0 - 4.0 cr)
• PDES 5701 - Creativity, Idea Generation, and Innovation (3.0 cr)
• PDES 5702 - Concept Sketching and Rendering (3.0 cr)
• PDES 5703 - Product Form and Model Making (4.0 cr)
• PDES 5711 - Toy Product Design (4.0 cr)
• RM 3243 - Visual Merchandising (3.0 cr)
• RM 4117W - Retail Environments and Human Behavior [WI] (3.0 cr)
• RM 4212W - Dress, Society, and Culture [WI] (3.0 cr)
Twin Cities Campus
Dutch Studies Minor
German, Scandinavian, & Dutch
College of Liberal Arts

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 15

The minor includes study of the spoken language, literature, culture, and civilization.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Complete the introductory 4-semester Dutch language sequence or its equivalent. Note: these credits do not factor into the overall length in credits of the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students are required to take 4 semester(s) of Dutch.

The minor consists of a minimum of 15 credits in 3xxx, 4xxx (beyond 4004), and 5xxx courses with no more than one course being directed or independent study. The four required semesters of a second language do not factor into the overall length of credits in the minor. All courses must be taken A-F and must be completed with a grade of C- or better. At least one course must be taken in the Dutch Studies program at the University of Minnesota - Twin Cities campus. Students with a German, Scandinavian, Dutch major may elect a minor in Dutch Studies, but no courses may count for both the major and the minor. The program must be approved by the director of undergraduate studies.

Minor Courses
Up to two electives from other departments may be applied to the Dutch studies minor after consultation with the director of undergraduate studies.

DTCH 3011W - Conversation and Composition [WI] (3.0 cr)
DTCH 3012 - Conversation and Composition (3.0 cr)
Take 9 or more credit(s) from the following:
• DTCH 3xxx
• DTCH 4xxx
• DTCH 5xxx
Twin Cities Campus
Entomology Minor
Entomology
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16

This minor provides a strong background in entomological principles and theory suitable for students interested in a variety of professions or advanced degree programs. Examples include programs in entomology, veterinary science, or public health; teaching biology in secondary educational institutions; or enhancing marketable skills for a variety of professional careers, such as forest health specialist, crop consultant, grounds manager, pest management specialist, agronomist, greenhouse or nursery technician, natural resource manager, or water quality specialist. Specific courses are selected based on students’ educational objectives, in consultation with a minor adviser.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
This is a required course
ENT 1005 - Insect Biology [BIOL] (4.0 cr)

Electives
Take 12 credits from the following:
Take 12 or more credit(s) from the following:
- ENT 1905 - Topics: Freshman Seminar (1.0 - 3.0 cr)
- CFAN 3001 - Pests and Crop Protection (3.0 cr)
- ENT 3261 - Veterinary Entomology (3.0 cr)
- ENT 3925 - Insects, Aquatic Habitats, and Pollution (3.0 cr)
- ENT 4015 - Ornamentals and Turf Entomology (3.0 cr)
- ENT 4021 - Honey Bees and Insect Societies (3.0 cr)
- ENT 4022 - Honey Bee Management (1.0 cr)
- ENT 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
- ENT 4231 - Insect Behavior (3.0 cr)
- ENT 4251 - Forest and Shade Tree Entomology (3.0 cr)
- ENT 4861 (Inactive) (3.0 cr)
- ENT 5009 - Pesticides in Horticulture: Their Use and Abuse (3.0 cr)
- ENT 5011 - Insect Structure and Function (4.0 cr)
- ENT 5021 - Insect Biodiversity and Evolution (4.0 cr)
- ENT 5041 - Insect Ecology (3.0 cr)
- ENT 5045 - Insect Population Dynamics (3.0 cr)
- ENT 5051 - Scientific Illustration of Insects (3.0 cr)
- ENT 5121 - Applied Experimental Design (4.0 cr)
- ENT 5241 - Ecological Risk Assessment (3.0 cr)
- ENT 5275 - Medical Entomology (3.0 cr)
- ENT 5341 - Biological Control of Insects and Weeds (3.0 - 4.0 cr)
- ENT 5351 - Insect Pathology (2.0 cr)
- ENT 5361 - Aquatic Insects (4.0 cr)
- ENT 5371 - Principles of Systematics (3.0 cr)
- ENT 5900 - Basic Entomology (1.0 - 6.0 cr)
- ENT 5910 - Special Problems in Entomology (1.0 - 6.0 cr)
- ENT 5920 - Special Lectures in Entomology (2.0 - 4.0 cr)
- ENT 5925 - Field Methods in Insect Taxonomy (1.0 cr)
Twin Cities Campus
Family Violence Prevention Minor
School of Social Work
College of Education and Human Development

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 15

The family violence prevention minor is a 15-credit undergraduate program for students interested in strengthening their educational experience with a research base and a set of practical skills in family violence prevention. It is an intensive, interdisciplinary learning experience for students in all fields of study.

Courses are in fields related to social services, education, health care, and other direct services addressing issues related to child abuse and neglect, adult domestic violence, elder abuse, and intergenerational abuse. Students learn theories and research related to violent behavior, examine relationships between violence in society and violence within families, and explore different professional responses to violence. Elective courses provide the opportunity to integrate these concepts into further study within a major or in other fields of interest.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
Minor Courses
SW 3701 - Introduction to Child Maltreatment: Intervention and Prevention (3.0 cr)
SW 3702 - Introduction to Adult Intimate Partner Violence: Intervention and Prevention (3.0 cr)
SW 3703 - Gender Violence in Global Perspective (3.0 cr)

Take 6 or more credit(s) from the following:
• CAPY 5623 - Assessment and Treatment Interventions: Anxiety and Depression in Children and Adolescents (1.0 cr)
• CSPH 5211 - Peacemaking and Spirituality: A Journey Toward Healing and Strength (2.0 - 3.0 cr)
• FSOS 1101 - Intimate Relationships [SOCS] (4.0 cr)
• FSOS 3104 - Global and Diverse Families [SOCS, GP] (3.0 cr)
• FSOS 3426 - Alcohol and Drugs: Families and Culture (3.0 cr)
• GWSS 3415 - Feminist Perspectives on Domestic Violence and Sexual Assault [DSJ] (3.0 cr)
• JWST 3521W - History of the Holocaust [WI] (3.0 cr)
• SOC 3101 - Introduction to the Criminal Justice System [SOCS, CIV] (3.0 cr)
• SOC 3102 - Introduction to Criminal Behavior and Social Control (3.0 cr)
• SOC 3501 - Sociology of Families [SOCS, DSJ] (3.0 cr)
• SOC 4109 - Domestic Criminal Violence (3.0 cr)
• SOC 4461 - Sociology of Ethnic and Racial Conflict [DSJ] (3.0 cr)
• YOST 5322 - Work With Youth: Families (2.0 cr)
• AFRO 3072 - Racism: Social and Psychological Consequences for Black Americans (3.0 cr)
  or AFRO 5072 [Inactive] (3.0 cr)
**Twin Cities Campus**  
**Fashion Studies Minor**  
*Design, Housing & Apparel*  
**College of Design**  
- Program Type: Undergraduate free-standing minor  
- Requirements for this program are current for Fall 2014  
- Required credits in this minor: 15 to 16

The fashion studies minor provides students who have an interest in fashion the opportunity to gain knowledge about fashion product, theory, and industry specific practices. Fashion is a major global industry with a broad range of career opportunities from business and design to engineering and chemistry.

**Program Delivery**  
This program is available:  
- via classroom (the majority of instruction is face-to-face)

**Minor Requirements**  
This major is not available for apparel design or retail merchandising majors. Transfer courses must be approved by the fashion studies minor adviser. No more than one transfer course may be used toward the minor. Transfer coursework may be accepted for prerequisite courses upon review: this is not included in the one-course limit.

**Required courses**  
- ADES 3217 - Fashion: Trends and Communication (3.0 cr)  
- ADES 4121 - History of Costume (4.0 cr)  
- RM 4212W - Dress, Society, and Culture [WI] (3.0 cr)  

Choose two courses from this list  
- RM 1201 - Fashion, Ethics, and Consumption [CIV] (3.0 cr)  
- or ADES 2214 - Softlines Analysis (3.0 cr)  
- or RM 2215 - Introduction to Retail Merchandising (3.0 cr)  
- or ADES 3196 - Field Study: National or International (1.0 - 10.0 cr)  
- or ADES 4218W - Fashion, Design, and the Global Industry [WI] (3.0 cr)
Twin Cities Campus

Food Systems and the Environment Minor
College of Food, Agri & Natural Resource Sciences
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

This interdisciplinary minor, based in CFANS, serves students from other colleges who have an interest in and a desire to acquire some breadth about food systems and the environment. Students completing this minor will be better prepared to understand the complexity of modern global food systems, interdependence of rural and urban societies, and environmental impact of consumer driven food systems choices; manage natural resources used for food and fiber for the benefit of society; and make more responsible personal and public decisions impacting food systems and the environment.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
This minor is limited to non-CFANS majors. Interested students should contact the minor adviser at 612-625-6754 or the CFANS Student Services Office at 612-624-6768.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements

Minor Courses
Students may only choose one course from each designator, in consultation with the minor adviser. Take 15 or more credits from the following:

- CFAN 1501 - Biotechnology, People, and the Environment [TS] (3.0 cr)
- CFAN 3001 - Pests and Crop Protection (3.0 cr)
- CFAN 3500 - International Field Studies Seminar (1.0 - 3.0 cr)
- AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)
- ANSC 1011 - Animals and Society [CIV] (3.0 cr)
- ANSC 1101 - Introductory Animal Science (4.0 cr)
- APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
- BBE 5203 - Environmental Impacts of Food Production (3.0 cr)
- ENT 4015 - Ornamentals and Turf Entomology (3.0 cr)
- ESPM 3221 - Soil Conservation and Land-Use Management (3.0 cr)
- FSCN 1102 - Food: Safety, Risks, and Technology [CIV] (3.0 cr)
- FSCN 1112 - Principles of Nutrition (3.0 cr)
- WRIT 3315 - Writing on Issues of Land and the Environment [AH, DSJ] (3.0 cr)
- SOIL 1125 - The Soil Resource [ENV] (4.0 cr)
- AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
  or ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
- AGRO 4103 - World Food Problems [GP] (3.0 cr)
  or APEC 4103 - World Food Problems [GP] (3.0 cr)
Twin Cities Campus
Gay, Lesbian, Bisexual, Transgender Minor
Gender, Women and Sexuality
College of Liberal Arts

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

The minor focuses on the history, politics, and cultures of gay, lesbian, bisexual, and transgendered persons. Courses explore the diversity of GLBT communities, the history and present conditions of sexual identity formation, and the functioning and institutionalization of ideologies of sexuality in a democratic society. Core courses focus on issues related to the history, culture, social, and political formations; experiences of GLBT people; and GLBT/queer theory. Elective courses are drawn from lists of GLBT-focused courses (emphasizing GLBT issues/experiences) and of GLBT-component courses (having at least one-quarter of their content related to GLBT/queer theory or the history, culture, social, political formations, and experiences of GLBT people).

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
- GLBT 1001 - Introduction to GLBT Studies [DSJ, SOCS] (3.0 cr)
- GLBT 3301 - Gay, Lesbian, Bisexual, and Transgender Social Movements in the United States (3.0 cr)
- CSCL 3456W - Sexuality and Culture [DSJ, WI] (3.0 cr)
  - or GWSS 3404 - Transnational Sexualities [GP] (3.0 cr)
  - or GWSS 4403 - Queering Theory (3.0 cr)
  - or CSCL 3472 - Gay Men and Homophobia in American Culture [DSJ] (3.0 cr)
  - or GLBT 3472 - Gay Men and Homophobia in American Culture (3.0 cr)

Electives
Other courses may be used to meet this requirement with permission from the department. SOC 4090 meets the requirement only if the topic is sociology of sexuality.
Take 3 or more course(s) from the following:
- AMST 4101 - Gender, Sexuality, and Politics in America [HIS, DSJ] (3.0 cr)
- ENGL 3330 - Gay, Lesbian, Bisexual, and Transgendered Literature (3.0 cr)
- FSOS 4152 - Gay, Lesbian, and Bisexual People in Families (3.0 cr)
- GLBT 3610 - Topics in GLBT Studies (3.0 cr)
- HIST 3212 - Dissident Sexualities in U.S. History (3.0 cr)
- SOC 4090 - Topics in Sociology (3.0 cr)
- SOC 4521 - Love, Sex, & Marriage (3.0 cr)
Twin Cities Campus
Geographic Information Science Minor
Geography, Environment, Society
College of Liberal Arts

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16

The interdisciplinary undergraduate minor in geographic information science examines geospatial technologies and their underlying principles, applications, and societal dimensions. Examples of geospatial technologies and research include internet mapping, in-vehicle navigation systems, digital cartography, imagery taken by airplanes and satellites, spatial analysis and modeling of social and natural processes, and visualization and data mining of complex information.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Several of the courses for the minor have prerequisites that must be satisfied first. Admission to the minor does not imply automatic enrollment in individual courses.

Core Courses
GEOG 5563 - Advanced Geographic Information Science (3.0 cr)
GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
or FNRM 3131 - Geographical Information Systems (GIS) for Natural Resources [TS] (4.0 cr)

Electives
No more than two courses with the same designator may be used to fulfill the requirement.
Take 3 or more course(s) totaling 9 or more credit(s) from the following:
- HSG 5464 - Understanding Housing: Assessment and Analysis (3.0 cr)
- ESPM 3031 - Applied Global Positioning Systems for Geographic Information Systems (3.0 cr)
- ESPM 4295W - GIS in Environmental Science and Management [WI] (4.0 cr)
- FNRM 3262 - Remote Sensing of Natural Resources and Environment (3.0 cr)
- FNRM 5412 - Digital Remote Sensing (3.0 cr)
- GIS 5571 - ArcGIS I (3.0 cr)
- GIS 5572 - ArcGIS II (3.0 cr)
- SOIL 4111 - Introduction to Precision Agriculture (3.0 cr)

Take no more than 2 course(s) from the following:
- CSCI 4041 - Algorithms and Data Structures (4.0 cr)
- CSCI 4107 (Inactive) (3.0 cr)
- CSCI 4707 - Practice of Database Systems (3.0 cr)
- CSCI 5115W - User Interface Design, Implementation and Evaluation (3.0 cr)

Take no more than 2 course(s) from the following:
- GEOG 3511 - Principles of Cartography (4.0 cr)
- GEOG 3531 - Numerical Spatial Analysis (4.0 cr)
- GEOG 5564 - Urban Geographic Information Science and Analysis (3.0 cr)
- GEOG 5565 - Geographical Analysis of Human-Environment Systems (3.0 cr)
Twin Cities Campus

History of Science, Technology, and Medicine Minor

College of Liberal Arts - Adm

College of Liberal Arts

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14

The undergraduate minor in the history of science, technology, and medicine (HSTM) combines upper-division coursework in the history of science and technology (HSCI) with upper-division coursework in the history of medicine (HMED) to build a humanistic background to the basic applied sciences, technologies and/or healthcare professions. Students interested in the HSTM minor should consult with the director of undergraduate studies for the HSTM program and draw up a plan of study that represents a coherent theme within the history of sciences, technology, and medicine. Normally such a coherent program entails survey coursework in the history of science, the history of technology, or the history of medicine, along with more advanced historical work around a specific field (science, technology, or medicine) or theme (focus on a particular time period, geographical focus, type of history, etc.).

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
Take a minimum of 14 credits of HSCI 3xxx-5xxx or HMED 3xxx-5xxx. No more than 25 percent of the total credits in the minor program may consist of directed study, directed instruction, or independent study. No more than 25 percent of the total credits may be taken S-N.
Take 14 or more credit(s) from the following:
- HSCI 3xxx
- HSCI 4xxx
- HSCI 5xxx
- HMED 3xxx
- HMED 4xxx
- HMED 5xxx
Twin Cities Campus
Information Technology Minor
Computer Science and Engineering
College of Science and Engineering

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 17

This interdisciplinary minor requires at least 16 credits, including two core courses from the College of Science & Engineering and three breadth courses from the Colleges of Liberal Arts or Design. The minor enables students in nontechnical disciplines to supplement their major with a practical set of courses focused on information technology.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
Take exactly 2 course(s) from the following:
• CSCI 1001 - Overview of Computer Science [MATH, TS] (4.0 cr)
• CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)

Breadth Courses
Some of the courses below have prerequisites or require instructor permission. Please see the course catalog or a Department of Computer Science and Engineering adviser for more information.
Take 3 or more course(s) from the following:
• COMM 3201 - Introduction to Electronic Media Production (3.0 - 4.0 cr)
• COMM 3211 - Introduction to U.S. Electronic Media (3.0 cr)
• COMM 4235 - Electronic Media and Ethnic Minorities--A World View (3.0 cr)
• COMM 4291 - New Telecommunication Media (3.0 cr)
• GDES 2342 - Web Design (3.0 cr)
• GDES 5343 - Data Visualization II: Interactive Information (3.0 cr)
• GDES 5383 - Digital Illustration and Animation (3.0 cr)
• GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
• GEOG 5563 - Advanced Geographic Information Science (3.0 cr)
• GEOG 5564 - Urban Geographic Information Science and Analysis (3.0 cr)
• JOUR 3004W - Information for Mass Communication [WI] (3.0 cr)
• JOUR 3614 - History of Media Communication [HIS, TS] (3.0 cr)
• JOUR 3776 - Mass Communication Law (3.0 cr)
Twin Cities Campus
Integrated Pest Management in Cropping Systems Minor
Agronomy & Plant Genetics
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 21 to 25
- This program requires summer terms.

Students selecting this interdisciplinary minor learn how the environment and cropping systems interact with the biology of the major agronomic or horticultural crop pests. Students also learn to select and apply efficient, environmentally sound pest management procedures. Courses come from agronomy and plant genetics, entomology, horticultural science, plant pathology, and soil, water, and climate.

The minor provides sufficient knowledge and skills for employment in agricultural crop protection, product development and sales, crop management consultation, pest regulation, research, or application of agricultural crop protection materials. Students must complete at least 21 credits for this minor.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
- AGRO 2501 - Plant Identification for Urban and Rural Landscapes (2.0 cr)
- AGRO 4505 - Biology, Ecology, and Management of Invasive Plants (3.0 cr)
- ENT 1005 - Insect Biology [BIOL] (4.0 cr)
- PLPA 2001 - Introductory Plant Pathology (3.0 cr)
- AGRO 4005 - Applied Crop Physiology and Development (4.0 cr)
  - or BIOL 3002 - Plant Biology: Function (2.0 cr)
  - or HORT 3005W - Environmental Effects on Horticultural Crops [WI] (4.0 cr)

Management
- AGRO 4605 - Strategies for Agricultural Production and Management (3.0 cr)
  - or HORT 4061W - Turfgrass Management [WI] (3.0 cr)
  - or HORT 5032 - Organic Vegetable Production (3.0 cr)
  - or ENT 5341 - Biological Control of Insects and Weeds (3.0 - 4.0 cr)

Applied Courses
- AGRO 4888 - Issues in Sustainable Agriculture (2.0 cr)
  - or ESPM 3612W - Soil and Environmental Biology [WI] (3.0 cr)
  - or PLPA 5202 - Field Plant Pathology (2.0 cr)
Twin Cities Campus

Interior Environments Minor
DHA Interior Design
College of Design

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

The Interior Environments minor introduces students to the discipline's core principles and the question of how health and well-being are impacted by the social, cultural, historical, and technological forces behind the design of interior environments.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Required courses
IDES 2612 - Interior Materials and Specifications [ENV] (4.0 cr)
DES 1101W - Introduction to Design Thinking [AH, WI] (4.0 cr)
  or DES 1101V - Honors: Introduction to Design Thinking [AH, WI] (4.0 cr)

History of Interiors
IDES 3161 - History of Interiors and Furnishings: Ancient to 1750 [GP] (4.0 cr)
  or IDES 3162 - History of Interiors and Furnishings: 1750 to Present [HIS] (4.0 cr)

Electives
Select one of the following courses to complete a minimum of 15 credits.
IDES 1601 - Interior Design Studio I (4.0 cr)
  or IDES 2613 - Interior Structures, Systems, and Life Safety (4.0 cr)
  or IDES 3612 - Lighting Design (3.0 cr)
  or IDES 3614 - Interior Design Ethics and Professional Practice [CIV] (4.0 cr)
  or DES 4165 - Design and Globalization [DSJ] (3.0 cr)
  or Interior history alternative

  Students may complete IDES 3161 or IDES 3162 if not used for the minor requirement.
Due to the international nature of food and agricultural systems, and the interdependence of environmental systems, CFANS students are strongly encouraged to incorporate an international experience into their academic degree program. Students with a particular interest in international agriculture can minor in international agriculture and choose between a self-contained block of courses or a series of courses integrated into the degree program. The minor is structured to include a general overview of international agriculture, followed by area, culture, or language studies; expanded coursework in agriculture; and an international experience. Students are required to travel outside the United States for a minimum two-week academic experience.

The program for a minor in international agriculture must be developed in coordination with International Programs in the college. Students must complete 18 credits with a minimum GPA of 2.00.

Program Delivery
This program is available:

- via classroom (the majority of instruction is face-to-face)

Minor Requirements
International Opportunities:

The University of Minnesota is partnering with a number of universities to provide short term and semester study abroad opportunities taught in English. Courses can include: agricultural economics, tropical agriculture, organic food chain management, and environmental and agricultural food production.

Additional international practical or internship experiences may qualify for the minor. Arrangements can be made through MAST International or Career and Internship Services on the St. Paul campus.

Travel grants for overseas experience are available through the Academic Enrichment Program. Students are also eligible for scholarships through the Learning Abroad Center.

Minor Courses

Take 6 credits 3xxx or 4xxx area culture or language studies
Take 2 or more credit(s) from the following:

- CFAN 3000 - Directed Studies in International Agriculture (2.0 - 4.0 cr)

Take 3 or more credit(s) from the following:

- CFAN 3500 - International Field Studies Seminar (1.0 - 3.0 cr)
- CFAN 3501 - Costa Rica--Sustainable Development [GP] (3.0 cr)
- CFAN 3502 - Bahamas--Tropical Marine Biology and Shark Ecology (2.0 cr)
- CFAN 3503 - Switzerland--Mountain Agriculture [GP] (3.0 cr)
- CFAN 3504 - Vertebrate Research Design and Field Survey Techniques [GP] (3.0 cr)
- CFAN 3505 - French Language and Culture (1.0 cr)
- CFAN 3506 - Europe--Global Environmental Leadership [GP] (3.0 cr)
- CFAN 3509 - South Africa: One Country, Two Food Systems [GP] (3.0 cr)
- CFAN 3512 - Sustainable Food Chains [GP] (3.0 cr)
- CFAN 3513 - The Natural History of Norway [GP] (3.0 cr)

Take 7 or more credit(s) from the following:

- AFEE 5361 - World Development Problems (3.0 cr)
- AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
- APEC 3007 - Applied Macroeconomics: Policy, Trade, and Development [GP] (3.0 cr)
- APEC 3071 - Agriculture and Economic Growth in Developing Countries (3.0 cr)
- APEC 5751 - Global Trade and Policy (3.0 cr)
- FSCN 3615 - Sociocultural Aspects of Food, Nutrition, and Health [GP] (3.0 cr)
- COMM 3676W - Communicating Terrorism [GP, WI] (3.0 cr)
• AGRO 4103 - World Food Problems [GP] (3.0 cr)
  or APEC 4103 - World Food Problems [GP] (3.0 cr)
Joint Military Science Leadership Minor

**College of Continuing Education**

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18 to 20

This minor provides students with basic concepts and principles of military science and the art of leadership. Areas of study include citizenship, military history, values, ethics, integrity, honor, responsibility, management, and leadership skills. Students gain practical leadership experience, develop self-discipline, and gain confidence—all of which are valuable qualities when applied to service in a military or civilian career. In consultation with the ROTC programs, this minor is now distinct from participation in ROTC, is open to all qualified students, and does not require physical training.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Admission Requirements**

Significant practical leadership experience.

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](http://www.umn.edu/registrar/admissions).  

**Minor Requirements**

Students choose one of four program tracks: Aerospace Science, Military Science, Naval Science-Navy, or Naval Science-Marines.

**Program Sub-plans**

Students are required to complete one of the following sub-plans. (Note for the Twin Cities and Morris campuses: The honors sub-plan does not meet this requirement. Honors students are required to complete one sub-plan plus the honors sub-plan. Please see an adviser if no honors sub-plan is listed for the program.)

**Aerospace Science**

**Aerospace Science Option**

The history requirement can be satisfied by the completion of AIR 1204 and AIR 1205 or by the completion of Air Force ROTC Field Training.

- **AIR 1204** - History of Airpower and Communication Skills (1.0 cr)
- **AIR 1205** - Quality Air Force, Group Leadership Problems, and Presentation Techniques (1.0 cr)
- **AIR 3301** - Air Force Leadership, Quality, and Communication (3.0 cr)
- **AIR 3302** - Air Force Officership, Quality, and Communication (3.0 cr)
- **AIR 3401** - National Security Policy (3.0 cr)
- **AIR 3402** - Preparation for Active Duty (3.0 cr)

Complete a 4-credit philosophy, rhetoric, or leadership course approved by the Professor of Aerospace/Chair of the Department of Aerospace Science.

**Military Science**

**Military Science Option**

- **MIL 3301** - Adaptive Tactical Leadership (3.0 cr)
- **MIL 3302** - Applied Team Leadership (3.0 cr)
- **MIL 3401** - Developing Adaptive Leaders (3.0 cr)
- **MIL 3402** - Leadership in a Complex World (3.0 cr)
- **MIL 3970** - Military History (3.0 cr)

Complete a 4-credit philosophy, rhetoric, or leadership course approved by the Professor of Military Science/Chair of the Department of Military Science.

**Naval Science-Marines**
Naval Science-Marines Option

NAV 1102 - Seapower and Maritime Affairs (3.0 cr)
NAV 3310 - Evolution of Warfare (3.0 cr)
NAV 4401W - Leadership and Management I [WI] (3.0 cr)
NAV 4402W - Leadership and Ethics [CIV, WI] (3.0 cr)
NAV 4410 - Amphibious Warfare (3.0 cr)

Complete a 4-credit philosophy, rhetoric, or leadership course approved by the Professor of Military/Chair of the Department of Naval Science.

Naval Science--Navy

Naval Science Option

NAV 1102 - Seapower and Maritime Affairs (3.0 cr)
NAV 2201 - Ship Systems I: Naval Engineering (3.0 cr)
NAV 3301 - Navigation I: Piloting and Celestial Navigation (3.0 cr)
NAV 4401W - Leadership and Management I [WI] (3.0 cr)
NAV 4402W - Leadership and Ethics [CIV, WI] (3.0 cr)

Complete a 4-credit philosophy, rhetoric, or leadership course approved by the Professor of Military Science/Chair of the Department of Naval Science.
Twin Cities Campus
Leadership Minor
Organizational Leadership, Policy and Development
College of Education and Human Development

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 17

The 17-credit Leadership Minor program is interdisciplinary, multidimensional, experiential, and global. Students will explore and experience multiple frameworks of leadership. The program prepares students for real-life leadership experiences, both on campus and in the larger global community by combining social change theories of leadership with authentic community leadership. This minor is a collaborative effort of the College of Education and Human Development's department of Organizational Leadership, Policy, and Development, the Hubert H. Humphrey School of Public Affairs, and the Office for Student Affairs.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students officially declare the Leadership Minor in the first weeks of their field experience course (the third core course of the minor) after completing the first two courses of the program with a grade of C- or better.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Personal Leadership in the University
PA 1961W - Personal Leadership in the University [WI] (3.0 cr)
or OLPD 1301W - Personal Leadership in the University [WI] (3.0 cr)
or OLPD 1302 - Personal Leadership in the University (3.0 cr)
or CFAN 1101 - Dean's Engaged Leaders Seminar (3.0 cr)

Leadership, You and Your Community
PA 3961 - Leadership, You, and Your Community (3.0 cr)
or OLPD 3302 - Leadership, You, and Your Community (3.0 cr)

Field Experience
PA 3971 - Leadership Minor: Field Experience (3.0 cr)
or OLPD 3306 - Leadership Minor: Field Experience (3.0 cr)

Leadership for Global Citizenship
PA 4961W - Leadership for Global Citizenship [WI] (3.0 cr)
or OLPD 4303W - Leadership for Global Citizenship [WI] (3.0 cr)

Leadership Electives
In consultation with the leadership minor office, take at least 5 additional credits to complete the 17-credit requirement. The following approved elective options form one list composed of courses from colleges across Twin Cities campus.
Take 1 or more course(s) totaling 5 or more credit(s) from the following:
• ABUS 4012 - Strategic Decision Making and Problem Solving (3.0 cr)
• ABUS 4022 - Management in Organizations (3.0 cr)
• ABUS 4023W - Communicating for Results [WI] (3.0 cr)
• ABUS 4031 - Strategic Use of Business Information Systems (3.0 cr)
• ABUS 4041 - Dynamics of Leadership (3.0 cr)
• ABUS 4043 - Project Management in Practice (3.0 cr)
• AFEE 2221 - People Skills for Leadership (3.0 cr)
• AFEE 4221 - Rural Leadership Development (3.0 cr)
• AFRO 3072 - Racism: Social and Psychological Consequences for Black Americans (3.0 cr)
• AFRO 3131 - Contemporary Issues in Africa (3.0 cr)
• AFRO 3543 - Psychology and the Black American Experience (3.0 cr)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AFRO 4105</td>
<td>Ways of Knowing in Africa and the African Diaspora</td>
<td>3.0 cr</td>
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<tr>
<td>AMST 3114</td>
<td>America in International Perspective [DSJ]</td>
<td>3.0 cr</td>
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<tr>
<td>AMST 4101</td>
<td>Gender, Sexuality, and Politics in America [HIS, DSJ]</td>
<td>3.0 cr</td>
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<tr>
<td>ANTH 1005W</td>
<td>Introduction to Cultural Diversity and the World System [SOCS, GP, WI]</td>
<td>4.0 cr</td>
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<tr>
<td>ANTH 3002</td>
<td>Sex, Evolution, and Behavior: Examining Human Evolutionary Biology</td>
<td>4.0 cr</td>
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<tr>
<td>ANTH 3015W</td>
<td>Biology, Evolution, and cultural Development of Language [SOCS, WI]</td>
<td>3.0 cr</td>
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<td>ANTH 3041</td>
<td>Ecological Anthropology</td>
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<tr>
<td>ANTH 3242W</td>
<td>- Hero, Savage, or Equal? Representations of Non-Western Peoples in the Movies [WI]</td>
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<td>ANTH 4009W</td>
<td>- Warfare and Human Evolution [WI]</td>
<td>3.0 cr</td>
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<td>ANTH 4071</td>
<td>- Race, Culture, and Vision</td>
<td>3.0 cr</td>
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<td>ASL 3705</td>
<td>- Cultural Perspectives of Deafness</td>
<td>3.0 cr</td>
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<tr>
<td>BA 3000</td>
<td>- Career Skills</td>
<td>1.0 cr</td>
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<tr>
<td>BA 3100</td>
<td>- Global Seminar</td>
<td>3.0 cr</td>
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<tr>
<td>BA 4503</td>
<td>- Carlson Ventures Enterprise</td>
<td>2.0 cr</td>
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<tr>
<td>CHIC 4275</td>
<td>- Theory in Action: Community Engagement in a Social Justice Framework [CIV]</td>
<td>3.0 cr</td>
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<td>CI 1911</td>
<td>- Ethics, Wealth, and Education in a Democracy</td>
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<tr>
<td>CI 2311W</td>
<td>- Introduction to Technology and Ethics in Society [CIV, WI]</td>
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<td>- Technology and Ethics in Society [CIV, WI]</td>
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<td>CLA 2005</td>
<td>- Introduction to Liberal Education and Responsible Citizenship</td>
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<td>COMM 1101</td>
<td>- Introduction to Public Speaking [CIV]</td>
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<td>COMM 1313W</td>
<td>- Analysis of Argument [WI]</td>
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<tr>
<td>COMM 3411</td>
<td>- Introduction to Small Group Communication</td>
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<tr>
<td>COMM 3422</td>
<td>- Interviewing and Communication</td>
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<tr>
<td>COMM 3441</td>
<td>- Introduction to Organizational Communication</td>
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<tr>
<td>COMM 3451W</td>
<td>- Intercultural Communication: Theory and Practice [WI]</td>
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<td>COMM 3452W</td>
<td>- Communication and the Intercultural Reentry [WI]</td>
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<tr>
<td>COMM 3605W</td>
<td>- Persuasive Speaking and Speech Writing [WI]</td>
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<td>COMM 3615</td>
<td>- Argumentation</td>
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<td>COMM 3625</td>
<td>- Communication Ethics</td>
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<td>- How Pictures Persuade [WI]</td>
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<td>- Electronic Media and Ethnic Minorities--A World View</td>
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<td>COMM 4263</td>
<td>- Feminist Media Studies [DSJ]</td>
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<td>COMM 4291</td>
<td>- New Telecommunication Media</td>
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<td>COMM 4404W</td>
<td>- Language Borderlands [WI]</td>
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<td>COMM 4407</td>
<td>- Communication and Conflict</td>
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<tr>
<td>COMM 5411</td>
<td>- Small Group Communication Research</td>
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<td>- Issues in Cultural Pluralism [DSJ]</td>
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<td>- Introduction to Mindfulness-Based Stress Reduction [2.0 cr]</td>
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<td>DES 1111</td>
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<td>- Honors: Creative Problem Solving</td>
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<td>- School and Society [2.0 cr]</td>
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<td>- Special Topics for Undergraduates (1.0 - 3.0 cr)</td>
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<td>- Introduction to Project Management</td>
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<td>OLPD 3304</td>
<td>- Strategic Leadership for Future Societies</td>
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<tr>
<td>OLPD 3305</td>
<td>- Learning About Leadership Through Film and Literature</td>
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<td>OLPD 4318</td>
<td>- Advanced Project Management</td>
<td>3.0 cr</td>
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<tr>
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<td>- Cross-Cultural Perspectives on Leadership (3.0 cr)</td>
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<td>- Problems: Organizational Leadership, Policy, and Development (1.0 - 3.0 cr)</td>
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<td>OLPD 5323</td>
<td>- Women in Leadership</td>
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<td>EEB 4329</td>
<td>- Primate Ecology and Social Behavior</td>
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<tr>
<td>ENGL 3505</td>
<td>- Community Learning Internships I (3.0 cr)</td>
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<td>ENGL 3506</td>
<td>- Community Learning Internships II (4.0 cr)</td>
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<td>ENGL 3741</td>
<td>- Literacy and American Cultural Diversity [DSJ]</td>
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<td>EPSY 3101</td>
<td>- Creativity and Intelligence: an Introduction (3.0 cr)</td>
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<td>EPSY 3132</td>
<td>- Psychology of Multiculturalism in Education [DSJ]</td>
<td>3.0 cr</td>
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<tr>
<td>EPSY 3133</td>
<td>- Practicum: Service Learning, Psychology of Multiculturalism in Education (1.0 - 3.0 cr)</td>
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• EPSY 3302 - Introduction to Communication Skills for Educational and Community Settings (3.0 cr)
• EPSY 3303 - Educational Psychology Undergraduate Research Practicum (3.0 cr)
• EPSY 5135 - Human Relations Workshop (4.0 cr)
• ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
• ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
• FSON 3615 - Sociocultural Aspects of Food, Nutrition, and Health [GP] (3.0 cr)
• FSOS 2101 - Preparation for Working With Families (2.0 cr)
• GEOG 3371W - Cities, Citizens, and Communities [DSJ, WI] (4.0 cr)
• GEOG 3381W - Population in an Interacting World [SOCS, GP, WI] (4.0 cr)
• GLOS 1015W - Globalization: Issues and Challenges [GP, WI] (4.0 cr)
• GLOS 3143 - Living in the Global (3.0 cr)
• GLOS 3144 - Knowledge, Power, and the Politics of Representation in Global Studies (4.0 cr)
• GLOS 3144H - Honors: Knowledge, Power, and the Politics of Representation in Global Studies (4.0 cr)
• GLOS 3402 - Human Rights Internship (3.0 cr)
• GLOS 3602 - Other Worlds: Globalization and Culture (3.0 cr)
• GLOS 3605 - From Printing Press to Internet: Media, Communications, and History (3.0 cr)
• GLOS 3643 - Islam and the West (3.0 cr)
• GWSS 3003 - Gender and Global Politics [SOCS, GP] (3.0 cr)
• GWSS 3003H - Honors: Gender and Global Politics (3.0 - 4.0 cr)
• GWSS 3351 - Women and Diasporas in Modern History (3.0 cr)
• GWSS 3404 - Transnational Sexualities [GP] (3.0 cr)
• GWSS 3406 - Gender, Labor, and Politics [SOCS, GP] (3.0 cr)
• GWSS 3590 - Topics: Social Change, Activism, Law, and Policy Studies (3.0 cr)
• OLPD 3640 - Introduction to Organization Development (3.0 cr)
• OLPD 4602 - Managing Work Teams (3.0 cr)
• OLPD 4608 - Introduction to International Human Resource Development (3.0 cr)
• OLPD 5607 - Organization Development (3.0 cr)
• HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
• HRIR 3032 - Training and Development (2.0 cr)
• HRIR 3041 - The Individual in the Organization (2.0 cr)
• HRIR 3042 - The Individual and Organizational Performance (2.0 cr)
• HRIR 4100W - HRIR Capstone: Personal and Organizational Leadership [WI] (4.0 cr)
• HSCI 3242 - The Darwinian Revolution [HIS] (3.0 cr)
• HSCI 3331 - Technology and American Culture [HIS, TS] (3.0 cr)
• HSCI 3333W - Issues in American Science and Technology in the Past Century [HIS, CIV, WI] (3.0 cr)
• HSCI 3401 - Ethics in Science and Technology [HIS, CIV] (3.0 cr)
• HSCI 4321 - History of Computing [TS, HIS] (3.0 cr)
• HSCI 4455 - Women, Gender, and Science [HIS, DSJ] (3.0 cr)
• HSG 1461 - Introduction to Housing (3.0 cr)
• HSG 2463 - Housing and Community Development (3.0 cr)
• iBUS 3003 - Information Systems for Business Processes and Management: An International Perspective (4.0 cr)
• iBUS 3010 - Introduction to Global Entrepreneurship in China (4.0 cr)
• iBUS 3021 - Human Resources Management in Australia (4.0 cr)
• iBUS 4050 - Management of Innovation and Change (4.0 cr)
• ID 3201 - Career Planning (2.0 cr)
• ID 3208 - Internship Reflection: Making Meaning of Your Experience (1.0 cr)
• ID 3571 - HECUA: Inequality in America - Contested Theories of Poverty, Inequality, and Social Change [SOCS] (4.0 cr)
• ID 3572 - HECUA: Inequality in America - Social Policy and Anti-Poverty Strategies in Theory and Practice [DSJ] (4.0 cr)
• ID 3573 - HECUA: Inequality in America Internship Seminar [CIV] (8.0 cr)
• IDSC 4301 - Information Systems Capstone Course: A Live Case (2.0 cr)
• INET 3065 - Computer Security for the Business Professional (3.0 cr)
• INET 4082 - IT Infrastructure Projects and Processes (2.0 cr)
• INET 4153 - Policy and Regulation: Effects on Global IT Infrastructure (3.0 cr)
• INET 4165 - Information Security: Technology, Ethics, Legality, and Standards (3.0 cr)
• IS 4151 - Innovation for Leaders and Organizations (3.0 cr)
• IS 5001 - Introduction to Innovation Studies (1.0 - 4.0 cr)
• IS 5002 - Final Project for Innovation Studies (1.0 - 4.0 cr)
• JOUR 3005 - Mass Media Effects [SOCS] (3.0 cr)
• JOUR 3251 - Evaluative Research in Strategic Communication (3.0 cr)
• JOUR 3551 - Economics of New Media [TS] (3.0 cr)
• JOUR 3552 - Internet and Global Society [GP] (3.0 cr)
• JOUR 3741 - Diversity and Mass Communication [DSJ] (3.0 cr)
• JOUR 3745 - Mass Media and Popular Culture [AH, DSJ] (3.0 cr)
• JOUR 3771 - Mass Media Ethics: Moral Reasoning and Case Studies [CIV] (3.0 cr)
• JOUR 3796 - Mass Media and Politics (3.0 cr)
• JOUR 4259 - Strategic Communication Case Analysis (3.0 cr)
• JOUR 4272 - Interactive Advertising (3.0 cr)
• JOUR 4302 - Electronic Photojournalism (3.0 cr)
• JOUR 4551 - New Media and Culture [AH, TS] (3.0 cr)
• JOUR 4721 - Mass Media and U.S. Society [SOOS, DSJ] (3.0 cr)
• JOUR 4801 - Global Communication (3.0 cr)
• JWST 3113 - [Inactive] (3.0 cr)
• JWST 3520 - History of the Holocaust (3.0 cr)
• JWST 3521W - History of the Holocaust [WI] (3.0 cr)
• JWST 3522 - History of the Arab-Israeli Conflict (3.0 cr)
• LAS 3441 - Chicana/o History to 1900 (3.0 cr)
• LS 5100 - Liberal Studies Seminar (1.0 - 4.0 cr)
• MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)
• MGMT 3040 - Issues in Nonprofit Management (4.0 cr)
• MGMT 4002 - Managerial Psychology (4.0 cr)
• MGMT 4004W - Business Policy: Strategy Formulation and Implementation [WI] (3.0 cr)
• MGMT 4008 - Entrepreneurial Management (4.0 cr)
• MGMT 4080W - Applied Technology Entrepreneurship [WI] (4.0 cr)
• MGMT 4171W - Entrepreneurship in Action I [WI] (4.0 cr)
• MGMT 4172 - Entrepreneurship in Action II (4.0 cr)
• MIL 3301 - Adaptive Tactical Leadership (3.0 cr)
• MIL 3302 - Applied Team Leadership (3.0 cr)
• MIL 3303 - MS III One Credit Lead Lab (1.0 cr)
• MIL 3304 - MS III One Credit Lead Lab (1.0 cr)
• MIL 3401 - Developing Adaptive Leaders (3.0 cr)
• MIL 3402 - Leadership in a Complex World (3.0 cr)
• MIL 3403 - MS IV One Credit Lead Lab (1.0 cr)
• MIL 3404 - MS IV One Credit Lead Lab (1.0 cr)
• MKTG 3001 - Principles of Marketing (3.0 cr)
• MKTG 4050 - Integrated Marketing Communications (4.0 cr)
• MKTG 4080W - Marketing Strategy [WI] (4.0 cr)
• MOT 4001 - Leadership, Professionalism and Business Basics for Engineers (2.0 cr)
• NAV 4401W - Leadership and Management I [WI] (3.0 cr)
• NAV 4402W - Leadership and Ethics [CIV, WI] (3.0 cr)
• NSCI 3102W - Introduction to Neurobiology II: Perception and Behavior [WI] (3.0 cr)
• NSCI 4167 - Neuroscience in the Community (1.0 - 3.0 cr)
• NURS 3806 - Nurse as Professional (2.0 cr)
• NURS 4104 - Ethical Sensitivity and Reasoning in Health Care (2.0 cr)
• NURS 4106 - Nurse as Collaborator (1.0 cr)
• NURS 4305 - Practicum: Community-based Care of Families Across Life Span (3.0 cr)
• NURS 4324 - Transcultural Nursing and Global Health [GP] (3.0 cr)
• NURS 4402 - Taking Ethical Action in Health Care [CIV] (1.0 cr)
• NURS 4706 - Transition to Practice (1.0 cr)
• NURS 4707 - Nursing Leadership: Professional Practice in Complex Systems (2.0 cr)
• PA 1401 - Public Affairs: Community Organizing Skills for Public Action [CIV] (3.0 cr)
• PA 3990 - General Topics in Public Policy (1.0 - 3.0 cr)
• PA 3991 - Independent Study (1.0 - 3.0 cr)
• PA 4101 - Nonprofit Management and Governance (3.0 cr)
• PA 4190 - Topics in Public and Nonprofit Leadership and Management (1.0 - 3.0 cr)
• PA 5001 - Intellectual Foundations of Public Action (1.5 cr)
• PA 5490 - Topics in Social Policy (1.0 - 4.0 cr)
• PA 5920 - Skills Workshop (0.5 - 4.0 cr)
• PA 5941 - Leadership for the Common Good (3.0 cr)
• PHIL 1003W - Introduction to Ethics [CIV, WI] (4.0 cr)
• PHIL 1006W - Philosophy and Cultural Diversity [AH, DSJ, WI] (4.0 cr)
• PHIL 3234 - Knowledge and Society (4.0 cr)
• PHIL 3302W - Moral Problems of Contemporary Society [CIV, WI] (4.0 cr)
• PHIL 3307 - Social Justice and Community Service [AH, CIV] (4.0 cr)
• PHIL 4325 - Education and Social Change [AH, CIV] (4.0 cr)
• PHIL 4326 - Lives Worth Living: Questions of Self, Vocation, and Community [CIV, AH] (4.0 cr)
• POL 1234 - Citizen U: Building Tomorrow's Citizens Today (3.0 cr)
• POL 3235W - Democracy and Citizenship [CIV, WI] (3.0 cr)
• POL 3306 - Presidential Leadership and American Democracy (3.0 cr)
• POL 3739 - Politics of Race, Class, and Ethnicity (3.0 cr)
• POL 3766 - Political Psychology of Mass Behavior [SOCS] (3.0 cr)
• POL 3767 - Political Psychology of Elite Behavior [CIV] (3.0 cr)
• POL 3835 - International Relations [SOCS, GP] (3.0 cr)
• POL 3873V - Global Citizenship and International Ethics [CIV, WI] (3.0 cr)
• POL 4311 - Thinking Strategically in Domestic Politics (3.0 - 4.0 cr)
• POL 4463 - The Cuban Revolution Through the Words of Cuban Revolutionaries [GP] (3.0 cr)
• POL 4487 - The Struggle for Democratization and Citizenship (4.0 cr)
• POL 3489W - Citizens, Consumers, and Corporations [CIV, WI] (3.0 cr)
• POL 4771 - Racial Attitudes and Intergroup Conflict (3.0 cr)
• POL 4773W - Interest Groups, Social Movements and Politics of Race, Class, and Gender [DSJ, WI] (3.0 cr)
• POL 4885W - International Conflict and Security [GP, WI] (4.0 cr)
• POL 4887 - Thinking Strategically in International Politics [MATH] (3.0 cr)
• PSTL 1461 - Multicultural Perspectives in Public Speaking [CIV] (3.0 cr)
• PSTL 3214 - Community Action (4.0 cr)
• PSTL 4216 - Solving Complex Problems: Community-based Approaches (4.0 cr)
• PSTL 4217 - Inquiry and Assessment for Citizen Scholars (4.0 cr)
• PSY 3061 - Introduction to Biological Psychology (3.0 cr)
• PSY 3201 - Introduction to Social Psychology (3.0 cr)
• PSY 3633 - Happiness: Integrating Research Across Psychological Sciences (3.0 cr)
• PSY 3711 - Psychology in the Workplace (3.0 cr)
• PSY 3960 - Undergraduate Seminar in Psychology (1.0 - 5.0 cr)
• PUBH 3050 - Practicum in Peer Education I (2.0 cr)
• PUBH 3052 - Practicum in Peer Education II (2.0 cr)
• PUBH 3093 - Directed Study: Public Health (1.0 - 4.0 cr)
• RELS 3111 - Too Jewish? The Complex Construction of the Jewish American Psyche in Literature, Art, and Film (3.0 cr)
• RELS 3373 - Religion and Society in Imperial China (3.0 cr)
• RELS 3623 - Religion and the U.S. Founding: Contests Then and Now Over the Place of Religion in Politics [HIS] (3.0 cr)
• RELS 3715 - History of the Crusades (3.0 cr)
• RELS 3801 - Philosophy of Religion (3.0 cr)
• RELS 4049 - Religion and Culture (3.0 cr)
• SMGT 3501 - Sport in a Diverse Society [SOCS, DSJ] (3.0 cr)
• SMGT 3601 - Ethics and Values in Sport (2.0 cr)
• SOC 3201 - Inequality: Introduction to Stratification (3.0 cr)
• SOC 3211W - American Race Relations [DSJ, WI] (3.0 cr)
• SOC 3301W - Politics and Society [WI] (3.0 cr)
• SOC 3411W - Organizations and Society [WI] (3.0 cr)
• SOC 3451W - Cities & Social Change [WI] (3.0 cr)
• SOC 4090 - Topics in Sociology (3.0 cr)
• SOC 4305 - Environment & Society: An Enduring Conflict [ENV] (3.0 cr)
• SOC 4309 - Religion in American Public Life: Culture, Politics, & Communities [CIV] (3.0 cr)
• SOC 4461 - Sociology of Ethnic and Racial Conflict [DSJ] (3.0 cr)
• SOC 4703 - Contemporary American Culture [CIV] (3.0 cr)
• SPAN 3401 - Latino Immigration and Community Service [CIV] (3.0 cr)
• SW 3301 - GLBT Social Movements (3.0 cr)
• SW 3501 - Theories and Practices of Social Change Organizing (4.0 cr)
• SW 3703 - Gender Violence in Global Perspective (3.0 cr)
• SW 3810 - Special Topics (1.0 - 4.0 cr)
• URBS 3001W - Introduction to Urban Studies: The Complexity of Metropolitan Life [WI] (3.0 cr)
• URBS 3301W - American Cities As Settings for Cultural Diversity [WI] (3.0 cr)
• URBS 3500 - Urban Studies Workshop (3.0 cr)
• OLPD 3820 - Principles of Supervisory Management (3.0 cr)
• OLPD 3801 - Foundations of Philosophy and Practice of Career and Technical Education (2.0 cr)
• OLPD 3828 - Diversity in the Workplace (3.0 cr)
• WRIT 3152W - Writing on Issues of Science and Technology [WI] (4.0 cr)
• WRIT 3244W - Critical Literacies: How Words Change the World [AH, DSJ, WI] (3.0 cr)
• WRIT 3361 - Literature of Social Movements in the United States: 1950 to Present [LITR, CIV] (3.0 cr)
• WRIT 3371W - Technology, Self, and Society [WI] (3.0 cr)
• WRIT 3577W - Rhetoric, Technology, and the Internet [TS, WI] (3.0 cr)
• WRIT 3671 - Visual Rhetoric and Document Design (3.0 cr)
• WRIT 3751W - Seminar: Theory and Practice of Writing Consultancy [WI] (4.0 cr)
• WRIT 4501 - Usability and Human Factors in Technical Communication (3.0 cr)
• WRIT 4562 - International Professional Communication (3.0 cr)
• WRIT 4573W - Writing Proposals and Grant Management [WI] (3.0 cr)
• WRIT 4662W - Writing With Digital Technologies [WI] (4.0 cr)
• YOST 3101 - Youthwork: Orientations and Approaches (4.0 cr)
• YOST 3235 - Community Building, Civic Engagement, and Civic Youthwork (4.0 cr)
• YOST 4316 - Media and Youth: Learning, Teaching, and Doing (2.0 cr)
• YOST 4325 - Improving Everyday Youthwork: Practical Program Evaluation (3.0 cr)
• CSCL 3173W - The Rhetoric of Everyday Life [CIV, WI] (3.0 cr)
• PA 4971 - Directed Study, Leadership Minor (1.0 - 4.0 cr)
• CI 4312 - Sex, Drugs, and the Internet: Educational Perspectives [TS, WI] (3.0 cr)
• CE 5571 - Acara Global Venture Design: Grand Challenges [GP] (3.0 - 4.0 cr)
• FSOS 3104 - Global and Diverse Families [SOCS, GP] (3.0 cr)
• CHIC 3900 - Topics in Chicano Studies (3.0 cr)
• POL 3769 - Public Opinion and Voting Behavior [SOCS] (3.0 cr)
• PHAR 4200W - Drugs and the U.S. Health Care System [CIV, WI] (3.0 cr)
• PUBH 3001 - Personal and Community Health (2.0 cr)
• PHIL 4350 - Catching Lives Worth Living: Participation in the Growth of a Living-Learning Community (2.0 cr)
• SOC 3251W - Sociological Perspectives on Race, Class, and Gender [SOCS, DSJ, WI] (3.0 cr)
• OLPD 4301 - Global Youth Leadership and Community Engagement (6.0 cr)
• OLPD 5011 - Leading Organizational Change: Theory and Practice (3.0 cr)
• REC 4900 - Special Topics: Contemporary Issues in Leisure Services (1.0 - 12.0 cr)
• PSTL 1366 - Stories of Self and Community: Multicultural Perspectives [LITR, DSJ] (3.0 cr)
• CSPH 3211 - Living on Purpose: An Exploration of Self, Purpose, and Community (2.0 cr)
• GWSS 3307 - Feminist Film Studies [AH, DSJ] (3.0 cr)
Management Minor
Curtis L. Carlson School of Management

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 16

The management minor is available to students enrolled in a college outside of the Carlson School on the Twin Cities campus of the University of Minnesota. In addition to giving students broad exposure to the basic elements of business and management, the minor is an excellent preparation for law school, an MBA program, or many career fields.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 3 courses before admission to the program.

A GPA above 2.0 is preferred for the following:
- 3.00 already admitted to the degree-granting college
- 3.00 transferring from another University of Minnesota college
- 3.00 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Economics, Math, and Statistics Courses
ECON 1102 is recommended but not required.

Economics
- ECON 1101 - Principles of Microeconomics [SOCS, GP] (4.0 cr)

Math
- MATH 1031 - College Algebra and Probability [MATH] (3.0 cr)
  or a higher level math course may be taken in place of MATH 1031.

Statistics
- SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
  or an adviser-approved statistics course may be substituted for SCO 2550.

Minor Requirements
Minor Courses

- ACCT 2050 - Introduction to Financial Reporting (4.0 cr)

Take 12 or more credit(s) from the following:
- ACCT 3001 - Introduction to Management Accounting (3.0 cr)
- FINA 3001 - Finance Fundamentals (3.0 cr)
- HRIR 3021 - Human Resource Management and Industrial Relations (3.0 cr)
- IDSC 3001 - Information Systems for Business Processes and Management (3.0 cr)
- MGMT 3001 - Fundamentals of Management (3.0 cr)
- MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)
- MKTG 3001 - Principles of Marketing (3.0 cr)
- SCO 3001 - Introduction to Operations Management (3.0 cr)
- PA 3003 - Nonprofit and Public Financial Management (3.0 cr)
- PA 4101 - Nonprofit Management and Governance (3.0 cr)
Twin Cities Campus
Marine Biology Minor
College of Biological Sciences - Adm
College of Biological Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

Marine biology aims to understand all aspects of organisms that live in the seas, from their molecular composition and biochemistry to how they comprise ecosystems. Consistent with this breadth, the proposed marine biology minor is an interdisciplinary curriculum through which students learn foundational concepts of marine biology and gain perspectives about current issues that affect marine environments. Given that 71% of our planet is covered by oceans and 95% of the readily available water is present in oceans, understanding marine chemistry, organisms, and ecosystems is an important, interdisciplinary goal. Through a combination of courses, laboratories, field-trips, internships, and study abroad experiences, students who complete the minor will gain knowledge and skills that will enrich their lives, as well as provide a base for subsequent study in marine biology.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
Students must complete 4 courses before admission to the program.

Students who have at least a 2.0 average in their math and science courses and who have completed the following courses will be eligible for admission to the minor.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Pre-requisites
Talk with adviser about equivalent courses.

Biology course
- BIOL 1001 - Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4.0 cr)
- or BIOL 1003 - Evolution and Biology of Sex [BIOL] (4.0 cr)
- or BIOL 1009 - General Biology [BIOL] (4.0 cr)
- or BIOL 1010 - Human Biology: Concepts and Current Ethical Issues [BIOL, CIV] (4.0 cr)
- or BIOL 1055 - Environmental Biology: Science and Solutions with Laboratory [BIOL, ENV] (4.0 cr)
- or BIOL 2002 - Foundations of Biology for Biological Sciences Majors, Part I [BIOL] (6.0 cr)

Chemistry
- CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
- CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)

Additional math or science course
Take 1 or more course(s) from the following:
- BIOC 1xxx
- BIOC 2xxx
- BIOC 3xxx
- BIOL 1xxx
- BIOL 2xxx
- BIOL 3xxx
- EEB 1xxx
- EEB 2xxx
- EEB 3xxx
- GCD 1xxx
- GCD 2xxx
- GCD 3xxx
- MICB 1xxx
- MICB 2xxx
- MICB 3xxx
- NSCI 1xxx
- NSCI 2xxx
Minor Requirements

Marine Biology Core
The three marine biology core courses provide an overview of the chemistry and biology of marine organisms and marine environments. A grade of C or better in each course is required for admission into the minor.

- **BIOL 2007** - Marine Animal Diversity Laboratory (2.0 cr)
- **ESCI 1006** - Oceanography [PHYS, ENV] (4.0 cr)
- **FW 2003** - Introduction to Marine Biology (3.0 cr)

Marine Biology Elective Courses
Students will select marine biology-related courses such as the ones listed below. Approval of elective courses will be at the discretion of the Director of Undergraduate Studies.

Take 6 or more credit(s) from the following:

- **BIOL 4590** - Coral Reef Ecology (2.0 cr)
- **BIOL 4596** - Coral Reef Ecology (Dive Trip) (2.0 cr)
- **CFAN 3502** - Bahamas--Tropical Marine Biology and Shark Ecology (2.0 cr)
- **EEB 5601** - Limnology (3.0 cr)
- **ESCI 4402** - Biogeochemical Cycles in the Ocean (3.0 cr)
- **ESPM 4061W** - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
- **FW 4136** - Ichthyology (4.0 cr)

Marine Biology Field, Research, and Internship Experiences
Students will gain hands-on experiences in marine biology by completing a field course, research project, or internship.

- a. Coral Reef Ecology Field Course (Winters, Roatan, Honduras)
- b. Galapagos Field Course (May term)
- c. Shark Biology Field Course (Summers, Bahamas)
- d. Internship at the Mall of America or Minnesota Zoo aquarium
- e. Marine Biology-related directed research
- f. Other field/research experiences as approved by the director of undergraduate studies
Twin Cities Campus

Medieval Studies Minor
Center for Medieval Studies
College of Liberal Arts

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

The Medieval Studies minor covers the period between 300 and 1500 B.C.E. It includes the history, art history, theater and music history, literature, and languages of the period, including Latin, French, Italian, English, Old English, Scandinavian, and German.

The program allows students with an interest in the medieval period, or who are planning to pursue graduate work in one of the related areas, to concentrate their studies as a coherent whole.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
The minor is administered through the Center for Medieval Studies in the College of Liberal Arts. Coursework must be upper-division (3xxx-5xxx), chosen from approved course lists in consultation with the director of undergraduate studies. All applicable courses originate in other departments. Many of these are cross-listed as MEST 3610, MEST 4610, and MEST 5610. A list of appropriate courses is available at the Center for Medieval Studies.

Minor Courses
The following course list is not exhaustive. Students should consult the director of undergraduate studies for final approval on these, and other, course choices.

Take 15 or more credit(s) from the following:

- ARCH 4423 - Gothic Architecture (3.0 cr)
- ARCH 5423 - Gothic Architecture (3.0 cr)
- ARTH 3009 - Medieval Art [AH] (3.0 cr)
- ENGL 3101 - Survey of Medieval English Literature (3.0 cr)
- ENGL 3102 - Chaucer (3.0 cr)
- ENGL 3110 - Medieval Literatures and Cultures: Intro to Medieval Studies (3.0 cr)
- ENGL 4612 - Old English I (3.0 cr)
- ENGL 4613 - Old English II (3.0 cr)
- ENGL 5110 - Readings in Middle English Literature and Culture (3.0 cr)
- FREN 3111 - Medieval Stories (3.0 cr)
- FREN 3140 - Topics in Medieval and Renaissance Literature (3.0 cr)
- FREN 3601 - French Civilization and Culture I (3.0 cr)
- FREN 3611 - Deciphering Courtly Literatures of Medieval France [LITR, GP] (3.0 cr)
- FREN 3711 - Deciphering Courtly Literatures in Medieval France [LITR, GP] (3.0 cr)
- GER 3601 - German Medieval Literature [LITR, GP] (3.0 cr)
- GER 3702 - Beginning Middle High German (3.0 cr)
- GER 5721 - Introduction to Middle High German (3.0 cr)
- GER 5722 - Middle High German: Advanced Readings (3.0 cr)
- GER 5731 - Old Saxon (3.0 cr)
- GER 5732 - Old Saxon (3.0 cr)
- GER 5740 - Topics in Germanic Medieval Studies (3.0 cr)
- GWSS 3414 - Introduction to Medieval History [HIS, GP] (3.0 cr)
- HIST 3101 - Introduction to Medieval History [HIS, GP] (3.0 cr)
- HIST 3541 - Military History of Medieval Western Europe (3.0 cr)
- HIST 3611 - Medieval Cities of Europe: 500-1500 [HIS, GP] (3.0 cr)
- HIST 3613 - History of the Crusades [HIS, GP] (3.0 cr)
- HIST 3614 - France in the Middle Ages (3.0 cr)
• HIST 3618 - The Dark Ages Illumined: Medieval Europe to 1050 (3.0 cr)
• HIST 3619 - Chivalry, Crisis, and Revival: Medieval History 1050-1500 (3.0 cr)
• HIST 3621 - Creating the Modern World in Medieval Europe: The Renaissance, 1200-1600 (3.0 cr)
• HIST 3714 (Inactive) (3.0 cr)
• HIST 3900 - Topics in Medieval and Modern European History (1.0 - 4.0 cr)
• HIST 5111 - Proseminar in the History of Medieval Europe (3.0 cr)
• HIST 5115 - Medieval Latin Historians (3.0 cr)
• HIST 5501 (Inactive) (3.0 cr)
• HIST 5611 - New Directions in the Middle Ages, ca. 300-1100 (3.0 cr)
• HIST 5612 - New Directions in the Middle Ages, ca. 1100-1500 (3.0 cr)
• HIST 5614 - The Medieval Church (3.0 cr)
• HIST 5616 (Inactive) (3.0 cr)
• HIST 5900 - Topics in European/Medieval History (1.0 - 4.0 cr)
• HMED 3065 - Body, Soul, and Spirit in Medieval and Renaissance European Medicine (3.0 cr)
• ITAL 3209 - Literature of Medieval City-States (4.0 cr)
• ITAL 3501 (Inactive) (3.0 cr)
• ITAL 3637 - From Ancient Rome to Renaissance Florence: Siena on the "French Road" (3.0 cr)
• ITAL 4303 (Inactive) (4.0 cr)
• ITAL 5209 (Inactive) (4.0 cr)
• LAT 5200 - Advanced Reading in Later Latin (3.0 cr)
• MEST 3xxx
• MEST 4xxx
• MEST 5xxx
• MUS 3601W - History of Western Music I [WI] (3.0 cr)
• SCAN 3502 - Scandinavian Myths [LITR, GP] (3.0 cr)
• SCAN 5501 (Inactive) (3.0 cr)
• SCAN 5502 - The Icelandic Saga (3.0 cr)
• SCAN 5701 - Old Norse Language and Literature (3.0 cr)
• SCAN 5710 - Topics in Old Norse Literature (3.0 cr)
• SPAN 3503 - Pre-modern Spanish Culture and Literature (3.0 cr)
• SPAN 3703 - Origins and History of Spanish and Portuguese (3.0 cr)
• SPAN 5160 - Medieval Iberian Literatures and Cultures (3.0 cr)
**Twin Cities Campus**

**Native American Environmental Knowledge Minor**

*College of Food, Agri & Natural Resource Sciences*

*College of Food, Agricultural and Natural Resource Sciences*

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 17

This minor allows students to study Native American perspectives on the environment and natural resource systems from an interdisciplinary, culturally informed perspective, including coursework, practical experience, and community service. Required courses emphasize understanding the unique perspective of Native American approaches to science as it is applied to natural resources and the environment.

**Program Delivery**

This program is available:
- via classroom (the majority of instruction is face-to-face)

**Minor Requirements**

**Introduction to Cultural Systems**

*CFAN 1902* - Topics: Freshman Seminar [DSJ] (3.0 cr)

**Introduction to Cultural Systems Additional Requirement**

Students taking CFAN 1902 must take an additional topic from the one above.

*CFAN 1902* - Topics: Freshman Seminar [DSJ] (3.0 cr)

or *AMIN 1902* - Freshman Seminar [DSJ] (3.0 cr)

or *AMIN 1001* - American Indian Peoples in the United States [DSJ] (3.0 cr)

or *AMIN 1002* - Indigenous Peoples in Global Perspective [GP] (3.0 cr)

or *AMIN 1003* - American Indians in Minnesota [HIS, DSJ] (3.0 cr)

**American Indian Studies**

Take 3 or more credit(s) from the following:
- AMIN 3xxx
- AMIN 4xxx
- AMIN 5xxx

**Integrating Project**

Two credits under appropriate departmentally-housed directed studies, independent studies, or special topics designators.

**Additional Credits**

Three additional credits approved by the minor program coordinator (must be 3xxx, 4xxx, or 5xxx).

**Service Learning Project**

Students are expected to become familiar with community interests and needs. This is accomplished by completing a 3 credit service-learning project in community.

*CFAN 4293* - Directed Study (1.0 - 5.0 cr)
New Media Studies Minor

Program Type: Undergraduate free-standing minor
Requirements for this program are current for Fall 2014
Required credits in this minor: 15

This interdisciplinary minor explores multiple perspectives of how information or content is created and shaped in new and emerging media, as well as the role and impact of those media on human communication. New media refers to the emerging digital technologies that enable information to be produced, stored, transmitted, and displayed in new ways. Students will have an understanding of how these technologies change the ways in which various types of content can be created, managed, and distributed to potentially change the content itself.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
At least one course must be 4xxx or above. No more than 8 credits of elective courses (courses without the JOUR designator) may be earned from a single department. Students may not use only technical (hands-on or skills) courses to fulfill the electives requirement (see list below). Other electives may be chosen only if they represent new courses offered by the same department that are similar to those on the approved list. The list of electives is updated periodically—students should see the SJMC website for the most current list. Approval of alternative electives for the minor is made by the chair of the faculty steering committee in consultation with the appropriate department.

Minor Courses
Take 15 or more credit(s) from the following:

Media Studies/Journalism Core
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
• JOUR 3551 - Economics of New Media [TS] (3.0 cr)
• JOUR 3552 - Internet and Global Society [GP] (3.0 cr)
• JOUR 4551 - New Media and Culture [AH, TS] (3.0 cr)
• JOUR 5552 - Law of Internet Communications (3.0 cr)

Electives
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
• ARTS 3601 - New Media: Making Art Interactive (4.0 cr)
• COMM 3211 - Introduction to U.S. Electronic Media (3.0 cr)
• COMM 4291 - New Telecommunication Media (3.0 cr)
• CSCL 3173W - The Rhetoric of Everyday Life [CIV, WI] (3.0 cr)
• CSCL 3461 - Monsters, Robots, Cyborgs [LITR] (3.0 cr)
• ENGL 3351W [Inactive][AH, GP, WI] (4.0 cr)
• ENGL 4722 - Alphabet to Internet: History of Writing Technologies (4.0 cr)
• GEOG 3561 - Principles of Geographic Information Science (4.0 cr)
• HIST 3705 - From Printing Press to Internet: Media, Communications, and History (3.0 cr)
• HSCI 3331 - Technology and American Culture [HIS, TS] (3.0 cr)
• HSCI 3715 - Technology and Civilization: Waterwheels to the Web [HIS, TS] (3.0 - 4.0 cr)
• HSCI 4321 - History of Computing [TS, HIS] (3.0 cr)
• SCMC 3001W - History of Cinema and Media Culture [WI] (4.0 cr)
• TH 4555 - Audio Technology (3.0 cr)
• TH 4556 - Digital Audio and MIDI for Performance (3.0 cr)
• TH 5554 - Multimedia Production for Live Performance (3.0 cr)
• WRIT 3371W - Technology, Self, and Society [WI] (3.0 cr)
• WRIT 3577W - Rhetoric, Technology, and the Internet [TS, WI] (3.0 cr)
• WRIT 4501 - Usability and Human Factors in Technical Communication (3.0 cr)
Twin Cities Campus
Outdoor Recreation and Education Minor
Kinesiology, School of
College of Education and Human Development

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 16

The Outdoor Recreation and Education minor provides students with the opportunity to study a specific area of the Recreation and Leisure field. While students can take other coursework related to leadership, management, policy, programming, and tourism, no other University classes have a specific outdoor focus.
The priority of the Outdoor Recreation and Education minor would be to provide students with education and skills training necessary to be successful in this field. Students will concentrate on the following:

1) Specific leadership skills to work with groups and individuals from various socioeconomic backgrounds, with varying physical and cognitive abilities, from all age groups, races, and orientations, along with the understanding of leadership roles, methods and models;
2) The development, implementation, and evaluation of programs and services to meet the needs of these populations;
3) Policy and management related to our public land for both use by our citizens and also preservation for the enjoyment of future generations;
4) Understanding the use of our outdoor resources and the economic and environmental impact created;
5) Eco-tourism and sustainability;
6) Global impacts based on the use of outdoor spaces, pollution, climate changes and others.

Students in the minor will benefit from the many alumni and community partners that have a vested interest in the education and training of our future professionals. Specific individual projects and/or research will be conducted with related agencies that will provide not only real-world, relevant experience and skill development, but establish mentor relationships and premium opportunities for networking in the industry.

For more detailed information regarding this free standing minor, visit z.umn.edu/oris

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements
Student must complete 16 credits from the designated list for the ORE minor.

Required courses
Students are required to take 4 credits of REC 3993 - Directed Study.
REC 2151 - Outdoor and Camp Leadership (3.0 cr)
REC 3993 - Directed Study in Recreation, Park, and Leisure Studies (1.0 - 9.0 cr)
REC 4311 - Programming Outdoor & Env Ed (3.0 cr)
REC 4161 - Recreation Land Policy (3.0 cr)

Electives
Take 3 or more credit(s) from the following:
• REC 3321 - Outdoor Recreation 3-Season Skills (3.0 cr)
• REC 3322 - Outdoor Recreation Winter Skills (3.0 cr)
• REC 4191 - Adventure Recreation, Tourism, and Eco-Tourism (3.0 cr)
• REC 4301 - Wilderness and Adventure Education (4.0 cr)
• REC 4900 - Special Topics: Contemporary Issues in Leisure Services (1.0 - 12.0 cr)
Pharmacology Minor
College of Biological Sciences - Adm

Program Type: Undergraduate free-standing minor
Requirements for this program are current for Fall 2014
Required credits in this minor: 12

Pharmacology studies how drugs affect biological systems. It is the foundation of medicine, pharmacy, dentistry, veterinary medicine, nursing, and other health care professions. Pharmacology employs scientific principles and techniques of its own, as well as from disciplines such as physiology, biochemistry, cellular and molecular biology, microbiology, immunology, genetics, structural biology, and pathology. The objectives of pharmacology include identifying new targets for therapeutic intervention, developing new therapeutics, and understanding environmental/toxicological implications.

Program Delivery
This program is available:
• via classroom (the majority of instruction is face-to-face)

Admission Requirements
A GPA above 2.0 is preferred for the following:
• 2.50 already admitted to the degree-granting college
• 2.50 transferring from another University of Minnesota college
• 2.50 transferring from outside the University

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements
Students who wish to declare a minor in pharmacology can do so online at the College of Biological Sciences website. The minor requires a minimum of 12 credits.

Pharmacology Minor Required Courses
PHCL 3100 - Pharmacology for Pre-Med and Life Science Students (2.0 cr)
PHCL 2001 - Basic Principles of Pharmacology: A Drug's Fantastic Voyage (2.0 cr)
or PHCL 4001 - Mechanisms of Drug Action (2.0 cr)

Pharmacology Elective Courses
Take 5 - 8 credit(s) from the following:
• PHCL 4001 - Mechanisms of Drug Action (2.0 cr)
• PHCL 4003 - Anti-infective drugs: Drugs that kill invaders (2.0 cr)
• PHCL 4010 - Current Research Topics in Pharmacology (2.0 cr)
• PHCL 4100 - Laboratory in Molecular Pharmacology (2.0 cr)
• PHCL 5111 - Pharmacogenomics (3.0 cr)
• PHCL 4343 - Pharmacology of the Synapse (2.0 cr)

Directed Research, Directed Study, or Additional Coursework
Take 0 - 3 credit(s) from the following:
• PHCL 4994 - Directed Research (1.0 - 3.0 cr)
• PHCL 4993 - Directed Studies (1.0 - 3.0 cr)
• PHSL 3xxx
• PHSL 4xxx
• PHSL 5xxx
• BIOL 4xxx
• BIOL 5xxx
• NSCI 4xxx
• NSCI 5xxx
• GCD 4xxx
• MICB 4111 - Microbial Physiology and Diversity (3.0 cr)
• BIOL 4121 - Microbial Ecology and Applied Microbiology (3.0 cr)
• MICB 4131 - Immunology (3.0 cr)
• MICB 4141W - Biology, Genetics, and Pathogenesis of Viruses: Writing Intensive [WI] (4.0 cr)
• MICB 4151 - Molecular and Genetic Bases for Microbial Diseases (3.0 cr)
• MICB 4161W - Eukaryotic Microbiology [WI] (3.0 cr)
• MICB 4171 - Biology, Genetics, and Pathogenesis of Viruses (3.0 cr)
Twin Cities Campus

Product Design Minor

Design, Housing & Apparel

College of Design

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

Product design is inherently creative and interdisciplinary, blending design, engineering, business, art, and other humanities. The program focuses on physically crafting the future in the form of new objects, systems and services. This minor will provide students with a tool set for innovation that can be applied to their major area of study.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Admission Requirements
A GPA above 2.0 is preferred for the following:
- 2.80 already admitted to the degree-granting college
- 2.80 transferring from another University of Minnesota college

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Minor Requirements

Required core
PDES 3701 - Creativity, Idea Generation, and Innovation (3.0 cr)
PDES 3702 - Concept Sketching and Rendering (3.0 cr)
PDES 3711 - Toy Product Design (4.0 cr)

Select from the following to reach 18 total credits for the minor.
ANTH 4121 - Business Anthropology (3.0 cr)

or
PDES 3715 - Design and Food (4.0 cr)

or
DES 3131 - User Experience in Design (4.0 cr)

or
DES 3321 - Furniture Design: Exploration (3.0 cr)

or
DES 5185 - Human Factors in Design (3.0 cr)

or
ESPM 3603 - Environmental Life Cycle Analysis (3.0 cr)

or
ME 2011 - Introduction to Engineering (4.0 cr)

or
MGMT 3010 - Introduction to Entrepreneurship (4.0 cr)

or
MGMT 4171W - Entrepreneurship in Action I [WI] (4.0 cr)

or
MGMT 4172 - Entrepreneurship in Action II (4.0 cr)

or
PDES 3170 - Topics in Product Design (1.0 - 4.0 cr)

or
PDES 3703 - Product Form and Model Making (4.0 cr)

or
PDES 3704 - Innovative Computer Modeling and Rendering for Design (3.0 cr)

or
PDES 4193 - Directed Study in Product Design (1.0 - 4.0 cr)

or
PDES 5170 - Topics in Product Design (1.0 - 4.0 cr)
Twin Cities Campus
Public Health Minor
Geography, Environment, Society, Sociology
College of Liberal Arts

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14 to 16

Protecting the public's health requires addressing challenges that are influenced as much by individual and social behavior as they are by biology, chemistry, and physics. Biology, the environment, social and political systems, technology, and more intersect to describe the methods of protecting the health and well-being of the population. Liberal arts students, and students from other colleges who complement their major degree programs with a public health minor, will understand how to help society by improving health and preventing disease on a population level.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Specific program requirements are subject to change. Minors must follow the degree requirements current for the semester in which they declared.

Introduction to the Discipline
Take a minimum of two courses (4-6 credits). Note: PUBH 3004 is a 4-credit course that combines PUBH 3001 and PUBH 3003. If taking PUBH 3004, do not take PUBH 3001 or PUBH 3003. (PUBH 3004 satisfies half of the "Introduction to the Discipline" sub-requirement and all of the "Applying Public Health Theory" sub-requirement below.)

Part I
- PUBH 3202 - What is Public Health? (2.0 cr)
  or PUBH 3001 - Personal and Community Health (2.0 cr)
  or PUBH 3004 - Basic Concepts in Personal and Community Health (4.0 cr)

Part II
- PUBH 3350 - Epidemiology: People, Places, and Disease (2.0 cr)
  or PUBH 3106 - Making Sense of Health Studies (2.0 cr)

Understanding Health Issues From Varying Social Scientific Contexts
Take 6 or more credit(s) from the following:
- AFRO 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
- ANTH 3306W - Medical Anthropology [GP, WI] (3.0 cr)
- ANTH 4075 - Cultural Histories of Healing [SOCS, GP] (3.0 cr)
- CNES 5535 - Death and the Afterlife in the Ancient World (3.0 cr)
- CSCL 3456W - Sexuality and Culture [DSJ, WI] (3.0 cr)
- CSCL 3458W - The Body and the Politics of Representation [HIS, WI] (3.0 cr)
- ECON 5890 - Economics of the Health-Care System (3.0 cr)
- GEOG 3381W - Population in an Interacting World [SOCS, GP, WI] (4.0 cr)
- GEOG 3379 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
- GEOG 3401 - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
- GEOG 3411W - Geography of Health and Health Care [WI] (4.0 cr)
- GLOS 3613W - Stuffed and Starved: The Politics of Eating [SOCS, GP, WI] (3.0 cr)
- JOUR 5541 - Mass Communication and Public Health (3.0 cr)
- JOUR 5543 - Public Health Campaign Evaluation (3.0 cr)
- PHIL 3305 - Medical Ethics (4.0 cr)
- PSY 3206 - Introduction to Health Psychology (3.0 cr)
- PSY 5205 - Applied Social Psychology (3.0 cr)
- PSY 5206 (inactive)(3.0 cr)
- SOC 3501 - Sociology of Families [SOCS, DSJ] (3.0 cr)
- SOC 3511 - World Population Problems [GP] (3.0 cr)
- SOC 3681 - Gender and the Family in the Islamic World (3.0 cr)
- SOC 4246 - Sociology of Health and Illness (3.0 cr)
Applying Public Health Theory

Note: Students who take PUBH 3004 in fulfillment of the "Introduction to the Discipline" sub-requirement will also have fulfilled the "Applying Public Health Theory" sub-requirement.

Take 2 or more credit(s) from the following:
- PUBH 3003 - Fundamentals of Alcohol and Drug Abuse (2.0 cr)
- PUBH 3004 - Basic Concepts in Personal and Community Health (4.0 cr)
- PUBH 3010 - Public Health Approaches to HIV/AIDS (2.0 cr)
- PUBH 3040 - Dying and Death in Contemporary Society: Implications for Intervention (2.0 cr)
- PUBH 3102 - Issues in Environmental and Occupational Health (3.0 cr)
- PUBH 3104 - Environmental Health Effects: Introduction to Toxicology (2.0 cr)
- PUBH 3315 - Clinical Research from Lab to Bedside to Populations (2.0 cr)
- PUBH 3415 - Introduction to Clinical Trials - Online (3.0 cr)
- PUBH 3639 - Prevention: Theory, Practice, and Application in Public Health Services (3.0 cr)
- PUBH 3801 - Health Economics and Policy (3.0 cr)
- PUBH 3802 - Health and Human Rights (3.0 cr)
- PUBH 3807 - Global Health, Relief, Development and Religious and Non-religious NGOs (3.0 cr)
- PUBH 3905 - Nutrition for Public Health Promotion and Disease Prevention (2.0 cr)
- PUBH 3940 - Concepts and Controversies in Public Health Nutrition and Health Promotion (1.0 cr)
- PUBH 3950 - From Kid to Community: Personal, Social and Environmental Influences on Youth Obesity (2.0 cr)

Global Impact

Note: Both Global Impact courses carry a pre-requisite chosen from the "Introduction to the Discipline" course list above. Take PUBH 3107 or PUBH 3601.
- PUBH 3107 - Global Public Health and the Environment (2.0 cr)
- PUBH 3601 - Maternal and Child Health Global Public Health Issues (2.0 cr)
Twin Cities Campus
Social Justice Minor
School of Social Work
College of Education and Human Development

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 17 to 18

The social justice minor offers undergraduate students the opportunity to theorize about the meanings of social justice and practice "doing" social justice advocacy in community organizations. The minor is an interdisciplinary, cross-collegiate undergraduate program. Students create socially just communities and a respectful space for all opinions in the dialogue-based classrooms. Teaching faculty, students, and community groups become partners in creating and sharing in an authentic collective learning experience. The program is based on the belief in equity and fairness in every aspect of human experience and the importance of recognizing the struggles for liberation and the social movements of many peoples globally.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
The social justice minor requires three of the four core courses (11 to 12 credits), all of which include 30 hours of service learning in social justice organizations, and 6 credits of elective courses.

Core Courses
These courses include 30 hours of service learning in social justice organizations.

- SW 3501 - Theories and Practices of Social Change Organizing (4.0 cr)
- SW 4501 - Senior Seminar in Social Justice (4.0 cr)
- SW 2501W - Introduction to Social Justice [WI] (4.0 cr)
- SW 1501 - Introduction to Peace Studies (3.0 cr)

Electives
Take 6 or more credit(s) from the following:

- AAS 1101 - Imagining Asian America [SOCS, DSJ] (3.0 cr)
- AAS 3301 - Asian America Through Arts and Culture [AH, DSJ] (3.0 cr)
- AFRO 3120 - Social and Intellectual Movements in the African Diaspora [HIS, GP] (3.0 cr)
- AFRO 3251W - Sociological Perspectives on Race, Class, and Gender [WI] (3.0 cr)
- AFRO 3426 - African Americans, Social Policy, and the Welfare State (3.0 cr)
- AFRO 3866 - The Civil Rights and Black Power Movement, 1954-1984 (3.0 cr)
- AMST 3001 - Contemporary Perspectives on Asian America [DSJ] (3.0 cr)
- CHIC 1112 - Introduction to Chicana/o Studies: Critical Paradigms [DSJ] (3.0 cr)
- CHIC 1275 - Service Learning in the Chicano/Latino Community [CIV] (3.0 cr)
- CHIC 3212 - Chicana Studies: La Chicana in Contemporary Society [AH, DSJ] (3.0 cr)
- CHIC 3275 - Service Learning in the Chicano/Latino Community [CIV] (3.0 cr)
- CHIC 3374 - Migrant Farmworkers in the United States: Families, Work, and Advocacy [CIV] (4.0 cr)
- CHIC 3446 - Chicana/o History II: WWII, El Movimiento, and the New Millennium [HIS, DSJ] (3.0 cr)
- CHIC 4275 - Theory in Action: Community Engagement in a Social Justice Framework [CIV] (3.0 cr)
- CI 2311W - Introduction to Technology and Ethics in Society [CIV, WI] (3.0 cr)
- EPSY 3132 - Psychology of Multiculturalism in Education [DSJ] (3.0 cr)
- EPSY 3133 - Practicum: Service Learning, Psychology of Multiculturalism in Education (1.0 - 3.0 cr)
- ESPM 3480 - Topics in Natural Resources (1.0 - 4.0 cr)
- FSOS 3104 - Global and Diverse Families [SOCS, GP] (3.0 cr)
- GEOG 3379 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
- GLBT 3301 - Gay, Lesbian, Bisexual, and Transgender Social Movements in the United States (3.0 cr)
- GWSS 1002 - Politics of Sex [SOCS, DSJ] (3.0 - 4.0 cr)
- GWSS 3003 - Gender and Global Politics [SOCS, GP] (3.0 cr)
- GWSS 3590 - Topics: Social Change, Activism, Law, and Policy Studies (3.0 cr)
- HIST 3877 - Asian American History, 1850-Present [HIS, DSJ] (3.0 cr)
- OLPD 3304 - Strategic Leadership for Future Societies (3.0 cr)
- PHIL 1004W - Introduction to Political Philosophy [AH, CIV, WI] (4.0 cr)
- PHIL 1007 - Introduction to Political Philosophy Practicum (1.0 cr)
- PHIL 3301 - Environmental Ethics [ENV] (4.0 cr)
- PHIL 3302W - Moral Problems of Contemporary Society [CIV, WI] (4.0 cr)
- PHIL 3307 - Social Justice and Community Service [AH, CIV] (4.0 cr)
- PHIL 4231 - Philosophy of Language (3.0 cr)
- PHIL 4325 - Education and Social Change [AH, CIV] (4.0 cr)
- POL 4210 - Topics in Political Theory (3.0 cr)
- SOC 3003 - Social Problems (3.0 cr)
- SOC 3201 - Inequality: Introduction to Stratification (3.0 cr)
- SOC 3211W - American Race Relations [DSJ, WI] (3.0 cr)
- SOC 3251W - Sociological Perspectives on Race, Class, and Gender [SOCS, DSJ, WI] (3.0 cr)
- SOC 3322W - Social Movements, Protests, and Change [CIV, WI] (3.0 cr)
- SOC 4461 - Sociology of Ethnic and Racial Conflict [DSJ] (3.0 cr)
- SPAN 3401 - Latino Immigration and Community Service [CIV] (3.0 cr)
- SW 3301 - GLBT Social Movements (3.0 cr)
- SW 3703 - Gender Violence in Global Perspective (3.0 cr)
- TH 5117 - Performance and Social Change (3.0 cr)
- AAS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
  or GWSS 3409W - Asian American Women's Cultural Production [AH, DSJ, WI] (3.0 cr)
- AAS 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
  or AFRO 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
  or AMIN 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans, & Chicanos in the U.S. (3.0 cr)
  or CHIC 4231 - Color of Public Policy: African Americans, American Indians, Asian Americans & Chicanos in the U.S. (3.0 cr)
- ID 3561 - HECUA Off Campus Programs: Literature in Political, Social, and Historical Contexts [LITR] (4.0 cr)
  or ID 3563 - HECUA Off-Campus Study Program: WSC Internship Seminar [CIV] (8.0 cr)
  or ID 3571 - HECUA: Inequality in America - Contested Theories of Poverty, Inequality, and Social Change [SOCS] (4.0 cr)
  or ID 3572 - HECUA: Inequality in America - Social Policy and Anti-Poverty Strategies in Theory and Practice [DSJ] (4.0 cr)
  or ID 3573 - HECUA: Inequality in America Internship Seminar [CIV] (8.0 cr)
Twin Cities Campus
Soil Science Minor
Soil, Water, & Climate
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 20

This minor provides a strong background in basic soil sciences, covering such topics as soil biology, conservation, contaminants, water movement, and land use. Students completing the minor meet the minimum requirements for employment with the Natural Resources Conservation Service as a soil conservationist. They are also prepared to take the Professional Soil Science Examination for geoscientists. Students must complete at least 20 credits for the minor.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Minor Courses
- SOIL 3416 - Plant Nutrients in the Environment (3.0 cr)
- SOIL 4511 - Field Study of Soils (2.0 cr)
- ESPM 3221 - Soil Conservation and Land-Use Management (3.0 cr)
- ESPM 3612W - Soil and Environmental Biology [WI] (3.0 cr)
- ESPM 4601 - Soils and Pollution (3.0 cr)
- SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)
  - or SOIL 1125 - The Soil Resource [ENV] (4.0 cr)

Electives
- LAAS 5515 - Soil Formation: Earth Surface Processes and Biogeochemistry (3.0 cr)
  - or ESPM 4021W - Problem Solving: Environmental Review [WI] (4.0 cr)
  - or ESPM 4216 - Contaminant Hydrology (3.0 cr)
  - or ESPM 5555 - Wetland Soils (3.0 cr)
Twin Cities Campus
Sustainability Studies Minor
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15 to 18
- NA

One of the greatest challenges facing the 21st-century world is jointly sustaining the environment, as well as human health and well-being. The sustainability studies minor provides students from across the University with a unique opportunity to address this sustainability challenge. Students will explore the fundamental ecological, social, ethical, political, and economic forces that influence the long-term quality and viability of human society and the natural environment. The introductory core course provides a conceptual overview of various models for understanding sustainability, and uses case studies to demonstrate the challenges of putting sustainability into practice. Additional electives are chosen from courses that explore multiple disciplinary perspectives related to sustainability. Finally, the capstone experience allows students to synthesize and apply their knowledge to real sustainability problems.

For this minor, students must complete 6 credits of required courses for the core and the capstone, and 9-12 restricted electives, for a total of 15-18 credits.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Core
SUST 3003 - Sustainable People, Sustainable Planet [ENV] (3.0 cr)
SUST 4004 - Sustainable Communities (3.0 cr)

Electives
Take three courses, not more than one from each of four categories. You may also petition for study abroad, summer, special topics, new, and other courses to count toward elective requirements.
Take 3 or more course(s) from the following:
Economics and Policy
Take no more than 1 course(s) from the following:
- AFEE 5361 - World Development Problems (3.0 cr)
- AFEE 3361 - World Development Problems [GP] (3.0 cr)
- APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
- APEC 5611 - Economic Aspects of Environmental Management (3.0 cr)
- CE 5212 - Transportation Policy, Planning, and Deployment (4.0 cr)
- CE 5214 - Transportation Systems Analysis (4.0 cr)
- EEB 5146 - Science and Policy of Global Environmental Change (3.0 cr)
- ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
- ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
- ESPM 3251 - Natural Resources in Sustainable International Development [GP] (3.0 cr)
- ESPM 3261 - Economics and Natural Resources Management [SOCS, ENV] (4.0 cr)
- ESPM 3602 - Regulations and Corporate Environmental Management (3.0 cr)
- ESPM 3603 - Environmental Life Cycle Analysis (3.0 cr)
- ESPM 3604 - Environmental Management Systems and Strategy (3.0 cr)
- ESPM 4242 - Methods for Environmental and Natural Resource Policy Analysis (3.0 cr)
- FNRM 5146 - Science and Policy of Global Environmental Change (3.0 cr)
- ESPM 5602 - Regulations and Corporate Environmental Management (3.0 cr)
- MGMT 5019 - Business, Natural Environment, and Global Economy (2.0 cr)
- PA 5232 - Transportation Policy, Planning, and Deployment (4.0 cr)
Social Science and Humanities
Take no more than 1 course(s) from the following:
- ANTH 3041 - Ecological Anthropology (3.0 cr)
- ANTH 4053 - Economy, Culture, and Critique [SOCS, GP] (3.0 cr)
- ENGL 3501 - Public Discourse: Coming to Terms With the Environment [LITR, ENV] (3.0 cr)
- ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
- GEOG 3379 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
- GLOS 3303 - Environment and Development in the Third World [SOCS, ENV] (3.0 cr)
- GLOS 3613W - Stuffed and Starved: The Politics of Eating [SOCS, GP, WI] (3.0 cr)
- GLOS 4305 - Environment & Society: An Enduring Conflict [ENV] (3.0 cr)
- GLOS 4311 - Race, Class, and the Politics of Nature (3.0 cr)
- HIST 3452 - African Conservation Histories (3.0 cr)
- HSCI 3244 - History of Ecology and Environmentalism [HIS, ENV] (3.0 cr)
- ID 3592 - HECUA Off-Campus Study Program: Environmental Sustainability: Dimensions of Environmental Change [SOCS] (4.0 cr)
- PHIL 3301 - Environmental Ethics [ENV] (4.0 cr)
- SOC 3613W - Stuffed and Starved: The Politics of Eating [SOCS, GP, WI] (3.0 cr)
- SOC 4305 - Environment & Society: An Enduring Conflict [ENV] (3.0 cr)
- SOC 4311 - Race, Class, and the Politics of Nature (3.0 cr)

**Biophysical Sciences**

Take no more than 1 course(s) from the following:
- AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
- AGRO 5321 - Ecology of Agricultural Systems (3.0 cr)
- ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
- BIOL 3407 - Ecology (3.0 cr)
- BIOL 3408W - Ecology [WI] (3.0 cr)
- CHEM 4601 - Green Chemistry [ENV] (3.0 cr)
- EEB 3001 - Ecology and Society [ENV] (3.0 cr)
- EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
- ESCI 3005 - Earth Resources (3.0 cr)
- ESCI 3402 - Science and Politics of Global Warming [ENV] (3.0 cr)
- ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
- FW 4102 - Principles of Conservation Biology [ENV] (3.0 cr)
- GEOG 3401 - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
- HORT 3131 - Student Organic Farm Planning, Growing, and Marketing (3.0 cr)
- ID 3591 - HECUA Off-Campus Study Program: Environmental Sustainability: Adaptive Ecosystem Management [ENV] (4.0 cr)
- FNRM 3101 - Park and Protected Area Tourism (3.0 cr)

**Design and Technology**

Take no more than 1 course(s) from the following:
- ARCH 4561 - Architecture and Ecology (3.0 cr)
- BBE 4733 - Renewable Energy Technologies [TS] (3.0 cr)
- CE 3501 - Environmental Engineering [ENV] (3.0 cr)
- CE 4561 - Solid Hazardous Wastes (3.0 cr)
- CHEN 5551 - Survey of Renewable Energy Technologies (3.0 cr)
- ESPM 3601 - Sustainable Housing—Community, Environment, and Technology [TS] (3.0 cr)
- HSG 3482 - Sustainable Housing: Community, Environment, and Technology [TS] (3.0 cr)
- LA 3003 - Case Studies in Sustainable Landscape Planning and Design (3.0 cr)
- LA 3004 - Regional Landscape Planning (3.0 cr)
- LA 3501 - Environmental Design and Its Biological and Physical Context [ENV] (3.0 cr)
- LA 3514 - Making the Mississippi [CIV] (3.0 cr)
- LA 4755 - Infrastructure, Natural Systems, and Space of Inhabited Landscapes [TS] (3.0 cr)
- URBS 3751 - Understanding the Urban Environment [ENV] (3.0 cr)
Twin Cities Campus

Sustainable Agriculture Minor
Agronomy & Plant Genetics, College of Food, Agri & Natural Resource Sciences

College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 17
- This program requires summer terms.

This minor allows students to study the sustainability of agricultural food systems from an integrated perspective, including coursework, practical experience, and community reflection. Required courses and courses from the foundational clusters—land and public policy; agriculture, environment, and natural resources; and citizens, science, and society—define the student’s minor curriculum. In addition, each student works with a minor adviser to design an individualized practical experience (e.g., internship, experiential learning opportunity) in some aspect of sustainable agriculture. Through the Issues in Sustainable Agriculture course, students synthesize their learning about sustainability for local, national, and global agricultural food systems. For this minor, students must complete 3-6 credits of required courses and 9-14 credits of foundational coursework, for a total of at least 17 credits.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
This minor requires that students complete a minimum of 17 credits from the courses listed below. Students should work with their academic advisers to make sure the courses they choose to take will meet this requirement.

Minor Courses
AGRO 4888 - Issues in Sustainable Agriculture (2.0 cr)
Take 1-3 credit(s) from the following:
  AGRO 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
or ANSC 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
or APEC 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
or ENT 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
or ESPM 4096 - Professional Experience Program: Internship (1.0 cr)
or FSCN 4096 - Professional Experience Program: Internship (1.0 - 4.0 cr)
or HORT 4096 - Professional Experience Program: Internship (1.0 cr)
or PLPA 4096 - Professional Experience Program: Internship (1.0 - 3.0 cr)
or ID 3594 - HECUA Off-Campus Study Program: Environmental Sustainability, Internship [CIV] (4.0 cr)

Foundation Course Clusters
Select one course from each of the following clusters. Other courses may be substituted with approval of the minor adviser and coordinator.
Take 9 or more credit(s) including 3 or more sub-requirements(s) from the following:

Land and Public Policy
  • AGRO 4103 - World Food Problems [GP] (3.0 cr)
or APEC 4103 - World Food Problems [GP] (3.0 cr)
or ESPM 3221 - Soil Conservation and Land-Use Management (3.0 cr)
or ESPM 3241W - Natural Resource and Environmental Policy [SOCS, CIV, WI] (3.0 cr)
or ESPM 3251 - Natural Resources in Sustainable International Development [GP] (3.0 cr)
or GEOG 3361W - Geography and Public Policy [WI] (3.0 cr)
or PA 5002 - Introduction to Policy Analysis (1.5 cr)
or WRIT 3315 - Writing on Issues of Land and the Environment [AH, DSJ] (3.0 cr)

• Agriculture/Environment and Natural Resources
  • AGRO 1103 - Crops, Environment, and Society [ENV] (4.0 cr)
or AGRO 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
or AGRO 5999 - Special Topics: Workshop in Agronomy (1.0 - 6.0 cr)
or AMIN 3312 - American Indian Environmental Issues and Ecological Perspectives [ENV] (3.0 cr)
or AMIN 3314 - Natural Resource Management and Environmental Policy in Indian Country [ENV] (3.0 cr)
or ANSC 1101 - Introductory Animal Science (4.0 cr)
or ANSC 3203W - Environment, Global Food Production, and the Citizen [GP, WI] (3.0 cr)
or APEC 3611W - Environmental and Natural Resource Economics [ENV, WI] (3.0 cr)
or APEC 3811 - Principles of Farm Management (3.0 cr)
or APS 4072 - What Does It Mean to Be Green? (3.0 cr)
or EEB 4609W - Ecosystem Ecology [ENV, WI] (3.0 cr)
or ENT 4021 - Honey Bees and Insect Societies (3.0 cr)
or ESPM 1011 - Issues in the Environment [ENV] (3.0 cr)
or ESPM 3108 - Ecology of Managed Systems [ENV] (3.0 cr)
or ESPM 3245 - Sustainable Land Use Planning and Policy [ENV] (3.0 cr)
or GEOG 3401 - Geography of Environmental Systems and Global Change [ENV] (4.0 cr)
or GWSS 3290 - Topics (3.0 cr)
or HORT 1014 - Edible Landscape [TS] (3.0 cr)
or HORT 2031 - Organic Food: How to Grow It, Where to Buy It, Can it Feed the World? (3.0 cr)
or HORT 3131 - Student Organic Farm Planning, Growing, and Marketing (3.0 cr)
or HORT 5131 - Student Organic Farm Planning, Growing, and Marketing (3.0 cr)
or ID 3591 - HECUA Off-Campus Study Program: Environmental Sustainability: Adaptive Ecosystem Management [ENV] (4.0 cr)
or PLPA 2001 - Introductory Plant Pathology (3.0 cr)
or SOIL 2125 - Basic Soil Science [PHYS, ENV] (4.0 cr)

- Citizens/Science and Society
  • AFEE 4221 - Rural Leadership Development (3.0 cr)
or BBE 3201 - Sustainability of Food Systems: A Life Cycle Perspective [GP] (3.0 cr)
or CHIC 3374 - Migrant Farmworkers in the United States: Families, Work, and Advocacy [CIV] (4.0 cr)
or ENGL 3071 - The American Food Revolution in Literature and Television [CIV] (3.0 cr)
or ESPM 3011W - Ethics in Natural Resources [WI] (3.0 cr)
or ESPM 3202W - Environmental Conflict Management, Leadership, and Planning [WI] (3.0 cr)
or FSCN 2001 - Healthy Foods, Healthy Lives: A Food System Approach to Cooking (3.0 cr)
or FSCN 3301 - Food Choices: Healing the Earth, Healing Ourselves (3.0 cr)
or GLOS 3305 - Life for Sale: Global Debates on Environment, Science, and Society (3.0 cr)
or ID 3592 - HECUA Off-Campus Study Program: Environmental Sustainability: Dimensions of Environmental Change [SOCS] (4.0 cr)
or SUST 3003 - Sustainable People, Sustainable Planet [ENV] (3.0 cr)
or WRIT 3371W - Technology, Self, and Society [WI] (3.0 cr)
Twin Cities Campus
Teaching English as a Second Language Minor
Curriculum & Instruction
College of Education and Human Development

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 14 to 15

Four courses are required to complete the undergraduate minor: Teaching English as a Second Language.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Required Courses for Minor
LING 3001 - Introduction to Linguistics [SOCS] (4.0 cr)
or LING 5001 - Introduction to Linguistics (4.0 cr)
or CI 3610 - Linguistics for Teachers [SOCS] (3.0 cr)
CI 3611W - Basics in Teaching English as a Second Language [WI] (4.0 cr)
CI 3612 - Introduction to Pronunciation and Grammar for ESL Teachers (4.0 cr)
CI 3613 - Practical Language Learning for International Communication (3.0 cr)
Twin Cities Campus
Translation Minor
CCE Applied Professional Studies
College of Continuing Education

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 15

The minor in translation allows students to develop and enhance skills for translating between English and a second language. Students earning the minor explore the rewarding and varied field of professional translation, acquire technical skills using translation memory tools, develop specific areas of expertise and interest, and improve their written command of English and another language through practical translation tasks, readings, and discussions on the history, theory, and practice of translation.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements
Students are required to take 4 semester(s) of any second language.

Language background information and writing samples must be submitted

Minor Requirements
Core Requirement
- TRIN 3001 - Introduction to Translation (3.0 cr)
- TRIN 3002 - Intermediate Translation (3.0 cr)
- TRIN 3005 - Principles of Translation (3.0 cr)
- TRIN 3101 - Introduction to Interpreting (3.0 cr)

Elective
Choose 3 credits from a department outside of TRIN. Course(s) should be selected in consultation with the translation minor adviser.
Twin Cities Campus
Urban and Community Forestry Minor
Forest Resources
College of Food, Agricultural and Natural Resource Sciences

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2014
- Required credits in this minor: 18

The urban and community forestry minor enables students in programs such as education, landscape architecture, horticultural sciences, natural resources, and related areas to understand the science and practice underlying the management of urban and community forests. The minor incorporates fundamental science, arboriculture, forest health, and resource management coursework. Students must complete 18 credits for this minor.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses
- ENT 4251 - Forest and Shade Tree Entomology (3.0 cr)
  or PLPA 3003 - Diseases of Forest and Shade Trees (3.0 cr)
- FNRM 3501 - Arboriculture: Selection and Maintenance of Trees (3.0 cr)
- FNRM 4501 - Urban Forest Management: Managing Greenspaces for People (3.0 cr)

Electives
Take 9 or more credit(s) from the following:
- ESPM 3211 - Survey, Measurement, and Modeling for Environmental Analysis (3.0 cr)
- FNRM 3104 - Forest Ecology (4.0 cr)
- FNRM 3218 - Measuring and Modeling Forests (3.0 cr)
- HORT 1015 - Woody and Herbaceous Plants (4.0 cr)
- FNRM 4232W - Managing Recreational Lands [WI] (4.0 cr)
- Cloquet Program
  - FNRM 2101 - Identifying Forest Plants (1.0 cr)
  with FNRM 2102 - Northern Forests: Field Ecology (2.0 cr)
  with FNRM 2104 - Measuring Forest Resources (1.0 cr)
Twin Cities Campus

Water Science Minor

Soil, Water, & Climate

College of Food, Agricultural and Natural Resource Sciences

• Program Type: Undergraduate free-standing minor
• Requirements for this program are current for Fall 2014
• Required credits in this minor: 20

The minor provides students the opportunity to broaden their expertise in the area of water science. Students interested in qualifying as a hydrologist should determine the exact requirements for the Minnesota civil service position by checking the Hydrologist I (Hydrogeology) and Hydrologist I (Water Resources) position descriptions.

Students must complete at least 20 credits for the minor.

Program Delivery

This program is available:
• via classroom (the majority of instruction is face-to-face)

Minor Requirements

Minor Courses

FNRM 3114 - Hydrology and Watershed Management (3.0 cr)
EEB 5601 - Limnology (3.0 cr)
  or ESCI 4702 - General Hydrogeology (3.0 cr)
ESPM 5555 - Wetland Soils (3.0 cr)
  or SOIL 5232 - Vadose Zone Hydrology (3.0 cr)

Electives

Courses used to fulfill requirements above cannot be chosen to fulfill electives.
Take 11 or more credit(s) from the following:
• CE 5541 - Environmental Water Chemistry (3.0 cr)
• EEB 5605 - Limnology Laboratory (2.0 cr)
• ESPM 4061W - Water Quality and Natural Resources [ENV, WI] (3.0 cr)
• ESPM 4216 - Contaminant Hydrology (3.0 cr)
• GEOE 4351 - Groundwater Mechanics (3.0 cr)
• FNRM 5153 - Forest Hydrology & Watershed Biogeochemistry (3.0 cr)
  or ESCI 4702 - General Hydrogeology (3.0 cr)
• ESPM 5555 - Wetland Soils (3.0 cr)
  or SOIL 5232 - Vadose Zone Hydrology (3.0 cr)