UNIVERSITY OF MINNESOTA
Driven to Discover℠

University of Minnesota Crookston

2017-19 UNDERGRADUATE CATALOG

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, advisors, and visit the **Online Catalog** at www.catalogs.umn.edu.

Table of Contents	
Accounting B.S.	1
Accounting Minor	3
Agricultural Business B.S.	5
Agricultural Business Minor	7
Agricultural Education B.S.	8
Agricultural Systems Management B.S.	11
Agricultural Systems Management Minor	14
Agronomy B.S.	15
Agronomy Minor	17
Animal Science B.S.	18
Animal Science Minor	21
Applied Health B.A.H.	22
Applied Studies B.S.	24
Aviation B.S.	26
Biology B.S.	29
Biology Minor	31
Chemistry Minor	32
Coaching Minor	33
Communication B.S.	34
Communication Minor	38
Criminal Justice B.S.	40
Criminal Justice Minor	43
Early Childhood Education B.S.	44
Elementary Education B.S.	47
English B.S.	49
English Minor	51
Entrepreneurship B.S.	53
Entrepreneurship Minor	55
Environmental Sciences B.S.	56
Environmental Sciences Minor	61
Equine Science B.S.	62
Equine Science Minor	65
Exercise Science and Wellness B.S.	66
Finance B.S.	68
Finance Certificate	70
Finance Minor	72
Golf and Turf Management B.S.	74
Health Informatics for Software Engineers and IT Professionals Certificate	77
Health Informatics Privacy and Security for Health Care Providers Certificate	79
Health Management B.S.	80
Health Sciences Pre-Professional B.S.	82
Horticulture B.S.	84
Horticulture Minor	88

Crookston Campus

Accounting B.S.
Business
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 63
- Degree: Bachelor of Science

Accounting is an information system that represents the economic resources and responsibilities of business or non-business enterprises. Monitored over time, it is used as a decision-making tool for allocating resources and evaluating responsibilities.

Accounting information affects major economic decisions that have national and international impact. The accounting program teaches analytical, theoretical, communication, and leadership skills necessary for effective accounting and advancement in public, private, and government careers.

The program prepares students to become accountants in business and government by providing accounting, business, and liberal education courses.

Program outcomes:
 Use computer technology for accounting spreadsheet applications and general ledger accounting functions and demonstrate overall literacy in technology
 Develop and demonstrate skills in financial and cost accounting systems that are common to most businesses
 Develop and demonstrate skills in US tax fundamentals for individuals and businesses
 Demonstrate skills and knowledge in auditing
 Demonstrate competencies in ethical decision making
 Demonstrate knowledge of liberal education that provides a foundation for the applied curriculum
 Demonstrate a commitment to continuing professional development
 Demonstrate skills in communication, working with others, and critical thinking

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

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. For more information, see the graduation requirements.

Program Requirements
A minimum of 40 upper division credits are required to graduate.

Program Requirements
 A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.
 Required Courses - 63 credits
 ACCT 2101 - Principles of Accounting I (3.0 cr)
 ACCT 2102 - Principles of Accounting II (3.0 cr)
 ACCT 3201 - Intermediate Accounting I (4.0 cr)
 ACCT 3202 - Intermediate Accounting II (4.0 cr)
 ACCT 3220 - Accounting Systems (3.0 cr)
 ACCT 3301 - Cost Accounting I (3.0 cr)
 ACCT 3302 - Cost Accounting II (3.0 cr)

ACCT 4110 - Advanced Accounting I (3.0 cr)
ACCT 4111 - Advanced Accounting II (3.0 cr)
ACCT 4221 - Auditing I (3.0 cr)
ACCT 4310 - Auditing II (3.0 cr)
ACCT 4404 - Income Tax I (3.0 cr)
ACCT 4405 - Income Tax II (3.0 cr)
FIN 3100 - Managerial Finance (3.0 cr)
GBUS 1005 - Orientation to Online Learning (1.0 cr)
GBUS 3107 - Legal Environment in Business (3.0 cr)
GBUS 3117 - Business Law (3.0 cr)
GBUS 3500 - Business Ethics (3.0 cr)
MGMT 3200 - Principles of Management (3.0 cr)
MKTG 3300 - Principles of Marketing (3.0 cr)
COMM 3008 - Business Writing (3.0 cr)
   or WRIT 3303 - Writing in Your Profession (3.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer
Curriculum with the following specific liberal education courses required:
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
ECON 2102 - Macroeconomics [HI/BEH/SSC] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
PSY 1001 - General Psychology [HI/BEH/SSC] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirements (3 cr)
CA 1020 - Spreadsheet Applications (3.0 cr)

Open and/or Recommended Electives
Students need to take enough open and/or recommended elective credits to satisfy the 120 credit requirement for graduation. The
following are recommended electives: ACCT 3900, ACCT 4420, ACCT 4500, ACCT 4511, ACCT 4512, ACCT 4513, ACCT 4514.

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

Online
Course Group 0

Crookston Campus

Accounting Minor
Business
Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 26 to 27

A minor in accounting complements several other majors. The accounting minor introduces students to the theory and practice of accounting, including the basics of generally accepted accounting principles. The accounting minor has flexibility to allow a student to concentrate in taxation, cost accounting, auditing, or financial accounting. The accounting minor also may be used to help qualify the student to take the CPA exam.

Program outcomes: students who earn an accounting minor will
* understand generally accepted accounting principles
* perform accounting functions based on generally accepted accounting principles
* perform accounting functions using various accounting and tax software

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

Minor Requirements
Accounting Requirements
 Required courses - 20 credits
 ACCT 2101 - Principles of Accounting I (3.0 cr)
 ACCT 2102 - Principles of Accounting II (3.0 cr)
 ACCT 3201 - Intermediate Accounting I (4.0 cr)
 ACCT 3202 - Intermediate Accounting II (4.0 cr)
 ACCT 3220 - Accounting Systems (3.0 cr)
 ACCT 3301 - Cost Accounting I (3.0 cr)
   or ACCT 4221 - Auditing I (3.0 cr)
   or ACCT 4404 - Income Tax I (3.0 cr)

Accounting Electives
 Students must complete 6 credits from the following listed courses. The courses selected must not include the 3-credit course the student selected from the "or" choice of courses under Accounting Requirements.
 Take 6 or more credit(s) from the following:
- ACCT 3301 - Cost Accounting I (3.0 cr)
- ACCT 3302 - Cost Accounting II (3.0 cr)
- ACCT 3900 - Internship (1.0 - 3.0 cr)
- ACCT 4110 - Advanced Accounting I (3.0 cr)
- ACCT 4111 - Advanced Accounting II (3.0 cr)
- ACCT 4221 - Auditing I (3.0 cr)
- ACCT 4310 - Auditing II (3.0 cr)
- ACCT 4404 - Income Tax I (3.0 cr)
- ACCT 4405 - Income Tax II (3.0 cr)
- ACCT 4420 - Income Tax Preparation (3.0 cr)
- ACCT 4500 - Forensic Accounting (3.0 cr)
- ACCT 4511 - CPA Review Course--Regulation (3.0 cr)
- ACCT 4512 - CPA Review Course--Financial Reporting and Accounting (3.0 cr)
- ACCT 4513 - CPA Review Course--Auditing and Attestation (3.0 cr)
- ACCT 4514 - CPA Review Course--Business Environment and Concepts (3.0 cr)
- GBUS 3117 - Business Law (3.0 cr)

Program Sub-plans

A sub-plan is not required for this program.

Accounting Minor (Online)
A minor in accounting online complements several other majors. The accounting minor online introduces students to the theory and practice of accounting, including the basics of generally accepted accounting principles. The accounting minor online, which has the same curriculum as the classroom delivered accounting minor, has flexibility to allow student to concentrate in taxation, cost accounting, auditing, or financial accounting. The accounting minor online also may be used to help qualify the student to take the CPA exam.

Program outcomes: students who earn an accounting minor online will
* understand generally accepted accounting principles
* perform accounting functions based on generally accepted accounting principles
* perform accounting functions using various accounting and tax software

Technology Requirement
  Required course - 1 credit
  GBUS 1005 - Orientation to Online Learning (1.0 cr)

Crookston Campus

Agricultural Business B.S.

Agriculture and Natural Resources

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 49 to 50
- This program requires summer terms.
- Degree: Bachelor of Science

The program blends a strong base of agriculture, business, and general education courses while maximizing flexibility that allows students to choose electives to fit their career interests and expectations. A wide array of challenging, satisfying, and rewarding careers await graduates as demand for trained personnel in agribusiness continues to outstrip the supply of qualified graduates. Clusters of employment opportunities include agricultural sales and marketing, agribusiness management, agribusiness finance, agribusiness information management, food marketing management, global agribusiness, and rural economic development.

Program outcomes; graduates demonstrate ability to:

Create and present a strategic agribusiness plan that incorporates market analysis, risk analysis, and financial analysis
Select and apply investment analysis techniques and interpret results
Construct, interpret, and analyze a set of coordinated financial statements, consisting of balance sheets, income statement, and statement of cash flow
Demonstrate competency in the use of spreadsheets, computerized recording keeping, and financial analysis software
Demonstrate knowledge and understanding of the interconnections between production, sales, and the consumption of food and fiber
Evaluate the impact of cash forward contracts, commodity futures and option contracts on the buying/selling prices of commodities

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. For more information, see the graduation requirements.

Program Requirements

Students must complete 40 upper division credits.

Program Requirements

Required courses - 46 credits.
A minimum grade of C- is required in the following core classes, except for the communication choice.
ACCT 2101 - Principles of Accounting I (3.0 cr)
AGEC 1004 - Introduction to Agribusiness (3.0 cr)
AGEC 2310 - Agribusiness Financial Records (3.0 cr)
AGEC 2530 - Professional Agriselling (3.0 cr)
AGEC 3050 - Economics for AgriBusiness Management (3.0 cr)
AGEC 3430 - Food Marketing Systems (3.0 cr)
AGEC 3540 - Farm Business Management (3.0 cr)
AGEC 3640 - Agricultural Finance and Valuation (3.0 cr)
AGEC 4740 - Grain and Livestock Marketing (3.0 cr)

AGEC 4760 - Business Plan Development for Agribusiness (3.0 cr)
GBUS 3107 - Legal Environment in Business (3.0 cr)
GNAG 3899 - Pre-Internship Seminar (0.5 cr)
GNAG 3900 - Internship (0.5 - 3.0 cr)
GNAG 3901 - Post Internship Seminar (0.5 cr)
GNAG 4652 - Senior Seminar (1.0 cr)
MGMT 3200 - Principles of Management (3.0 cr)
MKTG 3300 - Principles of Marketing (3.0 cr)
Communication Choice Requirement
  COMM 3008 - Business Writing (3.0 cr)
  or COMM 3704 - Business and Professional Speaking (3.0 cr)

Program Requirement Elective
 A minimum grade of C- is required in the following core classes.
 AGRO 1183 - Field Crops: Production Principles (3.0 cr)
 or ANSC 1004 - Introduction to Animal Science (4.0 cr)
 or ASM 1021 - Introduction to Agricultural Systems Management (3.0 cr)
 or HORT 1010 - Introduction to Horticulture (3.0 cr)
 or TURF 1072 - Principles of Turf Management (3.0 cr)

Liberal Education Requirements
 A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer
 Curriculum with the following specific liberal education courses required:
 BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
 CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
 COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
 COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
 ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
 MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
 MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
 SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirement
 Take any 3 credits from the following courses. (If applicable, the course taken from below may be used to satisfy both the program and
 technology requirements.)
 AGEC 2310 - Agribusiness Financial Records (3.0 cr)
 or AGEC 3310 - Advanced Agribusiness Financial Records (3.0 cr)
 or CA 1xxx
 or CA 2xxx

Agriculture/Business/Communication/Technology Electives
 Students must complete 18 credits selected from the following prefixes and in consultation with an adviser: ACCT, AGEC, AGRO,
 ANSC, ASM, CA, COMM, ENTR, EQSC, FIN, GBUS, GNAG, HORT, ITM, MGMT, MKTG, SE, SOIL, SWM, TURF, WRIT.

Open Electives
 Students must take enough open electives credits to meet the 120 credit requirement for graduation.

Crookston Campus
Agricultural Business Minor
Agriculture and Natural Resources
Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 21

The agricultural business minor gives students a broad understanding of marketing techniques, livestock and grain commodities, financing, and economics of agriculture. This minor complements many of the agriculture-based majors as well as business such that students learn valuable information regardless of whether they work in lending, consulting, sales, or run their own business.

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

Minor Requirements
Agricultural Business Minor Requirements
 Required courses - 21 credits.
 A minimum grade of C- in any course in the Agricultural Business Minor will be required.
 AGEC 2530 - Professional Agriselling (3.0 cr)
 AGEC 3540 - Farm Business Management (3.0 cr)
 AGEC 3640 - Agricultural Finance and Valuation (3.0 cr)
 AGEC 4740 - Grain and Livestock Marketing (3.0 cr)
 MKTG 3300 - Principles of Marketing (3.0 cr)
 Choose one of the following:
  ACCT 2102 - Principles of Accounting II (3.0 cr)
  or AGEC 2310 - Agribusiness Financial Records (3.0 cr)
Communication or Management Selection
 Choose one of the following:
 COMM 3008 - Business Writing (3.0 cr)
  or COMM 3704 - Business and Professional Speaking (3.0 cr)
  or MGMT 3210 - Supervision and Leadership (3.0 cr)

Crookston Campus

Agricultural Education B.S.
Agriculture and Natural Resources
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 124
- Required credits within the major: 83 to 84
- Degree: Bachelor of Science

A bachelor of science degree in agricultural education at UMC is a career-oriented degree that has three emphases available to students. Agricultural science, agricultural systems engineering technology, and natural and managed environmental science allow students the flexibility to select the emphasis that matches their career goals. All emphases serve students preparing to teach agriscience, agribusiness, agriculture, horticulture, food systems, agrimechanics, natural resource management, engineering technology used in agriculture, and management of the associated student organization (FFA) including SAE (Supervised Agricultural Experience). Each fits within the licensure field of agricultural education in public schools at the 5-12 grade levels. A second license will allow graduates to teach work-based learning skills and supervise work-based learning students placed on the job as a part of their education. Graduates with the agricultural science emphasis are also qualified for a broad array of agriculturally-related positions in sales, management, agricultural finance, and production aspects of agriculture. Graduates with a natural and managed environmental science emphasis can enter environmental learning center education, natural resource management, and soils conservation related fields. Graduates with an agricultural systems engineering technology emphasis can provide customer service to precision agriculture systems, machinery sales and service, welding services, and facilities design and selection.

Program Outcomes for Agricultural Education

Graduates will be able to:
 Apply learners' growth and development principles across all domains to design and implement developmentally appropriate learning experiences;
 Insure inclusive learning through understanding of individual differences and diverse cultures;
 Work with others to create environments that support collaborative and engaged learning including self-motivation;
 Demonstrate content knowledge, concepts, and tools of inquiry in the career clusters associated with agriculture, natural resources, and forestry;
 Connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and problem solving in authentic contexts;
 Use a variety of assessment tools and practices to monitor learner progress and to plan and evaluate effective instruction;
 Plan instruction that supports all learners in meeting rigorous learning goals within integrated curriculum;
 Use a variety of instructional strategies that encourage learners to develop deep understanding of content and make relevant connections;
 Engage in ethical practices and professional development as a career long effort and responsibility;
 Provide leadership and collaborate with families, school professionals, and community members in support of student learning.

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

(1) Earn a minimum GPA of 2.50 overall. (2) Take the Minnesota Teacher Licensure Examination (MTLE) Basic Skills tests. (3) Purchase personal liability insurance: can be obtained inexpensively through an annual student membership in Education Minnesota or Minnesota Association of Agricultural Educators. (4) Successful completion of ED 2200, Foundations of Education. (5) Complete and submit Teacher Education Application package. (6) Submit a reflective writing sample.

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. For more information, see the graduation

requirements.

Program Requirements
Students must complete 40 upper division credits.

Agricultural Education Core
A maximum of two D grades are allowed for core courses required in the program, subplan/emphasis, and technology requirements. This includes grades earned at UMC or transferred in from another institution.
Required Courses - 24 credits
AGED 1001 - Careers in Agricultural Education, Extension Education and Farm Business Management (1.0 cr)
AGED 2001 - Early Experience in Agricultural Education (1.0 cr)
AGED 3003 - SAE (Supervised Agricultural Experience) and FFA (3.0 cr)
AGED 3004 - Methods of Teaching Agricultural Education (4.0 cr)
AGED 4001 - Methods of Teaching Farm Business Management (1.0 cr)
AGED 4003 - Agricultural Education Program Organization (3.0 cr)
AGED 4600 - Student Teaching: Work-Based Learning (1.0 cr)
AGED 4700 - Student Teaching: Farm Business Management (1.0 cr)
AGED 4800 - Student Teaching: Middle School (1.0 cr)
AGED 4900 - Student Teaching: High School (8.0 cr)

Agriculture and Natural Resources Core
Required Courses - 24 credits
AGEC 1005 - World Agricultural Food Systems (3.0 cr)
AGEC 2310 - Agribusiness Financial Records (3.0 cr)
ANSC 1004 - Introduction to Animal Science (4.0 cr)
ASM 1034 - Facility Maintenance and Safety (4.0 cr)
NATR 3374 - Ecology [BIOL SCI] (4.0 cr)
SOIL 1293 - Soil Science (3.0 cr)
GNAG 3203 - Ag Products and Processing (3.0 cr)
 or GNAG 3204 - International Agricultural Production, Processing, and Marketing (3.0 cr)

Education Core
Required Courses - 22 credits
ED 2200 - Foundations of Education (3.0 cr)
ED 2400 - Introduction to Middle and High School Education and Experiential Learning (3.0 cr)
ED 3000 - Cultural Immersion (1.0 cr)
ED 3009 - Human Relations in Diversity (1.0 cr)
ED 3110 - Educational Psychology (3.0 cr)
ED 3210 - Reading in the Content Area (2.0 cr)
ED 3500 - Introduction to Children with Special Needs (2.0 cr)
ED 3600 - Classroom Management in Middle School and High School Settings (3.0 cr)
ED 4400 - Teaching Grades 5-12 Students in Inclusive Environments (2.0 cr)
ED 4800 - Senior Professional Seminar (1.0 cr)
PUBH 3005 - Fundamentals of Alcohol and Drug Abuse for Teacher Education (UMTC) (1.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:
BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ED 2100 - Child and Adolescent Development and Learning [HI/BEH/SSC] (3.0 cr)
ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirements
Take any 3 credits from the following courses. (If applicable, the course(s) taken from below may be used to satisfy both the program and technology requirements.)
ASM 3360 - Applications in Precision Agriculture (3.0 cr)
 or CA 1xxx
 or CA 2xxx
 or ED 2000 - Educational Technology for P-12th Settings (2.0 cr)
 or ED 4000 - Educational Technology Applications (1.0 cr)

or NATR 2630 - Introduction to Geographic Information Systems (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans.

Agricultural Science Emphasis
Graduates with the agricultural science emphasis are qualified for a broad array of agriculturally related positions in sales, management, agricultural finance, and production aspects of agriculture.

Agricultural Science Emphasis Requirements
Required Courses - 10 credits
AGRO 1183 - Field Crops: Production Principles (3.0 cr)
CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
HORT 1010 - Introduction to Horticulture (3.0 cr)
Animal Production Requirements
Take 1 or more course(s) totaling 4 or more credit(s) from the following:
•ANSC 1205 - Beef and Dairy Production Techniques (2.0 cr)
•ANSC 1206 - Sheep and Swine Production Techniques (2.0 cr)
•ANSC 3204 - Dairy Production (4.0 cr)
•ANSC 3303 - Beef Production (3.0 cr)
•EQSC 2102 - Horse Production (4.0 cr)
Agriculture and Natural Resources Electives
Students must take enough agriculture and natural resources elective credits to satisfy the 124 credit graduation requirement.

Agricultural Systems Engineering Technology Emphasis
Graduates with an agricultural systems engineering technology emphasis can provide customer service to precision agriculture systems, machinery sales and service, welding services, and facilities design and selection.

Agricultural Systems Engineering Technology Emphasis Requirements
Required Courses - 13 credits
ASM 2053 - Electricity, Controls, and Sensors in Agriculture (3.0 cr)
ASM 2200 - Introduction to Renewable Energy Systems (3.0 cr)
ASM 3360 - Applications in Precision Agriculture (3.0 cr)
PHYS 1012 - Introductory Physics [PHYS SCI, PEOPLE/ENV] (4.0 cr)
Agricultural Systems Management Electives
Students must take a minimum of 2 credits of any ASM courses. It is recommended that students take either ASM 2043 or ASM 3002.
Take 1 or more course(s) totaling 2 or more credit(s) from the following:
•ASM 1xxx
•ASM 2xxx
•ASM 3xxx
•ASM 2043 - Welding and Manufacturing Processes (3.0 cr)
•ASM 3002 - Agricultural Mobile Power Systems (3.0 cr)
Agriculture and Natural Resources Electives
Students must take enough agriculture and natural resources elective credits to satisfy the 124 credit graduation requirement.

Natural and Managed Environmental Education Emphasis
Graduates with a natural and managed environmental education emphasis can enter environmental learning center education, natural resource management, and soils conservation related fields.

Natural and Managed Environmental Education Emphasis Requirements
Required Courses - 14 credits
CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
HORT 1010 - Introduction to Horticulture (3.0 cr)
NATR 1233 - Introduction to Natural Resources (3.0 cr)
NATR 1244 - Elements of Forestry (4.0 cr)
Agriculture, Natural Resources, and Environmental Sciences Electives
Students must take enough agriculture, natural resources, and/or environmental sciences elective credits to satisfy the 124 credit graduation requirement.

Crookston Campus

Agricultural Systems Management B.S.
Agriculture and Natural Resources
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 56 to 63
- This program requires summer terms.
- Degree: Bachelor of Science

This program combines students' interests in machinery, technology, and crop and livestock production with superior people skills, creative thinking, and problem solving to build a career in the agricultural and food production industry.

Agricultural systems management graduates are well versed in agricultural foundations and have working knowledge of economic systems with a well-developed sense of professionalism. Companies are looking for multi-talented people who are confident around computers, machines, and business plans. The agricultural systems management program offers three areas of emphasis to provide a unique portfolio of technical and business skills that gives graduates an edge in the job market.

Program outcomes: graduates will:
 be well versed in agricultural foundations,
 be technically proficient and knowledgeable in agricultural technologies,
 have working knowledge of economic systems and financial management,
 possess speaking, listening, and writing communication skills,
 and have a well-developed sense of professionalism.

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. For more information, see the graduation requirements.

Program Requirements
Students must complete 40 upper division credits.

Agricultural Systems Management Program Requirements
 A maximum of two D grades are allowed for core courses required in the program, subplan/emphasis, and technology requirements. This includes grades earned at UMC or transferred in from another institution.
 Required courses - 32 credits
 AGRO 1183 - Field Crops: Production Principles (3.0 cr)
 ASM 1021 - Introduction to Agricultural Systems Management (3.0 cr)
 ASM 1034 - Facility Maintenance and Safety (4.0 cr)
 ASM 2053 - Electricity, Controls, and Sensors in Agriculture (3.0 cr)
 ASM 3002 - Agricultural Mobile Power Systems (3.0 cr)
 GNAG 3899 - Pre-Internship Seminar (0.5 cr)
 GNAG 3900 - Internship (0.5 - 3.0 cr)
 GNAG 3901 - Post Internship Seminar (0.5 cr)
 GNAG 4652 - Senior Seminar (1.0 cr)
 SOIL 1293 - Soil Science (3.0 cr)
 Choose one of the following:
  ACCT 2101 - Principles of Accounting I (3.0 cr)
  or ENTR 2200 - Introduction to Entrepreneurship and Small Business (3.0 cr)

Choose one of the following:
  ANSC 3004 - Livestock Facilities and Environmental Systems (3.0 cr)
  or ASM 3005 - Facilities Planning and Selection (3.0 cr)
Choose one of the following:
  COMM 2334 - Communication Topics (3.0 cr)
  or COMM 3431 - Persuasion (3.0 cr)
  or COMM 3704 - Business and Professional Speaking (3.0 cr)
  or WRIT 3303 - Writing in Your Profession (3.0 cr)

Liberal Education Requirements
  A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer
  Curriculum with the following specific liberal education courses required:
  BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
  CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
  COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
  COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
  ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
  MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
  MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
  PHYS 1012 - Introductory Physics [PHYS SCI, PEOPLE/ENV] (4.0 cr)
  SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirement
  Required courses - 3 credits of any CA courses
  CA 1xxx
  or CA 2xxx

Program Sub-plans
Students are required to complete one of the following sub-plans.

Bio-Fuels and Renewable Energy Technology
This emphasis focuses on the development, economics, and processes in bio-fuels and renewable energy technology. Energy
conservation and efficiencies are vital parts to sustainable energy systems. World demand for energy is driving the need for sustainable
energy systems.

Bio-Fuels/Renewable Energy Systems Requirements
  Required courses - 30 credits
  AGEC 2530 - Professional Agriselling (3.0 cr)
  AGEC 3640 - Agricultural Finance and Valuation (3.0 cr)
  ASM 2200 - Introduction to Renewable Energy Systems (3.0 cr)
  ASM 3201 - Bio-Fuels Technology (3.0 cr)
  ASM 3202 - Solar, Wind, and Geo-Thermal Systems (3.0 cr)
  CA 1060 - Database Applications (3.0 cr)
  MGMT 3200 - Principles of Management (3.0 cr)
  MKTG 3300 - Principles of Marketing (3.0 cr)
  NATR 1226 - Environmental Science and Sustainability [BIOL SCI, PEOPLE/ENV] (3.0 cr)
  NATR 3344 - Land Use Planning (3.0 cr)
Agriculture/Management Electives
  Students should take 6 credits of agriculture/management electives.
Open Electives
  Students must take enough open electives credits to satisfy the 120 credit graduation requirement.

Farm and Ranch Management
This emphasis focuses on a blend of business and production management. The program's goal is to provide a solid foundation to
allow the graduate to be competitive and succeed in the changing world of modern agriculture.

Farm and Ranch Operation Requirements
  Required courses - 25 to 26 credits
  AGEC 2310 - Agribusiness Financial Records (3.0 cr)
  AGEC 3540 - Farm Business Management (3.0 cr)
  AGEC 3640 - Agricultural Finance and Valuation (3.0 cr)
  AGEC 4740 - Grain and Livestock Marketing (3.0 cr)
  ANSC 1004 - Introduction to Animal Science (4.0 cr)

ASM 2250 - Agricultural Machinery Management (3.0 cr)
Choose one of the following:
  ASM 2043 - Welding and Manufacturing Processes (3.0 cr)
  or ASM 2200 - Introduction to Renewable Energy Systems (3.0 cr)
Choose one of the following:
  ANSC 2104 - Feeds and Feeding (4.0 cr)
  or ASM 3360 - Applications in Precision Agriculture (3.0 cr)
Agriculture/Management Electives
 Students should take 9 to 10 credits of agriculture/management electives.
Open Electives
 Students must take enough open electives credits to satisfy the 120 credit graduation requirement.

Power and Machinery

New technology and labor-saving innovations in machinery, engines, and equipment drive a multi-billion dollar global business. Excellent careers exist in servicing, testing, and sales and marketing of new products for agricultural, industrial, and consumer applications.

Power and Machinery Requirements
 Required courses - 24 credits
 AGEC 2530 - Professional Agriselling (3.0 cr)
 AGEC 3050 - Economics for AgriBusiness Management (3.0 cr)
 AGEC 3640 - Agricultural Finance and Valuation (3.0 cr)
 ASM 2250 - Agricultural Machinery Management (3.0 cr)
 ASM 3360 - Applications in Precision Agriculture (3.0 cr)
 CA 1060 - Database Applications (3.0 cr)
 MGMT 3210 - Supervision and Leadership (3.0 cr)
 Chose one of the following:
  ASM 2043 - Welding and Manufacturing Processes (3.0 cr)
  or ASM 2200 - Introduction to Renewable Energy Systems (3.0 cr)
Agriculture/Management Electives
 Students should take 11 credits of agriculture/management electives.
Open Electives
 Students must take enough open electives credits to satisfy the 120 credit graduation requirement.

Precision Agriculture

Work in the field or in an office to help others improve agriculture production practices (chemical application, planting, pest management) by using satellites, geographical information systems (GIS), and precision data analysis. Field data collection, analysis, and application are keys to improving agricultural production management practices and implementing efficiencies.

Precision Agriculture Requirements
 Required courses - 31 credits
 AGEC 2310 - Agribusiness Financial Records (3.0 cr)
 AGEC 2530 - Professional Agriselling (3.0 cr)
 AGRO 2640 - Applied Agriculture Chemicals (3.0 cr)
 ASM 2250 - Agricultural Machinery Management (3.0 cr)
 ASM 3009 - Surveying (4.0 cr)
 ASM 3360 - Applications in Precision Agriculture (3.0 cr)
 ASM 3511 - Yield Monitoring and Data Interpretation (1.0 cr)
 ASM 3512 - Remote Sensing Applications in Precision Agriculture (1.0 cr)
 CA 1060 - Database Applications (3.0 cr)
 NATR 2630 - Introduction to Geographic Information Systems (3.0 cr)
 SOIL 3414 - Soil Fertility and Plant Nutrition (4.0 cr)
Agriculture/Management Electives
 Students should take 4 credits of agriculture/management electives.
Open Electives
 Students must take enough open electives credits to satisfy the 120 credit graduation requirement.

Crookston Campus

Agricultural Systems Management Minor

Agriculture and Natural Resources

Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 18

A minor in agricultural systems management provides an opportunity for students to learn the principles of agricultural technologies and how they relate to crop and livestock production and modern agricultural machinery. The opportunity exists for students to gain valuable knowledge in the area of renewable energy and bio-fuels technology and how that relates to agricultural enterprises.

Program Delivery

This program is available:

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

Minor Requirements

Minor Requirements

Take 6 or more course(s) totaling 18 or more credit(s) from the following:

- ASM 1021 - Introduction to Agricultural Systems Management (3.0 cr)
- ASM 1034 - Facility Maintenance and Safety (4.0 cr)
- ASM 2043 - Welding and Manufacturing Processes (3.0 cr)
- ASM 2053 - Electricity, Controls, and Sensors in Agriculture (3.0 cr)
- ASM 2200 - Introduction to Renewable Energy Systems (3.0 cr)
- ASM 2250 - Agricultural Machinery Management (3.0 cr)
- ASM 3002 - Agricultural Mobile Power Systems (3.0 cr)
- ASM 3005 - Facilities Planning and Selection (3.0 cr)
- ASM 3009 - Surveying (4.0 cr)
- ASM 3201 - Bio-Fuels Technology (3.0 cr)
- ASM 3202 - Solar, Wind, and Geo-Thermal Systems (3.0 cr)
- ASM 3360 - Applications in Precision Agriculture (3.0 cr)
- ASM 3511 - Yield Monitoring and Data Interpretation (1.0 cr)
- ASM 3512 - Remote Sensing Applications in Precision Agriculture (1.0 cr)
- ASM 3513 - Precision Farming Data (1.0 cr)

Agronomy B.S.
Agriculture and Natural Resources
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 64
- This program requires summer terms.
- none
- Degree: Bachelor of Science

The BS in agronomy is a career-oriented program that combines science-based agriculture training and education with a strong liberal arts background to produce graduates skilled in the highly technical fields of agronomic science and crop production. The flexibility of the two tracks, agronomy and crop production enables students to build a thorough understanding of crop science with a concentration in areas such as crop production, agricultural chemicals, fertilizers, integrated pest management, seed conditioning and technology, and other areas related to production and quality in the food and fiber industry.

Program outcomes: graduates will
Demonstrate appropriate skills necessary for employment in agronomic sciences or crop production
Demonstrate skills in general education and management that provide a foundation for the applied curriculum
Develop and demonstrate an attitude of continued inquiry and lifelong learning

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. For more information, see the graduation requirements.

Program Requirements
Students must complete 40 upper division credits.

Agronomy Program Requirements
A maximum of two D grades are allowed for core courses required in the program, subplan/emphasis, and technology requirements. This includes grades earned at UMC or transferred in from another institution.
Required courses - 51 credits
AGRO 1030 - Crop and Weed Identification (3.0 cr)
AGRO 1183 - Field Crops: Production Principles (3.0 cr)
AGRO 1540 - Seed Conditioning and Technology (4.0 cr)
AGRO 2573 - Entomology (3.0 cr)
AGRO 2640 - Applied Agriculture Chemicals (3.0 cr)
AGRO 2840 - Grain and Seed Evaluation (4.0 cr)
AGRO 3023 - Plant Breeding and Genetics (4.0 cr)
AGRO 3130 - Forages (3.0 cr)
AGRO 3230 - Introduction to Plant Pathology (3.0 cr)
AGRO 3444 - Crop Production (4.0 cr)
AGRO 3630 - Integrated Crop Management (Capstone) (3.0 cr)
BIOL 2022 - General Botany (3.0 cr)
GNAG 3899 - Pre-Internship Seminar (0.5 cr)
GNAG 3900 - Internship (0.5 - 3.0 cr)
GNAG 3901 - Post Internship Seminar (0.5 cr)
GNAG 4652 - Senior Seminar (1.0 cr)

SOIL 1293 - Soil Science (3.0 cr)
SOIL 3414 - Soil Fertility and Plant Nutrition (4.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:
BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
  or MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)

Technology Requirement
Take any 3 credits from the following courses. (If applicable, the course taken from below may be used to satisfy both the program and technology requirements.)
AGEC 3310 - Advanced Agribusiness Financial Records (3.0 cr)
  or CA 1xxx
  or CA 2xxx
  or NATR 2630 - Introduction to Geographic Information Systems (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans.

Agronomic Science
The agronomic science track allows students to build a thorough understanding of crop science with a concentration in areas such as agricultural chemicals, fertilizers, integrated pest management, and seed conditioning and technology.

Agronomic Science Requirements
  Required courses - 13 credits
  AGRO 3030 - Research Techniques in Agriculture and Natural Resources (3.0 cr)
  AGRO 3640 - Weed Science (3.0 cr)
  BIOL 3131 - Plant Physiology (3.0 cr)
  CHEM 1401 - Elementary Bioorganic Chemistry [PHYS SCI, PEOPLE/ENV] (4.0 cr)
Agriculture/Natural Resources Electives
  Students should take 7 credits of agriculture/natural resources electives selected from the following departments: AGBU, AGEC, AGRO, ASM, ANSC, GNAG, HORT, NATR, TURF.
Open Electives
  Students must take enough open elective credits to satisfy the 120 credit graduation requirement. Approximately 9 credits are needed.

Crop Production
The crop production track, along with building strong agronomic skills, has an agricultural business component that allows students to develop their marketing and farm business management skills.

Crop Production Requirements
  Required courses - 13 credits
  AGEC 2310 - Agribusiness Financial Records (3.0 cr)
  AGEC 3540 - Farm Business Management (3.0 cr)
  AGEC 4740 - Grain and Livestock Marketing (3.0 cr)
  SWM 3224 - Soil and Water Conservation (4.0 cr)
Agriculture/Natural Resources Electives
  Students should take 7 credits of agriculture/natural resources electives selected from the following departments: AGBU, AGEC, AGRO, ANSC, ASM, GNAG, HORT, NATR, TURF.
Open Electives
  Students must take enough open elective credits to satisfy the 120 credit graduation requirement. Approximately 9 credits are needed.

Crookston Campus

Agronomy Minor

Agriculture and Natural Resources

Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 24 to 25

The agronomy minor prepares graduates to work in crop production operations and provides entry level education for jobs in the agriculture service sector. Potential employers include seed, feed, fertilizer, and chemical companies, grain inspection facilities, and grain elevators.

Program Delivery

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

Minor Requirements

Agronomy Minor Requirements

Required courses - 24 to 25 credits

AGRO 1030 - Crop and Weed Identification (3.0 cr)
AGRO 2640 - Applied Agriculture Chemicals (3.0 cr)
AGRO 3023 - Plant Breeding and Genetics (4.0 cr)
SOIL 3414 - Soil Fertility and Plant Nutrition (4.0 cr)
Choose one of the following:
  AGRO 1540 - Seed Conditioning and Technology (4.0 cr)
  or AGRO 2840 - Grain and Seed Evaluation (4.0 cr)
Choose one of the following:
  AGRO 2573 - Entomology (3.0 cr)
  or AGRO 3230 - Introduction to Plant Pathology (3.0 cr)
Choose one of the following:
  AGRO 3130 - Forages (3.0 cr)
  or AGRO 3444 - Crop Production (4.0 cr)

Crookston Campus

Animal Science B.S.
Agriculture and Natural Resources
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120 to 124
- Required credits within the major: 72 to 82
- This program requires summer terms.
- Degree: Bachelor of Science

The bachelor of science in animal science leads to careers in livestock production and management or one of the many allied industries, such as feed production, artificial insemination, and livestock or farm equipment support and sales. In addition, students can meet the requirements to attend graduate school or veterinary college.

Coursework includes computer and communications training, sales, and business management. Other required coursework is traditional to livestock degrees, but students have the option of taking courses specific to their interests. Options also exist for students who wish to pursue pre-veterinary studies.

Program outcomes:
demonstrate competencies in dairy/livestock management;
demonstrate individual communication skills;
demonstrate personal problem solving, decision-making, and critical thinking skills;
demonstrate technology skills used for dairy/livestock management decision making and problem solving;
work effectively in teams;
and be able to obtain a career in the dairy/livestock industry.

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. For more information, see the graduation requirements.

Program Requirements
Students must complete 40 upper division credits.

Animal Science Program Requirements
A maximum of two D grades are allowed for core courses required in the program, subplan/emphasis, and technology requirements. This includes grades earned at UMC or transferred in from another institution.
Required courses - 54 credits
ANSC 1004 - Introduction to Animal Science (4.0 cr)
ANSC 1101 - Animal Evaluation (1.0 cr)
ANSC 2104 - Feeds and Feeding (4.0 cr)
ANSC 3004 - Livestock Facilities and Environmental Systems (3.0 cr)
ANSC 3023 - Animal Breeding (3.0 cr)
ANSC 3104 - Applied Animal Nutrition (4.0 cr)
ANSC 3203 - Animal Anatomy and Physiology (4.0 cr)
ANSC 3204 - Dairy Production (4.0 cr)
ANSC 3303 - Beef Production (3.0 cr)
ANSC 3304 - Reproduction, AI, and Lactation (4.0 cr)
ANSC 3503 - Animal Health and Disease (3.0 cr)
ANSC 4204 - Animal Systems Management (4.0 cr)

BIOL 2032 - General Microbiology (4.0 cr)
BIOL 3022 - Principles of Genetics (3.0 cr)
GNAG 3899 - Pre-Internship Seminar (0.5 cr)
GNAG 3900 - Internship (0.5 - 3.0 cr)
GNAG 3901 - Post Internship Seminar (0.5 cr)
GNAG 4652 - Senior Seminar (1.0 cr)
ANSC 1205 - Beef and Dairy Production Techniques (2.0 cr)
  or ANSC 1206 - Sheep and Swine Production Techniques (2.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:
BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirement
Take any 3 credits from the following courses. (If applicable, the course taken from below may be used to satisfy both the program and technology requirements.)
AGEC 2310 - Agribusiness Financial Records (3.0 cr)
or AGEC 3310 - Advanced Agribusiness Financial Records (3.0 cr)
or CA 1xxx
or CA 2xxx

Program Sub-plans
Students are required to complete one of the following sub-plans.

Animal Science
This emphasis leads graduates to careers within the livestock industry, such as production and management, feed production, artificial insemination, livestock and farm equipment support/sales, pharmaceutical sales, and veterinary technician. Students are exposed to classroom instruction and hands-on experiential learning in the laboratory. Coursework includes computer and communications training, sales training, and business management. Other required coursework is traditional to livestock degrees and may include nutrition, breeding, reproduction, evaluation, feeds, production and management, and facilities. Students can take courses specific to their interest.

Animal Science Requirements
Required courses - 18 credits
AGEC 3540 - Farm Business Management (3.0 cr)
AGEC 4740 - Grain and Livestock Marketing (3.0 cr)
ANSC 1201 - Advanced Animal Evaluation (1.0 cr)
CHEM 1401 - Elementary Bioorganic Chemistry [PHYS SCI, PEOPLE/ENV] (4.0 cr)
Choose one of the following:
  CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
  or CHEM 1061 - Chemical Principles I [PHYS SCI, PEOPLE/ENV] (3.0 cr)
    CHEM 1065 - Chemical Principles I Laboratory [PHYS SCI, PEOPLE/ENV] (1.0 cr)
Choose one of the following:
  GNAG 3203 - Ag Products and Processing (3.0 cr)
  or GNAG 3204 - International Agricultural Production, Processing, and Marketing (3.0 cr)
Agriculture Electives
Students must complete enough credits of agriculture electives (selected in consultation with their advisor) to meet the 120 credit graduation requirement. Number of credits needed will depend on LE course selections.

Pre-Veterinary Medicine
The pre-veterinary medicine emphasis meets the course entry requirements for admission to the University of Minnesota College of Veterinary Medicine; however, similar entry requirements among colleges of veterinary medicine, coupled with sufficient flexibility within the curriculum, allow graduates to meet the admission requirements for many other institutions. Students who graduate are well prepared to pursue their career goal of becoming a veterinarian. Students are exposed to traditional classroom instruction, as well as hands-on/experiential learning in the laboratory.

Pre-Veterinary Medicine Requirements

Required courses - 28 credits
BIOL 2012 - General Zoology (4.0 cr)
CHEM 1061 - Chemical Principles I [PHYS SCI, PEOPLE/ENV] (3.0 cr)
CHEM 1062 - Chemical Principles II (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS SCI, PEOPLE/ENV] (1.0 cr)
CHEM 1066 - Chemical Principles II Laboratory (1.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2310 - Organic Chemistry Laboratory I (2.0 cr)
CHEM 3021 - Biochemistry (3.0 cr)
PHYS 1101 - Introductory College Physics I [PHYS SCI] (4.0 cr)
PHYS 1102 - Introductory College Physics II [PHYS SCI] (4.0 cr)

Agriculture Electives

Students must complete enough agriculture electives credits to meet the 124 credit graduation requirement. Number of credits needed will depend on LE course selections.

Crookston Campus
Animal Science Minor
Agriculture and Natural Resources
Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 24 to 26

The animal science minor allows students to attain valuable information with regard to the essentials of livestock (meat) and dairy production principles. Students earning this minor are trained for careers in areas such as ranching, herdsmen, dairymen, and other allied industry positions.

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

Minor Requirements
Animal Science Minor Requirements
Required courses - 24 to 26 credits
ANSC 1101 - Animal Evaluation (1.0 cr)
ANSC 2104 - Feeds and Feeding (4.0 cr)
ANSC 3203 - Animal Anatomy and Physiology (4.0 cr)
ANSC 3304 - Reproduction, AI, and Lactation (4.0 cr)
ANSC 3503 - Animal Health and Disease (3.0 cr)
Choose one of the following:
ANSC 1205 - Beef and Dairy Production Techniques (2.0 cr)
or ANSC 1206 - Sheep and Swine Production Techniques (2.0 cr)
Choose one of the following:
ANSC 3004 - Livestock Facilities and Environmental Systems (3.0 cr)
or ANSC 3023 - Animal Breeding (3.0 cr)
or ANSC 3104 - Applied Animal Nutrition (4.0 cr)
or ASM 3005 - Facilities Planning and Selection (3.0 cr)
Choose one of the following:
ANSC 3204 - Dairy Production (4.0 cr)
or ANSC 3303 - Beef Production (3.0 cr)

Crookston Campus

Applied Health B.A.H.
Math, Science and Technology
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 81
- This program requires summer terms.
- Degree: Bachelor of Applied Health

The bachelor of applied health (B.A.H.) is an integrated four-year baccalaureate degree program delivered via distance education through the web. The program includes a liberal education core curriculum, clinical occupational field, and management component. The applied curriculum combines the knowledge and experiences necessary to provide leadership in the changing health care arena and in entrepreneurial health care settings where clinical expertise is valued.

Program outcomes:

Communicate effectively and work as a team in a health care setting

Demonstrate leadership skills in problem solving, conflict resolution, and change management

Demonstrate an understanding of the legal, regulatory, and ethical issues inherent to health care

Demonstrate the ability to adapt to changing public policy, economic, and financial issues in health care

Demonstrate assessment skills related to improving clinical care and customer service

Apply technology in the workplace

Program Delivery
This program is available:
- completely online (all program coursework can be completed online)

Admission Requirements
Students must complete an associate degree in a health care field before enrolling in this degree 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. For more information, see the graduation requirements.

Program Requirements
Students must complete 40 upper division credits.

Program Core Requirements
A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.
Required Courses - 46-48 credits
ACCT 2101 - Principles of Accounting I (3.0 cr)
GBUS 1005 - Orientation to Online Learning (1.0 cr)
HI 3020 - Introduction to Health Information Systems (3.0 cr)
HSM 3200 - Health Care Leadership and Planning (4.0 cr)
HSM 3240 - Health Care Policy and Comparative Systems (4.0 cr)
HSM 3230 - Administration of the Long Term Care System (3.0 cr)
HSM 3250 - Performance Improvement in Health Care (3.0 cr)

HSM 3260 - Risk Management in Health Care (3.0 cr)
HSM 3270 - Health Care Finance (3.0 cr)
HSM 4210 - Health Care Law and Biomedical Ethics (4.0 cr)
HSM 4212 - Regulatory Management (3.0 cr)
HSM 4500 - Decision Making in Health Management (3.0 cr)
MGMT 3220 - Human Resource Management (3.0 cr)
Choose one of the following courses:
 COMM 3008 - Business Writing (3.0 cr)
 or WRIT 3303 - Writing in Your Profession (3.0 cr)
Choose 3 credits from the following:
Note: For the LNHA licensure, 5 credits of HSM 3900 are required, unless portions are waived by the LNHA licensing body.
 HSM 3900 - Internship (1.0 - 5.0 cr)
 or HSM 4600 - Capstone Course in Health Management (3.0 cr)

Liberal Education Requirements
 Required Courses - 21 credits. Students must take 3 credits of humanities and 3 credits of social sciences in addition to the following specified courses.
 COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
 COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
 SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)
 MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
 or MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
 PSY 1001 - General Psychology [HI/BEH/SSC] (3.0 cr)
 or SOC 1001 - Introduction to Sociology [HI/BEH/SSC, HUMAN DIV] (3.0 cr)

Technology Requirements
 Students must take 3 credits from the following courses. CA 1020 (Spreadsheet Applications) is recommended. (If applicable, the course taken from below may be used to satisfy both the program and technology requirements.)
 CA 1xxx
 or CA 2xxx
 or HI 3020 - Introduction to Health Information Systems (3.0 cr)

Occupational Course Requirements
 Take 38 credits of occupational courses from partner schools, selected in consultation with an advisor.

Science Electives
 Students must take 6 credits.

Electives
 Take 4-6 credits of open electives. Note: The following courses are required for license as a nursing home administrator (LNHA):
 ACCT 2101, ACCT 2102, HSM 3030, SOC 3937.

Crookston Campus

Applied Studies B.S.

Liberal Arts and Education

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 51
- Degree: Bachelor of Science

The applied studies program addresses the needs of individuals whose educational objectives cannot be met through traditional degree programs. It provides a professionally accommodating entry point for students with previous educational and technical competencies to develop an individualized bachelor of science degree. Students are not allowed to complete this major if they have previously earned a baccalaureate degree or are currently pursuing a baccalaureate degree.

Program outcomes:

Complete an individually tailored course of study that builds upon prior education and experience
Demonstrate technical competencies in selected areas of study in an internship setting
Demonstrate skills in communication, problem solving, and working with others in a capstone experience
Meet career development goals related to achieving a baccalaureate degree

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

Admission Requirements

Students must complete 60 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. For more information, see the graduation requirements.

Program Requirements

Students develop a program of study selected to meet career goals. A specific program track in respiratory care is also available. Students must complete 40 upper division credits. A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
Choose one of the following:
COMM 2002 - Interpersonal Communication [COMMUNICAT] (3.0 cr)
or SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirement
Students must take 3 credits of any Computer Application (CA) Courses.
CA 1xxx
or CA 2xxx
or CA 3xxx

Applied Studies Options

Students either design a program with two fields of study, in consultation with an advisor, or they complete the respiratory care requirements.

Self-Designed Program
 Students complete at least two areas of study, with at least one area having an occupational direction. Technical courses taken at a technical college may be used to complete one area of study. The first area of study requires at least 27 credits of technical or occupational courses. The second area of study requires at least 18 credits of additional courses selected across the curriculum to meet specific career objectives. All courses must be selected in consultation with an advisor.
 APLS 3001 - Individual Program Development (1.0 cr)
 APLS 3900 - Internship/Field Experience (1.0 - 3.0 cr)
 APLS 4652 - Applied Studies Seminar (2.0 cr)
 First area of study (27 crs)
 Second area of study (18 crs)
 Electives (need max of 26 crs)

   -OR-

Respiratory Care
 Complete the requirements in the respiratory care sub-plan.

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

Online
The applied studies bachelor of science program is available online. Its requirements are identical with those of the on-campus bachelor of science program.

Online
 Requirements are identical with those of the on-campus bachelor of science program.

Respiratory Care
Respiratory care program outcomes:

 Demonstrate respiratory care competencies in clinical settings as appropriate for certification in respiratory care
 Demonstrate skills in communication, problem solving, and working with others in an appropriate capstone experience
 Meet career development goals related to achieving a baccalaureate degree

Courses taken at Northland Community and Technical College, East Grand Forks, will be transferred in to complete the 1st area (23 credits) and 2nd area (31 credits) of study.

Liberal Education Requirements:
 Respiratory Care Emphasis requires the additional Liberal Education Requirements:
 BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
 CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
 PHIL 1001 - Introduction to Philosophy [HUMANITIES, ETH/CIV RE] (3.0 cr)
1st Area of Study
 Courses taken at Northland Community and Technical College - minimum 23 credits: BIOL 2221, 2252, 2254, RESP 1104, 1110, 1120, 1124
2nd Area of Study
 Courses taken at Northland Community and Technical College - minimum 31 credits: RESP 2206, 2212, 2242, 2248, 2252, 2258, 2262, 2266, 2276
Electives
 Students need to take a maximum of 20.5 credits of electives to reach the 120 credits needed for graduation.

Crookston Campus
Aviation B.S.
Agriculture and Natural Resources
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 60 to 69
- This program requires summer terms.
- Degree: Bachelor of Science

(A collaborative program with the University of North Dakota Aerospace Foundation)

The aviation program trains students to excel in the increasingly sophisticated and competitive profession of aviation. Extensive coursework in aviation, liberal education, and other disciplines provides the graduate with the skills for success. The University of North Dakota Aerospace Foundation, an internationally recognized collegiate flight training center, provides aircraft, simulators, flight instructors, and aviation course materials under contract.

Only full-time students (taking 12 credits or more) may enroll in flight training courses; others must obtain consent from the aviation program manager. Pilot certification courses include private pilot, commercial pilot, instrument rating, certified flight instructor, instrument flight instructor, multi-engine rating, and multi-engine flight instructor. Non-certificate courses include conventional gear (tail wheel) operations, advanced conventional gear operations, and natural resources/law enforcement applications. Students enrolling with previous flight training or experience may receive college credit after a practical test is administered by the aviation program manager or an appointed check pilot. Aviation students attend all classes on the UMC campus. Flight training is conducted at the UMC flight training center located at the Crookston Municipal Airport, three miles north of the University.

The aviation program includes flight courses for which students incur costs over and above regular tuition rates. These costs vary and depend on the courses taken, as well as the aircraft and flight instructor time used. The projected costs for flight courses can be found at www.umcrookston.edu/flighttrainingcosts.

Depending upon career interest, students may choose from two areas of emphases: agricultural or law enforcement aviation. Two other options available are the business management major with a business aviation emphasis or natural resources major with a natural resources aviation emphasis.

Admission requirement: No medical or physical limitation that would prevent the student from holding a medical certificate class 1, or 2, or 3.

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. For more information, see the graduation requirements.

Program Requirements
Students must complete 40 upper division credits.

Aviation Program Requirements
A maximum of two D grades are allowed for core courses required in the program, subplan/emphasis, and technology requirements. This includes grades earned at UMC or transferred in from another institution.
Required Courses - 29 credits
AVIA 1103 - Introduction to Aviation (4.0 cr)

AVIA 1104 - Introduction to Aviation Flight Lab (1.0 cr)
AVIA 1396 - Conventional Aircraft Operations (1.0 cr)
AVIA 2220 - Basic Attitude Instrument Flying (2.0 cr)
AVIA 2221 - Basic Attitude Instrument Flying Lab (1.0 cr)
AVIA 2222 - IFR Regulations and Procedures (2.0 cr)
AVIA 2223 - IFR Regulations and Procedures Flight Lab (1.0 cr)
AVIA 3320 - Airplane Aerodynamics (2.0 cr)
AVIA 3321 - Airplane Aerodynamics Flight lab (1.0 cr)
AVIA 3324 - Aircraft Systems and Instruments (3.0 cr)
AVIA 3396 - Advanced Conventional Aircraft Operations (1.0 cr)
WRIT 3303 - Writing in Your Profession (3.0 cr)
NATR 3899 - Pre-Internship Seminar (0.5 cr)
NATR 3900 - Internship (0.5 - 4.0 cr)
NATR 3901 - Post-Internship Seminar (0.5 cr)
NATR 4652 - Seminar (1.0 cr)
SWM 3103 - Meteorology and Climatology (3.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer
Curriculum with the following specific liberal education courses required:
BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
PHYS 1012 - Introductory Physics [PHYS SCI, PEOPLE/ENV] (4.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirement
Students must take any 3 credits from the following:
CA 1xxx
or CA 2xxx

Program Sub-plans
Students are required to complete one of the following sub-plans.

Agricultural Aviation
This emphasis leads to careers in aerial application, aerial firefighting, aerial photography, charter pilot, or pilot representative for an
agricultural business.

Program outcomes for graduates:
 demonstrate competency in aeronautics
 demonstrate competency in applied agronomy
 demonstrate the use of current technology in aviation, agriculture, and applied business
 demonstrate critical thinking to analyze situations in aeronautics and applied agriculture

Agricultural Aviation Emphasis Requirements
Required Courses - 31 credits
AGRO 1030 - Crop and Weed Identification (3.0 cr)
AGRO 1183 - Field Crops: Production Principles (3.0 cr)
AGRO 2573 - Entomology (3.0 cr)
AGRO 2640 - Applied Agriculture Chemicals (3.0 cr)
AGRO 3230 - Introduction to Plant Pathology (3.0 cr)
AGRO 3444 - Crop Production (4.0 cr)
BIOL 2022 - General Botany (3.0 cr)
ENTR 2200 - Introduction to Entrepreneurship and Small Business (3.0 cr)
MKTG 2200 - Personal Selling (3.0 cr)
SOIL 1293 - Soil Science (3.0 cr)
Agriculture/Natural Resources Electives
Students must take 7 credits.
Open Electives
Students must take enough open elective credits to meet the 120 credit requirement for graduation.

Law Enforcement Aviation

This emphasis provides training in aviation, law enforcement, and liberal education. It leads to careers as law enforcement pilots employed by local, state, and federal agencies such as the US Customs and Border Protection, state/federal conservation offices, and state/county/local law enforcement agencies.

Program outcomes for graduates:
 demonstrate competency in aeronautics
 perform group problem solving, decision making, and conflict management activities
 demonstrate critical thinking to analyze situations in aeronautics and law enforcement
 be prepared to attend the peace officers skills training academy

After completing all required coursework, students may attend a skills session and take the Minnesota Peace Officer Standards and Training (P.O.S.T) certification examination, as coordinated by Bemidji State University.

Law Enforcement Aviation Emphasis Requirements
 Required Courses - 40 credits
 AVIA 3602 - Natural Resources and Enforcement Applications (2.0 cr)
 CRJS 1500 - Introduction to Criminal Justice [HI/BEH/SSC, ETH/CIV RE] (4.0 cr)
 CRJS 2500 - Introduction to Policing (3.0 cr)
 CRJS 2550 - Traffic Law (2.0 cr)
 CRJS 2560 - First Responder (3.0 cr)
 CRJS 3505 - Judicial Process (3.0 cr)
 CRJS 3525 - Juvenile Justice and Delinquency (3.0 cr)
 CRJS 3530 - Criminal Justice Diversity (3.0 cr)
 CRJS 3550 - Criminal Investigation (3.0 cr)
 CRJS 3575 - Critical Issues in Policing (3.0 cr)
 CRJS 4510 - Victimology (3.0 cr)
 CRJS 4540 - Criminal Law (4.0 cr)
 CRJS 4550 - Criminal Procedure (4.0 cr)
Agriculture/Natural Resources/Business Electives
 Students must take 6 credits.
Open Electives
 Students must take enough open elective credits to meet the 120 credit requirement for graduation.

2017-2018 Projected Individual Course Training Costs
Aviation B.S.

The following are the projects costs associated with the various training for the 2017-2018 school year based on anticipated rates (#). Course costs are based on the historical average number of hours it takes a student to complete the course, and may vary from student to student according to their capability and motivation. Financial aid may be available to assist with these costs, but applying for aid must be done well in advance. Flight costs are in addition to tuition, room and board. Veteran Affairs (VA) students may request a cost sheet from Veteran & Nontraditional Student Services as the VA will only fund minimum training requirements and VA students are required to cover additional costs.

Fixed Wing

PRIVATE PILOT

AVIA 1104 Intro to Aviation — **$12,317**

Instructor Time	100	hrs
S.E. ATD	3	hrs
C172	50	hrs
FAA Written		

COMMERCIAL/INSTRUMENT

AVIA 2221 Basic Attitude Instrument Flying — **$6,595**

Instructor Time	47	hrs
S.E. ATD	17	hrs
C172	25	hrs

AVIA 2223 IFR Regulations & Procedures — **$8,182**

Instructor Time	60	hrs
S.E. ATD	8	hrs
C172	30	hrs
FAA Written		
FAA Check Ride		

AVIA 3321 Aerodynamics — **$9,255**

Instructor Time	45	hrs
Arrow	15	hrs
C172	25	hrs
FAA Written		
FAA Check Ride		

FLIGHT INSTRUCTOR

AVIA 3413 CFI Certification — **$8,405**

Instructor Time	76
S.E. ATD	1
C172	26
Arrow	2
Two FAA Writtens	

AVIA 3415 Instrument Flight Instructor — **$5,350**

Instructor Time	50	hrs
S.E. ATD	4	hrs
C172	17	hrs
FAA Written		

TAILWHEEL

AVIA 1396 Conventional Aircraft Operations — **$1,728**

Instructor Time	11	hrs
Top Cub (Wheels)	8	hrs

AVIA 3396 Advanced Tailwheel Training — **$1,672**

Instructor Time	10	hrs
Top Cub (Wheels)	8	hrs

Optional Fixed Wing Courses

AVIA 3400 Emergency Maneuvers Training — **$2,500**

Instructor Time	8	hrs
C172	3	hrs
Decathlon	3	hrs

AVIT 385 Seaplane Certification — **$3,198**

Instructor Time	18	hrs
Top Cub (Floats)	10	hrs
FAA Check Ride		

 # Estimated course costs do not include potential fuel surcharge, which may be implemented pending market conditions. Effective 08/21/2017

Crookston Campus

Biology B.S.
Math, Science and Technology
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 74
- This program requires summer terms.
- Degree: Bachelor of Science

The BS in biology provides students with a broad knowledge of the biological sciences while introducing them to the practical skills needed in today's biotech industries and the background required to be successful applicants to graduate programs. Students may choose from advanced courses designed to emphasize studies in either animal or plant systems while participating in a common core of courses which provide knowledge in the basic principles relevant to both areas.

Program outcomes for graduates:
 Explain and reconstruct the scientific method and can apply this mode of inquiry in a laboratory setting
 Explain and apply basic principles of biology in work setting
 Demonstrate teamwork skills
 Apply, critique, and synthesize protocols from current literature
 Demonstrate and critique effective oral and written communication skills
 Formulate proper data collection and analysis methods
 Interpret and practice professional and ethical behavior related to biological research
 Identify, provide examples, differentiate, and integrate current biology techniques into their scientific investigations

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. For more information, see the graduation requirements.

Program Requirements
A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.

Biology Core Requirements
 Required Courses - 38 credits
 BIOL 1009H - Honors: General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
 BIOL 1805 - Nature of Life (2.0 cr)
 BIOL 2032 - General Microbiology (4.0 cr)
 BIOL 3022 - Principles of Genetics (3.0 cr)
 BIOL 3027 - Cell Biology (3.0 cr)
 BIOL 3122 - Evolution (3.0 cr)
 BIOL 3822 - Techniques in Molecular Biology (4.0 cr)
 BIOL 3899 - Pre-Internship Seminar (0.5 cr)
 BIOL 3900 - Internship (1.0 - 2.0 cr)
 BIOL 3901 - Post-Internship Seminar (0.5 cr)
 BIOL 4101 - Biology Seminar (1.0 cr)
 NATR 3374 - Ecology [BIOL SCI] (4.0 cr)
 WRIT 3303 - Writing in Your Profession (3.0 cr)
 BIOL 2012 - General Zoology (4.0 cr)

or BIOL 2022 - General Botany (3.0 cr)

Chemistry Core Requirements
Required Courses - 21 credits
CHEM 1061 - Chemical Principles I [PHYS SCI, PEOPLE/ENV] (3.0 cr)
CHEM 1062 - Chemical Principles II (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS SCI, PEOPLE/ENV] (1.0 cr)
CHEM 1066 - Chemical Principles II Laboratory (1.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2302 - Organic Chemistry II (3.0 cr)
CHEM 2310 - Organic Chemistry Laboratory I (2.0 cr)
CHEM 2311 - Organic Chemistry Laboratory II (2.0 cr)
CHEM 3021 - Biochemistry (3.0 cr)

Math and Physics Core Requirements
Required Courses - 15 credits
MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
MATH 1271 - Calculus I [MATH THINK] (4.0 cr)
PHYS 1101 - Introductory College Physics I [PHYS SCI] (4.0 cr)
PHYS 1102 - Introductory College Physics II [PHYS SCI] (4.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirement
Students must take 3 credits from the following courses. (If applicable, the course selected from below may be used to satisfy both the program and technology requirements.)
CA 1xxx
or CA 2xxx
or CHEM 3022 - Chemical Analysis in the Biological and Environmental Sciences (4.0 cr)
or MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)

Biology Major Electives
Take 10 - 12 credit(s) from the following:
•AGRO 3030 - Research Techniques in Agriculture and Natural Resources (3.0 cr)
•AGRO 3230 - Introduction to Plant Pathology (3.0 cr)
•ANSC 3203 - Animal Anatomy and Physiology (4.0 cr)
•ANSC 3304 - Reproduction, AI, and Lactation (4.0 cr)
•BIOL 2103 - Human Anatomy and Physiology I (4.0 cr)
•BIOL 2104 - Human Anatomy and Physiology II (4.0 cr)
•BIOL 3131 - Plant Physiology (3.0 cr)
•BIOL 3140 - Histology (4.0 cr)
•BIOL 3464 - Mammalogy (3.0 cr)
•BIOL 3466 - Ornithology (3.0 cr)
•BIOL 3722 - Limnology (3.0 cr)
•BIOL 3994 - Undergraduate Research (1.0 - 3.0 cr)
•BIOL 4361 - Developmental Biology (4.0 cr)
•GEOL 1001 - Introductory Geology [PHYS SCI, PEOPLE/ENV] (3.0 cr)
•HSCI 1123 - Fundamentals of Nutrition [BIOL SCI] (3.0 cr)
•MATH 1272 - Calculus II (4.0 cr)
•NATR 3364 - Plant Taxonomy (3.0 cr)
•SOIL 1293 - Soil Science (3.0 cr)
•AGRO 2573 - Entomology (3.0 cr)
  or NATR 2573 - Entomology (3.0 cr)

Open Electives
Students must take enough open electives credits to meet the 120 credit graduation requirement.

Crookston Campus

Biology Minor

Math, Science and Technology

Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 20 to 21

The biology minor program introduces students to the core concepts in a broad range of biological areas with two possible emphases, animal or plant biology. It is designed to complement majors in animal sciences, agriculture, and natural resources but can be tailored for students in other majors as well.

Program Delivery

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

Minor Requirements

Biology Minor Requirements

Required Courses - 20 to 21 credits

BIOL 3022 - Principles of Genetics (3.0 cr)
BIOL 3027 - Cell Biology (3.0 cr)
BIOL 3122 - Evolution (3.0 cr)
NATR 3374 - Ecology [BIOL SCI] (4.0 cr)
BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
  or BIOL 1009H - Honors: General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
BIOL 2012 - General Zoology (4.0 cr)
  or BIOL 2022 - General Botany (3.0 cr)

Crookston Campus

Chemistry Minor
Math, Science and Technology
Academic Affairs

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 25

Chemistry is the central science that plays an unparalleled role in our society. It helps us understand the world at the molecular level. A minor in chemistry opens up opportunities in diverse fields such as medicine, forensic science, clinical laboratory science, environmental chemistry, and biotechnology.

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

Minor Requirements
Chemistry Minor Requirements
Required Courses - 25 credits
CHEM 1061 - Chemical Principles I [PHYS SCI, PEOPLE/ENV] (3.0 cr)
CHEM 1062 - Chemical Principles II (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS SCI, PEOPLE/ENV] (1.0 cr)
CHEM 1066 - Chemical Principles II Laboratory (1.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2302 - Organic Chemistry II (3.0 cr)
CHEM 2310 - Organic Chemistry Laboratory I (2.0 cr)
CHEM 2311 - Organic Chemistry Laboratory II (2.0 cr)
CHEM 3022 - Chemical Analysis in the Biological and Environmental Sciences (4.0 cr)
 or ENSC 3720 - Fate of Chemicals in the Environment (4.0 cr)
CHEM 3021 - Biochemistry (3.0 cr)
 or CHEM 3994 - Undergraduate Research in Chemistry (1.0 - 3.0 cr)

Crookston Campus

Coaching Minor
Business
Academic Affairs

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 21

The coaching minor develops future coaches by teaching current theories and practices in coaching and with practical experience through the coaching practicum. This helps to prepare students for coaching at the youth, elementary, high school, college, or even professional levels. The minor can be taken by students in any major and has a requirement of 21 credits.

Since 1997, Minnesota has not required a teaching or coaching license to coach high school athletics. The coaching minor helps train and develop future coaches in the areas of practice planning, skill development, and coaching strategies in their sport of interest. In addition, it gives those students interested in coaching more marketability for coaching positions.

Any student, regardless of major, can earn a coaching minor.

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

Minor Requirements
Minor Requirements
BIOL 2103 - Human Anatomy and Physiology I (4.0 cr)
HLTH 1062 - First Aid and CPR (2.0 cr)
SRM 2000 - Prevention and Care of Athletic Injuries (3.0 cr)
SRM 2010 - Topics in Coaching (2.0 cr)
SRM 3020 - Coaching Practicum (1.0 cr)
SRM 3320 - Exercise Physiology (3.0 cr)
SRM 3001 - Sport Nutrition (3.0 cr)
  or SRM 3008 - Sport Ethics and Leadership (3.0 cr)
SRM 3100 - Psychology of Sport (3.0 cr)
  or SRM 3200 - Socio-Cultural Dimensions in Sport (3.0 cr)

Crookston Campus
Communication B.S.
Liberal Arts and Education
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 63
- Degree: Bachelor of Science

The BS in communication prepares students to be effective communicators in professional settings. Graduates can expect to find or create jobs in areas such as general corporate management, human resources, marketing, public relations, sports information, and technical communication. Communication graduates may also hold jobs as communication consultants, communication directors, event planners, political campaign leaders, public affairs officers, public information officers, publication designers and editors, speech writers, and online content managers.

The program provides transferable skills by emphasizing communication theory and practice in the creation, development, presentation, and evaluation of coherent messages. Students use communication strategies to create publications (newsletters, brochures, flyers, news releases, communication plans), design online resources, plan events, and manage projects.

The concentration area lets students select courses to focus their professional career preparation.

Program outcomes for graduates:
demonstrate proficiencies in applying theory, listening, reading, speaking, and writing professional contexts
demonstrate technology proficiencies in computer applications
demonstrate critical thinking and problem-solving skills, including analyzing, interpreting, and evaluating applied communication
demonstrate proficiencies in interpersonal and group processes, conflict management, collaboration, team building, and leadership
demonstrate understanding of the ethical behavior practiced in professional contexts
demonstrate awareness and sensitivity required for communicating in culturally diverse groups

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

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. For more information, see the graduation requirements.

Program Requirements
Students must complete 40 upper division credits.

Program Requirements
A maximum of two D grades are allowed for core courses required in the program, subplan/emphasis, and technology requirements.
This includes grades earned at UMC or transferred in from another institution.
Required courses - 30 credits
COMM 2000 - Introduction to Communication (1.0 cr)
COMM 2110 - Communication Technology Trends (3.0 cr)
COMM 3000 - Communication Theory (3.0 cr)
COMM 3001 - Human Relationships and Leadership [HUMAN DIV] (3.0 cr)
COMM 3431 - Persuasion (3.0 cr)
COMM 3704 - Business and Professional Speaking (3.0 cr)
COMM 3900 - Internship (3.0 cr)
COMM 4000 - News and Promotional Writing (3.0 cr)

COMM 4704 - Organizational Communication (3.0 cr)
COMM 4999 - Seminar in Communication (2.0 cr)
SOC 3001 - Social and Behavioral Science Research Methods (3.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirements
3 credits - COMM 2110 is required to meet the technology requirement. COMM 2110 can be used to satisfy both the program and technology requirement.
COMM 2110 - Communication Technology Trends (3.0 cr)

Communication Electives
Take 12 or more credit(s) from the following:
•COMM 2002 - Interpersonal Communication [COMMUNICAT] (3.0 cr)
•WRIT 2223 - English Grammar and Usage (3.0 cr)
•COMM 2334 - Communication Topics (3.0 cr)
•WRIT 2335 - Introduction to Creative Writing [HUMANITIES] (3.0 cr)
•COMM 3008 - Business Writing (3.0 cr)
•WRIT 3303 - Writing in Your Profession (3.0 cr)
•COMM 3537 - Visual Communication (3.0 cr)
•COMM 3610 - Corporate Training (3.0 cr)
•COMM 3710 - Event Planning and Management (3.0 cr)
•COMM 3804 - Individual Studies (1.0 - 3.0 cr)
•COMM 3855 - Topics in Communication (3.0 cr)
•WRIT 3856 - Editing (3.0 cr)
•COMM 3857 - Technical Communication (3.0 cr)
•COMM 4002 - Intercultural Communication (3.0 cr)
•COMM 4007 - Political Communication (3.0 cr)
•COMM 4800 - Crisis Communication (3.0 cr)
•COMM 4802 - Publication Design and Management (3.0 cr)
•COMM 4850 - Report Writing (3.0 cr)
•COMM 4900 - Public Relations (3.0 cr)
•TH 2434 - Oral Interpretation and Performance Techniques [HUMANITIES] (3.0 cr)

Open Electives
Students must take enough open elective credits to satisfy the 120 credit graduation requirement.

Program Sub-plans
Students are required to complete one of the following sub-plans.

Communication Studies
The focus of this emphasis area is the theory, practice, and critique of communication. This area can be conceived as a broad based study or as an applied and career oriented learning program. This area allows students to craft a personalized concentration of courses; these courses can reflect all areas of the university or target specific career aspirations. These courses can be from outside the communication program curriculum for an interdisciplinary approach or from within the communication program. Communication with a concentration of courses in management, communication with a concentration of courses in marketing, or communication with a concentration of courses in sports management are examples. This area could also reflect a combination of courses from the organizational/public relations and writing plans.

Communication studies graduates find or create careers in all sectors of the economy. These professionals meet the communication needs of the businesses and industries in which they work. Communication Directors, Event Planners, and Sports Information Directors are examples. A minor representing a subject field would be an excellent supplement to the program in communication and/or to the personalized concentration of courses.

Emphasis Requirements
Complete 21 credits of concentration (courses to be chosen in consultation with the student's advisor); a minimum of 9 credits must be upper division.

Organization Communication/Public Relations

The focus of this emphasis area is communication within organizations and communication with public constituencies. Conflict management, group and team dynamics, and leadership are key areas of study, as well as research, audience analysis, strategic design, implementation, and message evaluation. This area addresses internal organizational power and politics, as well as making effective connections with the public. It deals with the daily internal organizational communication that socializes employees, the strategic external communication that connects with the public, and the non-routine persuasive communication that needs to be used to effectively respond to a crisis.

Organizational communication/public relations graduates find or create careers in corporate communication, public relations, media relations, and other. These professionals meet the communication needs of the businesses and industries in which they work. Minors in business management and marketing are excellent supplements to the program in communication with this emphasis area.

Emphasis Requirements
Required courses - 12 credits
COMM 3008 - Business Writing (3.0 cr)
COMM 3710 - Event Planning and Management (3.0 cr)
COMM 4800 - Crisis Communication (3.0 cr)
COMM 4900 - Public Relations (3.0 cr)
Emphasis Electives
Take 9 or more credit(s) from the following:
•COMM 2002 - Interpersonal Communication [COMMUNICAT] (3.0 cr)
•COMM 3610 - Corporate Training (3.0 cr)
•COMM 4002 - Intercultural Communication (3.0 cr)
•COMM 4007 - Political Communication (3.0 cr)
•COMM 4802 - Publication Design and Management (3.0 cr)

Writing

The focus of this emphasis area is writing. A solid core in English grammar and usage, visual communication, editing, and publication design and management lead to applications in business writing, creative writing, intercultural writing, news and promotional writing, report writing, and technical communication. This area addresses the theory and practice of the craft. It includes fiction and non-fiction; text for reports, manuals, and project proposals; and text for journals, magazines, newspapers, and social media.

Writing professionals find or create careers as business writers, editors, freelance writers, and technical writers. These professionals find jobs in book, magazine, and newspaper publishing companies; businesses and industries; computer software firms; engineering firms; government agencies; health care organizations; and other. A minor representing a subject field would be an excellent supplement to the program in communication with this emphasis area.

Emphasis Requirements
Required Courses - 12 credits
WRIT 2223 - English Grammar and Usage (3.0 cr)
COMM 3537 - Visual Communication (3.0 cr)
WRIT 3856 - Editing (3.0 cr)
COMM 4802 - Publication Design and Management (3.0 cr)
Emphasis Electives
Take 9 or more credit(s) from the following:
•WRIT 2335 - Introduction to Creative Writing [HUMANITIES] (3.0 cr)
•COMM 3008 - Business Writing (3.0 cr)
•WRIT 3303 - Writing in Your Profession (3.0 cr)
•COMM 3857 - Technical Communication (3.0 cr)
•COMM 4002 - Intercultural Communication (3.0 cr)
•COMM 4850 - Report Writing (3.0 cr)

Online

This sub-plan is optional and does not fulfill the sub-plan requirement for this program.

The BS in communication prepares students to be effective communicators in professional settings. Graduates can expect to find or create jobs in areas such as general corporate management, human resources, marketing, public relations, sports information, and technical communication. Communication graduates may also hold jobs as communication consultants, communication directors, event planners, political campaign leaders, public affairs officers, public information officers, publication designers and editors, speech writers, and online content managers.

The program provides transferable skills by emphasizing communication theory and practice in the creation, development, presentation, and evaluation of coherent messages. Students use communication strategies to create publications (newsletters, brochures, flyers, news releases, communication plans), design online resources, plan events, and manage projects.

The concentration area lets students select courses to focus their professional career preparation.

The communication online BS program has the same curriculum as the on-campus program. The only difference is that the online program has an additional one credit technology requirement. To offset this 1-credit requirement, students take one less credit of electives. As with the on-campus program, online students will need to choose one of the three available sub-plans of the communication BS program (communication studies, organization communication/public relations, or writing).

Technology Requirement
Required course - 1 credit
GBUS 1005 - Orientation to Online Learning (1.0 cr)

Communication Minor

Liberal Arts and Education
Academic Affairs

Crookston Campus

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 18 to 19

The communication minor complements all UMC degree programs by preparing students to be effective communicators in any profession. The minor emphasizes communication theory and practice, as well as the creation, development, presentation, and evaluation of coherent messages.

The minor provides students with the flexibility to select courses that enhance their professional career preparations.

Program outcomes: students will
* demonstrate proficiencies in applying theory, listening, reading, speaking, and writing in the profession

* demonstrate critical thinking and problem solving skills, including analyzing, interpreting, and evaluating applied communication

* demonstrate proficiencies in interpersonal and group processes, conflict management, collaboration, team building, and leadership

* demonstrate understanding of the ethical behavior practiced in the profession

* demonstrate awareness and sensitivity required for communicating in culturally diverse groups

Program Delivery

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

Minor Requirements

Communication Requirements
Required courses - 12 credits
COMM 3000 - Communication Theory (3.0 cr)
COMM 3001 - Human Relationships and Leadership [HUMAN DIV] (3.0 cr)
WRIT 3303 - Writing in Your Profession (3.0 cr)
COMM 3704 - Business and Professional Speaking (3.0 cr)

Electives
Required courses - 6 credits
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- COMM 2002 - Interpersonal Communication [COMMUNICAT] (3.0 cr)
- WRIT 2223 - English Grammar and Usage (3.0 cr)
- COMM 2334 - Communication Topics (3.0 cr)
- WRIT 2335 - Introduction to Creative Writing [HUMANITIES] (3.0 cr)
- TH 2434 - Oral Interpretation and Performance Techniques [HUMANITIES] (3.0 cr)
- COMM 3008 - Business Writing (3.0 cr)
- COMM 3431 - Persuasion (3.0 cr)
- COMM 3537 - Visual Communication (3.0 cr)
- COMM 3610 - Corporate Training (3.0 cr)
- COMM 3710 - Event Planning and Management (3.0 cr)
- COMM 3804 - Individual Studies (1.0 - 3.0 cr)
- COMM 3855 - Topics in Communication (3.0 cr)
- WRIT 3856 - Editing (3.0 cr)
- COMM 3857 - Technical Communication (3.0 cr)
- COMM 3900 - Internship (3.0 cr)
- COMM 4000 - News and Promotional Writing (3.0 cr)
- COMM 4002 - Intercultural Communication (3.0 cr)
- COMM 4007 - Political Communication (3.0 cr)

•COMM 4703 *{Inactive}*(3.0 cr)
•COMM 4704 - Organizational Communication (3.0 cr)
•COMM 4800 - Crisis Communication (3.0 cr)
•COMM 4802 - Publication Design and Management (3.0 cr)
•COMM 4850 - Report Writing (3.0 cr)
•COMM 4900 - Public Relations (3.0 cr)
•SOC 3001 - Social and Behavioral Science Research Methods (3.0 cr)

Program Sub-plans

A sub-plan is not required for this program.

Communication Minor (Online)

The Communication Minor complements all UMC degree programs by preparing students to be effective communicators in any profession. The minor emphasizes communication theory and practice as well as the creation, development, presentation, and evaluation of coherent messages.

The Communication Minor Online has the same curriculum as the on-campus Communication Minor with the exception of a one-credit technology requirement.

Technology Requirement
Required course - 1 credit
GBUS 1005 - Orientation to Online Learning (1.0 cr)

Crookston Campus

Criminal Justice B.S.

Liberal Arts and Education

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 120
- This program requires summer terms.
- Degree: Bachelor of Science

The career-oriented bachelor of science in criminal justice degree at the University of Minnesota, Crookston, is designed for students interested in a professional career in the rapidly expanding criminal justice field. The program has an interdisciplinary criminal justice curriculum that provides students the opportunity to incorporate learning that is identified by employers as being critical to career success. The program provides high quality education in both academic and professional areas, offers unique training and internship experiences, a positive entry-level employment outlook among criminal justice agencies, and an academic platform to continue graduate training in fields such as political science, law, public administration, criminal justice/criminology, psychology, and social work.

Criminal justice majors choose either a law enforcement or corrections emphasis. Both emphases include elective credits that allow students to choose courses of specific interest. Students who complete the law enforcement emphasis and approved skills training will be eligible to take the state board exam to become a licensed police officer.

Program outcomes:
 demonstrate a comprehensive understanding and knowledge of the criminal justice system, juvenile justice system, public administration/policy, criminal behavior, law, criminal justice issues, and criminology
 identify the ethical issues inherent in criminal justice
 demonstrate proficiencies in policing philosophies, including analyzing, understanding, and evaluating criminal evidence, investigation and surveillance techniques
 explain correctional philosophies and understand the historical and current dilemmas in corrections
 discuss the concepts of due process of law, criminal procedure, defendant's rights, victim's rights, and constitutional rights
 describe programs and services that are effective for combating crime

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. For more information, see the graduation requirements.

Program Requirements

Program Core Requirements

 A maximum of two D grades are allowed for core courses required in the program, subplan/emphasis, and technology requirements. This includes grades earned at UMC or transferred in from another institution.
 Required Classes - 35 credits
 CRJS 1500 - Introduction to Criminal Justice [HI/BEH/SSC, ETH/CIV RE] (4.0 cr)
 CRJS 2100 - Crime and Criminology (3.0 cr)
 CRJS 2400 - Introduction to Corrections (3.0 cr)
 CRJS 2500 - Introduction to Policing (3.0 cr)
 CRJS 3505 - Judicial Process (3.0 cr)
 CRJS 3515 - Criminal Justice Ethics (3.0 cr)
 CRJS 3525 - Juvenile Justice and Delinquency (3.0 cr)
 CRJS 3530 - Criminal Justice Diversity (3.0 cr)
 CRJS 3900 - Criminal Justice Field Placement (Internship) (3.0 cr)

CRJS 4540 - Criminal Law (4.0 cr)
SOC 3001 - Social and Behavioral Science Research Methods (3.0 cr)

Liberal Education Requirements
Minimum of 40 liberal education credits required. The following courses are recommended: MATH 1150, PSY 1001, PSY 3604, SOC 1001. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
POL 1001 - American Government [ETH/CIV RE] (4.0 cr)
Choose one of the following:
  COMM 2002 - Interpersonal Communication [COMMUNICAT] (3.0 cr)
  or SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirement
Take 3 credits of any CA courses.
CA 1xxx
 or CA 2xxx

Program Sub-plans
Students are required to complete one of the following sub-plans.

Corrections Area of Emphasis
Students can complete the corrections emphasis to better prepare themselves in the field of adult and juvenile corrections.

Corrections Requirements
Required courses - 12 credits
CRJS 3455 - Institutional Corrections (3.0 cr)
CRJS 3465 - Strategies in Correctional Rehabilitation (3.0 cr)
CRJS 3475 - Community Corrections (3.0 cr)
CRJS 4435 - Theories of Punishment (3.0 cr)
Corrections Electives
Take 6 or more credit(s) from the following:
•CRJS 1803 - Directed Studies (1.0 - 15.0 cr)
•CRJS 2550 - Traffic Law (2.0 cr)
•CRJS 2560 - First Responder (3.0 cr)
•CRJS 3350 - Criminal Justice Administration (3.0 cr)
•CRJS 3520 - Natural Resource Law Enforcement Techniques (3.0 cr)
•CRJS 3550 - Criminal Investigation (3.0 cr)
•CRJS 3575 - Critical Issues in Policing (3.0 cr)
•CRJS 3804 - Individual Studies (1.0 - 3.0 cr)
•CRJS 4315 - Women and Crime (3.0 cr)
•CRJS 4390 - Special Topics in Criminal Justice (1.0 - 3.0 cr)
•CRJS 4510 - Victimology (3.0 cr)
•CRJS 4550 - Criminal Procedure (4.0 cr)
•MGMT 3210 - Supervision and Leadership (3.0 cr)
Corrections Open Electives
Students must complete enough open elective credits to meet the 120 credit graduation requirement.

Law Enforcement Area of Emphasis
Students can complete the academic requirements needed for Peace Officer Standards & Training in order to become a law enforcement officer in Minnesota.

Law Enforcement Requirements
Required courses - 18 credits
CRJS 2550 - Traffic Law (2.0 cr)
CRJS 2560 - First Responder (3.0 cr)
CRJS 3550 - Criminal Investigation (3.0 cr)
CRJS 3575 - Critical Issues in Policing (3.0 cr)
CRJS 4510 - Victimology (3.0 cr)
CRJS 4550 - Criminal Procedure (4.0 cr)
Law Enforcement Electives
Take 6 or more credit(s) from the following:

- CRJS 1803 - Directed Studies (1.0 - 15.0 cr)
- CRJS 3350 - Criminal Justice Administration (3.0 cr)
- CRJS 3455 - Institutional Corrections (3.0 cr)
- CRJS 3465 - Strategies in Correctional Rehabilitation (3.0 cr)
- CRJS 3475 - Community Corrections (3.0 cr)
- CRJS 3520 - Natural Resource Law Enforcement Techniques (3.0 cr)
- CRJS 3804 - Individual Studies (1.0 - 3.0 cr)
- CRJS 4315 - Women and Crime (3.0 cr)
- CRJS 4390 - Special Topics in Criminal Justice (1.0 - 3.0 cr)
- CRJS 4435 - Theories of Punishment (3.0 cr)
- MGMT 3210 - Supervision and Leadership (3.0 cr)

Law Enforcement Open Electives

Students must complete enough open electives credits to meet the 120 credit graduation requirement.

Crookston Campus

Criminal Justice Minor
Liberal Arts and Education
Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 20

The minor in criminal justice provides an opportunity for students interested in obtaining a bachelor's degree in a different field of study to take coursework to gain an understanding of the criminal justice system. The minor is designed to provide students with a broad overview of the criminal justice field by focusing on criminological theory, corrections, policing, juvenile justice issues, and criminal law.

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

Minor Requirements
Criminal Justice Minor Requirements
CRJS 1500 - Introduction to Criminal Justice [HI/BEH/SSC, ETH/CIV RE] (4.0 cr)
CRJS 2100 - Crime and Criminology (3.0 cr)
CRJS 2400 - Introduction to Corrections (3.0 cr)
CRJS 2500 - Introduction to Policing (3.0 cr)
CRJS 3525 - Juvenile Justice and Delinquency (3.0 cr)
CRJS 4540 - Criminal Law (4.0 cr)

Crookston Campus

Early Childhood Education B.S.
Liberal Arts and Education
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120 to 126
- Required credits within the major: 71 to 82
- Degree: Bachelor of Science

The BS degree in early childhood education is a career-oriented program that prepares students to earn their Minnesota teacher's license, a professional licensure that allows teaching young children from birth through third grade.

Graduates of this teacher education program design, implement, and evaluate developmentally appropriate learning experiences for young children in a variety of early childhood settings. They are prepared to work collaboratively with families and in the community. Significant opportunities for professional positions exist in these educational programs: infant and toddler care and education, preschool programs, K-3 classrooms, Head Start, and early childhood family education.

This degree program has two areas of emphasis--primary education and program management.

Students who expect to apply for teacher licensure must complete the primary education emphasis. Graduates with the primary education emphasis demonstrate competencies as described in the MN Board of Teaching, Rules 8710.3000, Standard for Teachers of Early Childhood Education (ECE) and in MN Rules 8710.2000, Standards for Effective Practice for all Teachers. See program outcomes listed in the sub-plan descriptions below.

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

1. Earn a minimum GPA of 2.50 overall.

2. Take the Minnesota Teacher Licensure Examination (MTLE), Basic Skills tests.

3. Purchase personal Liability Insurance: can be obtained inexpensively through an annual student membership in Education Minnesota.

4. Successful completion of ED 2200, Foundations of Education.

5. Complete and submit Teacher Education Application Packet.

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. For more information, see the graduation requirements.

Program Requirements
Students must complete 40 upper division credits. Students must maintain a minimum GPA of 2.50 throughout their enrollment in the program and must earn a C- or better in all program required courses plus ART 1xxx and ED 2100.

Program Requirements

Required courses - 44.5 credits
ECE 3410 - Learning Environments for Infants and Toddlers (4.0 cr)
ECE 4440 - Infant and Toddler Student Teaching (4.0 cr)
ECE 4700 - Creative Arts and Language Arts: Preprimary (4.0 cr)
ECE 4702 - Mathematics, Social Studies, and Sciences: Preprimary (4.0 cr)
ECE 4730 - Understanding and Supporting Parenting (3.0 cr)
ED 2200 - Foundations of Education (3.0 cr)
ED 2300 - Introduction to Early Childhood and Elementary Education (3.0 cr)
ED 3000 - Cultural Immersion (1.0 cr)
ED 3009 - Human Relations in Diversity (1.0 cr)
ED 3010 - Child Guidance and Classroom Management (3.0 cr)
ED 3110 - Educational Psychology (3.0 cr)
ED 3500 - Introduction to Children with Special Needs (2.0 cr)
ED 3901 - The Professional Teacher I (0.5 cr)
ED 4500 - Teaching in Inclusive Learning Environments (2.0 cr)
ED 4750 - Family, School, and Community Relations (3.0 cr)
ED 4880 - Leading and Collaborating in Education (3.0 cr)
PUBH 3005 - Fundamentals of Alcohol and Drug Abuse for Teacher Education (UMTC) (1.0 cr)

Liberal Education Requirements

A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer
Curriculum with the following specific liberal education courses required.
BIOL 1000 - Biology and Society [BIOL SCI, PEOPLE/ENV] (4.0 cr)
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ED 2100 - Child and Adolescent Development and Learning [HI/BEH/SSC] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Art Requirements

Take 3 credits of any Art courses.
ART 1xxx

Technology Requirements

Students must take 3 credits.
ED 2000 - Educational Technology for P-12th Settings (2.0 cr)
ED 4000 - Educational Technology Applications (1.0 cr)

Program Sub-plans

Students are required to complete one of the following sub-plans.

Primary Education

The primary education emphasis is for students who wish to teach in public school classrooms with kindergarten through third grade, as
well as early childhood education programs for infants, toddlers, and preschoolers.

Program outcomes for graduates:
promote child development/learning
encourage infant/toddler development/learning
facilitate preprimary-aged children's development/learning
facilitate primary-aged children's development/learning
assist in building family relationships
document and assess to support young children
become a reflective professional

The emphasis requires 39 credits and completes requirements for Board of Teaching licensure.

Primary Education Emphasis Requirements

Required courses - 39 credits
ECE 3420 - Nurturing and Collaborative Relationships for Infants and Toddlers (2.0 - 3.0 cr)
ECE 4811 - Preschool Student Teaching (6.0 - 8.0 cr)
ECE 4812 - Kindergarten Student Teaching (4.0 cr)
ED 2877 - Social Studies in Elementary Education (2.0 cr)
ED 2878 - Science in Elementary Education (2.0 cr)

ED 3201 - Reading and Language Arts I (4.0 cr)
ED 3202 - Reading and Language Arts II (2.0 cr)
ED 3301 - Creating Meaning Through Literature and Arts (4.0 cr)
ED 2860 - Mathematics for Elementary Teaching (2.0 cr)
ED 3870 - Mathematics in Elementary Education (3.0 cr)
ED 3902 - The Professional Teacher II (1.0 cr)
ED 4827 - Elementary Student Teaching (7.0 cr)

Program Management

The program management emphasis is for students who wish to increase their academic preparation for supervisory, management, and/or leadership roles in child care and education programs.

Program outcomes:
 promote child development/learning
 encourage infant/toddler development/learning
 facilitate preprimary-aged children's development/learning
 assist in building family relationships
 document and assess to support young children
 become a reflective professional
 demonstrate ability to perform tasks associated with planning, organizing, staffing, leading, monitoring and controlling for quality in childcare programs

The emphasis requires 26.5 credits without Board of Teaching licensure.

Program Management Emphasis Requirements
 Required courses - 26.5 credits
 ACCT 2101 - Principles of Accounting I (3.0 cr)
 ECE 3420 - Nurturing and Collaborative Relationships for Infants and Toddlers (2.0 - 3.0 cr)
 ECE 4811 - Preschool Student Teaching (6.0 - 8.0 cr)
 ECE 4883 - Student Experiences in Program Management (3.5 cr)
 MGMT 3200 - Principles of Management (3.0 cr)
 MGMT 3210 - Supervision and Leadership (3.0 cr)
 MGMT 3220 - Human Resource Management (3.0 cr)
Electives
 6 credits required. Students may choose only one course with an ED prefix.
 Take 2 or more course(s) totaling 6 or more credit(s) from the following:
•CA 1040 - Web Site Development (3.0 cr)
•COMM 3008 - Business Writing (3.0 cr)
•COMM 4900 - Public Relations (3.0 cr)
•CRJS 2560 - First Responder (3.0 cr)
•ED 2xxx
•ED 3xxx
•ED 4xxx
•ENTR 2200 - Introduction to Entrepreneurship and Small Business (3.0 cr)
•GBUS 1007 - Enactus (1.0 cr)
•HLTH 1062 - First Aid and CPR (2.0 cr)
•MGMT 3600 - Change, Creativity, and Innovation Management (3.0 cr)

Crookston Campus

Elementary Education B.S.

Liberal Arts and Education

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 65
- Degree: Bachelor of Science

The BS degree in elementary education is a career-oriented program that prepares students to be effective teachers of young children from kindergarten through grade six.

Graduates of this teacher education program design, implement, and evaluate developmentally appropriate learning experiences for young children in elementary education classrooms. They are prepared to work collaboratively with families and in the community. Combined with a dual major in early childhood education, significant opportunities for professional positions exist in these programs: kindergarten through 6th grade, infant and toddler care and education, preschool programs, Head Start, and early childhood family education.

Graduates with the elementary education emphasis will demonstrate competencies as described in the MN Board of Teaching, Rules 8710.3200, Standard for Teachers of Elementary Education and in MN Rules 8710.2000, Standards for Effective Practice for all Teachers.

Program Outcomes for Elementary Education
Graduates will:
1. understand and apply educational principles relevant to the development of young children;
2. understand and apply the process of collaboration with families and other adults in support of the learning of young children;
3. understand how to integrate curriculum across subject areas in developmentally appropriate ways;
4. demonstrate knowledge of fundamental concepts of language arts, reading, and literature, mathematics, social studies, science, physical education and health, and visual and performing arts;
5. demonstrate ability in teaching approaches and instructional strategies to become effective teachers in the elementary level curriculum areas;
6. have knowledge of and ability to use a variety of assessment tools and practices to plan and evaluate effective teaching;
7. be able to create a motivating classroom learning environment; and
8. demonstrate a view of professional development as a career-long effort and responsibility.

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

1. Register and complete the MTLE Basic Skills Exams - Subtest 1: Reading (test Code 001); Subtest 2: Writing (Test Code 002); Subtest 3: Math (Test Code 003).
2. Submit Teacher Education Application to Department Head, Liberal Arts and Education; deadline is the last day of instruction per semester.
3. Purchase at UMC Bookstore the Teacher Education Program Portfolio packet and Insert BOT Standards Reflections completed for work completed in Ed 2200.
4. Submit writing sample - "Self-Reflection as a Prospective Professional Educator".

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. For more information, see the graduation requirements.

Program Requirements

Program Requirements

Students must complete 40 upper division credits. Students must maintain a minimum GPA of 2.50 throughout their enrollment in the program and must earn a C- or better in all program required courses plus ART 1xxx and ED 2100.

Program Requirements - 64.5 credits.

ECE 4700 - Creative Arts and Language Arts: Preprimary (4.0 cr)
ECE 4702 - Mathematics, Social Studies, and Sciences: Preprimary (4.0 cr)
ECE 4730 - Understanding and Supporting Parenting (3.0 cr)
ECE 4812 - Kindergarten Student Teaching (4.0 cr)
ED 2200 - Foundations of Education (3.0 cr)
ED 2300 - Introduction to Early Childhood and Elementary Education (3.0 cr)
ED 2860 - Mathematics for Elementary Teaching (2.0 cr)
ED 2877 - Social Studies in Elementary Education (2.0 cr)
ED 2878 - Science in Elementary Education (2.0 cr)
ED 3000 - Cultural Immersion (1.0 cr)
ED 3009 - Human Relations in Diversity (1.0 cr)
ED 3010 - Child Guidance and Classroom Management (3.0 cr)
ED 3110 - Educational Psychology (3.0 cr)
ED 3201 - Reading and Language Arts I (4.0 cr)
ED 3202 - Reading and Language Arts II (2.0 cr)
ED 3301 - Creating Meaning Through Literature and Arts (4.0 cr)
ED 3500 - Introduction to Children with Special Needs (2.0 cr)
ED 3870 - Mathematics in Elementary Education (3.0 cr)
ED 3901 - The Professional Teacher I (0.5 cr)
ED 3902 - The Professional Teacher II (1.0 cr)
ED 4500 - Teaching in Inclusive Learning Environments (2.0 cr)
ED 4750 - Family, School, and Community Relations (3.0 cr)
ED 4827 - Elementary Student Teaching (7.0 cr)
PUBH 3005 - Fundamentals of Alcohol and Drug Abuse for Teacher Education (UMTC) (1.0 cr)
Choose at least 1 credit of the following:
Ed 3800 is a limited lab-like experience course that is repeatable.
  ED 3800 - Elementary Education Classroom Experiences (0.5 cr)

Liberal Education Requirements

A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required.
BIOL 1000 - Biology and Society [BIOL SCI, PEOPLE/ENV] (4.0 cr)
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ED 2100 - Child and Adolescent Development and Learning [HI/BEH/SSC] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Art Requirements

Students must take 3 credits of any art courses.
ART 1xxx
or ART 2xxx

Technology Requirements

3 credits required. (If applicable, the courses taken from below may be used to satisfy both the program and technology requirements.)
ED 2000 - Educational Technology for P-12th Settings (2.0 cr)
ED 4000 - Educational Technology Applications (1.0 cr)

Electives

Students must take enough electives to satisfy the 120 credit graduation requirement. Approximately 12.5 credits will be needed.
Exact number will depend on how the student selects their liberal education courses to satisfy the Minnesota Transfer Curriculum.

Crookston Campus

English B.S.

Liberal Arts and Education

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 39
- This program requires summer terms.
- Degree: Bachelor of Science

The BS in English prepares students to succeed in professional organizations in myriad fields. Concepts learned and skills developed through the English major will be advantageous in a wide range of employment situations, such as education, media, business, and in technical writing, proofreading, editing, publishing, freelance work, and any career requiring skills in analysis, problem-solving, research, or written and verbal communication, such as paralegals, newsletter editors, critics, marketing coordinators, proofreaders, researchers, librarians, managers, sales associates, and media analysts. Substantial numbers of English graduates find work in business, law, ministry, libraries, and other applied fields. A degree in English can also prepare students for graduate study in English, humanities, law, and medicine.

English graduates will gain an understanding and appreciation of the English language, develop critical thinking and theoretical application skills through the study and critique of literature, and gain insight into the importance of diversity.

The required minor or double major in another field allows students to further focus their professional career preparation.

Program outcomes for graduates:
 Demonstrate proficiencies in the intensive writing processes through invention, organization, drafting, revision, and editing for professional presentation
 Use authority, point-of-view, and individual voice and style in personal and professional writing
 Demonstrate multicultural awareness of the scope and variety of literary works from around the world, literary movements, and literary theories
 Locate, evaluate, and synthesize in a responsible manner material from diverse sources and points of view, and understand those works as expressions of individual and human values within global contexts
 Think critically, analyze, interpret, and articulate an informed personal reaction to world literature through writing, discussion, and presentation
 Participate effectively in groups with emphasis on listening, critical and reflective thinking, and responding

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. For more information, see the graduation requirements.

Program Requirements

A minimum of 40 upper division credits are required to graduate.

Minor or Double Major Requirements
 Students majoring in English must also complete a minor or a double major in another field.

Program Requirements
 A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.
 Required courses - 24 credits

ENGL 1005 - Introduction to World Literature [HUMANITIES, GLOB PERSP] (3.0 cr)
ENGL 3001 - World Culture and Literature [HUMANITIES, GLOB PERSP] (3.0 cr)
ENGL 3005 - Ancient to 17th Century World Literature [HUMANITIES, GLOB PERSP] (3.0 cr)
ENGL 3006 - 18th Century to Contemporary World Literature [HUMANITIES, GLOB PERSP] (3.0 cr)
WRIT 2223 - English Grammar and Usage (3.0 cr)
WRIT 3002 - Applied Literary Theory and Criticism (3.0 cr)
WRIT 3303 - Writing in Your Profession (3.0 cr)
WRIT 3900 - Seminar Experience in English (3.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required.
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
Choose one of the following:
  COMM 2002 - Interpersonal Communication [COMMUNICAT] (3.0 cr)
  or SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirements
Take any 3 credits from the following courses. (If applicable, the course taken from below may be used to satisfy both the program and technology requirements.)
CA 1015 - Word Processing and Publishing Applications (3.0 cr)
or CA 1030 - Multimedia Applications (3.0 cr)
or CA 1040 - Web Site Development (3.0 cr)
or CA 1055 - Animation Software Applications (3.0 cr)
or COMM 2110 - Communication Technology Trends (3.0 cr)

English Electives
Take 15 or more credits from the following.
  Upper Division
  Take 9 - 15 credit(s) from the following:
  •COMM 3008 - Business Writing (3.0 cr)
  •COMM 3537 - Visual Communication (3.0 cr)
  •COMM 3857 - Technical Communication (3.0 cr)
  •COMM 4000 - News and Promotional Writing (3.0 cr)
  •COMM 4002 - Intercultural Communication (3.0 cr)
  •COMM 4802 - Publication Design and Management (3.0 cr)
  •ED 3301 - Creating Meaning Through Literature and Arts (4.0 cr)
  •ENGL 4000 - Intercultural Literature: Conversations between Cultures (3.0 cr)
  •ENGL 4007 - Advanced Topics in Literature (3.0 cr)
  •GNED 3000 - Global Seminar [HUMANITIES, GLOB PERSP] (1.0 - 3.0 cr)
  •GNED 3804 - Individual Studies (1.0 - 3.0 cr)
  •WRIT 3856 - Editing (3.0 cr)
  •WRIT 3860 - Topics in Writing (3.0 cr)
  Lower Division
  Take 0 - 6 credit(s) from the following:
  •ENGL 1016 - American Literature: Race, Gender, Class, and the American Dream [HUMANITIES, HUMAN DIV] (3.0 cr)
  •ENGL 1017 - British Literature (3.0 cr)
  •ENGL 2000 - Topics in Literature (3.0 cr)
  •WRIT 2335 - Introduction to Creative Writing [HUMANITIES] (3.0 cr)

Open Electives
Students must take enough open electives credits to satisfy the 120 credit graduation requirement.

Crookston Campus

English Minor

Liberal Arts and Education

Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 18
- This program requires summer terms.

The minor in English prepares students to succeed in professional organizations and myriad fields by offering students skills that will supplement their chosen majors. English minor graduates will gain an understanding and appreciation of the English language, develop critical thinking and theoretical application skills through the study and critique of literature, and gain insight into the importance of diversity.

Minor outcomes: graduates will
 demonstrate proficiencies in the intensive writing processes through invention, organization, drafting, revision, and editing for professional presentation
 use authority, point-of-view, and individual voice and style in personal and professional writing
 demonstrate multicultural awareness of the scope and variety of literary works from around the world, literary movements, and literary theories
 locate, evaluate, and synthesize in a responsible manner material from diverse sources and points of view, and understand those works as expressions of individual and human values within global contexts
 think critically, analyze, interpret, and articulate an informed personal reaction to world literature through writing, discussion, and presentation
 participate effectively in groups with emphasis on listening, critical and reflective thinking, and responding

Program Delivery

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

Minor Requirements

Minor Requirements
 Required Courses - 12 credits
 WRIT 3303 - Writing in Your Profession (3.0 cr)
 ENGL 1005 - Introduction to World Literature [HUMANITIES, GLOB PERSP] (3.0 cr)
 ENGL 3005 - Ancient to 17th Century World Literature [HUMANITIES, GLOB PERSP] (3.0 cr)
 ENGL 3006 - 18th Century to Contemporary World Literature [HUMANITIES, GLOB PERSP] (3.0 cr)

English Electives
 Take 6 or more credit(s) from the following:
- COMM 3008 - Business Writing (3.0 cr)
- COMM 3537 - Visual Communication (3.0 cr)
- COMM 3857 - Technical Communication (3.0 cr)
- COMM 4000 - News and Promotional Writing (3.0 cr)
- COMM 4002 - Intercultural Communication (3.0 cr)
- COMM 4802 - Publication Design and Management (3.0 cr)
- ED 3301 - Creating Meaning Through Literature and Arts (4.0 cr)
- ENGL 1016 - American Literature: Race, Gender, Class, and the American Dream [HUMANITIES, HUMAN DIV] (3.0 cr)
- ENGL 1017 - British Literature (3.0 cr)
- ENGL 2000 - Topics in Literature (3.0 cr)
- ENGL 3001 - World Culture and Literature [HUMANITIES, GLOB PERSP] (3.0 cr)
- ENGL 4000 - Intercultural Literature: Conversations between Cultures (3.0 cr)
- ENGL 4007 - Advanced Topics in Literature (3.0 cr)
- GNED 3000 - Global Seminar [HUMANITIES, GLOB PERSP] (1.0 - 3.0 cr)
- GNED 3804 - Individual Studies (1.0 - 3.0 cr)
- WRIT 2335 - Introduction to Creative Writing [HUMANITIES] (3.0 cr)
- WRIT 3856 - Editing (3.0 cr)
- WRIT 3860 - Topics in Writing (3.0 cr)

Crookston Campus

Entrepreneurship B. S.
Business
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 52
- This program requires summer terms.
- Degree: Bachelor of Science

The Entrepreneurship major prepares students by developing skills and behaviors related to recognition of ideas and potential ventures, feasibility evaluation, assembling resources, and launching of new ventures. Students will learn a broad range of competencies, including opportunity recognition, applied creativity, small business finance, and business plan and strategy development. Students are exposed to a variety of real-world applications through course embedded projects and field study opportunities. An entrepreneurship major not only prepares students to launch and grow their own business, but equips them with highly transferable skills important to any organizational context, particularly in small and medium-sized enterprises.

Graduates of this program will demonstrate:
-Capability and initiative to identify entrepreneurial opportunity, assess and evaluate risk, and plan for small business ventures
-Leadership and entrepreneurial competencies required to conceptualize, plan, finance, resource, manage, and grow small businesses
-Skills of creativity in relation to organizational challenges and business opportunities
-Effective oral and written communication skills in various mediums and organizational contexts
-Effective evaluation skills in determining appropriate resources and necessary courses of action
-Ability to work effectively with people of different backgrounds and personal priorities toward the accomplishment of goals

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)
- primarily online (at least 80% of the instruction for the program is online with short, intensive periods of face-to-face coursework)
- partially online (between 50% to 80% of instruction is online)

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. For more information, see the graduation requirements.

Program Requirements
A minimum of 40 upper division credits are required to graduate.

Program Requirements
A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.
Program Requirements - 52 credits
ACCT 3220 - Accounting Systems (3.0 cr)
COMM 3008 - Business Writing (3.0 cr)
ENTR 2200 - Introduction to Entrepreneurship and Small Business (3.0 cr)
ENTR 3150 - Entrepreneurial Marketing (3.0 cr)
ENTR 3400 - Entrepreneurial and Small Business Finance (3.0 cr)
ENTR 4200 - Field Studies in Entrepreneurship and Small Business (3.0 cr)
ENTR 4800 - Entrepreneurship and Small Business Strategies (3.0 cr)
GBUS 1005 - Orientation to Online Learning (1.0 cr)
GBUS 3117 - Business Law (3.0 cr)

GBUS 3500 - Business Ethics (3.0 cr)
ITM 3020 - Introduction to Management Information Systems (3.0 cr)
MGMT 3200 - Principles of Management (3.0 cr)
MGMT 3900 - Internship (1.0 - 3.0 cr)
MKTG 3300 - Principles of Marketing (3.0 cr)
ACCT 2010 - Financial Accounting (3.0 cr)
  or ACCT 2101 - Principles of Accounting I (3.0 cr)
ACCT 2102 - Principles of Accounting II (3.0 cr)
  or ACCT 3010 - Managerial Accounting (3.0 cr)
  or AGEC 2310 - Agribusiness Financial Records (3.0 cr)
AGEC 4760 - Business Plan Development for Agribusiness (3.0 cr)
  or ENTR 3200 - Business Planning (3.0 cr)
AGEC 2530 - Professional Agriselling (3.0 cr)
  or MKTG 2200 - Personal Selling (3.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer
Curriculum with the following specific liberal education courses required:
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
ECON 2102 - Macroeconomics [HI/BEH/SSC] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
PSY 1001 - General Psychology [HI/BEH/SSC] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirements
Technology Requirements - 3 credits
CA 1020 - Spreadsheet Applications (3.0 cr)

Open Electives
Students must take enough open electives credits to meet the 120 credit graduation requirement. The number of credits needed
depends on liberal education course selections.

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

 Online
The Entrepreneurship BS Online has the same curriculum as the on-campus Entrepreneurship BS program.

Crookston Campus

Entrepreneurship Minor
Business
Academic Affairs

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 21 to 22

The minor in entrepreneurship provides students with unique opportunities to enhance their career options, regardless of their major program of study. The entrepreneurship minor helps students understand and apply the basics of business formation, value creation, customer discovery, business model generation, and resource acquisition. The program consists of seven courses, many of which are required in other majors.

Program Outcomes:
*understand and apply core entrepreneurial concepts
*demonstrate effective evaluation skills in determining resource needs
*demonstrate effective oral and written communication skills in various mediums for the purpose of explaining business opportunities and needs

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

Minor Requirements
Minor Requirements
 Required Courses - 21 credits
 ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
 ENTR 2200 - Introduction to Entrepreneurship and Small Business (3.0 cr)
 ENTR 3150 - Entrepreneurial Marketing (3.0 cr)
 ENTR 3400 - Entrepreneurial and Small Business Finance (3.0 cr)
 ENTR 4200 - Field Studies in Entrepreneurship and Small Business (3.0 cr)
 ACCT 2010 - Financial Accounting (3.0 cr)
  or ACCT 2101 - Principles of Accounting I (3.0 cr)
 AGEC 4760 - Business Plan Development for Agribusiness (3.0 cr)
  or ENTR 3200 - Business Planning (3.0 cr)

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

Entrepreneurship Minor (Online)
The minor in entrepreneurship online provides students with unique opportunities to enhance their career options, regardless of their major program of study. The entrepreneurship minor online helps students understand and apply the basics of business formation, value creation, customer discovery, business model generation, and resource acquisition. The program consists of seven courses, many of which are required in other majors, required for completion of the entrepreneurship minor online.
Program Outcomes:
*understand and apply core entrepreneurial concepts
*demonstrate effective evaluation skills in determining resource needs
*demonstrate effective communication skills in various mediums for the purpose of explaining business opportunities and needs
One additional course is required for the entrepreneurship minor online (GBus 1005); otherwise, the curriculum is the same as the classroom delivered entrepreneurship minor.

Technology Requirement
 GBUS 1005 - Orientation to Online Learning (1.0 cr)

Crookston Campus

Environmental Sciences B.S.

Math, Science and Technology

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 120
- This program requires summer terms.
- Degree: Bachelor of Science

The BS in environmental sciences is designed to provide students with the scientific background and practical skills needed to successfully address environmental issues and the background required to be successful applicants to graduate programs. Students may choose from advanced courses designed to emphasize studies in biological remediation technologies, water quality, or agriculture while participating in a common core of courses which provide knowledge in the basic principles relevant to all 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. For more information, see the graduation requirements.

Program Requirements

Environmental Sciences Core Requirements

A maximum of two D grades are allowed for courses required in the program, subplan/emphasis, and technology requirements. This includes grades earned at UMC or transferred in from another institution.

Required Courses - 38 credits
AGRO 3030 - Research Techniques in Agriculture and Natural Resources (3.0 cr)
BIOL 1805 - Nature of Life (2.0 cr)
BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
BIOL 2032 - General Microbiology (4.0 cr)
BIOL 3420 - Ecotoxicology (3.0 cr)
BIOL 3899 - Pre-Internship Seminar (0.5 cr)
BIOL 3900 - Internship (1.0 - 2.0 cr)
BIOL 3901 - Post-Internship Seminar (0.5 cr)
ENSC 2055 - Hazardous Waste Worker Training (3.0 cr)
ENSC 3124 - Environmental Science and Remediation Techniques (3.0 cr)
ENSC 3720 - Fate of Chemicals in the Environment (4.0 cr)
ENSC 4022 - Risk Assessment and Environmental Impact Statements (3.0 cr)
ENSC 4100 - Capstone in Environmental Science (2.0 cr)
NATR 3374 - Ecology [BIOL SCI] (4.0 cr)

Chemistry Core Requirements

Required Courses - 17 credits. Some courses may also count towards the liberal education requirements.
CHEM 1061 - Chemical Principles I [PHYS SCI, PEOPLE/ENV] (3.0 cr)
CHEM 1062 - Chemical Principles II (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS SCI, PEOPLE/ENV] (1.0 cr)
CHEM 1066 - Chemical Principles II Laboratory (1.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2310 - Organic Chemistry Laboratory I (2.0 cr)
CHEM 3022 - Chemical Analysis in the Biological and Environmental Sciences (4.0 cr)

Math and Physics Core Requirements
 Required Courses - 11 credits. Some courses may also count towards the liberal education requirements.
 MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
 MATH 1271 - Calculus I [MATH THINK] (4.0 cr)
 PHYS 1101 - Introductory College Physics I [PHYS SCI] (4.0 cr)

Liberal Education Requirements
 A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer
 Curriculum with the following specific liberal education courses required.
 WRIT 3303 - Writing in Your Profession (3.0 cr)
 COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
 COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
 ECON 1010 - Global Trade Economics [GLOB PERSP] (3.0 cr)
 ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
 SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirement
 Students must take 3 credits from the following courses. (If applicable, the course selected from below may be used to satisfy both the
 program and technology requirements.)
 CA 1xxx
 or CA 2xxx
 or CHEM 3022 - Chemical Analysis in the Biological and Environmental Sciences (4.0 cr)
 or MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)

Program Sub-plans
 Students are required to complete one of the following sub-plans.

Agricultural Environmental Stewardship
 The BS in environmental sciences with an emphasis in agricultural environmental stewardship trains students with the scientific
 background and practical skills needed to successfully address environmental issues, by providing them with the background of
 agricultural operations that enables them to understand the fate of chemicals in the environment and the impact agriculture can have on
 the fate and transport of chemicals in the environment. Students also learn about techniques in various fields of agriculture that
 minimize the impact on the environment while still producing the food, energy, shelter, and other commodities needed to sustain the
 human population.

 Graduates with this emphasis will:
 Be ideally suited to bridge the gap between agricultural production and environmental science.
 Be ideally suited for employment with government agencies such as NRCS, USDA, EPA, and others.

Agricultural Environmental Stewardship Requirements
 Required Courses - 15 credits
 AGRO 1183 - Field Crops: Production Principles (3.0 cr)
 ANSC 3004 - Livestock Facilities and Environmental Systems (3.0 cr)
 ASM 2200 - Introduction to Renewable Energy Systems (3.0 cr)
 NATR 2630 - Introduction to Geographic Information Systems (3.0 cr)
 SOIL 1293 - Soil Science (3.0 cr)
Agricultural Environmental Stewardship Electives
 Students must complete enough electives credits from the following courses to satisfy the 120 credit requirement for graduation.
 Take 1 or more credit(s) from the following:
 •AGRO 3130 - Forages (3.0 cr)
 •AGRO 3444 - Crop Production (4.0 cr)
 •AGRO 3640 - Weed Science (3.0 cr)
 •ANSC 1205 - Beef and Dairy Production Techniques (2.0 cr)
 •ANSC 2104 - Feeds and Feeding (4.0 cr)
 •ANSC 3204 - Dairy Production (4.0 cr)
 •ASM 3009 - Surveying (4.0 cr)
 •ASM 3202 - Solar, Wind, and Geo-Thermal Systems (3.0 cr)
 •ASM 3360 - Applications in Precision Agriculture (3.0 cr)
 •NATR 3344 - Land Use Planning (3.0 cr)
 •NATR 3635 - Geographic Information Systems Applications (3.0 cr)
 •SOIL 3414 - Soil Fertility and Plant Nutrition (4.0 cr)
 •SWM 3009 - Hydrology and Water Quality (4.0 cr)

•SWM 3224 - Soil and Water Conservation (4.0 cr)
•SWM 3225 - Watershed Management (3.0 cr)

Environmental Ecology

The BS in environmental sciences with an emphasis in environmental ecology is designed to not only provide students with the scientific background and practical skills needed to successfully address environmental issues, but also to provide graduating students with an ecological perspective on the relationships and interdependence of organisms in terrestrial and aquatic habitats. Students electing to pursue this emphasis area become familiar with water quality issues, soil quality issues, and research techniques used to analyze various substrates for environmental contaminants. Students learn the impact that human activities can have on these biota, but also how the biota can be used in biological remediation techniques to remove the contamination caused by human activities.

Graduates with this emphasis will:
 Be ideally suited for environmental consulting firms.
 Understand the ecological relationships between biota and also how the ecosystems can be impacted by human activities.
 Understand how to protect sensitive ecosystems and how to restore ecosystems that have already been impaired by human activities.

Environmental Ecology Requirements
 Required Courses - 19 credits
 BIOL 2022 - General Botany (3.0 cr)
 GEOL 1001 - Introductory Geology [PHYS SCI, PEOPLE/ENV] (3.0 cr)
 NATR 3480 - Ecological Restoration (3.0 cr)
 NATR 3699 - Integrated Resource Management (3.0 cr)
 SOIL 1293 - Soil Science (3.0 cr)
 SWM 3009 - Hydrology and Water Quality (4.0 cr)
Environmental Ecology Electives
 Students must complete enough electives credits from the following courses to satisfy the 120 credit requirement for graduation.
 Take 1 or more credit(s) from the following:
•ANSC 3004 - Livestock Facilities and Environmental Systems (3.0 cr)
•BIOL 3131 - Plant Physiology (3.0 cr)
•NATR 2630 - Introduction to Geographic Information Systems (3.0 cr)
•NATR 3364 - Plant Taxonomy (3.0 cr)
•NATR 3376 - Wetland and Riparian Ecology and Management (3.0 cr)
•NATR 3486 - Conservation Biology (3.0 cr)
•NATR 3488 - Invasive Species Ecology and Management (3.0 cr)
•NATR 3580 - Advanced Ecological Restoration (2.0 cr)
•NATR 3660 - Prairie Ecosystem Management (2.0 cr)
•NATR 3699 - Integrated Resource Management (3.0 cr)
•PHYS 1102 - Introductory College Physics II [PHYS SCI] (4.0 cr)
•SOIL 3414 - Soil Fertility and Plant Nutrition (4.0 cr)
•SWM 3224 - Soil and Water Conservation (4.0 cr)

Environmental Health

The BS in environmental sciences with an emphasis in environmental health trains students with the scientific background and practical skills needed to successfully address environmental issues while also providing them with an understanding of how environmental or occupational factors (physical, chemical, and biological) interact with a human body causing an adverse impact on human health or the ecological balances essential to long-term human survivorship.

Graduates with this emphasis will:
 Understand how environmental or occupational factors impact human health.
 Be able to make recommendations as to when an environmental or occupational hazard needs to be remediated due to its impacts on human health.
 Be ideal candidates for environmental health graduate programs, and as government health officials and environmental health and safety specialists within any organization.

Environmental Health Requirements
 Required Courses - 18 credits
 BIOL 2012 - General Zoology (4.0 cr)
 BIOL 2103 - Human Anatomy and Physiology I (4.0 cr)
 BIOL 2104 - Human Anatomy and Physiology II (4.0 cr)
 ENSC 3104 - Toxicology (3.0 cr)
 PUBH 3102 - Issues in Environmental and Occupational Health (UMTC) (3.0 cr)
Environmental Health Electives
 Students must complete enough electives credits from the following courses to satisfy the 120 credit requirement for graduation.
 Take 1 or more credit(s) from the following:
•AGRO 3640 - Weed Science (3.0 cr)

- CHEM 3021 - Biochemistry (3.0 cr)
- ENSC 3132 - Air, Water, and Human Health (3.0 cr)
- ENSC 3524 - Global Climate Change and Human Health (3.0 cr)
- HSCI 1123 - Fundamentals of Nutrition [BIOL SCI] (3.0 cr)
- PHYS 1102 - Introductory College Physics II [PHYS SCI] (4.0 cr)

Environmental Toxicology and Chemistry

The BS in environmental sciences with an emphasis in environmental toxicology and chemistry trains students with the scientific background and practical skills needed to successfully address environmental issues while also providing them with an understanding of the impacts of environmental contaminants on the biota. Chemical and toxicological aspects of environmental science are emphasized.

Graduates with this emphasis will:
 Understand what factors (chemical, biological, physical) impact the fate and transport of chemicals in the environment.
 Understand phase partitioning and how to determine the ultimate fate of a chemical released into the environment.
 Be ideally suited for environmental consulting firms, pharmaceutical companies, and government agencies such as EPA, USGS, and others.
 Be ideal candidates for graduate programs in environmental toxicology, chemistry, ecotoxicology, or any other science based graduate program.

Environmental Toxicology and Chemistry Requirements
 Required Courses - 17 to 18 credits
 CHEM 2302 - Organic Chemistry II (3.0 cr)
 CHEM 2311 - Organic Chemistry Laboratory II (2.0 cr)
 CHEM 3021 - Biochemistry (3.0 cr)
 ENSC 3104 - Toxicology (3.0 cr)
 SOIL 1293 - Soil Science (3.0 cr)
 BIOL 2012 - General Zoology (4.0 cr)
   or BIOL 2022 - General Botany (3.0 cr)
Environmental Toxicology and Chemistry Electives
 Students must complete enough electives credits from the following courses to satisfy the 120 credit requirement for graduation.
 Take 1 or more credit(s) from the following:
- AGRO 3640 - Weed Science (3.0 cr)
- ENSC 3133 - Global Change and Biogeochemistry (3.0 cr)
- ENSC 3143 - Environmental Microbiology (3.0 cr)
- ENSC 4608 - Biodegradation and Bioremediation (3.0 cr)
- GEOL 1001 - Introductory Geology [PHYS SCI, PEOPLE/ENV] (3.0 cr)
- NATR 3699 - Integrated Resource Management (3.0 cr)
- PHYS 1102 - Introductory College Physics II [PHYS SCI] (4.0 cr)
- SOIL 3414 - Soil Fertility and Plant Nutrition (4.0 cr)
- SWM 3009 - Hydrology and Water Quality (4.0 cr)

Individualized Environmental Sciences

The BS in environmental sciences with an emphasis in individualized environmental sciences allows students and advisers to select courses from the entire list of environmental science electives for the environmental sciences major. This allows students to work out an individual plan of study in cooperation with their academic advisers to prepare them for any particular aspect of environmental sciences that may not be covered by one of the existing emphasis areas. This emphasis area also allows great flexibility for individual students while maintaining the strong background in the sciences needed to be a successful environmental scientist.

Individualized Environmental Sciences Electives
 Students must complete enough electives credits from the following courses to satisfy the 120 credit requirement for graduation.
 Take 20 or more credit(s) from the following:
- AGRO 3130 - Forages (3.0 cr)
- AGRO 3444 - Crop Production (4.0 cr)
- AGRO 3640 - Weed Science (3.0 cr)
- ANSC 1205 - Beef and Dairy Production Techniques (2.0 cr)
- ANSC 2104 - Feeds and Feeding (4.0 cr)
- ANSC 3004 - Livestock Facilities and Environmental Systems (3.0 cr)
- ANSC 3204 - Dairy Production (4.0 cr)
- ASM 3009 - Surveying (4.0 cr)
- ASM 3202 - Solar, Wind, and Geo-Thermal Systems (3.0 cr)
- ASM 3360 - Applications in Precision Agriculture (3.0 cr)
- BIOL 3131 - Plant Physiology (3.0 cr)
- CHEM 2302 - Organic Chemistry II (3.0 cr)
- CHEM 2311 - Organic Chemistry Laboratory II (2.0 cr)

- •CHEM 3021 - Biochemistry (3.0 cr)
- •ENSC 3104 - Toxicology (3.0 cr)
- •ENSC 3132 - Air, Water, and Human Health (3.0 cr)
- •ENSC 3133 - Global Change and Biogeochemistry (3.0 cr)
- •ENSC 3143 - Environmental Microbiology (3.0 cr)
- •ENSC 3524 - Global Climate Change and Human Health (3.0 cr)
- •ENSC 4608 - Biodegradation and Bioremediation (3.0 cr)
- •HSCI 1123 - Fundamentals of Nutrition [BIOL SCI] (3.0 cr)
- •NATR 2630 - Introduction to Geographic Information Systems (3.0 cr)
- •NATR 3344 - Land Use Planning (3.0 cr)
- •NATR 3364 - Plant Taxonomy (3.0 cr)
- •NATR 3376 - Wetland and Riparian Ecology and Management (3.0 cr)
- •NATR 3635 - Geographic Information Systems Applications (3.0 cr)
- •NATR 3660 - Prairie Ecosystem Management (2.0 cr)
- •NATR 3699 - Integrated Resource Management (3.0 cr)
- •PHYS 1102 - Introductory College Physics II [PHYS SCI] (4.0 cr)
- •SOIL 3414 - Soil Fertility and Plant Nutrition (4.0 cr)
- •SWM 3009 - Hydrology and Water Quality (4.0 cr)
- •SWM 3103 - Meteorology and Climatology (3.0 cr)
- •SWM 3224 - Soil and Water Conservation (4.0 cr)
- •SWM 3225 - Watershed Management (3.0 cr)

Water Quality

The BS in environmental sciences with an emphasis in water quality trains students with the scientific background and practical skills needed to successfully address environmental issues while also providing them with an understanding of water movement in terrestrial and aquatic systems and how this water movement impacts pollutant movement. In addition students will understand how the presence of pollutants in aquatic systems impacts the water quality and how watersheds can be managed to minimize the presence of pollutants and their impact on human and environmental health.

Graduates with this emphasis area will:
 Understand water movement and how water movement impacts pollutant movement.
 Be ideally suited for environmental consulting firms, government agencies such as USGS, and others.

Water Quality Requirements
 Required Courses - 23 credits
 BIOL 2022 - General Botany (3.0 cr)
 BIOL 3722 - Limnology (3.0 cr)
 GEOL 1001 - Introductory Geology [PHYS SCI, PEOPLE/ENV] (3.0 cr)
 SOIL 1293 - Soil Science (3.0 cr)
 SWM 3009 - Hydrology and Water Quality (4.0 cr)
 SWM 3224 - Soil and Water Conservation (4.0 cr)
 SWM 3225 - Watershed Management (3.0 cr)
Water Quality Electives
 Students must complete enough electives credits from the following courses to satisfy the 120 credit requirement for graduation.
 Take 1 or more credit(s) from the following:
- •AGRO 3640 - Weed Science (3.0 cr)
- •ENSC 3133 - Global Change and Biogeochemistry (3.0 cr)
- •ENSC 3143 - Environmental Microbiology (3.0 cr)
- •ENSC 4608 - Biodegradation and Bioremediation (3.0 cr)
- •NATR 2630 - Introduction to Geographic Information Systems (3.0 cr)
- •NATR 3376 - Wetland and Riparian Ecology and Management (3.0 cr)
- •PHYS 1102 - Introductory College Physics II [PHYS SCI] (4.0 cr)
- •SOIL 3414 - Soil Fertility and Plant Nutrition (4.0 cr)
- •SWM 3103 - Meteorology and Climatology (3.0 cr)

Crookston Campus

Environmental Sciences Minor

Math, Science and Technology

Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 18 to 20
- This program requires summer terms.

The environmental sciences minor introduces students to the core concepts of environmental sciences. Students will gain an overall understanding of environmental sciences and its importance in today's society. This minor meshes well with major courses of study in biology, agronomy, horticulture, animal science, and natural resources giving these students a feel for how their disciplines interact with environmental sciences. It also helps develop critical thinking skills in applying science-based decision making as it pertains to the environment.

Program Delivery

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

Minor Requirements

Minor Requirements (12 cr)

BIOL 3420 - Ecotoxicology (3.0 cr)
ENSC 3124 - Environmental Science and Remediation Techniques (3.0 cr)
ENSC 4100 - Capstone in Environmental Science (2.0 cr)
BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
  or BIOL 1009H - Honors: General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)

Electives

Take 2 - 3 course(s) totaling 6 - 8 credit(s) from the following:
- ANSC 3004 - Livestock Facilities and Environmental Systems (3.0 cr)
- ASM 3202 - Solar, Wind, and Geo-Thermal Systems (3.0 cr)
- ENSC 3104 - Toxicology (3.0 cr)
- ENSC 3132 - Air, Water, and Human Health (3.0 cr)
- ENSC 3133 - Global Change and Biogeochemistry (3.0 cr)
- ENSC 3143 - Environmental Microbiology (3.0 cr)
- ENSC 3496 - Special Topics in Environmental Sciences (1.0 - 12.0 cr)
- ENSC 3524 - Global Climate Change and Human Health (3.0 cr)
- ENSC 3720 - Fate of Chemicals in the Environment (4.0 cr)
- ENSC 4022 - Risk Assessment and Environmental Impact Statements (3.0 cr)
- ENSC 4608 - Biodegradation and Bioremediation (3.0 cr)
- NATR 3480 - Ecological Restoration (3.0 cr)
- NATR 3486 - Conservation Biology (3.0 cr)
- NATR 3580 - Advanced Ecological Restoration (2.0 cr)
- SOIL 3414 - Soil Fertility and Plant Nutrition (4.0 cr)
- SWM 3009 - Hydrology and Water Quality (4.0 cr)
- SWM 3224 - Soil and Water Conservation (4.0 cr)

Crookston Campus

Equine Science B.S.
Agriculture and Natural Resources
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120 to 124
- Required credits within the major: 68 to 87
- This program requires summer terms.
- Degree: Bachelor of Science

Graduates of UMC's equine science program understand and are able to meet the daily care, nutrition, health care, and exercise/training needs of horses in their care. They have the knowledge and skills necessary to succeed in equine or equine-related employment and have the business and management experience necessary to operate an equine or related business. The program balances the practical skills students need to work with and care for horses and the theory required to build a successful career. The focus is on the business and management aspects of the horse industry, thus providing a broad-based education which appeals to employers. Options also exist for students who wish to pursue graduate school or pre-veterinary studies.

Program outcomes for graduates:
demonstrate knowledge of theory and practical experience in physiology, nutrition, health, and reproduction of the horse;
demonstrate a working knowledge of equine ownership responsibility and husbandry;
be able to apply management theories and software and marketing strategies to equine and related enterprises;
demonstrate horsemanship and training skills in a variety of disciplines and discern what methods work most effectively with horses of different temperaments and breeding/conformation;
have practical skills and knowledge that will lead to a variety of employment opportunities in the equine industry.

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. For more information, see the graduation requirements.

Program Requirements
Students must complete 40 upper division credits.

Equine Science Program Requirements
A maximum of two D grades are allowed for core courses required in the program, subplan/emphasis, and technology requirements. This includes grades earned at UMC or transferred in from another institution.
Required courses - 39 credits
ANSC 1004 - Introduction to Animal Science (4.0 cr)
ANSC 2104 - Feeds and Feeding (4.0 cr)
ANSC 3104 - Applied Animal Nutrition (4.0 cr)
ANSC 3203 - Animal Anatomy and Physiology (4.0 cr)
ANSC 3503 - Animal Health and Disease (3.0 cr)
EQSC 1002 - Equine Careers and Husbandry Practices (1.0 cr)
EQSC 1202 - Equine Evaluation (2.0 cr)
EQSC 2102 - Horse Production (4.0 cr)
EQSC 3403 - Equine Exercise Physiology (3.0 cr)
EQSC 4102 - Equine Management (3.0 cr)
GBUS 3107 - Legal Environment in Business (3.0 cr)
GNAG 3899 - Pre-Internship Seminar (0.5 cr)
GNAG 3900 - Internship (0.5 - 3.0 cr)

GNAG 3901 - Post Internship Seminar (0.5 cr)
GNAG 4652 - Senior Seminar (1.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:
BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirements
Take any 3 credits from the following courses. (If applicable, the course taken from below may be used to satisfy both the program and technology requirements.)
AGEC 2310 - Agribusiness Financial Records (3.0 cr)
or CA 1xxx
or CA 2xxx

Agriculture Electives
Students must take 2 credits of agriculture electives, selected in consultation with their advisor.

Open Electives
Students must take enough open electives credits to meet the 120-124 credit graduation requirement.

Program Sub-plans
Students are required to complete one of the following sub-plans.

Equine Science
This emphasis leads graduates to equine careers, including management, training/showing, riding instruction, breeding/reproduction, feed production/sales, sales of equestrian equipment or pharmaceutical/health care products, and veterinary technician. Students receive classroom instruction and hands-on experiential learning. Focus is on the business/management aspect of the horse industry. Curriculum includes computer, communications, and sales training. Coursework includes riding instruction, nutrition, breeding, reproduction, horse production, evaluation, feeds, health/disease, management, training/showing, and facilities. Students can take courses specific to their interest.

Equine Science Requirements
Required courses - 29 to 30 credits
AGEC 3540 - Farm Business Management (3.0 cr)
AGEC 4740 - Grain and Livestock Marketing (3.0 cr)
CHEM 1401 - Elementary Bioorganic Chemistry [PHYS SCI, PEOPLE/ENV] (4.0 cr)
EQSC 3413 - Horse Training and Showing (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
AGEC 2310 - Agribusiness Financial Records (3.0 cr)
ANSC 3023 - Animal Breeding (3.0 cr)
  or BIOL 3022 - Principles of Genetics (3.0 cr)
ANSC 3304 - Reproduction, AI, and Lactation (4.0 cr)
  or EQSC 3305 - Equine Reproductive Techniques (3.0 cr)
Choose one of the following:
  CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
  or CHEM 1061 - Chemical Principles I [PHYS SCI, PEOPLE/ENV] (3.0 cr)
    CHEM 1065 - Chemical Principles I Laboratory [PHYS SCI, PEOPLE/ENV] (1.0 cr)
Equine Science Electives
Take 7 or more credit(s) from the following:
•EQSC 1000 - Light Horse Driving (2.0 cr)
•EQSC 1100 - Western Equitation (3.0 cr)
•EQSC 1200 - Hunt Seat & Dressage Equitation (3.0 cr)
•EQSC 1300 - Saddle Seat Equitation (2.0 cr)
•EQSC 2001 - Concepts in Dressage Equitation (3.0 cr)
•EQSC 3441 - Topics in Advanced Western Equitation (3.0 cr)
•EQSC 3443 - Topics in Advanced Equitation Over Fences (3.0 cr)

Pre-Veterinary Medicine

The pre-veterinary medicine emphasis meets the course entry requirements for admission to the University of Minnesota College of Veterinary Medicine; however, similar entry requirements among colleges of veterinary medicine, coupled with sufficient flexibility within the curriculum, allow graduates to meet the admission requirements for many other institutions. Students who graduate are well prepared to pursue their career goal of becoming a veterinarian. Students are exposed to traditional classroom instruction, as well as hands-on/experiential learning in the laboratory.

Pre-Veterinary Medicine Requirements
Required courses - 48 credits
ANSC 3023 - Animal Breeding (3.0 cr)
ANSC 3304 - Reproduction, AI, and Lactation (4.0 cr)
BIOL 2012 - General Zoology (4.0 cr)
BIOL 2032 - General Microbiology (4.0 cr)
BIOL 3022 - Principles of Genetics (3.0 cr)
CHEM 1061 - Chemical Principles I [PHYS SCI, PEOPLE/ENV] (3.0 cr)
CHEM 1062 - Chemical Principles II (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS SCI, PEOPLE/ENV] (1.0 cr)
CHEM 1066 - Chemical Principles II Laboratory (1.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2310 - Organic Chemistry Laboratory I (2.0 cr)
CHEM 3021 - Biochemistry (3.0 cr)
MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
PHYS 1101 - Introductory College Physics I [PHYS SCI] (4.0 cr)
PHYS 1102 - Introductory College Physics II [PHYS SCI] (4.0 cr)
Choose one of the following:
  MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
  or MATH 1142 - Survey of Calculus [MATH THINK] (3.0 cr)
Pre-Veterinary Medicine Electives
Take 3 or more credit(s) from the following:
•EQSC 1000 - Light Horse Driving (2.0 cr)
•EQSC 1100 - Western Equitation (3.0 cr)
•EQSC 1200 - Hunt Seat & Dressage Equitation (3.0 cr)
•EQSC 1300 - Saddle Seat Equitation (2.0 cr)
•EQSC 3441 - Topics in Advanced Western Equitation (3.0 cr)
•EQSC 3443 - Topics in Advanced Equitation Over Fences (3.0 cr)

Crookston Campus
Equine Science Minor
Agriculture and Natural Resources
Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 25 to 27

The minor in equine science introduces students to the pertinent areas of management and production of the equine industry. Students learn core concepts of the equine industry, including training in reproduction, exercise physiology, nutrition, management of equine facilities, and rider instructor training.

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

Minor Requirements
Equine Science Minor Requirements
Required courses - 25 to 27 credits
ANSC 2104 - Feeds and Feeding (4.0 cr)
ANSC 3203 - Animal Anatomy and Physiology (4.0 cr)
ANSC 3503 - Animal Health and Disease (3.0 cr)
EQSC 1202 - Equine Evaluation (2.0 cr)
EQSC 2102 - Horse Production (4.0 cr)
EQSC 4102 - Equine Management (3.0 cr)
Choose one of the following:
EQSC 1000 - Light Horse Driving (2.0 cr)
 or EQSC 1100 - Western Equitation (3.0 cr)
 or EQSC 1200 - Hunt Seat & Dressage Equitation (3.0 cr)
 or EQSC 1300 - Saddle Seat Equitation (2.0 cr)
Choose one of the following:
ANSC 3304 - Reproduction, AI, and Lactation (4.0 cr)
 or EQSC 3305 - Equine Reproductive Techniques (3.0 cr)
 or EQSC 3403 - Equine Exercise Physiology (3.0 cr)

Crookston Campus

Exercise Science and Wellness B.S.

Math, Science and Technology

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 56
- This program requires summer terms.
- Degree: Bachelor of Science

The BS in exercise science and wellness combines the study of exercise physiology within the holistic context of health and wellness. The program integrates a hands-on, experiential learning laboratory working with various demographic populations (e.g., athletes, new moms, senior citizens). Through a dynamic collaboration between the University and the local hospital rehabilitation services, students are exposed to scenarios to apply theory to patient rehabilitation. Students learn techniques in coaching, counseling and effective motivational techniques during both internal and external internship experiences. The curriculum provides the knowledge to develop tailored exercise prescriptions to patients after an illness or injury that will promote improved health and wellness for the future. After completion of the program, the graduate will be well-positioned for a career in the physical fitness industry, hospitals or schools.

As the United States population ages, the need for healthy living and better fitness will demand more individuals to facilitate quality of life decisions and overall wellness. The exercise science and wellness major uniquely positions graduates to enter this new reality with the knowledge and experience to merge exercise with health and wellness.

This major also aligns with the Universitys mission to internationalize the curriculum by being one of the first majors at the University of Minnesota, Crookston to internationalize the program by integrating learner outcomes that challenge the students to reflect on their own learning and become global competent graduates.

Program outcomes:

Apply exercise related principles to apparently healthy populations as well as those with cardiovascular, pulmonary and/or metabolic disease.
Administer health appraisals, assess client needs, design and administer appropriate programs such as smoking cessation, blood pressure, weight control, and nutrition counseling.
Design and administer appropriate strength, power, flexibility, agility, and cardio-respiratory programs based on clients goals, needs and abilities.
Integrate core and body mechanics into the exercise prescription for both consultative and on-site Occupational Therapists and Physical Therapists.
Describe the implications of positive and negative health practices impacting physical, social, occupational, emotional, intellectual, spiritual, and environmental health within a cultural context.
Discuss major health risks and diseases affecting contemporary society, and explore the principal ways to promote health and wellness through lifestyle and behavioral change throughout the lifespan and within a cultural context.

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. For more information, see the graduation requirements.

Program Requirements

Students must complete 40 upper division credits.

Program Requirements

A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.

Required Courses - 56 credits

BIOL 2103 - Human Anatomy and Physiology I (4.0 cr)
BIOL 2104 - Human Anatomy and Physiology II (4.0 cr)
HLTH 1062 - First Aid and CPR (2.0 cr)
HSCI 1072 - Wellness (3.0 cr)
HSCI 1123 - Fundamentals of Nutrition [BIOL SCI] (3.0 cr)
HSCI 3001 - Community Health and Wellness (3.0 cr)
HSCI 3112 - Kinesiology (4.0 cr)
HSCI 3899 - Pre-Internship Seminar (0.5 cr)
HSCI 3900 - Internship (1.0 - 2.0 cr)
HSCI 3901 - Post-Internship Seminar (0.5 cr)
HSCI 4520 - Exercise Testing and Prescription (4.0 cr)
PHYS 1012 - Introductory Physics [PHYS SCI, PEOPLE/ENV] (4.0 cr)
PUBH 3005 - Fundamentals of Alcohol and Drug Abuse for Teacher Education (UMTC) (1.0 cr)
PUBH 3102 - Issues in Environmental and Occupational Health (UMTC) (3.0 cr)
SRM 2000 - Prevention and Care of Athletic Injuries (3.0 cr)
SRM 3001 - Sport Nutrition (3.0 cr)
SRM 3003 - Sport Facility and Activities Management (3.0 cr)
SRM 3200 - Socio-Cultural Dimensions in Sport (3.0 cr)
SRM 3320 - Exercise Physiology (3.0 cr)
WRIT 3303 - Writing in Your Profession (3.0 cr)

Liberal Education Requirements

A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:

BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
COMM 3001 - Human Relationships and Leadership [HUMAN DIV] (3.0 cr)
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
PSY 1001 - General Psychology [HI/BEH/SSC] (3.0 cr)
SOC 1001 - Introduction to Sociology [HI/BEH/SSC, HUMAN DIV] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirements

Students must take 3 credits from the following courses. (If applicable, the course selected from below may be used to satisfy both the program and technology requirements.)
CA 1xxx
or CA 2xxx
or CHEM 3022 - Chemical Analysis in the Biological and Environmental Sciences (4.0 cr)
or MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)

Electives - Upper Division

Students must take 6 credits of upper division electives. The following courses are recommended: HUM 3310, LAMP 4177, MGMT 3200, MGMT 3210, MKTG 3300, SOC 3937.

Electives

Students must take enough open electives credits to meet the 120 credit graduation requirement. The following courses are recommended: CHEM 1401, ECON 2101, PHIL 1001, PHIL 2002, SOC 1102.

Crookston Campus
Finance B.S.
Business
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 65
- This program requires summer terms.
- Degree: Bachelor of Science

The importance of finance for organizations today cannot be underestimated. The ability to understand the markets and how businesses raise and invest capital is highly looked upon among businesses and organizations. Finance is a very broad degree program covering such diverse topics as corporate finance, insurance and risk management, estate planning, investment and money, and banking and financial institutions. Organizations need individuals with the knowledge to calculate contemporary financial measures of performance and risk, as well as the ability to explain how the financial services component industries interact with each other. Graduates from this program will have the skills and experience to compete effectively for entry level employment positions, such as financial analysts, personal financial advisers, actuaries and other positions in securities, commodities, and financial services.

Program outcomes for graduates:
 Describe the dimensions of performance and risk relevant to financial services companies
 Assess consumer financial needs and the mechanisms available for fulfilling these needs
 Describe and apply financial concepts, theories and tools
 Evaluate the role of technology and the legal, ethical and economic environment as it relates to financial services
 Prepare a personal financial plan for clients

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)
- primarily online (at least 80% of the instruction for the program is online with short, intensive periods of face-to-face coursework)
- partially online (between 50% to 80% of instruction is online)

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. For more information, see the graduation requirements.

Program Requirements
Business Core
 A maximum of two D grades are allowed for business, finance, and technology courses required in the program. This includes grades earned at UMC or transferred in from another institution.
 Business Core - 22 credits
 ACCT 2101 - Principles of Accounting I (3.0 cr)
 ACCT 2102 - Principles of Accounting II (3.0 cr)
 FIN 3100 - Managerial Finance (3.0 cr)
 GBUS 1005 - Orientation to Online Learning (1.0 cr)
 GBUS 3107 - Legal Environment in Business (3.0 cr)
 MGMT 3200 - Principles of Management (3.0 cr)
 MGMT 3900 - Internship (1.0 - 3.0 cr)
 MKTG 3300 - Principles of Marketing (3.0 cr)

Finance Requirements
 Finance Requirements - 40 credits

ACCT 3201 - Intermediate Accounting I (4.0 cr)
ACCT 4404 - Income Tax I (3.0 cr)
ACCT 4405 - Income Tax II (3.0 cr)
COMM 3008 - Business Writing (3.0 cr)
FIN 3105 - Corporate Finance (3.0 cr)
FIN 3110 - Estate Planning (3.0 cr)
FIN 3115 - Insurance and Risk Management (3.0 cr)
FIN 3120 - Money, Banking and Financial Institutions (3.0 cr)
FIN 3125 - Investment (3.0 cr)
GBUS 3117 - Business Law (3.0 cr)
GBUS 3300 - Business Analytics (3.0 cr)
GBUS 3500 - Business Ethics (3.0 cr)
ITM 3020 - Introduction to Management Information Systems (3.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer
Curriculum with the following specific liberal education courses required:
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
ECON 2102 - Macroeconomics [HI/BEH/SSC] (3.0 cr)
MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
PSY 1001 - General Psychology [HI/BEH/SSC] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
  or MATH 1250 - Precalculus [MATH THINK] (4.0 cr)
  or MATH 1271 - Calculus I [MATH THINK] (4.0 cr)
  or MATH 1272 - Calculus II (4.0 cr)

Technology Requirements
Technology Requirements - 3 credits
CA 1020 - Spreadsheet Applications (3.0 cr)

Open Electives
Students must take enough open electives credits to meet the 120 credit graduation requirement. The number of credits needed
depends on liberal education course selections. Approximately 15 credits will be needed.

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

Online
The online finance BS program has the same curriculum as the on-campus finance BS program.

The importance of finance for organizations today cannot be underestimated. The ability to understand the markets and how
businesses raise and invest capital is highly looked upon among businesses and organizations. Finance is a very broad degree
program covering such diverse topics as corporate finance, insurance and risk management, estate planning, investment and money,
and banking and financial institutions. Organizations need individuals with the knowledge to calculate contemporary financial measures
of performance and risk, as well as the ability to explain how the financial services component industries interact with each other.
Graduates from this program will have the skills and experience to compete effectively for entry level employment positions, such as
financial analysts, personal financial advisers, actuaries and other positions in securities, commodities and financial services.

Program outcomes for graduates:
Describe the dimensions of performance and risk relevant to financial services companies;
Assess consumer financial needs and the mechanisms available for fulfilling these needs;
Describe and apply financial concepts, theories and tools;
Evaluate the role of technology and the legal, ethical and economic environment as it relates to financial services;
And prepare a personal financial plan for clients.

Crookston Campus
Finance Certificate
Business
Academic Affairs

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 28 to 29
- Degree: Finance Certificate

The ability to understand the markets and how businesses raise and invest capital is a highly looked upon specialized background amongst businesses and organizations. The certificate in finance is a broad program covering such diverse topics as corporate finance, insurance and risk management, estate planning, investments and money, banking and financial institutions. Students completing this certificate may find employment working with banks, insurance companies, securities firms, commodity brokers, and other financial investments enterprises.

Please note that this certificate is available to individuals in the workforce that want a new career in finance and to non-University of Minnesota baccalaureate students who want additional credentialing.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

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. For more information, see the graduation requirements.

Program Requirements
Certificate Requirements
Requirements - 22 to 23 credits
ACCT 2101 - Principles of Accounting I (3.0 cr)
ACCT 2102 - Principles of Accounting II (3.0 cr)
ECON 2102 - Macroeconomics [HI/BEH/SSC] (3.0 cr)
FIN 3105 - Corporate Finance (3.0 cr)
FIN 3120 - Money, Banking and Financial Institutions (3.0 cr)
GBUS 1005 - Orientation to Online Learning (1.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
  or MATH 1250 - Precalculus [MATH THINK] (4.0 cr)
AGEC 3640 - Agricultural Finance and Valuation (3.0 cr)
  or FIN 3100 - Managerial Finance (3.0 cr)

Certificate Electives Requirement
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- ACCT 4404 - Income Tax I (3.0 cr)
- AGEC 4740 - Grain and Livestock Marketing (3.0 cr)
- FIN 3110 - Estate Planning (3.0 cr)
- FIN 3115 - Insurance and Risk Management (3.0 cr)
- FIN 3125 - Investment (3.0 cr)

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

Finance Certificate Online

The ability to understand the markets and how businesses raise and invest capital is a highly looked upon specialized background amongst businesses and organizations. The certificate in finance is a broad program covering such diverse topics as corporate finance, insurance and risk management, estate planning, investments and money, banking and financial institutions. Students completing this certificate may find employment working with banks, insurance companies, securities firms, commodity brokers, and other financial investments enterprises.

Please note that this certificate is available to individuals in the workforce that want a new career in finance and to non-University of Minnesota baccalaureate students who want additional credentialing.

The finance certificate online has the same curriculum as the on-campus finance certificate.

Crookston Campus

Finance Minor

Business

Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 28

The finance minor is available on campus and online and focuses on tools to solve business problems while giving students insight to understand financial and economic behavior. As an employment sector with sustainable future growth, the minor enhances the career prospects of our graduates. Students will be introduced to the principles of finance and how to apply these principles to analyze several financial issues. Students will develop the problem-solving and quantitative skills that are widely used in business. The minor in finance is available to all undergraduate students at UMC. Several electives are offered to provide a specialized education for students seeking the finance minor.

Program outcomes:
*describe the dimensions of performance and risk relevant to financial services companies;
*assess consumer financial needs and the mechanisms available for fulfilling these needs;
*describe and apply financial concepts, theories, and tools;
*evaluate the role of technology and the legal, ethical, and economics environment as it relates to financial services;
*develop personal financial plans for clients.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)
- primarily online (at least 80% of the instruction for the program is online with short, intensive periods of face-to-face coursework)
- partially online (between 50% to 80% of instruction is online)

Minor Requirements

Minor Requirements

Requirements - 22 credits
ACCT 2101 - Principles of Accounting I (3.0 cr)
ACCT 2102 - Principles of Accounting II (3.0 cr)
ECON 2102 - Macroeconomics [HI/BEH/SSC] (3.0 cr)
FIN 3105 - Corporate Finance (3.0 cr)
FIN 3120 - Money, Banking and Financial Institutions (3.0 cr)
GBUS 1005 - Orientation to Online Learning (1.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
  or MATH 1250 - Precalculus [MATH THINK] (4.0 cr)
AGEC 3640 - Agricultural Finance and Valuation (3.0 cr)
  or FIN 3100 - Managerial Finance (3.0 cr)

Finance Electives Requirements

Take 2 or more course(s) from the following:
- ACCT 4404 - Income Tax I (3.0 cr)
- AGEC 4740 - Grain and Livestock Marketing (3.0 cr)
- FIN 3110 - Estate Planning (3.0 cr)
- FIN 3115 - Insurance and Risk Management (3.0 cr)
- FIN 3125 - Investment (3.0 cr)

Program Sub-plans

A sub-plan is not required for this program.

Online

The finance minor online has the same curriculum as the on-campus finance minor.

The finance minor focuses on tools to solve business problems while giving students insight to understand financial and economic behavior. As an employment sector with sustainable future growth, the minor enhances the career prospects of our graduates. Students will be introduced to the principles of finance and how to apply these principles to analyze several financial issues. Students will develop the problem-solving and quantitative skills that are widely used in business. The minor in finance is available to all undergraduate students at UMC. Several electives are offered to provide a specialized education for students seeking the finance minor.

Program outcomes:
*describe the dimensions of performance and risk relevant to financial services companies;
*assess consumer financial needs and the mechanisms available for fulfilling these needs;
*describe and apply financial concepts, theories, and tools;
*evaluate the role of technology and the legal, ethical, and economics environment as it relates to financial services;
*develop personal financial plans for clients.

Crookston Campus
Golf and Turf Management B.S.
Agriculture and Natural Resources
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 55
- This program requires summer terms.
- Degree: Bachelor of Science

Golf course superintendents and turfgrass professionals use technology and talent to balance the needs of people with those of nature. The golf and turf management degree provides students with skills and experiences to build and maintain functional, and aesthetically pleasing turfgrass environments. Extensive coursework in plant science, horticulture, and turf management helps students develop the technical skills needed to be successful. Complementary courses in facility management and communication provide the fundamentals for managing employees and interacting with customers.

Student learning incorporates hands-on activities along with technological applications in a practical, career-oriented environment. Internships may be completed at golf courses, athletic fields, park and recreation areas, or with industry suppliers. Graduates will hold positions in the golf industry, sports field management, lawn care, sod production, grounds maintenance, sales, or pursue advanced degrees.

Program outcomes: graduates will
 Demonstrate competencies in turfgrass management
 Demonstrate problem-solving skills in relation to turfgrass pests and fertility issues
 Understand the use of integrated pest management and resource preservation
 Demonstrate an awareness of the need for continual professional development
 Demonstrate skills in written and oral communication and human resource management

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. For more information, see the graduation requirements.

Program Requirements
Students must complete 40 upper division credits.
A maximum of two D grades are allowed for courses under the program, major, and technology requirements. This includes grades earned at UMC or transferred in from another institution.

Program Requirements
 Required courses - 34 credits
 AGRO 2573 - Entomology (3.0 cr)
 AGRO 3230 - Introduction to Plant Pathology (3.0 cr)
 BIOL 2022 - General Botany (3.0 cr)
 HORT 1010 - Introduction to Horticulture (3.0 cr)
 HORT 1021 - Woody Plant Materials (4.0 cr)
 NATR 3899 - Pre-Internship Seminar (0.5 cr)
 NATR 3900 - Internship (0.5 - 4.0 cr)
 NATR 3901 - Post-Internship Seminar (0.5 cr)
 NATR 4652 - Seminar (1.0 cr)
 SOIL 1293 - Soil Science (3.0 cr)

SOIL 3414 - Soil Fertility and Plant Nutrition (4.0 cr)
SPAN 1104 - Beginning Spanish I (4.0 cr)
COMM 3008 - Business Writing (3.0 cr)
  or COMM 3431 - Persuasion (3.0 cr)
  or WRIT 3303 - Writing in Your Profession (3.0 cr)

Major Requirements
  Required courses - 21 credits
  HORT 3040 - Landscape Installation and Maintenance (3.0 cr)
  MGMT 3210 - Supervision and Leadership (3.0 cr)
  TURF 1072 - Principles of Turf Management (3.0 cr)
  TURF 3072 - Turfgrass Science (3.0 cr)
  TURF 3074 - Turfgrass Pest Management (3.0 cr)
  TURF 3075 - Turf Stress Management (3.0 cr)
  TURF 3076 - Turfgrass Management Systems (3.0 cr)

Liberal Education Requirements
  A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum
  with the following specific liberal education courses required:
  BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
  CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
  COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
  COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
  SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)
  MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
    or MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)

Technology Requirement
  Students must take any 3 credits from the following:
  CA 1xxx
  or CA 2xxx

Program Electives
  Take 3 or more course(s) totaling 12 or more credit(s) from the following:
  •AGRO 2640 - Applied Agriculture Chemicals (3.0 cr)
  •ASM 1034 - Facility Maintenance and Safety (4.0 cr)
  •ASM 2043 - Welding and Manufacturing Processes (3.0 cr)
  •ASM 2250 - Agricultural Machinery Management (3.0 cr)
  •ASM 3009 - Surveying (4.0 cr)
  •BIOL 3131 - Plant Physiology (3.0 cr)
  •CHEM 1401 - Elementary Bioorganic Chemistry [PHYS SCI, PEOPLE/ENV] (4.0 cr)
  •HORT 1025 - Introduction to Arboriculture (2.0 cr)
  •HORT 3025 - Applications in Arboriculture (3.0 cr)
  •HORT 3030 - Landscape Design (4.0 cr)
  •HORT 3031 - Herbaceous Perennial Plant Materials (2.0 cr)
  •HORT 3034 - Commercial Floriculture Crops-Spring (4.0 cr)
  •HORT 3036 - Plant Propagation (4.0 cr)
  •HORT 3045 - Urban Forestry Planning and Management (3.0 cr)
  •MGMT 3200 - Principles of Management (3.0 cr)
  •MGMT 3220 - Human Resource Management (3.0 cr)
  •MGMT 3250 - Operations Management (3.0 cr)
  •NATR 2630 - Introduction to Geographic Information Systems (3.0 cr)
  •NATR 3203 - Park and Recreation Management (3.0 cr)
  •NATR 3344 - Land Use Planning (3.0 cr)
  •NATR 3468 - Wildlife Habitat Management Techniques (3.0 cr)
  •PHYS 1012 - Introductory Physics [PHYS SCI, PEOPLE/ENV] (4.0 cr)
  •SPAN 1204 - Beginning Spanish II (4.0 cr)
  •SRM 2020 - Foundations of Sport and Recreation Management (3.0 cr)
  •SRM 3003 - Sport Facility and Activities Management (3.0 cr)
  •SWM 3225 - Watershed Management (3.0 cr)
  •TURF 3077 - Turf and Landscape Irrigation Design and Installation (2.0 cr)
  •TURF 3078 - Integrated Turfgrass Diagnostics (1.0 - 3.0 cr)

Open Electives
  Students must take enough open electives credits to meet the 120 credit graduation requirement. The number of credits needed

depends on liberal education and program electives course selections. Approximately 9 credits will be needed.

Crookston Campus
Health Informatics for Software Engineers and IT Professionals Certificate
Math, Science and Technology
Academic Affairs

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 22
- Degree: Hlth Infor Sftware Eng/IT Prof Certificate

This certificate will prepare students with an existing background in Information Technology, programming, and software engineering to apply their expertise to the domain of health informatics in order to build advanced Information Systems for health care and public health organizations.

Program Learner Outcomes for the Certificate of Health Informatics for Software Engineers and IT Professionals

* Understanding of how/why information systems are used in health care (HI 3020)
* Understanding of the use of health information workflow, analysis and design in supporting clinical decisions (HI 3100)
* Awareness of Social, Legal and Ethical Issues in Health Informatics (HI 3200)
* Awareness of Privacy and Security Policies around health informatics (HI 3215)
* Demonstrate understanding of health care organizations (HI 3300)
* Understanding of how to integrate, manipulate and query vast amounts of data for decision making (SE 3060)
* Apply software engineering knowledge to design systems in the health informatics domain.(HI 3300, SE 3060, HI 3100)

Program Delivery
This program is available:
- completely online (all program coursework can be completed online)

Admission Requirements
Must be enrolled in or completed BS degree or higher in a computer science, software engineering, or information technology profession.
Must have a G.P.A of 2.5 or above (on a 4.0 scale).
Must provide an official transcript showing completion of a degree or current enrollment in a degree in computer science, software engineering, or information technology BS program.
Must provide a current curriculum vitae (preferred) or resume.
Must provide 2 letters of recommendation.
Must provide a personal statement of goals and expected impacts of study.
Must be proficient in English. If native language is not English, must take the TOEFL and score at least 586 (written), 240 (computerized), or 95 (IBT). TOEFL or MELAB exams taken within 3 years of the time of application will be accepted. If the TOEFL is not available in your country, you must take the Michigan English Language Assessment Battery (MELAB) and score at least 85.

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. For more information, see the graduation requirements.

Program Requirements
Certificate Requirements
Required Courses = 22 credits
HI 3020 - Introduction to Health Information Systems (3.0 cr)
HI 3100 - Health Information Workflow Process Analysis and Design (3.0 cr)
HI 3200 - Social, Legal, Ethical Issues in Health Informatics (3.0 cr)
HI 3215 - Health Information Assurance and Security (3.0 cr)
HI 3300 - Organization of EHR Systems (3.0 cr)
HSM 1010 - Medical Terminology (2.0 cr)
HSM 2010 - Introduction to the Health Care System (2.0 cr)
SE 3060 - Data Warehousing and Mining (3.0 cr)

Crookston Campus

Health Informatics Privacy and Security for Health Care Providers Certificate

Math, Science and Technology

Academic Affairs

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 18
- Degree: Hlth Infor Priv & Sec Hlth Care Provider Cert

This certificate program will prepare students to support the secure collection, management, retrieval, exchange, and/or analysis of information in electronic form in health care and public health organizations.

Program Learner Outcomes for the Certificate of Health Informatics Privacy and Security for Health Care Providers

* Proficiency in Database principles (HI 2060)
* Understanding of how/why information systems are used in health care (HI 3020)
* Knowledge representation of secure data collection and retrieval (HI 3060)
* Understanding of the use of health information workflow, analysis and design in supporting clinical decisions (HI 3100)
* Awareness of Social, Legal and Ethical Issues in Health Informatics (HI 3200)
* Awareness of Privacy and Security Policies around health informatics (HI 3215)

Program Delivery

This program is available:

- completely online (all program coursework can be completed online)

Admission Requirements

Must be enrolled in or completed a bachelor degree, or completed an associate degree in health, allied health, clinical lab science, or public health.

Must have a G.P.A of 2.5 or above (on a 4.0 scale).

Must provide an official transcript showing completion of a degree or current enrollment in a degree in a health or public health program.

Must provide a current curriculum vitae (preferred) or resume.

Must provide 2 letters of recommendation, preferably from current or previous health care place of employment or study.

Must provide a personal statement of goals and expected impacts of study.

Must be proficient in English. If native language is not English, must take the TOEFL and score at least 586 (written), 240 (computerized), or 95 (IBT). TOEFL or MELAB exams taken within 3 years of the time of application will be accepted. If the TOEFL is not available in your country, you must take the Michigan English Language Assessment Battery (MELAB) and score at least 85.

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. For more information, see the graduation requirements.

Program Requirements

Certificate Requirements

Required Courses = 18 credits

HI 2060 - Database Management in Health Information Systems (3.0 cr)
HI 3020 - Introduction to Health Information Systems (3.0 cr)
HI 3060 - Secure Data Collection and Retrieval (3.0 cr)
HI 3100 - Health Information Workflow Process Analysis and Design (3.0 cr)
HI 3200 - Social, Legal, Ethical Issues in Health Informatics (3.0 cr)
HI 3215 - Health Information Assurance and Security (3.0 cr)

Crookston Campus

Health Management B.S.

Math, Science and Technology
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 62
- This program requires summer terms.
- Degree: Bachelor of Science

The health management program provides career-entry opportunities for high school graduates and professional advancement opportunities for health care personnel. Career opportunities for students with baccalaureate degrees in health management include management positions in hospitals, long-term care facilities, health maintenance and other managed care organizations, public health departments, community-based and home health agencies, medical equipment companies, government regulatory agencies, and health insurance companies.

The health management program focuses on developing managerial, administrative, and computer skills, supplementing those skills with an in-depth knowledge of the health care system. The program prepares graduates to offer managerial excellence to employers.

Long-term Care Administration--The health management program has been approved by the Minnesota Board of Examiners for Nursing Home Administrators and meets Minnesota regulations for long-term health care administration. Health management program graduates are eligible to take the Minnesota licensure examination for nursing home administration.

Program outcomes:

Communicate effectively and work as a team in a health care setting
Demonstrate leadership ability in problem solving, conflict resolution, and change management
Understand the legal, regulatory, and ethical issues inherent to health care
Show the ability to adapt to changing public policy, economic, and financial issues in health care
Demonstrate assessment skills related to improving clinical care and customer service
Understand technology and how to apply it to the workplace

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

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. For more information, see the graduation requirements.

Program Requirements

Students must complete 40 upper division credits.

Health Management Core Requirements

A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.
Required courses - 62-64 credits
ACCT 2101 - Principles of Accounting I (3.0 cr)
ACCT 2102 - Principles of Accounting II (3.0 cr)
GBUS 1005 - Orientation to Online Learning (1.0 cr)
HI 3020 - Introduction to Health Information Systems (3.0 cr)
HSM 1010 - Medical Terminology (2.0 cr)

HSM 2010 - Introduction to the Health Care System (2.0 cr)
HSM 3030 - Health Care and Medical Needs (3.0 cr)
HSM 3200 - Health Care Leadership and Planning (4.0 cr)
HSM 3230 - Administration of the Long Term Care System (3.0 cr)
HSM 3240 - Health Care Policy and Comparative Systems (4.0 cr)
HSM 3250 - Performance Improvement in Health Care (3.0 cr)
HSM 3260 - Risk Management in Health Care (3.0 cr)
HSM 3270 - Health Care Finance (3.0 cr)
HSM 4210 - Health Care Law and Biomedical Ethics (4.0 cr)
HSM 4212 - Regulatory Management (3.0 cr)
HSM 4500 - Decision Making in Health Management (3.0 cr)
MGMT 3200 - Principles of Management (3.0 cr)
MGMT 3220 - Human Resource Management (3.0 cr)
MKTG 3300 - Principles of Marketing (3.0 cr)
Choose one of the following:
  COMM 3008 - Business Writing (3.0 cr)
  or WRIT 3303 - Writing in Your Profession (3.0 cr)
Choose 3 credits from the following:
Note: Up to 5 credits of HSM 3900 are required to be eligible to take Minnesota licensure examination (LNHA) for nursing home administration.
  HSM 3900 - Internship (1.0 - 5.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirement (3 cr)
CA 1020 - Spreadsheet Applications (3.0 cr)

Open Electives
Students must take enough open electives credits to meet the 120 credit graduation requirement. Approximately 13-15 credits will be needed. The following course is required for license as a nursing home administrator: SOC 3937

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

Health Management B.S. Online
The health management program provides career-entry opportunities for high school graduates and professional advancement opportunities for health care personnel. Career opportunities for students with baccalaureate degrees in health management include management positions in hospitals, long-term care facilities, health maintenance and other managed care organizations, public health departments, community-based and home health agencies, medical equipment companies, government regulatory agencies, and health insurance companies.

The health management program focuses on developing managerial, administrative, and computer skills, supplementing those skills with an in-depth knowledge of the health care system. The program prepares graduates to offer managerial excellence to employers. Long-term Care Administration--The health management program has been approved by the Minnesota Board of Examiners for Nursing Home Administrators and meets Minnesota regulations for long-term health care administration. Health management program graduates are eligible to take the Minnesota licensure examination for nursing home administration. The curriculum for the health management online program is the same as the classroom delivered program.

The health management online BS program has the same curriculum as the on-campus program.

Crookston Campus
Health Sciences Pre-Professional B.S.
Math, Science and Technology
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 71
- This program requires summer terms.
- Degree: Bachelor of Science

The BS in health sciences provides students with the prerequisite knowledge and skills required for admission to professional programs in chiropractic, dentistry, medicine, occupational therapy, pharmacy, physical therapy. Admission is competitive and specific admission requirements, including courses and experiences, vary by professional program and institution. Completion of the BS does not guarantee admission to professional programs at the University of Minnesota or other universities. The course requirements shown are common to similar programs at other institutions; however, students are advised to check with their specific professional program to be sure all prerequisite courses are met. Most professional programs have additional admission requirements, and students are advised to contact the program(s) to which they plan to apply to identify all admission requirements.

Program outcomes: Graduates will explain and reconstruct the scientific method and apply this mode of inquiry in a laboratory setting; explain and apply basic principles of biology in a work setting; demonstrate teamwork skills; apply, critique, and synthesize protocols from current literature; demonstrate and critique effective communication skills orally and in writing; formulate proper data collection and analysis methods; interpret and practice professional and ethical behavior related to biological research; identify, provide examples, differentiate, and integrate current biology techniques into their scientific investigations; and produce evidence of their ability to be admitted into health science professional programs.

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. For more information, see the graduation requirements.

Program Requirements
Students must complete 40 upper division credits. Students work with their advisor to develop a program of study that meets their health science educational goals (pre-chiropractic, pre-dentistry, pre-medicine, pre-occupational therapy, pre-pharmacy, pre-physical therapy).

Program Requirements
A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.
Required Courses - 71 credits
BIOL 2012 - General Zoology (4.0 cr)
BIOL 2032 - General Microbiology (4.0 cr)
BIOL 2103 - Human Anatomy and Physiology I (4.0 cr)
BIOL 2104 - Human Anatomy and Physiology II (4.0 cr)
BIOL 3022 - Principles of Genetics (3.0 cr)
BIOL 3027 - Cell Biology (3.0 cr)
CHEM 1061 - Chemical Principles I [PHYS SCI, PEOPLE/ENV] (3.0 cr)
CHEM 1062 - Chemical Principles II (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS SCI, PEOPLE/ENV] (1.0 cr)
CHEM 1066 - Chemical Principles II Laboratory (1.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)

CHEM 2302 - Organic Chemistry II (3.0 cr)
CHEM 2310 - Organic Chemistry Laboratory I (2.0 cr)
CHEM 2311 - Organic Chemistry Laboratory II (2.0 cr)
CHEM 3021 - Biochemistry (3.0 cr)
HSCI 3899 - Pre-Internship Seminar (0.5 cr)
HSCI 3900 - Internship (1.0 - 2.0 cr)
HSCI 3901 - Post-Internship Seminar (0.5 cr)
HSCI 4301 - Capstone: Problem Solving in Health Care Teams (1.0 cr)
HSM 4210 - Health Care Law and Biomedical Ethics (4.0 cr)
PHYS 1102 - Introductory College Physics II [PHYS SCI] (4.0 cr)
PSY 1093 - Lifespan Development [HI/BEH/SSC] (3.0 cr)
PSY 3604 - Abnormal Psychology (3.0 cr)
SOC 3937 - Social Gerontology: Elders in American Society (3.0 cr)
WRIT 3303 - Writing in Your Profession (3.0 cr)
Choose one of the following:
  BIOL 3140 - Histology (4.0 cr)
  or BIOL 4361 - Developmental Biology (4.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required.
BIOL 1009H - Honors: General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
MATH 1271 - Calculus I [MATH THINK] (4.0 cr)
PHIL 1001 - Introduction to Philosophy [HUMANITIES, ETH/CIV RE] (3.0 cr)
PHYS 1101 - Introductory College Physics I [PHYS SCI] (4.0 cr)
PSY 1001 - General Psychology [HI/BEH/SSC] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)
Choose one of the following:
  ENGL 3001 - World Culture and Literature [HUMANITIES, GLOB PERSP] (3.0 cr)
  or HUM 3310 - Culture and Technology [HUMANITIES, GLOB PERSP] (3.0 cr)
Choose one of the following:
  SOC 1001 - Introduction to Sociology [HI/BEH/SSC, HUMAN DIV] (3.0 cr)
  or SOC 1102 - Cultural Anthropology [HI/BEH/SSC, GLOB PERSP] (3.0 cr)

Technology Requirement
Students must take 3 credits from the following courses. (If applicable, the course selected from below may be used to satisfy both the program and technology requirements.)
CA 1xxx
  or CA 2xxx
  or CHEM 3022 - Chemical Analysis in the Biological and Environmental Sciences (4.0 cr)
  or MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)

Open Electives
Students must take enough open electives credits to satisfy the 120 credit graduation requirement.

Crookston Campus

Horticulture B.S.

Agriculture and Natural Resources
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 56 to 57
- This program requires summer terms.
- Degree: Bachelor of Science

The BS in horticulture is a career-oriented program that combines science-based education, liberal arts education, and technical training. All horticulture students are introduced to botany, woody plants, entomology, plant pathology, and soil science as part of the program requirements. These courses together with liberal arts courses and program specific courses prepare students for careers in the green industry. Students select from three areas of emphasis: environmental landscaping, horticulture production, or urban forestry.

Program outcomes for graduates:
Demonstrate competency in identification of plant species, diseases, pests, and disorders of horticultural plants
Understand the use of horticultural plants for aesthetic improvement and sustainability of the environment
Apply principles of plant science, nutrition, soils, and pest management, and exhibit an awareness of environmental health and safety issues
Demonstrate an awareness of the need for continuing professional development
Demonstrate communication skills, ability to make sound decisions, and willingness to work as part of a team in providing leadership and accountability
Use computer technology to effectively communicate, manage, and enhance business operations

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. For more information, see the graduation requirements.

Program Requirements

Students must complete 40 upper division credits.

Program Requirements
A maximum of two D grades are allowed for core courses required in the program, subplan/emphasis, and technology requirements. This includes grades earned at UMC or transferred in from another institution.
Required courses - 34 credits
AGRO 3230 - Introduction to Plant Pathology (3.0 cr)
BIOL 2022 - General Botany (3.0 cr)
HORT 1010 - Introduction to Horticulture (3.0 cr)
HORT 1021 - Woody Plant Materials (4.0 cr)
NATR 3899 - Pre-Internship Seminar (0.5 cr)
NATR 3900 - Internship (0.5 - 4.0 cr)
NATR 3901 - Post-Internship Seminar (0.5 cr)
NATR 4652 - Seminar (1.0 cr)
SOIL 1293 - Soil Science (3.0 cr)
SOIL 3414 - Soil Fertility and Plant Nutrition (4.0 cr)
SPAN 1104 - Beginning Spanish I (4.0 cr)
COMM 3008 - Business Writing (3.0 cr)

   or COMM 3431 - Persuasion (3.0 cr)
   or WRIT 3303 - Writing in Your Profession (3.0 cr)
  AGRO 2573 - Entomology (3.0 cr)
   or NATR 2573 - Entomology (3.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:
BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
  or MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)

Technology Requirements
  Students must take 3 credits from the following courses.
  AGEC 2310 - Agribusiness Financial Records (3.0 cr)
  or CA 1xxx
  or CA 2xxx

Program Sub-plans
Students are required to complete one of the following sub-plans.

Environmental Landscaping
Environmental landscaping includes courses in landscape design, planning and development of residential and commercial landscapes, and plant science. Reducing impact on the environment and sustainability are a major focus as well as appropriate use of plants and proper installation and management of landscape features. Many students include business courses in their elective curriculum to prepare them for all aspects of the industry. Graduates are prepared to be a landscape designer, installer, or contractor. They may also choose landscape supply sales, nursery management, land reclamation, or garden center management.

Environmental Landscaping Requirements
  Required courses - 22 credits
  HORT 3030 - Landscape Design (4.0 cr)
  HORT 3031 - Herbaceous Perennial Plant Materials (2.0 cr)
  HORT 3034 - Commercial Floriculture Crops-Spring (4.0 cr)
  HORT 3036 - Plant Propagation (4.0 cr)
  HORT 3040 - Landscape Installation and Maintenance (3.0 cr)
  TURF 1072 - Principles of Turf Management (3.0 cr)
  TURF 3077 - Turf and Landscape Irrigation Design and Installation (2.0 cr)
Environmental Landscaping Electives
  Take 3 or more course(s) totaling 12 or more credit(s) from the following:
 •ACCT 2101 - Principles of Accounting I (3.0 cr)
 •AGRO 2640 - Applied Agriculture Chemicals (3.0 cr)
 •ASM 1034 - Facility Maintenance and Safety (4.0 cr)
 •ASM 1044 - Computer-Aided Drafting (3.0 cr)
 •ASM 3009 - Surveying (4.0 cr)
 •BIOL 3131 - Plant Physiology (3.0 cr)
 •CHEM 1401 - Elementary Bioorganic Chemistry [PHYS SCI, PEOPLE/ENV] (4.0 cr)
 •ENTR 2200 - Introduction to Entrepreneurship and Small Business (3.0 cr)
 •HORT 1025 - Introduction to Arboriculture (2.0 cr)
 •HORT 3025 - Applications in Arboriculture (3.0 cr)
 •HORT 3033 - Commercial Floriculture Crops-Fall (4.0 cr)
 •HORT 3045 - Urban Forestry Planning and Management (3.0 cr)
 •HORT 3090 - Advanced Landscape Design (3.0 cr)
 •MGMT 3200 - Principles of Management (3.0 cr)
 •MGMT 3210 - Supervision and Leadership (3.0 cr)
 •MGMT 3220 - Human Resource Management (3.0 cr)
 •MKTG 3300 - Principles of Marketing (3.0 cr)
 •NATR 2630 - Introduction to Geographic Information Systems (3.0 cr)
 •NATR 3203 - Park and Recreation Management (3.0 cr)
 •NATR 3344 - Land Use Planning (3.0 cr)

- NATR 3364 - Plant Taxonomy (3.0 cr)
- NATR 3374 - Ecology [BIOL SCI] (4.0 cr)
- SPAN 1204 - Beginning Spanish II (4.0 cr)
- TURF 3074 - Turfgrass Pest Management (3.0 cr)
- TURF 3076 - Turfgrass Management Systems (3.0 cr)

Open Electives

Students must take enough open electives credits to meet the 120 credit graduation requirement. The number of credits needed will depend on liberal education course selections. Approximately 8 credits will be needed.

Production Horticulture

Production horticulture concentrates on crops produced in greenhouses and nurseries. Students experience plant propagation, identification of herbaceous plants, cultivation of indoor and outdoor plants, and floral design. In greenhouse production courses, students produce crops that are sold to industry. Graduates are employed as greenhouse or nursery growers, garden center managers, garden designers, floral designers, and floriculture extension specialists. Faculty work with students to develop a plan of study tailored to the individual.

Production Horticulture Requirements

Required courses - 23 credits
HORT 1091 - Indoor Flowering and Foliage Plants (2.0 cr)
HORT 3030 - Landscape Design (4.0 cr)
HORT 3031 - Herbaceous Perennial Plant Materials (2.0 cr)
HORT 3033 - Commercial Floriculture Crops-Fall (4.0 cr)
HORT 3034 - Commercial Floriculture Crops-Spring (4.0 cr)
HORT 3036 - Plant Propagation (4.0 cr)
NATR 3364 - Plant Taxonomy (3.0 cr)

Production Horticulture Electives

Take 3 or more course(s) totaling 12 or more credit(s) from the following:
- ACCT 2101 - Principles of Accounting I (3.0 cr)
- AGRO 2640 - Applied Agriculture Chemicals (3.0 cr)
- AGRO 3023 - Plant Breeding and Genetics (4.0 cr)
- ASM 1034 - Facility Maintenance and Safety (4.0 cr)
- BIOL 3022 - Principles of Genetics (3.0 cr)
- BIOL 3131 - Plant Physiology (3.0 cr)
- CHEM 1401 - Elementary Bioorganic Chemistry [PHYS SCI, PEOPLE/ENV] (4.0 cr)
- ENTR 2200 - Introduction to Entrepreneurship and Small Business (3.0 cr)
- ENTR 3200 - Business Planning (3.0 cr)
- HORT 1092 - Floral Design (2.0 cr)
- HORT 3040 - Landscape Installation and Maintenance (3.0 cr)
- HORT 3090 - Advanced Landscape Design (3.0 cr)
- HORT 3093 - Advanced Floral Design and Florist Operations (2.0 cr)
- MGMT 3200 - Principles of Management (3.0 cr)
- MGMT 3210 - Supervision and Leadership (3.0 cr)
- MGMT 3220 - Human Resource Management (3.0 cr)
- MKTG 2200 - Personal Selling (3.0 cr)
- MKTG 3300 - Principles of Marketing (3.0 cr)
- SPAN 1204 - Beginning Spanish II (4.0 cr)
- TURF 1072 - Principles of Turf Management (3.0 cr)
- TURF 3077 - Turf and Landscape Irrigation Design and Installation (2.0 cr)

Open Electives

Students must take enough open electives credits to meet the 120 credit graduation requirement. The number of credits needed will depend on liberal education course selections. Approximately 7 credits will be needed.

Urban Forestry

Urban forestry combines conservation and horticulture topics presented in an outdoor, applied setting. Different than focusing on large scale forests used for commercial purposes, urban forestry includes municipalities, park districts, utility companies, private homeowners, and commercial tree service companies; each utilizing trees for a different purpose. The tree care industry has grown extensively over the years and now includes conservation and management issues. Extensive employment opportunities are available nation-wide as society becomes more urbanized.

Urban Forestry Requirements

Required courses - 22 credits
ENTR 2200 - Introduction to Entrepreneurship and Small Business (3.0 cr)
HORT 1025 - Introduction to Arboriculture (2.0 cr)
HORT 3025 - Applications in Arboriculture (3.0 cr)
HORT 3030 - Landscape Design (4.0 cr)

HORT 3040 - Landscape Installation and Maintenance (3.0 cr)
HORT 3045 - Urban Forestry Planning and Management (3.0 cr)
NATR 1244 - Elements of Forestry (4.0 cr)

Urban Forestry Electives
 Take 3 or more course(s) totaling 12 or more credit(s) from the following:
 •ACCT 2101 - Principles of Accounting I (3.0 cr)
 •AGRO 2640 - Applied Agriculture Chemicals (3.0 cr)
 •ASM 1034 - Facility Maintenance and Safety (4.0 cr)
 •ASM 1044 - Computer-Aided Drafting (3.0 cr)
 •ASM 3009 - Surveying (4.0 cr)
 •BIOL 3131 - Plant Physiology (3.0 cr)
 •CHEM 1401 - Elementary Bioorganic Chemistry [PHYS SCI, PEOPLE/ENV] (4.0 cr)
 •HORT 3034 - Commercial Floriculture Crops-Spring (4.0 cr)
 •HORT 3036 - Plant Propagation (4.0 cr)
 •HORT 3090 - Advanced Landscape Design (3.0 cr)
 •MGMT 3200 - Principles of Management (3.0 cr)
 •MGMT 3210 - Supervision and Leadership (3.0 cr)
 •NATR 2630 - Introduction to Geographic Information Systems (3.0 cr)
 •NATR 3203 - Park and Recreation Management (3.0 cr)
 •NATR 3344 - Land Use Planning (3.0 cr)
 •NATR 3374 - Ecology [BIOL SCI] (4.0 cr)
 •NATR 3699 - Integrated Resource Management (3.0 cr)
 •SPAN 1204 - Beginning Spanish II (4.0 cr)
 •TURF 1072 - Principles of Turf Management (3.0 cr)

Open Electives
 Students must take enough open electives credits to meet the 120 credit graduation requirement. The number of credits needed will
 depend on liberal education course selections. Approximately 9 credits will be needed.

Crookston Campus
Horticulture Minor
Natural Resources
Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 18
- none

The horticulture minor provides an opportunity for students in other majors (e.g., natural resources related, agronomy, ag business, business management, golf and turf management) to take a selected group of horticulture courses and strengthen their credentials in this area.

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

Minor Requirements
Core Requirements
HORT 1010 - Introduction to Horticulture (3.0 cr)
HORT 1021 - Woody Plant Materials (4.0 cr)
HORT 3036 - Plant Propagation (4.0 cr)
HORT 3033 - Commercial Floriculture Crops-Fall (4.0 cr)
  or HORT 3034 - Commercial Floriculture Crops-Spring (4.0 cr)
Take 3 or more credit(s) from the following:
- HORT 3030 - Landscape Design (4.0 cr)
- HORT 3031 - Herbaceous Perennial Plant Materials (2.0 cr)
- HORT 1091 - Indoor Flowering and Foliage Plants (2.0 cr)
- HORT 1092 - Floral Design (2.0 cr)
- HORT 3093 - Advanced Floral Design and Florist Operations (2.0 cr)
- HORT 3040 - Landscape Installation and Maintenance (3.0 cr)

Crookston Campus

Humanities Minor
Liberal Arts and Education
Academic Affairs

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 18
- This program requires summer terms.

A minor in humanities allows students to gain a greater understanding of disciplines, such as art, history, literature, philosophy, politics, and theater. Students become aware of the importance and benefit of diversity and multiculturalism.

The humanities minor is intended to complement major programs of study presently offered at UMC. A minor in humanities helps students broaden and balance their chosen majors with skills such as creative thinking and expression. The minor enables students to recognize opportunities, think creatively, assemble resources, and plan and implement new initiatives in a wide variety of employment settings.

As graduates secure employment or start ventures of their own, they will demonstrate how awareness of the humanities adds value and enhances the results for the organizations they serve. Study in the humanities encourages students to think outside of the box and creativity, skills that are highly desirable to employers.

Program Outcomes

Students will:
1. Demonstrate awareness of the scope and variety of works in the arts and humanities;
2. Expand knowledge of the human condition and human cultures, especially in relation to behavior, ideas, and values expressed in works of human imagination and thought;
3. Understand those works as expressions of individual and human values within historical and social context;
4. Respond critically to works in the arts and humanities;
5. Engage in the creative process or interpretive performance;
6. Articulate an informed personal reaction to works in the arts and humanities.

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

Minor Requirements
Required Courses
  HUM 1301 - Introduction to Humanities [HUMANITIES] (3.0 cr)
  HUM 3310 - Culture and Technology [HUMANITIES, GLOB PERSP] (3.0 cr)

Upper Division Electives
  Take 3 or more credit(s) from the following:
 • COMM 4002 - Intercultural Communication (3.0 cr)
 • ED 3301 - Creating Meaning Through Literature and Arts (4.0 cr)
 • ENGL 3001 - World Culture and Literature [HUMANITIES, GLOB PERSP] (3.0 cr)
 • GNED 3000 - Global Seminar [HUMANITIES, GLOB PERSP] (1.0 - 3.0 cr)
 • HIST 3054 - Topics in History (3.0 cr)
 • MUS 3027 - Rock and Jazz Music Styles [HUMANITIES, HUMAN DIV] (3.0 cr)
 • MUS 3028 - Survey of American Musical Theater (3.0 cr)

Art/Culture and Diversity/Music Electives
  Take 3 or more credit(s) from the following:
 • ART 1152 - Drawing and Design [HUMANITIES] (1.0 - 3.0 cr)
 • ART 1252 - Painting and Design [HUMANITIES] (1.0 - 3.0 cr)
 • ART 1352 - Pottery Design and Techniques [HUMANITIES] (1.0 - 3.0 cr)
 • COMM 4002 - Intercultural Communication (3.0 cr)
 • GNED 2000 - Global Study [HUMANITIES, GLOB PERSP] (1.0 - 3.0 cr)

•GNED 3000 - Global Seminar [HUMANITIES, GLOB PERSP] (1.0 - 3.0 cr)
•MUS 1021 - Introduction to Music [HUMANITIES, HUMAN DIV] (3.0 cr)
•MUS 3027 - Rock and Jazz Music Styles [HUMANITIES, HUMAN DIV] (3.0 cr)
•MUS 3028 - Survey of American Musical Theater (3.0 cr)

Communication/Literature Electives
Take 3 or more credit(s) from the following:
•ED 3301 - Creating Meaning Through Literature and Arts (4.0 cr)
•ENGL 1005 - Introduction to World Literature [HUMANITIES, GLOB PERSP] (3.0 cr)
•ENGL 1016 - American Literature: Race, Gender, Class, and the American Dream [HUMANITIES, HUMAN DIV] (3.0 cr)
•ENGL 1017 - British Literature (3.0 cr)
•ENGL 3001 - World Culture and Literature [HUMANITIES, GLOB PERSP] (3.0 cr)
•ENGL 2000 - Topics in Literature (3.0 cr)
•ENGL 3005 - Ancient to 17th Century World Literature [HUMANITIES, GLOB PERSP] (3.0 cr)
•ENGL 3006 - 18th Century to Contemporary World Literature [HUMANITIES, GLOB PERSP] (3.0 cr)
•ENGL 4000 - Intercultural Literature: Conversations between Cultures (3.0 cr)
•TH 2434 - Oral Interpretation and Performance Techniques [HUMANITIES] (3.0 cr)
•WRIT 2335 - Introduction to Creative Writing [HUMANITIES] (3.0 cr)

History/Philosophy Electives
Take 3 or more credit(s) from the following:
•HIST 1021 - World Civilization I [GLOB PERSP] (3.0 cr)
•HIST 1022 - World Civilization II [GLOB PERSP] (3.0 cr)
•HIST 1301 - American History I [HI/BEH/SSC] (3.0 cr)
•HIST 1302 - American History II [HI/BEH/SSC] (3.0 cr)
•HIST 3054 - Topics in History (3.0 cr)
•PHIL 1001 - Introduction to Philosophy [HUMANITIES, ETH/CIV RE] (3.0 cr)
•PHIL 2002 - Introduction to Ethics [HUMANITIES, ETH/CIV RE] (3.0 cr)

Crookston Campus
Information Technology Management B.S.
Math, Science and Technology
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 54 to 55
- This program requires summer terms.
- Degree: Bachelor of Science

The information technology management program prepares students for technical and management positions in business and industry. Graduates have the knowledge, experience, and skills to succeed in technology related careers as well as the business and management competencies for mid-management positions such as information technology specialists, application developers, network administrators, Webmasters, technology project and information systems managers.

Program outcomes

Graduates will:
 Demonstrate abilities in the use of information systems hardware, operating systems, programming languages, and application software
 Use computer technology in preparing programs, presentations, and written reports
 Demonstrate the ability to communicate clearly and concisely in written and oral communications through technical reports, solutions to information technology problems, and feasibility studies
 Demonstrate human relations and career/life adaptability skills in problem solving, decision making, and responding to change
 Demonstrate an environmental perspective in the development of solutions for business and information technology problem solving
 Demonstrate global and ethical perspectives in information technology management
 Demonstrate an understanding of the role of finance, marketing, and management as job responsibilities of the information technology professional

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

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. For more information, see the graduation requirements.

Program Requirements
Students must complete 40 upper division credits.

Information Technology Management Requirements
 A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.
 Required courses - 54 credits
 ACCT 2101 - Principles of Accounting I (3.0 cr)
 ACCT 2102 - Principles of Accounting II (3.0 cr)
 FIN 3100 - Managerial Finance (3.0 cr)
 GBUS 3107 - Legal Environment in Business (3.0 cr)
 ITM 3020 - Introduction to Management Information Systems (3.0 cr)
 ITM 3110 - Microcomputer Operating Systems (3.0 cr)
 ITM 3130 - Messaging Systems (3.0 cr)
 ITM 3900 - Internship (1.0 - 3.0 cr)

ITM 4020 - Analysis and Design of Information Systems (3.0 cr)
ITM 4900 - Senior Project in Information Technology Management (3.0 cr)
MGMT 3200 - Principles of Management (3.0 cr)
MGMT 4200 - Project Management (3.0 cr)
MKTG 3300 - Principles of Marketing (3.0 cr)
NT 3120 - Networking Standards and Protocols (3.0 cr)
NT 3215 - Information Assurance and Systems Security (3.0 cr)
SE 2050 - Introduction to Programming I (3.0 cr)
SE 2100 - Microcomputer Systems Architecture (3.0 cr)
SE 3050 - Database Management Systems (3.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:
BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
ECON 2102 - Macroeconomics [HI/BEH/SSC] (3.0 cr)
HUM 3310 - Culture and Technology [HUMANITIES, GLOB PERSP] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
PHIL 1001 - Introduction to Philosophy [HUMANITIES, ETH/CIV RE] (3.0 cr)
PSY 1001 - General Psychology [HI/BEH/SSC] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)
PHYS 1012 - Introductory Physics [PHYS SCI, PEOPLE/ENV] (4.0 cr)
 or PHYS 1101 - Introductory College Physics I [PHYS SCI] (4.0 cr)

Technology Requirements
Required courses - 3 credits
CA 1040 - Web Site Development (3.0 cr)

Electives
Students must take enough electives credits to meet the 120 credit graduation requirement. Approximately 21 to 22 credits will be needed.

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

Information Technology Management (Online)
The information technology management program prepares students for technical and management positions in business and industry. Graduates have the knowledge, experience, and skills to succeed in technology related careers as well as the business and management competencies for mid-management positions such as information technology specialists, application developers, network administrators, Webmasters, technology project and information systems managers. The ITM (Online) program has the same curriculum as the on-campus ITM program with the exception of a one-credit orientation to online learning.

ITM (Online) Program Requirement
Required course - 1 credit
GBUS 1005 - Orientation to Online Learning (1.0 cr)

Information Technology Management Minor

Math, Science and Technology
Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 18

An information technology management minor gives students a general background in technology, computer applications, services, and systems.

Students completing the information technology management minor will:
• demonstrate abilities in the use of information systems hardware, operating systems, and industry leading computer applications

• use computer technology in preparing programs, presentations, and written reports

• demonstrate the ability to communicate clearly and concisely in written and oral communications through technical reports, solutions to information technology problems, and feasibility studies

• demonstrate human relations and career/life adaptability skills in problem solving, decision making, and responding to change

• demonstrate an environmental perspective in the development of solutions for business and information technology problem solving

• demonstrate global and ethical perspectives in information technology management

Program Delivery

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

Minor Requirements

Program Core Requirements
  SE 2050 - Introduction to Programming I (3.0 cr)
  SE 3050 - Database Management Systems (3.0 cr)
  ITM 3110 - Microcomputer Operating Systems (3.0 cr)
  Take 9 or more credit(s) from the following:
  •SE 2070 - Introduction to Programming II (3.0 cr)
  •NT 3120 - Networking Standards and Protocols (3.0 cr)
  •ITM 3130 - Messaging Systems (3.0 cr)
  •SE 3145 - XML (3.0 cr)
  •ITM 3190 - Topics in Information Technology Management (3.0 cr)
  •ITM 3200 *{Inactive}*(3.0 cr)
  •NT 3215 - Information Assurance and Systems Security (3.0 cr)
  •ITM 4020 - Analysis and Design of Information Systems (3.0 cr)

Crookston Campus
International Business B.S.
Business
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 55
- This program requires summer terms.
- Degree: Bachelor of Science

The need for graduates with skills to streamline global pursuits of companies that trade, manufacture, or use contract manufacturing globally is growing. The international business major is designed to ensure that students cultivate their global mindset. Classes like international business cultures and etiquette, international business law, international financial management, international marketing, international business management, and senior seminar in international business strategy are combined with field experience in international business and/or study abroad, which are included in the curriculum to broaden graduates' understanding of global business operations. Opportunities to travel and study outside the United States allow students to develop skills for functioning in different cultures, societies, and economic environments, and to understand a wide variety of international business practices.

Many different positions are available for graduates of international business; for example, supply chain management, operations management, human resources management, sales and marketing, financial management, as a contract worker, or as an entrepreneur. Positions in international business will be focused on management of foreign nationals working in the US, or US workers working in a foreign country. The other aspect of international business will focus upon the negotiations between your company and representatives of another country who will be the intermediary between your company and your ultimate consumers.

Increasing demand for high quality international business graduates is driving the upward trend of salaries paid. The curriculum allows students to incorporate subjects focused on their specific interest and international positions in marketing, financial management, supply chain management, technology services, human resource management, and many other traditional business support and leadership occupation.

Graduates could also work at federal agencies including the International Trade Administration and the Foreign Service as part of the US Department of Commerce.

Graduates that complete the international business BS will be able to:
 Apply analytical and critical thinking skills, utilizing an understanding of general business principles and practices
 Demonstrate ethical leadership and effective teamwork in given business scenario of a global and diverse environment
 Integrate technology and computer software applications against existing and future business challenges
 Apply written, oral, and non-verbal communication skills in personal and professional settings
 Articulate the core management functions of planning, organizing, leading, and controlling across all enterprise operations
 Understand the international context of finance, management, marketing, economics, accounting, and technology
 Evaluate the global forces that shape our world in socio-economic cultural and political contexts
 Integrate general and international business skills for effective problem-solving
 Apply cross-disciplinary qualitative and quantitative information to opportunity identification and problem resolution

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

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. For more information, see the graduation requirements.

Program Requirements

A minimum of 40 upper division credits are required to graduate.

A maximum of two D grades are allowed for courses under business, international business, language and/or foreign experience, and technology requirements. This includes grades earned at UMC or transferred in from another institution.

Business Core Requirements

  Required courses - 19 credits
  GBUS 1005 - Orientation to Online Learning (1.0 cr)
  GBUS 3500 - Business Ethics (3.0 cr)
  ITM 3020 - Introduction to Management Information Systems (3.0 cr)
  MGMT 3200 - Principles of Management (3.0 cr)
  MKTG 3300 - Principles of Marketing (3.0 cr)
  ACCT 2010 - Financial Accounting (3.0 cr)
    or ACCT 2101 - Principles of Accounting I (3.0 cr)
  ACCT 2102 - Principles of Accounting II (3.0 cr)
    or ACCT 3010 - Managerial Accounting (3.0 cr)

International Business Requirements

  Required courses - 30 credits
  COMM 4002 - Intercultural Communication (3.0 cr)
  FIN 3100 - Managerial Finance (3.0 cr)
  FIN 3120 - Money, Banking and Financial Institutions (3.0 cr)
  IBUS 2010 - International Dimensions in Business and Culture [GLOB PERSP] (3.0 cr)
  IBUS 3010 - International Business Law (3.0 cr)
  IBUS 3020 - International Financial Management (3.0 cr)
  IBUS 3360 - International Marketing (3.0 cr)
  IBUS 3500 - International Business Management (3.0 cr)
  IBUS 4800 - Senior Seminar in International Business Strategy (3.0 cr)
  MGMT 3255 - Logistics and Supply Chain Management (3.0 cr)

Language and/or Foreign Experience Requirements

  A minimum of 6 credits is required.
  IBUS 3201 - Study Abroad in International Business (1.0 - 6.0 cr)
    or IBUS 3900 - Field Experience in International Business (1.0 - 6.0 cr)
    or Two years of high school foreign language study for the equivalent of 6 credits (will not count towards credit requirements but will satisfy graduation requirements)
    or Two semesters of collegiate foreign language coursework in a single language for a minimum of 6 credits. (Until such time as UMC is available to deliver sufficient language courses on campus and online, institutional partners will be contracted to deliver foreign language courses for students.)
    or Documented completion of a language competency exam for the equivalent of 6 credits.

Liberal Education Requirements

  A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required.
  COMM 3001 - Human Relationships and Leadership [HUMAN DIV] (3.0 cr)
  COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
  COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
  ECON 1010 - Global Trade Economics [GLOB PERSP] (3.0 cr)
  ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
  ECON 2102 - Macroeconomics [HI/BEH/SSC] (3.0 cr)
  MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
  MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
  PSY 1001 - General Psychology [HI/BEH/SSC] (3.0 cr)
  SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirements

  Required courses - 3 credits
  CA 1020 - Spreadsheet Applications (3.0 cr)

Open Electives

  Students must take enough open electives credits to satisfy the 120 credit graduation requirement

Program Sub-plans

A sub-plan is not required for this program.

International Business B.S. (Online)

The curriculum for the International Business B.S. Online is identical to the on-campus International Business B.S. program.

Crookston Campus
International Business Minor
Business
Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 28
- This program requires summer terms.

The minor in International Business is available on campus and online to allow graduates in any major to expand their work opportunities to include the numerous positions advertised by corporations that outsourced or off-shored part of their operations. Positions in international business are projected to grow and the minor will enhance the career prospects of our graduates. Students will be introduced to international business cultures and etiquette, international business law, international financial management, international marketing, international business management, and logistics and supply chain management. The academic grounding is combined with field experience in international business, or study abroad, or a foreign language requirement to broaden graduates' understanding of global business operations.

Program outcomes: Students who earn a minor in International Business will be able to:
* evaluate the global forces that shape our world in socio-economic cultural and political contexts
* integrate general and international business skills for effective problem-solving
* apply cross-disciplinary qualitative and quantitative information to problem resolution and opportunity identification
* use oral communication skills in presentation and negotiating environments, and understand the impact of culture on communication
* contribute to and work within cross-functional and cross-cultural teams
* use computer applications to facilitate international business opportunities

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

Minor Requirements
Business Core Requirements
Required Courses - 13 credits
GBUS 1005 - Orientation to Online Learning (1.0 cr)
MGMT 3200 - Principles of Management (3.0 cr)
MKTG 3300 - Principles of Marketing (3.0 cr)
ACCT 2010 - Financial Accounting (3.0 cr)
  or ACCT 2101 - Principles of Accounting I (3.0 cr)
ACCT 2102 - Principles of Accounting II (3.0 cr)
  or ACCT 3010 - Managerial Accounting (3.0 cr)

International Business Requirements
Required Courses - 12 credits
IBUS 3020 - International Financial Management (3.0 cr)
IBUS 3360 - International Marketing (3.0 cr)
IBUS 3500 - International Business Management (3.0 cr)
IBUS 2010 - International Business Cultures and Etiquette (3.0 cr)
  or IBUS 3010 - International Business Law (3.0 cr)
  or MGMT 3255 - Logistics and Supply Chain Management (3.0 cr)

Language and/or Foreign Experience Requirements
A minimum of 3 credits is required.
IBUS 3201 - Study Abroad in International Business (1.0 - 6.0 cr)
  or IBUS 3900 - Field Experience in International Business (1.0 - 6.0 cr)
  or Considerable international work experience documented as part of a proficiency exam or a special exam for credit.
  or Two years of high school foreign language study for the equivalent of 3 credits (will not count towards credit requirements but will satisfy graduation requirements)
  or One semester of collegiate foreign language coursework in a single language for a minimum of 3 credits. (Until such time as UMC

is available to deliver sufficient language courses on campus and online, institutional partners will be contracted to deliver foreign language courses for students.)
or Documented competency in a second language as a result of successfully passing a standardized proficiency exam.

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

International Business Minor (Online)
The curriculum for the International Business Minor Online is identical to the on-campus International Business Minor.

Crookston Campus

Management B.S.

Business

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 53 to 55
- This program requires summer terms.
- Degree: Bachelor of Science

All organizations require managers to plan, organize, lead, and evaluate the organization's effectiveness. Businesses need individuals who can manage resources, identify and solve problems, work with others, understand markets, collect and analyze data, and evaluate organizational performance.

This program prepares graduates for management positions in corporations, small businesses, and other organizations. It provides a well-rounded education in business operations, preparing individuals for a variety of management positions in business and government.

Program outcomes:
 Demonstrate analytical and critical-thinking skills with direct application to business environments;
 Demonstrate the ability to communicate clearly and concisely in personal and business communication;
 Demonstrate capability to effectively manage human relations and diversity in professional and business environments;
 Demonstrate capability to apply global multidisciplinary concepts in business and industry;
 Demonstrate skill in the use of technology and computer software applications in business and industry;
 Demonstrate capability to apply ethical and environmental values to general business principles and practices.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

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. For more information, see the graduation requirements.

Program Requirements

Students must complete 40 upper division credits.

Program Requirements
 A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.
 Required courses - 50 to 52 credits
 ENTR 2200 - Introduction to Entrepreneurship and Small Business (3.0 cr)
 FIN 3100 - Managerial Finance (3.0 cr)
 GBUS 1005 - Orientation to Online Learning (1.0 cr)
 GBUS 3107 - Legal Environment in Business (3.0 cr)
 GBUS 3500 - Business Ethics (3.0 cr)
 IBUS 3500 - International Business Management (3.0 cr)
 ITM 3020 - Introduction to Management Information Systems (3.0 cr)
 MGMT 3200 - Principles of Management (3.0 cr)
 MGMT 3215 - Organizational Behavior (3.0 cr)
 MGMT 3220 - Human Resource Management (3.0 cr)
 MGMT 3250 - Operations Management (3.0 cr)

MGMT 3600 - Change, Creativity, and Innovation Management (3.0 cr)
MGMT 3900 - Internship (1.0 - 3.0 cr)
MGMT 4200 - Project Management (3.0 cr)
MGMT 4800 - Strategic Management (3.0 cr)
MKTG 3300 - Principles of Marketing (3.0 cr)
ACCT 2010 - Financial Accounting (3.0 cr)
  or ACCT 2101 - Principles of Accounting I (3.0 cr)
ACCT 2102 - Principles of Accounting II (3.0 cr)
  or ACCT 3010 - Managerial Accounting (3.0 cr)
COMM 3008 - Business Writing (3.0 cr)
  or WRIT 3303 - Writing in Your Profession (3.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum
with the following specific liberal education courses required:
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
ECON 2102 - Macroeconomics [HI/BEH/SSC] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
PSY 1001 - General Psychology [HI/BEH/SSC] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirements
Required Courses - 3 credits
CA 1020 - Spreadsheet Applications (3.0 cr)

Electives
Students must take enough electives credits to satisfy the 120 credit graduation requirement. Exact number will depend on how the
student selects their liberal education courses to satisfy the Minnesota Transfer Curriculum.

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

Online
All organizations require managers to plan, organize, lead, and evaluate the organization's effectiveness. Businesses need individuals
who can manage resources, identify and solve problems, work with others, understand markets, collect and analyze data, and evaluate
organizational performance.

This program prepares graduates for management positions in corporations, small businesses, and other organizations. It provides a
well-rounded education in business operations, preparing individuals for a variety of management positions in business and
government.

Program outcomes:
 Demonstrate analytical and critical-thinking skills with direct application to business environments;
 Demonstrate the ability to communicate clearly and concisely in personal and business communication;
 Demonstrate capability to effectively manage human relations and diversity in professional and business environments;
 Demonstrate capability to apply global multidisciplinary concepts in business and industry;
 Demonstrate skill in the use of technology and computer software applications in business and industry;
 Demonstrate capability to apply ethical and environmental values to general business principles and practices.

The curriculum of the online Management BS program is identical to the on-campus Management BS program.

Crookston Campus
Management Minor
Business
Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 25

A minor in management introduces students to current business theories and practices and provides a basic business knowledge foundation. It also gives students interested in business more marketability in all types of professions, from agriculture and natural sciences to information technology.

Students who earn a management minor will:

1. demonstrate an understanding of the management roles of planning, leading, organizing, and controlling;
2. demonstrate analytical and critical-thinking skills with direct application to management;
3. demonstrate the ability to communicate clearly and concisely in personal and business communication;
4. demonstrate capability to effectively manage human relations and diversity in professional and business environments;
5. demonstrate skill in the use of technology and computer applications in business and industry;
6. demonstrate capability to apply ethical and environmental values to business management principles and practices.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)
- primarily online (at least 80% of the instruction for the program is online with short, intensive periods of face-to-face coursework)
- partially online (between 50% to 80% of instruction is online)

Minor Requirements
Minor Requirements
  Required courses - 19 credits
  ACCT 2101 - Principles of Accounting I (3.0 cr)
  ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
  GBUS 1005 - Orientation to Online Learning (1.0 cr)
  ITM 3020 - Introduction to Management Information Systems (3.0 cr)
  FIN 3100 - Managerial Finance (3.0 cr)
  MGMT 3200 - Principles of Management (3.0 cr)
  MKTG 3300 - Principles of Marketing (3.0 cr)

Prescribed Electives
  Take 2 or more course(s) totaling 6 or more credit(s) from the following:
- GBUS 3500 - Business Ethics (3.0 cr)
- MGMT 3215 - Organizational Behavior (3.0 cr)
- MGMT 3220 - Human Resource Management (3.0 cr)
- IBUS 3500 - International Business Management (3.0 cr)
- MGMT 3600 - Change, Creativity, and Innovation Management (3.0 cr)
- MGMT 4800 - Strategic Management (3.0 cr)

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

Online
The management minor online has the same curriculum as the on-campus management minor.

The management minor introduces students to current business theories and practices and provides a basic business knowledge foundation. It also gives students interested in business more marketability in all types of professions, from agriculture and natural

sciences to information technology.

Students who earn a management minor will:

1. demonstrate an understanding of the management roles of planning, leading, organizing, and controlling;
2. demonstrate analytical and critical-thinking skills with direct application to management;
3. demonstrate the ability to communicate clearly and concisely in personal and business communication;
4. demonstrate capability to effectively manage human relations and diversity in professional and business environments;
5. demonstrate skill in the use of technology and computer applications in business and industry;
6. demonstrate capability to apply ethical and environmental values to business management principles and practices.

Crookston Campus

Manufacturing Management B.M.M.

Business

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 34
- Degree: Bachelor of Manufacturing Management

The bachelor of manufacturing management (BMM) is a career-oriented program that prepares students to manage people and machines in a manufacturing environment. Graduates will be able to supervise a manufacturing process, manage human and mechanical resources within budgetary constraints, and assure product quality.

The program is designed to meet the needs of people already in the workplace and two-year graduates who want to continue their education to the bachelor's degree level with seamless integration of prior credits earned. The program is available for in-class instruction on campus, as well as through online education. The online education components of the program are delivered through asynchronous electronic communication technologies and self-directed learning.

Program outcomes:

Play a growing role in their workplace, especially in supervision and management
Contribute to manufacturing system technology and quality control
Establish a quality control department and train staff to meet quality audits
Develop grades and standards of quality
Set up acceptance sampling and inspection procedures
Prepare quality control charts and reports
Control the movement of materials in the most efficient manner at the right time, to and from the correct place in the required quantity
Do a safety audit through a comprehensive approach to problems of safety in the workplace, including meeting the OSHA standards

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)
- primarily online (at least 80% of the instruction for the program is online with short, intensive periods of face-to-face coursework)
- partially online (between 50% to 80% of instruction is online)

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. For more information, see the graduation requirements.

Program Requirements

Students must complete 40 upper division credits.

Manufacturing Management Core
A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.
Required Courses - 34 credits
ACCT 3010 - Managerial Accounting (3.0 cr)
BM 3012 - Applied Engineering Principles (3.0 cr)
BM 3025 - Lean Six Sigma (3.0 cr)
BM 3034 - Applied Quality (3.0 cr)
FIN 3100 - Managerial Finance (3.0 cr)
GBUS 1005 - Orientation to Online Learning (1.0 cr)

MGMT 3200 - Principles of Management (3.0 cr)
MGMT 3215 - Organizational Behavior (3.0 cr)
MGMT 3250 - Operations Management (3.0 cr)
MGMT 4200 - Project Management (3.0 cr)
Choose one of the following:
  ACCT 2010 - Financial Accounting (3.0 cr)
  or ACCT 2101 - Principles of Accounting I (3.0 cr)
Choose one of the following:
  COMM 3008 - Business Writing (3.0 cr)
  or WRIT 3303 - Writing in Your Profession (3.0 cr)

Liberal Education Requirements
  Required Courses - 18 credits
  COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
  COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
  ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
  MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
  MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
  SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Upper Division Business/Technology Requirements
  Students must complete 4 credits from from the course list below. Select a course that is not listed under core requirements.
  ACCT 3xxx
  or ACCT 4xxx
  or BM 3xxx
  or BM 4xxx
  or ENTR 3xxx
  or ENTR 4xxx
  or FIN 3xxx
  or GBUS 3xxx
  or ITM 3xxx
  or ITM 4xxx
  or MGMT 3xxx
  or MGMT 4xxx
  or MKTG 3xxx
  or MKTG 4xxx
  or SE 3xxx
  or SE 4xxx

Upper Division Electives
  Students must complete 6 credits of Upper Division Electives.

Transfer Credits or Open Electives Credits
  Transfer Credits or Open Electives Credits requirements are 58 credits.

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

Online
The manufacturing management program is a career-oriented program that prepares students to manage people and machines in a manufacturing environment. Graduates will be able to supervise a manufacturing process, manage human and mechanical resources within budgetary constraints, and assure product quality. The curriculum for the manufacturing management online program is the same as the curriculum for the on-campus program.

Crookston Campus

Manufacturing Management Certificate

Business

Academic Affairs

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 18
- Degree: Manufacturing Mgmt Certificate

The manufacturing management certificate is a workplace centered continuing education program designed to meet the increasing demand for management skills in a production based industrial environment. The program content provides an educational base that enables employees to meet the demands of modern management within a technological work setting.

This flexible program fits the schedules of part-time students and students already in the workplace and is offered for credit or noncredit based on the students' backgrounds. The courses taken for the certificate program will transfer into the bachelor of manufacturing program.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)
- primarily online (at least 80% of the instruction for the program is online with short, intensive periods of face-to-face coursework)
- partially online (between 50% to 80% of instruction is online)

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. For more information, see the graduation requirements.

Program Requirements

Certificate Requirements

Required Courses - 15 credits

BM 3012 - Applied Engineering Principles (3.0 cr)
BM 3025 - Lean Six Sigma (3.0 cr)
BM 3034 - Applied Quality (3.0 cr)
MGMT 3250 - Operations Management (3.0 cr)
MGMT 3255 - Logistics and Supply Chain Management (3.0 cr)

Electives

Take 1 or more course(s) totaling 3 or more credit(s) from the following:
- ACCT 2010 - Financial Accounting (3.0 cr)
- ACCT 3010 - Managerial Accounting (3.0 cr)
- BM 3005 - Facilities Planning and Selection (3.0 cr)
- BM 3008 - Sustainability and Compliance (3.0 cr)
- BM 3020 - Industrial Safety (3.0 cr)
- FIN 3100 - Managerial Finance (3.0 cr)
- MGMT 3200 - Principles of Management (3.0 cr)
- MGMT 3210 - Supervision and Leadership (3.0 cr)
- MGMT 3215 - Organizational Behavior (3.0 cr)
- MGMT 4200 - Project Management (3.0 cr)
- MKTG 3300 - Principles of Marketing (3.0 cr)

Crookston Campus

Marketing B.S.

Business

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 62
- This program requires summer terms.
- Degree: Bachelor of Science

The importance of marketing for organizations today cannot be underestimated. The best product in the world can fail if it is not marketed appropriately. Marketing is a very broad degree program covering such diverse topics as personal selling, integrated marketing communication, advertising, sales promotion, the psychology of consumer behavior, marketing research, retail marketing, marketing ethics, logistics, internet marketing, and strategic marketing. Organizations need individuals who can identify consumer needs and configure appropriate solutions, and a marketing degree provides graduates with these skills.

A degree in marketing prepares graduates for a variety of careers in marketing, including brand management, sales management, personal selling, account executives, advertising, marketing research, and retailing.

Program outcomes:

Demonstrate analytical and critical-thinking skills with direct application to business environments
Demonstrate the ability to communicate clearly and concisely in personal and business communication
Demonstrate an ability to effectively apply human relations and team dynamic concepts in professional and business environments
Demonstrate the ability to value diversity and apply global multidisciplinary concepts in business and industry
Demonstrate skill in the use of technology and computer software applications in business and industry
Demonstrate capability to apply ethical and environmental values to general business principles and practices
Understand the importance of having a consumer orientation and demonstrate how to effectively establish, develop, and maintain business relationship
Demonstrate working knowledge of technological and global developments that are changing the scope of the marketing discipline

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

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. For more information, see the graduation requirements.

Program Requirements

A minimum of 40 upper division credits are required to graduate.

Marketing Program Requirements

A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.
Required courses - 62 credits
COMM 3008 - Business Writing (3.0 cr)
FIN 3100 - Managerial Finance (3.0 cr)
GBUS 1005 - Orientation to Online Learning (1.0 cr)
GBUS 1981 - Career Development (1.0 cr)
GBUS 3107 - Legal Environment in Business (3.0 cr)
GBUS 3500 - Business Ethics (3.0 cr)

IBUS 3360 - International Marketing (3.0 cr)
ITM 3020 - Introduction to Management Information Systems (3.0 cr)
MGMT 3200 - Principles of Management (3.0 cr)
MGMT 3600 - Change, Creativity, and Innovation Management (3.0 cr)
MKTG 2200 - Personal Selling (3.0 cr)
MKTG 3230 - Internet Marketing (3.0 cr)
MKTG 3250 - Integrated Marketing Communication (3.0 cr)
MKTG 3300 - Principles of Marketing (3.0 cr)
MKTG 3310 - Consumer Behavior (3.0 cr)
MKTG 3400 - Marketing Research (3.0 cr)
MKTG 3700 - Brand Management (3.0 cr)
MKTG 3900 - Internship (1.0 - 3.0 cr)
MKTG 4100 - Retail Management (3.0 cr)
MKTG 4800 - Marketing Strategies (3.0 cr)
Choose one of the following:
  ACCT 2010 - Financial Accounting (3.0 cr)
  or ACCT 2101 - Principles of Accounting I (3.0 cr)
Choose one of the following:
  ACCT 2102 - Principles of Accounting II (3.0 cr)
  or ACCT 3010 - Managerial Accounting (3.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
ECON 2102 - Macroeconomics [HI/BEH/SSC] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
PSY 1001 - General Psychology [HI/BEH/SSC] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirements
Required courses - 3 credits
CA 1020 - Spreadsheet Applications (3.0 cr)

Electives
Students must take enough electives credits to meet the 120 credit requirement for graduation. Exact number will depend on how the student selects their liberal education courses to satisfy the Minnesota Transfer Curriculum.

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

Marketing Online
The curriculum for the marketing BS online is identical to the on-campus marketing BS program.

Crookston Campus

Marketing Minor
Business
Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 18 to 19

A minor in marketing complements a wide array of majors. The marketing minor introduces students to current marketing theories and practices. Students pursuing a minor in marketing will learn the basics of marketing principles, effective personal selling, the psychology of consumer behavior, and marketing research methods.

Several electives are offered to provide five areas of specialization for students seeking the marketing minor.

Program outcomes for students:

understand the importance of having a consumer orientation and demonstrate how to effectively establish, develop, and maintain business relationships
demonstrate working knowledge of technological and global developments that are changing the scope of the marketing discipline

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

Minor Requirements
Marketing Minor Requirements
Required courses - 9 credits
MKTG 3300 - Principles of Marketing (3.0 cr)
MKTG 3310 - Consumer Behavior (3.0 cr)
MKTG 3400 - Marketing Research (3.0 cr)
Take 9 or more credit(s) from the following:
•ENTR 3150 - Entrepreneurial Marketing (3.0 cr)
•IBUS 3360 - International Marketing (3.0 cr)
•MKTG 2200 - Personal Selling (3.0 cr)
•MKTG 3230 - Internet Marketing (3.0 cr)
•MKTG 3250 - Integrated Marketing Communication (3.0 cr)
•MKTG 3700 - Brand Management (3.0 cr)
•MKTG 4100 - Retail Management (3.0 cr)
•SRM 3006 - Sport Marketing and Communication (3.0 cr)

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

Marketing Minor (Online)
A minor in marketing complements a wide array of majors. The marketing minor introduces students to current marketing theories and practices. Students pursuing a minor in marketing will learn the basics of marketing principles, effective personal selling, the psychology of consumer behavior, and marketing research methods. The marketing minor (online) has the same curriculum as the classroom delivered marketing minor with the exception that a one-credit technology requirement is also required.

Technology Requirement
GBUS 1005 - Orientation to Online Learning (1.0 cr)

Medical Laboratory Science B.S.

Math, Science and Technology

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 126
- Required credits within the major: 87
- This program requires summer terms.
- University of North Dakota in Grand Forks, ND. The spring and summer semesters of students' junior year and their final year of the program will be taught through an agreement with the University of North Dakota School of Medicine. The final year is in a clinical setting.
- Degree: Bachelor of Science

The BS in medical laboratory science will give students a degree that will provide life-long mobility, flexibility and opportunity. Individuals who enjoy science, solving problems, and working as part of a team may find medical laboratory science to be a rewarding career. A medical lab scientist is part of a healthcare team that performs a variety of fact-finding tests that are used by physicians in making 70 to 80 percent of medical decisions. In addition, this degree provides a great background for individuals interested in entering fields of forensic science or medicine (medical doctors, dentists, pharmacists, etc.).

Modern medicine would be impossible without the problem solving skills of medical lab scientists. MLS scientists run tests that encompass areas of clinical chemistry, clinical microbiology, hematology, clinical urology, immunology, immunohematology, and molecular diagnostics. Each test run will find an additional clue in the final patient diagnosis, which will assist the physicians in determining the best treatment for the patients. Due to the national shortage of medical lab scientists, MLS graduates will have excellent opportunities in nearly all areas of the United States.

Program outcomes for graduates:

Demonstrate competencies in the following areas: collection, safe handling and analysis of biological specimens; principles of continuous assessment of data collection and analysis; compliance with laboratory safety regulations; and ethical behavior and professionalism
Demonstrate oral and written communications skills
Effectively work with others in groups and be able to take on leadership roles when appropriate
Demonstrate a disposition for an entry-level, professional position in the medical laboratory sciences for the 21st century
Learn to think critically to solve problems
Evaluate published scientific studies through a context of research design
Demonstrate an understanding of the significance of cultural sensitivity and awareness as it applies to the profession

Program Delivery

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

Admission Requirements

Admission to year four of the program requires a minimum GPA of 2.8, no more than one "D" in any math or science course, and recommendation by the student's academic advisor.

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. For more information, see the graduation requirements.

Program Requirements

Students must complete 40 upper division credits.
A maximum of two D grades are allowed for courses required under biology, chemistry, MLS and technology requirements. This includes grades earned at UMC or transferred in from another institution.

Biology Requirements
Required Courses - 20 credits
BIOL 2012 - General Zoology (4.0 cr)
BIOL 2032 - General Microbiology (4.0 cr)
BIOL 2103 - Human Anatomy and Physiology I (4.0 cr)
BIOL 2104 - Human Anatomy and Physiology II (4.0 cr)
Choose one of the following:
  BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
  or BIOL 1009H - Honors: General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)

Chemistry Requirements
Required Courses - 16 credits
CHEM 1061 - Chemical Principles I [PHYS SCI, PEOPLE/ENV] (3.0 cr)
CHEM 1062 - Chemical Principles II (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS SCI, PEOPLE/ENV] (1.0 cr)
CHEM 1066 - Chemical Principles II Laboratory (1.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2310 - Organic Chemistry Laboratory I (2.0 cr)
Choose one of the following:
  BIOL 3027 - Cell Biology (3.0 cr)
  or CHEM 3021 - Biochemistry (3.0 cr)

MLS Requirements
Required Courses - 51 credits
MLS 2234 - Human Parasitology (UND) (2.0 cr)
MLS 3301 - Immunology (UND) (3.0 cr)
MLS 3325 - Hematology (UND) (3.0 cr)
MLS 3326 - Hematology Laboratory (UND) (1.0 cr)
MLS 3336 - Laboratory Calculations (UND) (1.0 cr)
MLS 3340 - Molecular Diagnostics (UND) (2.0 cr)
MLS 3394 - Medical Microbiology (UND) (2.0 cr)
MLS 4471 - Clinical Chemistry I (UND) (2.0 cr)
MLS 4472 - Pre-Analytical Testing Skills (UND) (1.0 cr)
MLS 4473 - Clinical Hemostasis I (UND) (2.0 cr)
MLS 4474 - Clinical Urinalysis I (UND) (2.0 cr)
MLS 4476 - Clinical Immunohematology I (UND) (1.0 cr)
MLS 4477 - Clinical Immunohematology I Laboratory (UND) (1.0 cr)
MLS 4478 - Clinical Microbiology I (UND) (2.0 cr)
MLS 4479 - Clinical Hematology I (UND) (2.0 cr)
MLS 4480 - Clinical Immunohematology II (UND) (2.0 cr)
MLS 4481 - Clinical Chemistry II (UND) (2.0 cr)
MLS 4483 - Clinical Hemostasis II (UND) (1.0 cr)
MLS 4484 - Clinical Microbiology II (UND) (2.0 cr)
MLS 4485 - Clinical Urinalysis II (UND) (1.0 cr)
MLS 4487 - Medical Mycology (UND) (1.0 cr)
MLS 4488 - Clinical Hematology II (UND) (2.0 cr)
MLS 4489 - Clinical Body Fluids (UND) (1.0 cr)
MLS 4490 - Financial and Quality Management of the Clinical Laboratory (UND) (3.0 cr)
MLS 4491 - Clinical Chemistry III (UND) (2.0 cr)
MLS 4492 - Clinical Immunohematology III (UND) (2.0 cr)
MLS 4494 - Clinical Immunology (UND) (1.0 cr)
MLS 4495 - Clinical Microbiology III (UND) (2.0 cr)
MLS 4498 - Clinical Hematology III (UND) (2.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer
Curriculum with the following specific liberal education courses required:
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
PHIL 2002 - Introduction to Ethics [HUMANITIES, ETH/CIV RE] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)
WRIT 3303 - Writing in Your Profession (3.0 cr)
Take 2 or more course(s) totaling 6 or more credit(s) from the following:
  •MATH 1031 - College Algebra [MATH THINK] (3.0 cr)

- •MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
- •MATH 1250 - Precalculus [MATH THINK] (4.0 cr)
- •MATH 1271 - Calculus I [MATH THINK] (4.0 cr)

Technology Requirements
Students must take 3 credits from the following courses. (If applicable, the course selected from below may be used to satisfy both the program and technology requirements.)
CA 1xxx
or CA 2xxx
or CHEM 3022 - Chemical Analysis in the Biological and Environmental Sciences (4.0 cr)
or MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)

Electives
Students must take enough electives to satisfy the 126 credit graduation requirement.

Crookston Campus
Music Minor
Liberal Arts and Education
Academic Affairs

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 18

The music minor allows students to develop a concentrated course of studies in music while pursuing a major in another area. Students who plan to earn a baccalaureate degree at UMC are generally able to complete the music minor if they have an appropriate musical background and/or interest. Students completing the minor may pursue opportunities in teaching beginning to intermediate piano lessons, playing church organ, directing volunteer choirs, directing community musicals, etc. The minor complements all UMC major degree programs.

Program outcomes:
1. vocal or instrumental skills for performance;
2. enhanced appreciation of the performing arts;
3. skills for part-time employment in music field.

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

Minor Requirements
Minor Requirements
 Requirements - 7 credits
 MUS 1021 - Introduction to Music [HUMANITIES, HUMAN DIV] (3.0 cr)
 MUS 1111 - Elementary Music Theory [HUMANITIES] (3.0 cr)
 MUS 1042 - Private Instruction: Class Piano [HUMANITIES] (1.0 cr)
  or MUS 3042 - Class Piano: Intermediate/Advanced (1.0 cr)

Upper Division Requirements
 Take 6 or more credit(s) from the following:
 •MUS 3011 - University Singers (Choir) [HUMANITIES] (1.0 cr)
 •MUS 3027 - Rock and Jazz Music Styles [HUMANITIES, HUMAN DIV] (3.0 cr)
 •MUS 3041 - Private Instruction [HUMANITIES] (1.0 cr)
 •MUS 3051 - Student-Community Band (1.0 cr)
 •MUS 3091 - Instrumental and Choral Conducting (2.0 cr)

Electives
 Take 5 or more credit(s) from the following:
 •MUS 1011 - University Singers [HUMANITIES] (1.0 cr)
 •MUS 1041 - Private Music Instruction [HUMANITIES] (1.0 cr)
 •MUS 1042 - Private Instruction: Class Piano [HUMANITIES] (1.0 cr)
 •MUS 1051 - Student-Community Band [HUMANITIES] (1.0 cr)
 •MUS 1071 - Musical Theater [HUMANITIES] (1.0 cr)

Natural Resources B.S.

Agriculture and Natural Resources

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 42 to 79
- This program requires summer terms.
- Degree: Bachelor of Science

Managing natural resources is increasingly important, with increasing human populations and limited natural resources and habitats. Natural resource managers help balance the needs of people with the ability of ecosystems to sustainably support soil, water, forests, wildlife, fish, and recreational resources.

UMC's bachelor of science in natural resources provides an integrated approach to soil and water conservation, wildlife and fisheries management, forestry, and recreation. This combination enables graduates to work with a variety of resources and people and to build a career tailored to their interests. Students select one of the following emphases:

  Ecological restoration
  Natural resources aviation
  Natural resources law enforcement
  Natural resources management
  Park management
  Water resource management
  Wildlife management

Program outcomes:
  Apply an integrated approach to resource management that incorporates environmental, economic, and social considerations
  Demonstrate appropriate technical knowledge and practical applications necessary for employment in the natural resources field
  Perform group problem solving, decision-making, and conflict management to be effective in resource management
  Demonstrate oral and written communication skills appropriate for a beginning natural resource professional
  Be aware of the necessity of continuing education and professional development to be successful in a changing natural resources workplace

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. For more information, see the [graduation requirements](#).

Program Requirements

Students must complete 40 upper division credits.
A maximum of two D grades are allowed for core courses required in the program, subplan/emphasis, and technology requirements. This includes grades earned at UMC or transferred in from another institution.

Program Requirements
  Required Courses - 24 credits
  MGMT 3210 - Supervision and Leadership (3.0 cr)
  NATR 1233 - Introduction to Natural Resources (3.0 cr)
  NATR 1244 - Elements of Forestry (4.0 cr)
  NATR 2630 - Introduction to Geographic Information Systems (3.0 cr)

NATR 3374 - Ecology [BIOL SCI] (4.0 cr)
NATR 3899 - Pre-Internship Seminar (0.5 cr)
NATR 3900 - Internship (0.5 - 4.0 cr)
NATR 3901 - Post-Internship Seminar (0.5 cr)
NATR 4652 - Seminar (1.0 cr)
WRIT 3303 - Writing in Your Profession (3.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required.
BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
PHYS 1012 - Introductory Physics [PHYS SCI, PEOPLE/ENV] (4.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirements
Take any 3 credits from the following courses. (If applicable, the course taken from below may be used to satisfy both the program and technology requirements.)
CA 1020 - Spreadsheet Applications (3.0 cr)
or NATR 3635 - Geographic Information Systems Applications (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans.

Ecological Restoration
Ecological restoration is the processes of repairing ecosystems that have been damaged due to human or natural influences. Courses in this emphasis provide an interdisciplinary background that encompasses restoration and management of terrestrial and wetland ecosystems, invasive species management, conservation biology, ecology, and remediation of severely disturbed lands. The emphasis prepares students for a career as restoration practitioners and land managers with non-profit, private, or governmental agencies and for graduate school in natural resource management.

Program outcomes:
Assess causes of land degradation and plan restoration actions that promote ecosystem health
Understand the interactions between management practices and social factors that lead to successful project implementation

Ecological Restoration Emphasis Requirements
Required Courses - 43 credits
ASM 3009 - Surveying (4.0 cr)
BIOL 2022 - General Botany (3.0 cr)
ENSC 3124 - Environmental Science and Remediation Techniques (3.0 cr)
NATR 3344 - Land Use Planning (3.0 cr)
NATR 3364 - Plant Taxonomy (3.0 cr)
NATR 3480 - Ecological Restoration (3.0 cr)
NATR 3486 - Conservation Biology (3.0 cr)
NATR 3488 - Invasive Species Ecology and Management (3.0 cr)
NATR 3580 - Advanced Ecological Restoration (2.0 cr)
NATR 3635 - Geographic Information Systems Applications (3.0 cr)
NATR 3699 - Integrated Resource Management (3.0 cr)
SOIL 1293 - Soil Science (3.0 cr)
SWM 3224 - Soil and Water Conservation (4.0 cr)
SWM 3225 - Watershed Management (3.0 cr)
Required Electives
Choose one of the following:
Take exactly 1 course(s) from the following:
•HORT 3036 - Plant Propagation (4.0 cr)
•NATR 3376 - Wetland and Riparian Ecology and Management (3.0 cr)
•NATR 3660 - Prairie Ecosystem Management (2.0 cr)
•NATR 3468 - Wildlife Habitat Management Techniques (3.0 cr)
•SOIL 3414 - Soil Fertility and Plant Nutrition (4.0 cr)
•SWM 3009 - Hydrology and Water Quality (4.0 cr)
Electives

Students must take enough electives to satisfy the 120 credit graduation requirement. Number needed will depend on how the student selects their liberal education courses to satisfy the Minnesota Transfer Curriculum.

Natural Resources Aviation

This emphasis leads to careers as natural resource pilots employed by state/federal agencies, such as the National Park Service, US Fish and Wildlife Service, US Forest Service, and state departments of natural resources.

Program outcomes:
 Demonstrate competency in aeronautics
 Apply an integrated approach to resource management that incorporates environmental, economic, and social considerations
 Perform group problem solving, decision making, and conflict management to be effective in resource management
 Understand ecological management principles that apply to wildlife, fish, forest, soil, water, and recreation resources

Natural Resources Aviation Emphasis Requirements
 Required Courses - 49 to 51 credits
 AVIA 1103 - Introduction to Aviation (4.0 cr)
 AVIA 1104 - Introduction to Aviation Flight Lab (1.0 cr)
 AVIA 1396 - Conventional Aircraft Operations (1.0 cr)
 AVIA 2220 - Basic Attitude Instrument Flying (2.0 cr)
 AVIA 2221 - Basic Attitude Instrument Flying Lab (1.0 cr)
 AVIA 2222 - IFR Regulations and Procedures (2.0 cr)
 AVIA 2223 - IFR Regulations and Procedures Flight Lab (1.0 cr)
 AVIA 3320 - Airplane Aerodynamics (2.0 cr)
 AVIA 3321 - Airplane Aerodynamics Flight lab (1.0 cr)
 AVIA 3324 - Aircraft Systems and Instruments (3.0 cr)
 AVIA 3396 - Advanced Conventional Aircraft Operations (1.0 cr)
 AVIA 3602 - Natural Resources and Enforcement Applications (2.0 cr)
 BIOL 2022 - General Botany (3.0 cr)
 NATR 3203 - Park and Recreation Management (3.0 cr)
 NATR 3344 - Land Use Planning (3.0 cr)
 NATR 3364 - Plant Taxonomy (3.0 cr)
 NATR 3654 - Wildlife Ecology and Management (4.0 cr)
 NATR 3699 - Integrated Resource Management (3.0 cr)
 Choose one of the following:
  AGRO 1183 - Field Crops: Production Principles (3.0 cr)
  or BIOL 2012 - General Zoology (4.0 cr)
  or HORT 1010 - Introduction to Horticulture (3.0 cr)
 Choose one of the following:
  NATR 3464 - Mammalogy (3.0 cr)
  or SWM 3224 - Soil and Water Conservation (4.0 cr)
 Choose one of the following:
  NATR 3466 - Ornithology (3.0 cr)
  or SOIL 1293 - Soil Science (3.0 cr)
Liberal Education Requirement
 Will count towards the 40 credits required in liberal education.
 MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
Open Electives
 Students must take enough electives to satisfy the 120 credit graduation requirement. Number needed will depend on how the student selects their liberal education courses to satisfy the Minnesota Transfer Curriculum.

Natural Resources Law Enforcement

This emphasis provides integrated instruction in natural resources management and law enforcement. General classes in natural resources, wildlife and fisheries management, forestry recreation, and land use planning are combined with criminal justice/law enforcement classes. After completing coursework and training in first aid and traffic law, students may attend a skills session and take the Minnesota Peace Officer Standards and Training (POST) certification examination.

Program outcomes:
 Understand the role of education and law enforcement in natural resource management
 Be qualified to attend the peace officer's skills training academy

Natural Resources Law Enforcement Emphasis Requirements
 Required Courses - 54 to 55 credits
 CRJS 1500 - Introduction to Criminal Justice [HI/BEH/SSC, ETH/CIV RE] (4.0 cr)
 CRJS 2500 - Introduction to Policing (3.0 cr)
 CRJS 2550 - Traffic Law (2.0 cr)

CRJS 2560 - First Responder (3.0 cr)
CRJS 3505 - Judicial Process (3.0 cr)
CRJS 3525 - Juvenile Justice and Delinquency (3.0 cr)
CRJS 3530 - Criminal Justice Diversity (3.0 cr)
CRJS 3550 - Criminal Investigation (3.0 cr)
CRJS 3575 - Critical Issues in Policing (3.0 cr)
CRJS 4510 - Victimology (3.0 cr)
CRJS 4540 - Criminal Law (4.0 cr)
CRJS 4550 - Criminal Procedure (4.0 cr)
SOIL 1293 - Soil Science (3.0 cr)
NATR 3203 - Park and Recreation Management (3.0 cr)
NATR 3654 - Wildlife Ecology and Management (4.0 cr)
Choose one of the following:
  BIOL 2012 - General Zoology (4.0 cr)
  or BIOL 2022 - General Botany (3.0 cr)
Choose one of the following:
  CRJS 3520 - Natural Resource Law Enforcement Techniques (3.0 cr)
  or NATR 3520 - Natural Resource Law Enforcement Techniques (3.0 cr)
Liberal Education Requirements
 Will count towards the 40 credits required in liberal education.
 MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
 or MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
Open Electives
 Students must take enough electives to satisfy the 120 credit graduation requirement. Number needed will depend on how the student selects their liberal education courses to satisfy the Minnesota Transfer Curriculum.

Natural Resources Management

This emphasis provides an integrated approach to land use and the conservation of wildlife, fish, forest, and recreation resources. This major is especially appropriate for students seeking a broad understanding of resource management principles and environmental issues. A combination of coursework in natural resources, agriculture, and liberal education prepares students for land management positions in which a balance between environmental, economic, and social concerns is sought.

Program outcome:
 Understand ecological management principles that apply to wildlife, fish, forest, soil, water, and recreation resources

Natural Resources Management Emphasis Requirements
 Required Courses - 35 credits
 ASM 3009 - Surveying (4.0 cr)
 BIOL 2022 - General Botany (3.0 cr)
 NATR 3203 - Park and Recreation Management (3.0 cr)
 NATR 3344 - Land Use Planning (3.0 cr)
 NATR 3364 - Plant Taxonomy (3.0 cr)
 NATR 3654 - Wildlife Ecology and Management (4.0 cr)
 NATR 3660 - Prairie Ecosystem Management (2.0 cr)
 NATR 3699 - Integrated Resource Management (3.0 cr)
 SOIL 1293 - Soil Science (3.0 cr)
 SWM 3224 - Soil and Water Conservation (4.0 cr)
 Choose one of the following:
  AGRO 1183 - Field Crops: Production Principles (3.0 cr)
  or HORT 1010 - Introduction to Horticulture (3.0 cr)
Liberal Education Requirements
 Will count towards the 40 credits required in liberal education.
 MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
 or MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
Agriculture/Natural Resources Electives
 Students must take 9 credits selected in consultation with an advisor.
Open Electives
 Students must take enough electives to satisfy the 120 credit graduation requirement. Number needed will depend on how the student selects their liberal education courses to satisfy the Minnesota Transfer Curriculum.

Park Management

This emphasis provides an integrated approach to park and recreation area management. A combination of natural resources, horticulture, and management courses prepare students for park and resource management positions, typically with federal/state/county/city recreation agencies. Flexibility in the choice of major electives allows students to build a customized program that meets their specific career goals.

Program outcome:
 Understand the interrelatedness of and techniques used to manage both visitor use and recreational resources

Park Management Emphasis Requirements
 Required Courses - 18 credits
 BIOL 2022 - General Botany (3.0 cr)
 NATR 3203 - Park and Recreation Management (3.0 cr)
 NATR 3344 - Land Use Planning (3.0 cr)
 NATR 3364 - Plant Taxonomy (3.0 cr)
 NATR 3699 - Integrated Resource Management (3.0 cr)
 SOIL 1293 - Soil Science (3.0 cr)
Liberal Education Requirements
 Will count towards the 40 credits required in liberal education.
 MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
 or MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
Agriculture/Natural Resources Electives
 Students must take 15 credits.
Horticulture Electives
 Students must take 7 credits.
Management Electives
 Students must take 3 credits.
Open Electives
 Students must take enough electives to satisfy the 120 credit graduation requirement. Number needed will depend on how the student
 selects their liberal education courses to satisfy the Minnesota Transfer Curriculum.

Water Resource Management

Courses in natural resources along with agriculture, geology, soils, fisheries management, water quality, and land use planning provide
a background focused on water resources. Watersheds are studied by land cover and mapping technologies in relationship to field
monitoring of lakes and streams.

Program outcomes:
 Understand methods of assessing land management practices at the watershed scale and how they affect water quality
 Measure and use appropriate water quality parameters to assess the health of land and aquatic systems
 Recommend appropriate land/water management practices to achieve soil conservation and water quality goals

Water Resource Management Emphasis Requirements
 Required Courses - 45 credits
 AGRO 1183 - Field Crops: Production Principles (3.0 cr)
 ASM 3009 - Surveying (4.0 cr)
 BIOL 2022 - General Botany (3.0 cr)
 BIOL 3722 - Limnology (3.0 cr)
 GEOL 1001 - Introductory Geology [PHYS SCI, PEOPLE/ENV] (3.0 cr)
 NATR 1663 - Principles of Fisheries Management (3.0 cr)
 NATR 3344 - Land Use Planning (3.0 cr)
 NATR 3364 - Plant Taxonomy (3.0 cr)
 NATR 3376 - Wetland and Riparian Ecology and Management (3.0 cr)
 NATR 3699 - Integrated Resource Management (3.0 cr)
 SOIL 1293 - Soil Science (3.0 cr)
 SWM 3009 - Hydrology and Water Quality (4.0 cr)
 SWM 3224 - Soil and Water Conservation (4.0 cr)
 SWM 3225 - Watershed Management (3.0 cr)
Liberal Education Requirements
 Will count towards the 40 credits required in liberal education.
 MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
 or MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
Open Electives
 Students must take enough electives to satisfy the 120 credit graduation requirement. Number needed will depend on how the student
 selects their liberal education courses to satisfy the Minnesota Transfer Curriculum.

Wildlife Management

This emphasis concentrates on wildlife and habitats. The major focuses on land and wetland habitats and their animal associates with
some emphasis on fisheries management. Graduates fulfill the educational requirements for certification as an Associate Wildlife
Biologist by The Wildlife Society. Professional relationships and student development are enhanced by a student chapter of The Wildlife
Society.

Program outcomes:
 Understand the interrelatedness and techniques used to manage vertebrate populations and their habitat
 Understand the dynamics of wildlife populations, habitats, and appropriate monitoring techniques

A minimum GPA of 3.00 is required for graduation.

Wildlife Management Emphasis Requirements
 Required Courses - 49 credits
 AGRO 3030 - Research Techniques in Agriculture and Natural Resources (3.0 cr)
 ANSC 3203 - Animal Anatomy and Physiology (4.0 cr)
 ASM 1034 - Facility Maintenance and Safety (4.0 cr)
 ASM 3009 - Surveying (4.0 cr)
 BIOL 2012 - General Zoology (4.0 cr)
 BIOL 2022 - General Botany (3.0 cr)
 NATR 3344 - Land Use Planning (3.0 cr)
 NATR 3364 - Plant Taxonomy (3.0 cr)
 NATR 3464 - Mammalogy (3.0 cr)
 NATR 3466 - Ornithology (3.0 cr)
 NATR 3468 - Wildlife Habitat Management Techniques (3.0 cr)
 NATR 3654 - Wildlife Ecology and Management (4.0 cr)
 NATR 3660 - Prairie Ecosystem Management (2.0 cr)
 NATR 3699 - Integrated Resource Management (3.0 cr)
 SOIL 1293 - Soil Science (3.0 cr)
Liberal Education Requirements
 Will count towards the 40 credits required in liberal education.
 MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
 MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
Open Electives
 Students must take enough electives to satisfy the 120 credit graduation requirement. Number needed will depend on how the student
 selects their liberal education courses to satisfy the Minnesota Transfer Curriculum.

Crookston Campus

Quality Management B.M.M.

Business

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 120
- This program requires summer terms.
- Degree: Bachelor of Manufacturing Management

The bachelor of manufacturing management (BMM) degree in quality management responds to increased employer demand for employees with a solid background in manufacturing techniques combined with a qualification in quality. Many companies that outsource production discover the need for more stringent quality assurance of products made in foreign countries, causing an increased need for graduates with a good grounding in quality management. The high demand is concomitant with above average starting salaries. The quality management degree was designed with learner outcomes designed to: (1) meet the employability requirements of industry; (2) incorporate changing consumer interests, attitudes, and concerns for quality management; (3) offer students an attractive, well differentiated educational option to complete their bachelor level education; (4) utilize existing intellectual and physical resources. The quality management program prepares graduates for employment in industry and public regulatory agencies. University of Minnesota, Crookston graduates have the knowledge and skills to contribute to the quality functions at their prospective employers. To find possible employment opportunities go to ihirequalitycontrol.com where potential employment positions abound in most states. The quality management program is transfer friendly and an attractive option for technical college graduates to complete their academic qualification to bachelor level. It is especially tailored to those individuals who would like to become part of the management team within their workplaces. The university recognizes the value of the technical skills that students acquired at other institutions and the experience they have gained during their careers. The right combination of communication and management skills and pertinent quality-related learning are added to prepare the students for future opportunities. The program is offered on campus and online to respond to the needs of busy working adults who cannot attend any of the classes.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

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. For more information, see the graduation requirements.

Program Requirements

Transfer Credits

Students transfer in 58 credits. If they transfer in less, they take credits as electives until they have satisfied the 58 transfer credit requirement.

Program Requirements

A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.

Required courses - 37 credits

ACCT 3010 - Managerial Accounting (3.0 cr)
BM 3007 - Metrology (3.0 cr)
BM 3008 - Sustainability and Compliance (3.0 cr)
BM 3012 - Applied Engineering Principles (3.0 cr)
BM 3025 - Lean Six Sigma (3.0 cr)
BM 3034 - Applied Quality (3.0 cr)
COMM 3008 - Business Writing (3.0 cr)
GBUS 1005 - Orientation to Online Learning (1.0 cr)

MGMT 3200 - Principles of Management (3.0 cr)
MGMT 3250 - Operations Management (3.0 cr)
MGMT 3255 - Logistics and Supply Chain Management (3.0 cr)
ACCT 2010 - Financial Accounting (3.0 cr)
  or ACCT 2101 - Principles of Accounting I (3.0 cr)
BM 3053 - Product Development Management (3.0 cr)
  or MGMT 4200 - Project Management (3.0 cr)

Liberal Education Requirements
Required courses - 18 credits
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Upper Division Business/Technology Electives
Students must take 7 credits of upper division business/technology credits taken from the following (Acct, BM, Entr, Fin, GBus, ITM, Mgmt, Mktg, SE).

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

B.M.M. in Quality Management (Online)
The bachelor of manufacturing management (BMM) in quality management responds to increased employer demand for employees with a solid background in manufacturing techniques combined with a qualification in quality. The quality management degree is transfer friendly and an attractive option for technical college graduates to complete their academic qualification to bachelor level. It is especially tailored to those individuals who would like to become part of the management team within their workplaces. The program is offered on campus and online to respond to the needs of busy working adults who cannot attend any of the classes.

The curriculum for the online program is identical to the on-campus program.

Crookston Campus

Software Engineering B.S.
Math, Science and Technology
Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 64
- This program requires summer terms.
- Degree: Bachelor of Science

As technology penetrates every sector of the economy, software needs are becoming increasingly complex. This need has seen the evolution of a relatively new area of study, software engineering. The US Department of Labor, Bureau of Labor Statistics state that computer software engineering will be among the fastest growing occupations for the next 10 years.

The software engineering program combines the theory behind good software engineering practices along with applied projects throughout the IEEE standardized curriculum. This approach provides graduates the knowledge and skills to be successful in the workplace or in graduate studies.

Program outcomes: graduates will
show mastery of the software engineering knowledge and skills and professional issues necessary to begin practice as a software engineer

work as an individual and as part of a team to develop and deliver quality software artifacts

reconcile conflicting project objectives, finding acceptable compromises within limitations of cost, time, knowledge, existing systems, and organizations

design appropriate solutions in one or more application domains using software engineering approaches that integrate ethical, social, legal, and economic concerns

demonstrate an understanding of and apply current theories, models, and techniques that provide a basis for problem identification and analysis, software design, development, implementation, verification, and documentation

demonstrate an understanding and appreciation for the importance of negotiation, effective work habits, leadership, and good communication with stakeholders in a typical software development environment

learn new models, techniques, and technologies as they emerge and appreciate the necessity of such continuing professional development

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. For more information, see the graduation requirements.

Program Requirements
Students must complete 40 upper division credits.

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:

BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
HUM 3310 - Culture and Technology [HUMANITIES, GLOB PERSP] (3.0 cr)
MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
MATH 1271 - Calculus I [MATH THINK] (4.0 cr)
PHIL 1001 - Introduction to Philosophy [HUMANITIES, ETH/CIV RE] (3.0 cr)
PHYS 1101 - Introductory College Physics I [PHYS SCI] (4.0 cr)
PSY 1001 - General Psychology [HI/BEH/SSC] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirement
Students must take 3 credits from the following courses:
CA 1040 - Web Site Development (3.0 cr)
or SE 4100 - Introduction to 3D Simulation Programming (3.0 cr)
or SE 4110 - Simulation and Game Development (3.0 cr)

Core Program Requirements
A maximum of two D grades are allowed for courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.
Required Courses - 64 credits
ITM 3110 - Microcomputer Operating Systems (3.0 cr)
MATH 1272 - Calculus II (4.0 cr)
MATH 2010 - Discrete Mathematics (3.0 cr)
NT 3120 - Networking Standards and Protocols (3.0 cr)
SE 2050 - Introduction to Programming I (3.0 cr)
SE 2070 - Introduction to Programming II (3.0 cr)
SE 2090 - Data Structures and Algorithms (3.0 cr)
SE 2100 - Microcomputer Systems Architecture (3.0 cr)
SE 2200 - Introduction to Software Engineering (3.0 cr)
SE 2300 - Software Construction (3.0 cr)
SE 2400 - Software Engineering Approach to Human Computer Interaction (3.0 cr)
SE 3050 - Database Management Systems (3.0 cr)
SE 3100 - Object-Oriented Programming (3.0 cr)
SE 3200 - Software Design and Architecture (3.0 cr)
SE 3300 - Software Quality Assurance and Testing (3.0 cr)
SE 3400 - Software Requirements Analysis (3.0 cr)
SE 3700 - Software Project Management (3.0 cr)
SE 3900 - Internship (3.0 cr)
SE 4050 - Advanced Web Application Development (3.0 cr)
SE 4500 - Senior Project I (3.0 cr)
SE 4510 - Senior Project II (3.0 cr)

Open Electives. Students must take enough credits to meet the 120 credit graduation requirement.
Specialization options are listed below:
Recommended Electives for Financial/ E-Commerce Systems Specialization - up to 18 credits
ACCT 2101
FIN 3100
MGMT 3200
MGMT 3270
NT 3215
SE 3060
Recommended Electives for Network-Centric Systems Specialization - up to 18 credits
ITM 3130
MGMT 3200
NT 3215
SE 3060
SE 3820
SE 4100
Recommended Electives for Gaming, 3D Modeling & Simulation - up to 19 credits
MGMT 3200
Phys 1301
SE 3820
SE 4100

Crookston Campus

Sport and Recreation Management B.S.

Business

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 62
- This program requires summer terms.
- Degree: Bachelor of Science

The sport and recreation management program gives students the opportunity to develop knowledge and expertise in sport and recreation with an orientation toward management. It is employment-oriented, designed around active learning and responsive teaching, and technology-driven, focused on communication and human relations.

Program graduates will be able to manage, assist in the management of, or find employment in sport and recreation organizations. Career opportunities include positions in professional sport franchises, sport and recreation facilities, participative sport event management, spectator sport event management, licensed athletic apparel companies, corporate fitness programs, college and university athletic departments, park and tourist attraction sites, community centers, senior centers, health clubs, sport and recreation camps, clinics, and seminars.

Program outcomes:
1. Competencies in general business disciplines (i.e. management, marketing, finance) as related to sport and recreation management;

2. Skills in written and oral communication that relate to the sport and recreation industry;

3. Ability to apply industry-specific technological tools and operating procedures for sport and recreation;

4. Team building skills and the ability to work in groups.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

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. For more information, see the graduation requirements.

Program Requirements

Students must complete 40 upper division credits.

Program Requirements

A maximum of two D grades are allowed for core courses required in the program and technology requirements. This includes grades earned at UMC or transferred in from another institution.

Required courses - 62 credits

FIN 3100 - Managerial Finance (3.0 cr)
GBUS 1005 - Orientation to Online Learning (1.0 cr)
GBUS 3107 - Legal Environment in Business (3.0 cr)
HSCI 1072 - Wellness (3.0 cr)
MGMT 3200 - Principles of Management (3.0 cr)
MGMT 3210 - Supervision and Leadership (3.0 cr)
MGMT 3220 - Human Resource Management (3.0 cr)
MKTG 2200 - Personal Selling (3.0 cr)

MKTG 3300 - Principles of Marketing (3.0 cr)
SRM 2020 - Foundations of Sport and Recreation Management (3.0 cr)
SRM 3002 - Sport Law and Governance (3.0 cr)
SRM 3003 - Sport Facility and Activities Management (3.0 cr)
SRM 3006 - Sport Marketing and Communication (3.0 cr)
SRM 3008 - Sport Ethics and Leadership (3.0 cr)
SRM 3012 - Sport Finance and Economics (3.0 cr)
SRM 3100 - Psychology of Sport (3.0 cr)
SRM 3200 - Socio-Cultural Dimensions in Sport (3.0 cr)
SRM 3900 - Internship (1.0 - 3.0 cr)
SRM 4099 - Seminar in Sport and Recreation Management (1.0 cr)
Choose one of the following:
  ACCT 2010 - Financial Accounting (3.0 cr)
  or ACCT 2101 - Principles of Accounting I (3.0 cr)
Choose one of the following:
  ACCT 2102 - Principles of Accounting II (3.0 cr)
  or ACCT 3010 - Managerial Accounting (3.0 cr)
Choose one of the following:
  COMM 3008 - Business Writing (3.0 cr)
  or WRIT 3303 - Writing in Your Profession (3.0 cr)

Liberal Education Requirements
A minimum of 40 liberal education credits required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:
COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
ECON 2101 - Microeconomics [HI/BEH/SSC] (3.0 cr)
ECON 2102 - Macroeconomics [HI/BEH/SSC] (3.0 cr)
MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
MATH 1150 - Elementary Statistics [MATH THINK] (3.0 cr)
SPCH 1101 - Public Speaking [COMMUNICAT] (3.0 cr)

Technology Requirements
Take 3 credits of any CA courses.
CA 1xxx

Prescribed Electives
The following courses will not satisfy this requirement: Mgmt 3100, 3200, 3210, Mktg 3300. If a CA course is chosen, it must be a different course than the CA course chosen to meet the Technology Requirement.
Take 1 or more course(s) totaling 2 or more credit(s) from the following:
•CA 1xxx
•ITM 1xxx
•ITM 2xxx
•ITM 3xxx
•ITM 4xxx
•MGMT 3xxx
•MGMT 4xxx
•MKTG 3xxx
•MKTG 4xxx

Open Electives
Students must take enough Open Electives credits to meet the 120 credit requirement for graduation.

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

Online
The sport and recreation management program gives students the opportunity to develop knowledge and expertise in sport and recreation with an orientation toward management. It is employment-oriented, designed around active learning and responsive teaching, and technology-driven, focused on communication and human relations.

Program graduates will be able to manage, assist in the management of, or find employment in sport and recreation organizations. Career opportunities include positions in professional sport franchises, sport and recreation facilities, participative sport event

management, spectator sport event management, licensed athletic apparel companies, corporate fitness programs, college and university athletic departments, park and tourist attraction sites, community centers, senior centers, health clubs, sport and recreation camps, clinics, and seminars.

Program outcomes:
1. competencies in general business disciplines (i.e. management, marketing, finance) as related to sport and recreation management;

2. skills in written and oral communication that relate to the sport and recreation industry;

3. ability to apply industry-specific technological tools and operating procedures for sport and recreation;

4. team building skills and the ability to work in groups.

The Sport and Recreation Management BS online program has the same curriculum requirements as the on-campus Sport and Recreation Management BS program.

Sport and Recreation Management Certificate

Business
Academic Affairs

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 18
- Degree: Sport and Recreation Management Certificate

Coursework in this certificate covers many different aspects of sport and recreation management: management and marketing as it relates to the sport industry, sport ethics, leadership, facility management, event planning, sport communication, psychological, and sociological aspects of sport.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

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. For more information, see the graduation requirements.

Program Requirements

Program Core Requirements
9 credits
MKTG 3300 - Principles of Marketing (3.0 cr)
SRM 2020 - Foundations of Sport and Recreation Management (3.0 cr)
SRM 3003 - Sport Facility and Activities Management (3.0 cr)

Sport and Recreation Management Minor Electives
Take 9 or more credit(s) from the following:
- COMM 3710 - Event Planning and Management (3.0 cr)
- MGMT 3210 - Supervision and Leadership (3.0 cr)
- SRM 3006 - Sport Marketing and Communication (3.0 cr)
- SRM 3008 - Sport Ethics and Leadership (3.0 cr)
- SRM 3100 - Psychology of Sport (3.0 cr)
- SRM 3200 - Socio-Cultural Dimensions in Sport (3.0 cr)
- If selected, choose only 1 class from below to satisfy SRM minor elective requirement.
  - SRM 3012 - Sport Finance and Economics (3.0 cr)
  - *or* SRM 3002 - Sport Law and Governance (3.0 cr)

Program Sub-plans

A sub-plan is not required for this program.

Online

Crookston Campus

Sport and Recreation Management Minor
Business
Academic Affairs

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 18

Coursework in this minor covers many different aspects of sport and recreation management: management and marketing as it relates to the sport industry, sport ethics, leadership, facility management, event planning, sport communication, psychological, and sociological aspects of sport.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

Minor Requirements
Program Core Requirements
9 credits
MKTG 3300 - Principles of Marketing (3.0 cr)
SRM 2020 - Foundations of Sport and Recreation Management (3.0 cr)
SRM 3003 - Sport Facility and Activities Management (3.0 cr)

Sport and Recreation Management Minor Electives
Take 9 or more credit(s) from the following:
- COMM 3710 - Event Planning and Management (3.0 cr)
- MGMT 3210 - Supervision and Leadership (3.0 cr)
- SRM 3006 - Sport Marketing and Communication (3.0 cr)
- SRM 3008 - Sport Ethics and Leadership (3.0 cr)
- SRM 3100 - Psychology of Sport (3.0 cr)
- SRM 3200 - Socio-Cultural Dimensions in Sport (3.0 cr)
- If selected, choose only 1 class from below to satisfy SRM minor elective requirement.
  - SRM 3012 - Sport Finance and Economics (3.0 cr)
  - *or* SRM 3002 - Sport Law and Governance (3.0 cr)

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

Online
Coursework in this minor (online) covers many different aspects of sport and recreation management: management and marketing as it relates to the sport industry, sport ethics, leadership, facility management, event planning, sport communication, psychological, and sociological aspects of sport. The sport and recreation management minor (online) has the same curriculum as the classroom delivered minor with the exception that a one-credit technology requirement is also required.

Technology Requirement
Students should take:
GBUS 1005 - Orientation to Online Learning (1.0 cr)

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Taxation Certificate
Business
Academic Affairs

- Program Type: Undergraduate credit certificate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 15
- Degree: Taxation Certificate

The certificate in taxation is designed to prepare the student for a career in tax preparation, including individual, farm, business, trusts, estates, payroll, and estate taxes. In addition, it prepares the student to pass the registered tax return preparer competency test.

Program Delivery
This program is available:
- via classroom (the majority of instruction is face-to-face)
- completely online (all program coursework can be completed online)

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. For more information, see the graduation requirements.

Program Requirements
Certificate Requirements
Requirements - 15 credits
ACCT 4404 - Income Tax I (3.0 cr)
ACCT 4405 - Income Tax II (3.0 cr)
ACCT 4420 - Income Tax Preparation (3.0 cr)
FIN 3110 - Estate Planning (3.0 cr)
FIN 3115 - Insurance and Risk Management (3.0 cr)

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

Taxation Certificate Online
The certificate in taxation is designed to prepare the student for a career in tax preparation, including individual, farm, business, trusts, estates, payroll, and estate taxes. In addition, it prepares the student to pass the registered tax return preparer competency test.

The Taxation Certificate online has the same curriculum as the on-campus Taxation Certificate .