# College of Continuing Education

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General Information

The College of Continuing Education (CCE) provides high-quality continuing education and lifelong learning opportunities for professional development, personal enrichment, career transition, and academic growth. Established in 1913, CCE has one of the most comprehensive continuing education units in the country and serves as the University's main access point for nontraditional students, particularly adult and part-time learners.

CCE offers a variety of degrees, certificates, and continuing professional education opportunities. With programs and services that cross the usual boundaries of time, place, mode of delivery, and academic discipline, CCE provides the knowledge and skills required in an information-based world and workplace. And, through CCE, non-admitted students can access University courses.

Advising

CCE Information Center — The CCE Information Center offers academic advising and financial aid advising to all students interested in CCE degrees and certificates. Advisers can help students select programs of study, determine prerequisites, interpret degree requirements, discuss transcripts of previous college work, and choose courses.

Students seeking a college degree through registration in CCE classes should consult an adviser early in their planning. For more information, contact CCE Information Center at info@cce.umn.edu or 612-624-4000.

Admission

Admission to CCE Degree and Certificate Programs — All CCE degree programs have their own admission policies and procedures and admit at the upper division only. For general questions about admission to CCE degree or certificate programs, contact CCE Information Center at 612-624-4000. For more information, go to the CCE Web site at www.cce.umn.edu and select the program of interest.

Liberal Education Requirements — Within CCE, the Inter-College Program (ICP) and the Program for Individualized Learning (PIL) follow the University’s standardized set of liberal education requirements. The Bachelor of Applied Science has liberal education requirements unique to each major. See the BAS Web site at www.cce.umn.edu/bas or contact an Information Center adviser for requirement information.

Scholastic Committee, CCE

The CCE Scholastic Committee is charged with interpreting and enforcing College and University regulations relating to academic affairs for students admitted to CCE credit certificate and degree programs and non-admitted students assigned to CCE. The Committee handles registration exception request policies and procedures, certificate program admission standards, and certificate program credit transfer policies for these students.

The Committee seeks to maintain the spirit of the University’s regulations and is empowered to make exceptions in extenuating circumstances. CCE nonadmitted and admitted degree and credit certificate students should contact a CCE adviser at 612-624-4000.

Degrees

Students have two broad options for earning baccalaureate degrees through CCE—an individualized degree or applied degree. For more information about these options, call 612-624-4000, or visit the CCE Web site at www.cce.umn.edu.

Individualized Degree Programs

Individualized degree programs open up educational opportunities for highly motivated students who need flexibility to earn their B.A. or B.S. degrees. Students develop degree programs tailored to their interests and talents.

CCE links the rich resources of the University’s faculty and staff with the individual undergraduate. Students, faculty, and staff work together to take responsibility for the integrity of each degree program and the maintenance of high academic standards. As a result, our graduates gain a strong sense of ownership of their education and confidence in how that education is related to their lives.

CCE’s individualized programs serve students by offering educational alternatives; the programs serve faculty by allowing them to develop and test innovative approaches to undergraduate education. Working together, the two groups help diversify learning experiences at the University.

Inter-College Program (ICP), founded in 1930, offers students a credit-based, individualized baccalaureate degree program drawing on the curricular offerings and other educational resources of the entire University community. This program provides an alternative to an already established major by giving students the flexibility to incorporate both day school and evening coursework from more than one college to achieve their educational goals. Call 612-624-4000 for more information or see www.cce.umn.edu/icp on the Web.

Program for Individualized Learning (PIL), founded in 1971, serves independent learners who wish to design and complete individualized study that incorporates a variety of learning resources and strategies, such as independent learning projects. PIL students work collaboratively with academic advisers and faculty throughout the University.

The program primarily serves students who live in the Twin Cities area, but also considers qualified students who can commute to campus for some learning activities. For more information, call 612-624-4000, or see www.cce.umn.edu/pil on the Web.

Bachelor of Applied Science (BAS) Degree Program

The Bachelor of Applied Science (BAS) program offers the opportunity for niche-focused professional growth in specializations tied to key economic drivers. Working adults and full-time students may augment credentials or begin career study. Courses combine theory and application, and are taught by industry professionals. Students may select an entire BAS major and receive a B.A.Sc. degree, incorporate BAS classes or a BAS minor into an existing degree program, elect a certificate in certain BAS areas or enroll in individual classes. For more information about any of these opportunities, visit the BAS Web site at www.cce.umn.edu/bas.
The B.A.Sc. with a major in clinical laboratory science is a course of study that provides the education clinical laboratory technicians/medical laboratory technicians (CLT/MLT) need for career advancement. Students receive a strong foundation in the sciences together with rich experiences in the clinical laboratory and are prepared to work as clinical laboratory scientists, technical specialists, laboratory managers, lab coordinators, and quality control technologists. Graduates may take the national certification examinations to practice as a clinical laboratory scientist/medical technologist (CLS/MT). Offered in partnership with MnSCU, students can complete a two-year CLT/MLT associate’s degree before enrolling.

The B.A.Sc. with a major in construction management is offered in close collaboration with the construction industry. Construction management combines building design and engineering with management and business studies to equip students with the skills needed to deliver projects on time and within budget. The major offers experience and education leading directly to a professional management career in high demand areas in the construction industry.

A minor in construction management is also available to students who are either currently enrolled in or are graduates of an undergraduate degree program at the University of Minnesota.

The B.A.Sc. with a major in emergency health services is offered cooperatively with Regions Hospital in St. Paul. The program is designed to provide personnel working in pre-hospital medical care with the education and skills necessary to coordinate and direct the delivery of emergency health services in a variety of settings, ranging from out-of-hospital, first-responder situations to occupational health and safety programs in large organizations.

The B.A.Sc. with a major in information technology infrastructure is a course of study combining information technology infrastructure, math, science, and business curricula. Students may choose a network and systems administration or database administration concentration area. Graduates are able to design, construct, and manage technology operations. This major replaces the majors in information networking and network administration.

The B.A.Sc. with a major in manufacturing technology prepares students for career growth in the manufacturing industry. Students learn new skills in the areas of manufacturing systems and processes, computer technology, quality, operations, project management, business and finance, and interpersonal communication. Graduates are prepared to work as project managers, process engineers, materials managers, lead technicians, order process analysts, facilities engineers, and business analysts.

The B.A.Sc. with a major in radiation therapy provides leading-edge medical and technical courses and clinical experience in top-ranking radiation oncology departments. Radiation therapy graduates are prepared to meet the changing demands of new technologies and advancements in treatment techniques. Didactic and clinical experiences will sharpen critical thinking and problem solving skills, and provide the knowledge base in management and education that is crucial to future advancement. Graduates are ready to meet national certification requirements.

The major is offered in two locations: Rochester and the Twin Cities. In Rochester, the University of Minnesota partners with the Mayo School of Health Sciences. Classes and clinical experiences are offered at the Mayo Clinic and other facilities within the Mayo Health System. In the Twin Cities, this program is offered in partnership with University of Minnesota Medical Center, Fairview School of Radiation Therapy.

The B.A.Sc. with a major in respiratory care prepares students to become respiratory care practitioners with advanced-level clinical and professional skills. This program, offered in partnership with Mayo School of Health Sciences in Rochester, combines professional, medical, and technical courses. Courses and clinical experiences, with options for specialized clinical study, are offered at Mayo Clinic and other facilities within the Mayo Health System. Graduates will be ready to meet national certification requirements. Advanced practitioner respiratory therapists are prepared to serve as consultants to physicians and other medical staff.

Honors
All CCE degree programs recognize outstanding academic achievement by offering an honors and/or distinction option for graduating students.

Certificates
In addition to baccalaureate degrees, certificate programs offered through CCE provide an educational option for working adults. Certificates are short-term, focused college credentials that can supplement a student’s experience and previously earned degree, or serve as a stepping stone to a degree. Certificates provide concentrated coursework related to occupational areas or general background to prepare students for further college work.

Coursework may be completed with evening classes, Independent and Distance Learning, day classes, summer session classes, or any combination of these. For more information, call the CCE Information Center at 612-624-4000 or e-mail info@cce.umn.edu.

College of Continuing Education Certificates
For information regarding the following certificates see www.cce.umn.edu/certificates.

Accounting
Accounting II
Addiction studies
Applied business
Computer science
Construction management
Direct marketing
Industrial relations
Information technology infrastructure
Interpreting
Ophthalmology technician
Organizational and professional communication
Paper science and engineering

Special Learning Opportunities and Resources
Independent and Distance Learning (IDL) courses use electronic technologies and mail to meet the needs of students who cannot or choose not to take courses on campus. Most courses are self-paced and give students up to nine months to complete the coursework. Other courses fit into the regular semester schedule. Credits are recorded on students’ transcripts and can be used toward fulfilling distribution requirements in
most undergraduate programs. IDL courses can also satisfy residency requirements, with approval from the student’s college. Check with an adviser about using these course credits toward a specific program.

Students register for IDL courses the same way as regular day and evening courses. Courses are either extended-term (to be completed in up to nine months) or term-based (to be completed within one semester term). For students receiving financial aid administered by the Office of Student Finance (OSF), term-based online courses are automatically counted. Extended-term courses (both online and correspondence) are not eligible for OSF-administered aid, with one exception. If students are eligible for a Minnesota State Grant, OSF counts all IDL courses enrolled in by the end of the second week of the semester. This includes both extended-term and term-based courses.

For information on courses, policies, and registration, visit www.cce.umn.edu/idl or request an Independent and Distance Learning Catalog. Contact CCE at 612-624-4000 or 800-234-6564, or e-mail info@cce.umn.edu.

**Independent Study (ICP 3075)—** CCE allows undergraduates, regardless of college affiliation, to pursue projects beyond the scope of a single department or college. Projects are interdisciplinary or are completed in departments that do not offer an appropriate independent study course. Students may take 3–5 credits of ICP 3075 - Independent Study. For more information, contact ICP at 612-624-4000.

**Scholarships and Grants**

The College of Continuing Education Information Center provides information about CCE scholarships and other financial aid options.

Students admitted to degree and eligible certificate programs who complete the Free Application for Federal Student Aid (FAFSA) will be considered for aid administered by the Office of Student Finance. CCE scholarships and grants are available for noncredit, non-admitted (Non Degree), and degree and certificate admits. Most scholarships and grants require Minnesota residence, financial need, and a delay or interruption in education of two years or more. Additional scholarships are available for students admitted to the Inter-College Program (ICP), Program for Individualized Learning (PIL), and Bachelor of Applied Science (BAS) Program; requirements vary by scholarship fund. Scholarships are awarded on the basis of academic ability and a statement of personal, educational, and career goals. They are supported by donations from CCE alumni and friends. CCE awards 150–200 scholarships per year; individual awards generally range from $2,200 to $5,000.

**Directory**

**CCE Information Center**
101 Wesbrook Hall
Minneapolis, MN 55455
612-624-4000
Fax: 612-625-1511
E-mail: info@cce.umn.edu

**Administrative Offices**

**Office of the Dean**
201 Coffey Hall
St. Paul, MN 55108
Mary Nichols, dean, 612-624-1751

**Administrative Units**

**Academic Programs**
612-624-8831

**College in the Schools**
612-625-1855

**Compleat Scholar**
612-625-7777

**Continuing Professional Education**
612-625-3100

**Master of Liberal Studies**
612-626-8724

**Personal Enrichment Programs**
612-625-5760

**Departments and Programs**

**Bachelor of Applied Science (BAS)**
- Clinical Laboratory Science
- Construction Management
- Emergency Health Services
- Information Technology Infrastructure
- Manufacturing Technology
- Radiation Therapy
- Radiation Therapy-Mayo
- Respiratory Care

206 Wesbrook Hall
Minneapolis, MN 55455
612-624-4000
E-mail: bas@cce.umn.edu

**Certificates**
- Accounting I and II
- Addiction Studies
- Applied Business
- Computer Science
- Construction Management
- Direct Marketing
- Industrial Relations
- Information Technology Infrastructure
- Interpreting
- Ophthalmology Technician
- Organizational and Professional Communication
- Paper Science and Engineering

202 Wesbrook Hall
Minneapolis, MN 55455
612-624-4000
E-mail: info@cce.umn.edu

**Individualized Degrees**

Inter-College Program (ICP) and Program for Individualized Learning (PIL)
101 Wesbrook Hall
Minneapolis, MN 55455
612-624-4000
E-mail: icp@cce.umn.edu
www.cce.umn.edu/icp
E-mail: pil@cce.umn.edu
www.cce.umn.edu/pil
Degree Programs

Clinical Laboratory Science
B.A.Sc.

Requirements for this program are current for Fall 2006.
Required credits to graduate with this degree: 120.
Required credits within the major: 36.
This program requires summer terms.

Degree: Bachelor of Applied Science.
The B.A.Sc. with a major in clinical laboratory science (CLS) provides the education that clinical laboratory technicians/medical laboratory technicians (CLT/MLT) need for career advancement. Students obtain a strong foundation in the sciences and rich clinical laboratory experiences, and are prepared to work as clinical laboratory scientists, technical specialists, laboratory managers, lab coordinators, and quality control technologists. Graduates may take the national certification examinations to practice as a clinical laboratory scientist/medical technologist (CLS/MT). In partnership with MnSCU, students must complete a two-year CLT/MLT associate’s degree before enrolling. This work cannot be completed at the University of Minnesota.

Students admitted to the CLS major follow the upper division curriculum for the medical technology program along with the medical technology cohort. Most students are likely to need at total of more than four years (including associate degree work) or significant summer work to complete the program.

Admission Requirements
Students must complete 45 credits before admission to the program.
A GPA above 2.00 is preferred for the following:
• 2.50 for students transferring from another University of Minnesota college.
• 2.50 for students transferring from outside the University.
A transfer student must have completed the Medical Laboratory Technician (MLT) two-year degree program or be near completion before applying for official admission to the BAS-CLS degree program. The cumulative GPA for science courses will also be reviewed as part of the admission decision.

For information about University of Minnesota admission requirements, visit the Office of Admissions Web site at http://admissions.tc.umn.edu.

Program Requirements
There is no distinct and independent CLS upper division curriculum. CLS students join the medical technology cohort and follow their exact curriculum.

Required Courses

General Education and Prerequisite Courses
Students should also take one upper division writing intensive course, and one humanities/fine arts course.
PHSL 3051 - Human Physiology (4.0 cr)
BIOL 1009 - General Biology, BIOL SCI/L (4.0 cr)

Take 2 or more course(s) from the following:
PSY 1001 - Introduction to Psychology, SSCI (4.0 cr)
SOC 1001 - Introduction to Sociology, CD, SSCI (4.0 cr)
GC 1211 - People and Problems, CD, SSCI (4.0 cr)

Prerequisite Mathematics Courses
Take 2 or more course(s) from the following:
MATH 1051 - Precalculus I (3.0 cr)
MATH 1142 - Short Calculus, MATH (4.0 cr)
MATH 1155 - Intensive Precalculus, MATH (5.0 cr)
MATH 1271 - Calculus I, MATH (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)
STAT 3011 - Introduction to Statistical Analysis, MATH (4.0 cr)

Clinical Courses
These courses should be completed during the 22 weeks of clinical rotations in the summer and fall terms following the senior year, including six weeks of clinical chemistry, five weeks in hematology and coagulation, five weeks in immunohematology, five weeks in microbiology, and one week in a specialty laboratory area.

MEDT 4082 - Applied Clinical Chemistry (3.0 cr)
MEDT 4085 - Applied Clinical Hematology (2.0 cr)
MEDT 4086 - Applied Clinical Immunohematology (2.0 cr)
MEDT 4088 - Applied Diagnostic Microbiology (2.0 cr)
MEDT 4089 - Specialty Rotation (1.0 cr)

Senior Year Courses
MEDT 4064 - Introduction to Clinical Immunohematology (2.0 cr)
MEDT 4065 - Introduction to Clinical Immunohematology: Laboratory (2.0 cr)
MEDT 4100 - Virology, Mycology, and Parasitology for Medical Technologists (2.0 cr)
MEDT 4104 - Principles of Diagnostic Microbiology: Lecture (2.0 cr)
MEDT 4105 - Principles of Diagnostic Microbiology: Laboratory (2.0 cr)
MEDT 4127WR - Introduction to Management and Education I, W1 (1.0 cr)
MEDT 4253 - Hemostasis (1.0 cr)
MEDT 4310 - Clinical Chemistry I: Lecture (2.0 cr)
MEDT 4311 - Clinical Chemistry I: Laboratory Applications (2.0 cr)
MEDT 4320 - Clinical Chemistry II: Lecture (2.0 cr)
MEDT 4321 - Clinical Chemistry II: Laboratory Applications (2.0 cr)
MEDT 4400 - Immunological and Molecular Basis of Laboratory Testing (1.0 cr)
MEDT 4251 - Hematology I: Basic Techniques (3.0 cr)
MEDT 4252 - Hematology II: Morphology and Correlation (2.0 cr)

BIOL 2032 - General Microbiology with Laboratory (4.0 cr)
BIOC 3021 - Biochemistry (3.0 cr)
CHEM 1021 - Chemical Principles I, ENVT, PHYS SCI/L (4.0 cr)
CHEM 1022 - Chemical Principles II, ENVT, PHYS SCI/L (4.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2302 - Organic Chemistry II (3.0 cr)
GCD 3022 - Genetics (3.0 cr)
or BIOL 4003 - Genetics (3.0 cr)
Construction Management
B.A.Sc.

Requirements for this program are current for Summer 2006.
Required credits to graduate with this degree: 120.
Required credits within the major: 51.
This program requires summer terms.
Degree: Bachelor of Applied Science.
The B.A.Sc. with a major in construction management is offered in close collaboration with the construction industry. Construction management combines building design and engineering with management and business studies to equip students with the skills needed to deliver projects on time and within budget. The major offers experience and education leading directly to a professional management career in high demand areas in the construction industry. The construction management major was designed around the needs of working adults who are part-time students.

Admission Requirements
Students must complete 45 credits before admission to the program.
A GPA above 2.00 is preferred for the following:
• 2.50 for students already admitted to the degree-granting college.
• 2.50 for students transferring from another University of Minnesota college.
• 2.50 for students transferring from outside the University.
Students complete either 45 credits (including construction plan reading, physics, and calculus) or the A.S. in construction management before admission to the major.
For information about University of Minnesota admission requirements, visit the Office of Admissions Web site at http://admissions.tc.umn.edu.

Program Requirements

Preparatory Coursework
Students may complete the preparatory coursework either through Option 1 (U of M coursework) or Option 2 (A.S. in construction management).
Students are required to complete one of the following course groups.

Option 1 (U of M Preparatory Courses)
Students complete construction plan reading, physics, and calculus before admission.
ACCT 2050 - Introduction to Financial Reporting (4.0 cr)
CMGT 2019 - AutoCAD for Construction Managers (2.0 cr)
CMGT 3001 - Introduction to Construction (3.0 cr)
CMGT 3011 - Construction Plan Reading (2.0 cr)
COMM 1101 - Introduction to Public Speaking (3.0 cr)
or COMM 3402 - Introduction to Interpersonal Communication, SSCI (3.0 cr)
or COMM 3605W - Persuasive Speaking and Speech Writing, WI (3.0 cr)
or RHET 1223 - Oral Presentations in Professional Settings (3.0 cr)
or GC 1461 - Oral Communication in the Public Sphere, C/PE (3.0 cr)
GC 1211 - People and Problems, CD, SSCI (4.0 cr)
or GC 1281 - General Psychology, SSCI (4.0 cr)
or PSY 1001 - Introduction to Psychology, SSCI (4.0 cr)
or SOC 1001 - Introduction to Sociology, CD, SSCI (4.0 cr)
MATH 1142 - Short Calculus, MATH (4.0 cr)
or MATH 1271 - Calculus I, MATH (4.0 cr)
PHYS 1101W - Introductory College Physics I, PHYS SCI/L, WI (4.0 cr)
or PHYS 1107 - Introductory Physics Online, PHYS SCI/L (4.0 cr)
or PHYS 1111 - Basic Physics I (3.0 cr)
or PHYS 1301W - Introductory Physics for Science and Engineering I, PHYS SCI/L, WI (4.0 cr)
APEC 1101 - Principles of Microeconomics, SSCI (3.0 cr)
or ECON 1101 - Principles of Microeconomics, IP, SSCI (4.0 cr)
or PHYS 1301W - Introductory Statics and Structures for Construction Management (3.0 cr)
or PHYS SCI/L, WI (4.0 cr)
or AEM 2011 - Statics (3.0 cr)
or BP 3101 - Introductory Statics and Structures for Construction Management (3.0 cr)
or COMM 3402 - Introduction to Interpersonal Communication, SSCI (3.0 cr)
or COMM 3605W - Persuasive Speaking and Speech Writing, WI (3.0 cr)
or RHET 3562W - Technical and Professional Writing, WI (3.0 cr)
or ABUS 4022 - Management in Organizations (3.0 cr)
or MGMT 3001 - Fundamentals of Management (3.0 cr)

Option 2 (A.S. in Construction Management)
Students may satisfy the prerequisites for the major by earning an A.S. in construction management at North Hennepin Community College or Inver Hills Community College.

Required Courses

Major Courses
ABUS 4101 - Accounting for Managers (3.0 cr)
ARCH 4542 - Building Energy Systems (3.0 cr)
ARCH 4552 - Integrated Design Processes (3.0 cr)
CE 3202 - Surveying and Mapping (2.0 cr)
CE 4101W - Project Management, WI (3.0 cr)
CMGT 4011 - Construction Documents and Contracts (3.0 cr)
CMGT 4012 - Risk Management, Bonds, and Insurance (2.0 cr)
CMGT 4013 - Legal and Ethical Issues in Construction (3.0 cr)
CMGT 4021 - Construction Planning and Scheduling (3.0 cr)
CMGT 4022 - Construction Estimating (3.0 cr)
CMGT 4031 - Construction Safety and Loss Control (3.0 cr)
CMGT 4041 - Specifications and Technical Writing for Construction Professionals (3.0 cr)
CMGT 4051 - Construction Materials for Managers (3.0 cr)
CMGT 4111 - Construction Productivity Management (2.0 cr)
CMGT 4196 - Construction Management Internship (1.0-4.0 cr)
CMGT 4201 - Construction Accounting (3.0 cr)
CMGT 4572 - Structural Frames and Building Design/Construction (3.0 cr)
ABUS 4103 - Marketing and Sales (3.0 cr)
or ABUS 4701 - Introduction to Marketing (3.0 cr)

Construction Management Minor

Required credits in this minor: 19.
A minor in construction management is available to students who are either currently enrolled in or are graduates of an undergraduate degree program at the University of Minnesota.

Admission Requirements
Students must complete 45 credits before admission to the program.
A GPA above 2.00 is preferred for the following:
• 2.50 for students already admitted to the degree-granting college.
• 2.50 for students transferring from another University of Minnesota college.
• 2.50 for students transferring from outside the University.
For information about University of Minnesota admission requirements, visit the Office of Admissions Web site at http://admissions.tc.umn.edu.
Program Requirements
Sixty percent of credits in the minor must be completed at the University of Minnesota-Twin Cities. CMGT 3011 or equivalent experience is prerequisite for certain courses in the minor.

Required Courses
Construction Management Minor Requirements
CE 4101W - Project Management, WI (3.0 cr)
CMGT 3001 - Introduction to Construction (3.0 cr)
CMGT 4011 - Construction Documents and Contracts (3.0 cr)
CMGT 4021 - Construction Planning and Scheduling (3.0 cr)
CMGT 4022 - Construction Estimating (3.0 cr)
CMGT 4031 - Construction Safety and Loss Control (3.0 cr)
CMGT 3011 - Construction Plan Reading (2.0 cr)
or Upper-division elective approved by the Department

Emergency Health Services
B.A.Sc.
Requirements for this program are current for Fall 2006.
Required credits to graduate with this degree: 120.
Required credits within the major: 52.
This program requires summer terms.
Degree: Bachelor of Applied Science.
The B.A.Sc. with a major in emergency health services is offered in partnership with Inver Hills Community College. The program is designed to provide personnel working in pre-hospital medical care with the education and skills necessary to coordinate and direct the delivery of emergency health services in a variety of settings, ranging from out-of-hospital, first-responder situations to occupational health and safety programs in large organizations. The emergency health services major was designed to meet the needs of working adults who are attending college part-time.

Admission Requirements
Students must complete 45 credits before admission to the program.
A GPA above 2.00 is preferred for the following:
• 2.50 for students already admitted to the degree-granting college.
• 2.50 for students transferring from another University of Minnesota college.
• 2.50 for students transferring from outside the University.
Students must have current EMT paramedic state certification or be registered nurses currently employed in an emergency medical setting. Before admission, students must complete a minimum of 45 semester credits transferable to the BAS major program, including the required prerequisite courses. Students must have these prerequisite courses completed or in progress before applying for official admission to the program.
For information about University of Minnesota admission requirements, visit the Office of Admissions Web site at http://admissions.tc.umn.edu.

Required Courses for Admission
Preparatory Courses
GC 1131 - Principles of Biological Science, BIOL SCI/L (4.0 cr)
GC 1166 - Principles of Chemistry (3.0 cr)
INMD 3001 - Human Anatomy (3.0 cr)
PHIL 3051 - Human Physiology (4.0 cr)
COMM 1101 - Introduction to Public Speaking (3.0 cr)
or COMM 3605W - Persuasive Speaking and Speech Writing, WI (3.0 cr)
or GC 1461 - Oral Communication in the Public Sphere, C/PE (3.0 cr)
or RHET 1223 - Oral Presentations in Professional Settings (3.0 cr)

General Requirements
Recommended freshman writing course(s) for this program:
RHET 1101

Program Requirements
Students must complete 25 credits in either the management or education track. Both tracks include a practicum and elective courses.

Required Courses
Major Courses
ABUS 4023W - Communicating for Results, WI (3.0 cr)
ABUS 4031 - Accessing and Using Information Effectively (3.0 cr)
EDPA 5052 - Ethnic Groups and Communities: Families, Children, and Youth (3.0 cr)
EHS 4011 - Concepts of Emergency Health Service (3.0 cr)
EHS 4021 - EMS Planning and Fiscal Management (3.0 cr)
PHIL 3305 - Medical Ethics (4.0 cr)
PUBH 3102 - Issues in Environmental and Occupational Health, ENVT (3.0 cr)
EHS 5031 - Basic principles of research in emergency health services (3.0 cr)
or HSM 3501 - Clinical Research Concepts and Practice (3.0 cr)
ABUS 4021 - Small Group Behavior and Teamwork (3.0 cr)
or EPSY 5152 - Psychology of Conflict Resolution (3.0 cr)
or HRD 5302 - Managing Work Teams in Business and Industry (3.0 cr)
or PA 5131 - Conflict Management: Readings in Theory and Practice (3.0 cr)

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note: The honors sub-plan does not meet this requirement.)
Honors students are required to complete one sub-plan plus the honors sub-plan.

Education Track
Complete 25 credits related to the track.

Required Courses for the Education Track sub-plan
ADED 5101 - Strategies for Teaching Adults (3.0 cr)
EDPA 5036 - Ethics, Morality, and Values in Education (3.0 cr)
EPSY 5115 - Psychology of Adult Learning and Instruction (3.0 cr)
EHS 4999 - Practicum (1.0-3.0 cr)

Individual electives to total 25 credits in the track.
EDPA 5021 - Historical Foundations of Modern Education (3.0 cr)
or EDPA 5032 - Comparative Philosophies of Education (3.0 cr)
or WHRE 5301 - Philosophy and Practice of Career and Technical Education (2.0 cr)
ADED 5103 - Designing the Adult Education Program (3.0 cr)

Management Track
Complete 25 credits related to this track.
Information Technology Infrastructure B.A.Sc.

Requirements for this program are current for Summer 2006.

Required credits to graduate with this degree: 120.

Required credits within the major: 59.

This program requires summer terms.

Degree: Bachelor of Applied Science.

The B.A.Sc. with a major in information technology infrastructure is a course of study combining information technology infrastructure, math, science, and business curricula. Graduates are able to design, construct, and manage technology operations. Students choose a network and system administration, or database concentration area. They also choose one of four tracks: applied business, construction management, health systems management, or manufacturing technology.

Admission Requirements

Students must complete 45 credits before admission to the program.

A GPA above 2.00 is preferred for the following:

- 2.5 for students already admitted to the degree-granting college.
- 2.50 for students transferring from another University of Minnesota college.
- 2.50 for students transferring from outside the University.

Physics I & II, calculus, and computer science lower division coursework must be completed or in progress—see program foundation courses.

For information about University of Minnesota admission requirements, visit the Office of Admissions Web site at http://admissions.tc.umn.edu.

Program Requirements

Required Courses

Lower Division Curriculum

Students who complete a physics sequence that is not designated as writing-intensive must also complete a research/technical writing course. Completing CSCI foundation courses at the U of M requires Calculus I & II.

Foundation Courses

Complete the following courses before admission to the major:

- CSCI 1103 - Introduction to Computer Programming in Java (4.0 cr)
- CSCI 1901 - Structure of Computer Programming I (4.0 cr)
- CSCI 1902 - Structure of Computer Programming II (4.0 cr)

Core Courses

- CSCI 2011 - Discrete Structures of Computer Science (4.0 cr)
- CSCI 2021 - Machine Architecture and Organization (4.0 cr)
- PHYS 1101W - Introductory College Physics I, PHYS SCI/L, WI (4.0 cr)
- PHYS 1102W - Introductory College Physics II, PHYS SCI/L, WI (4.0 cr)
- MATH 1142 - Short Calculus, MATH (4.0 cr)
- MATH 1271 - Calculus I, MATH (4.0 cr)

Other Required Courses

- ACCT 2050 - Introduction to Financial Reporting (4.0 cr)

One course that meets the LE requirements for social sciences or historical perspectives.

One course that meets LE requirements in humanities or arts.

- COMM 1101 - Introduction to Public Speaking (3.0 cr)
- COMM 1102 - Introduction to Communication (3.0 cr)
- COMM 3402 - Introduction to Interpersonal Communication, SSCI (3.0 cr)
- or GC 1461 - Oral Communication in the Public Sphere, CP/PE (3.0 cr)
- or GC 1464 - Group Process and Discussion in a Multicultural Society, CD (3.0 cr)
- or RHET 1223 - Oral Presentations in Professional Settings (3.0 cr)
- or ABUS 4021 - Small Group Behavior and Teamwork (3.0 cr)
- or GC 1454 - Statistics, MATH (4.0 cr)
- or OMS 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
- or STAT 1001 - Introduction to the Ideas of Statistics, MATH (4.0 cr)
- or STAT 1002 - Introduction to Statistical Analysis, MATH (4.0 cr)
- or STAT 3001 - Introduction to Statistical Analysis, MATH (4.0 cr)
- or ECON 1101 - Principles of Microeconomics, IP, SSCI (4.0 cr)
- or APEC 1101 - Principles of Microeconomics, SSCI (3.0 cr)

Cognate electives - CSCI, IDSC, ABUS or INET (9 cr)

- ABUS 4101 - Accounting for Managers (3.0 cr)
- ABUS 4102 - Operations in Manufacturing and Service Businesses (3.0 cr)
- ABUS 4043 - Project Management in Practice (3.0 cr)
- ABUS 4104 - Management and Human Resource Practices (3.0 cr)
- ABUS 4107 - Management Information Systems (3.0 cr)
- ABUS 4032 - Quantitative Skills for Decision Making (3.0 cr)
- MT 4201 - Statistical Process Control (3.0 cr)
- CMGT 4011 - Construction Documents and Contracts (3.0 cr)
- CMGT 4021 - Construction Planning and Scheduling (3.0 cr)
- CMGT 3001 - Introduction to Construction (3.0 cr)
- CE 4101W - Project Management, WI (3.0 cr)
- INET 4051 - IT Infrastructure Operations (Capstone) (3.0 cr)
- INET 4081 - Introduction to Software Engineering (4.0 cr)
- INET 4153 - Telecommunications: Domestic and International Policy and Regulation (3.0 cr)

Required Tracks

Students are required to complete one of the following course groups.

Applied Business

- ABUS 4043 - Project Management in Practice (3.0 cr)
- ABUS 4101 - Accounting for Managers (3.0 cr)
- ABUS 4102 - Operations in Manufacturing and Service Businesses (3.0 cr)
- Cognate electives - CSCI, IDSC, ABUS or INET (9 cr)
- MT 4201 - Statistical Process Control (3.0 cr)
- or ABUS 4032 - Quantitative Skills for Decision Making (3.0 cr)

-OR-

Construction Management

- ABUS 4101 - Accounting for Managers (3.0 cr)
- CE 4101W - Project Management, WI (3.0 cr)
- CMGT 3001 - Introduction to Construction (3.0 cr)
- CMGT 4011 - Construction Documents and Contracts (3.0 cr)
- CMGT 4021 - Construction Planning and Scheduling (3.0 cr)
- CMGT 4022 - Construction Estimating (3.0 cr)
- MT 4201 - Statistical Process Control (3.0 cr)
- or ABUS 4032 - Quantitative Skills for Decision Making (3.0 cr)

-OR-

Health Systems Management

- ABUS 4043 - Project Management in Practice (3.0 cr)
- ABUS 4102 - Operations in Manufacturing and Service Businesses (3.0 cr)
- HSM 3501 - Clinical Research Concepts and Practice (3.0 cr)
- HSMT 3502 - Introduction to Health Systems Management (3.0 cr)
- HSM 3503 - Health Systems Management (3.0 cr)
- HSM 3504 - Health Care Finance (3.0 cr)
- HSM 3505 - Quality Management and Six Sigma (4.0 cr)
- or OMS 3001 - Introduction to Operations Management (3.0 cr)
- or ABUS 4101 - Accounting for Managers (3.0 cr)
- or ABUS 4102 - Operations in Manufacturing and Service Businesses (3.0 cr)
- or ABUS 4043 - Project Management in Practice (3.0 cr)
- or ABUS 4032 - Quantitative Skills for Decision Making (3.0 cr)
- MT 4201 - Statistical Process Control (3.0 cr)
- CMGT 4011 - Construction Documents and Contracts (3.0 cr)
- CMGT 4021 - Construction Planning and Scheduling (3.0 cr)
- CMGT 4022 - Construction Estimating (3.0 cr)
- MT 4201 - Statistical Process Control (3.0 cr)
- or ABUS 4032 - Quantitative Skills for Decision Making (3.0 cr)
Inter-College Program B.A.

Requirements for this program are current for Fall 2006.

Required credits to graduate with this degree: 120.

Required credits within the major: 40 to 44.

Degree: Bachelor of Arts.

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

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

Interested students should attend a First Step meeting, small-group informational sessions held several times each week. Academic advisers provide a detailed introduction to the program and help students begin the planning process.

Admission Requirements

Students are considered for admission based on an individual review of their application, including key factors such as grade point average, grade trends, prerequisite course grades, and program match, as determined after consultation with an academic adviser. Preferred academic factors include an overall GPA that is 2.50 or higher, as well as the completions of 50 semester credits.

Students must develop a degree plan that includes:

- A description of academic and career goals
- An outline of courses proposed for the degree program
- Approval of the proposed degree plan from at least two designated faculty or departmental advisers

For information about University of Minnesota admission requirements, visit the Office of Admissions Web site at http://admissions.tc.umn.edu.

Program Requirements

Students are required to take 4 semester(s) of any second language or 2 semesters of a single second language and 8 credits of related culture coursework.

ICP Program Options

Students must complete one of the following course groups.

Two Area Cross-College Program

This plan combines courses from two area cross-college programs, such as business and history, or educational psychology and French.

- Complete 20 approved credits of upper division coursework in one area of concentration.
- Complete 20 approved credits of upper division coursework in a second area of concentration.
- Complete 10 credits of elective coursework at the upper division.

OR-

Three Area Cross-College Program

This plan combines courses from three area cross-college program, such as applied business, speech communication, and psychology; or housing, child psychology, and public health.

In addition to completing 20 approved upper division credits in one area and 12 in each of the other two areas, students also take 6 upper division elective credits.

- Complete 20 approved credits of upper division coursework in one area of concentration.
- Complete 12 approved credits of upper division coursework in a second area of concentration.
- Complete 12 approved credits of upper division coursework in a third area of concentration.
- Complete a total of 50 upper division credits.

OR-

Thematic Cross-College Program

A thematic cross-college program, such as aging studies, integrates coursework from several departments: sociology, public health, family education, and social work. Thematic programs are appropriate only when students’ objectives are clearly focused on one topic that cannot be pursued in a two- or three-area program.

- Complete 40 upper division credits on a theme.
Inter-College Program B.S.
Requirements for this program are current for Fall 2006.
Required credits to graduate with this degree: 120.
Required credits within the major: 50.
Degree: Bachelor of Science.
Founded in 1930, the Inter-College Program (ICP) embodies the University of Minnesota’s commitment to individualized undergraduate education by providing cross-college, course/credit-based degree options. Drawing upon the curricular offerings of most of the University’s colleges and departments, students design either a Bachelor of Arts (B.A.) or a Bachelor of Science (B.S.) degree incorporating a significant amount of coursework from at least two different colleges within the University system.
ICP is most appropriate for self-directed students whose educational backgrounds and career and intellectual interests require both a clear personal focus and a flexible interdisciplinary approach.

Admission Requirements
Students are considered for admission based on an individual review of their application, including key factors such as grade point average, grade trends, prerequisite course grades, and program match, as determined after consultation with an academic adviser. Preferred academic factors include an overall GPA that is 2.50 or higher, as well as the completion of 50 semester credits.

Students must develop a degree plan that includes:
- A description of academic and career goals
- An outline of courses proposed for the degree program
- Approval of the proposed degree plan from at least two designated faculty or departmental advisers

Several times each week, ICP holds small-group informational sessions called First Step meetings. Academic advisers provide a detailed introduction to the program and help students begin the planning process.

For information about University of Minnesota admission requirements, visit the Office of Admissions Web site at http://admissions.tc.umn.edu.

Program Requirements
ICP Program Options
Students are required to complete one of the following course groups.

Two Area Cross-College Program
This plan combines courses from two area cross-college programs, such as business and history, or educational psychology and French.
- Complete 21 approved credits of upper division coursework in one area of concentration.
- Complete 21 approved credits of upper division coursework in a second area of concentration.
- Complete 8 supporting upper division credits.

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

Thematic Cross-College Program
A thematic cross-college program integrates coursework from several departments. Thematic programs are appropriate only when students’ objectives are clearly focused on one topic that cannot be pursued in a two- or three-area program.
Complete 50 upper division credits with no more than 15 credits in any one department.

Joint Military Science Leadership Minor
Requirements for this program are current for Fall 2006.
Required credits in this minor: 18 to 20.

This minor provides students with basic concepts and principles of military science and the art of leadership. Areas of study include citizenship, military history, values, ethics, integrity, honor, responsibility, management, and leadership skills. Students gain practical leadership experience, develop self-discipline, and gain confidence—all of which are valuable qualities when applied to service in a military or civilian career.

In consultation with the ROTC programs, this minor is now distinct from participation in ROTC, is open to all qualified students, and does not require physical training.

Admission Requirements
Significant practical leadership experience.

For information about University of Minnesota admission requirements, visit the Office of Admissions Web site at http://admissions.tc.umn.edu.

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

Program Sub-plans
Students are required to complete one of the following sub-plans. (Note: The honors sub-plan does not meet this requirement.) Honors students are required to complete one sub-plan plus the honors sub-plan.

Aerospace Science
Required Courses
The history requirement can be satisfied by the completion of AIR 1204 and AIR 1205 or by the completion of Air Force ROTC Field Training.

AIR 1204 - History of Airpower and Communication Skills (1.0 cr)
Students learn new skills in the areas of manufacturing systems and processes, computer technology, quality, operations, project management, business and finance, and interpersonal communication. Graduates are prepared to work as project managers, process engineers, materials managers, lead technicians, order process analysts, facilities engineers, and business analysts. The manufacturing technology major was designed around the needs of working adults who are part-time students.

**Admission Requirements**

Students must complete 45 credits before admission to the program.

A GPA above 2.00 is preferred for the following:

- 2.50 for students already admitted to the degree-granting college.
- 2.50 for students transferring from another University of Minnesota college.
- 2.50 for students transferring from outside the University.

For information about University of Minnesota admission requirements, visit the Office of Admissions Web site at [http://admissions.tc.umn.edu](http://admissions.tc.umn.edu).

**Required Courses for Admission**

### Preparatory Courses

- CHEM 1101 - Introductory Chemistry: Lecture and Laboratory, PHYS SCI/L (4.0 cr) or GC 1166 - Principles of Chemistry (3.0 cr)
- ECON 1101 - Principles of Microeconomics, IP, SSCI (4.0 cr) or ECON 1102 - Principles of Macroeconomics, IP, SSCI (4.0 cr)
- MATH 1031 - College Algebra and Probability, MATH (3.0 cr) or MATH 1051 - Precalculus I (3.0 cr)
- MATH 1142 - Short Calculus, MATH (4.0 cr) or MATH 1271 - Calculus I, MATH (4.0 cr)
- PHYS 1101W - Introductory College Physics I, PHYS SCI/L, WI (4.0 cr) or PHYS 1301W - Introductory Physics for Science and Engineering I, PHYS SCI/L, WI (4.0 cr)
- PHYS 1102W - Introductory College Physics II, PHYS SCI/L, WI (4.0 cr) or PHYS 1302W - Introductory Physics for Science and Engineering II, PHYS SCI/L, WI (4.0 cr)
- GC 1454 - Statistics, MATH (4.0 cr)
- or OMS 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
- or STAT 1001 - Introduction to the Ideas of Statistics, MATH (4.0 cr)
- or STAT 3011 - Introduction to Statistical Analysis, MATH (4.0 cr)

### Program Requirements

Students are encouraged to complete an internship or directed study during their final year in the program.

### Required Courses

#### Major Courses (Lower Division)

In addition to the courses listed below, manufacturing technology students must complete the University’s freshman writing requirement.

- ACCT 2050 - Introduction to Financial Reporting (4.0 cr) or GC 1166 - Principles of Chemistry (3.0 cr)
- COMM 1101 - Introduction to Public Speaking (3.0 cr) or COMM 3402 - Introduction to Interpersonal Communication, SSCI (3.0 cr)
- or COMM 3605W - Persuasive Speaking and Speech Writing, WI (3.0 cr) or COMM 3606W - Persuasive Speaking and Speech Writing, WI (3.0 cr)
- or GC 1461 - Oral Communication in the Public Sphere, C/PE (3.0 cr)
- or AEM 2011 - Statics (3.0 cr) or AEM 2012 - Statics (3.0 cr)
- or GC 1166 - Principles of Chemistry (3.0 cr)
- or OMS 2550 - Business Statistics: Data Sources, Presentation, and Analysis (4.0 cr)
- or STAT 1001 - Introduction to the Ideas of Statistics, MATH (4.0 cr)
- or STAT 3011 - Introduction to Statistical Analysis, MATH (4.0 cr)

#### Major Courses (Upper Division)

- ABUS 4022 - Management in Organizations (3.0 cr)
- ABUS 4023W - Communicating for Results, WI (3.0 cr)
- ABUS 4043 - Project Management in Practice (3.0 cr)
- or MT 4001 - Manufacturing Cost Accounting, Analysis, and Control (3.0 cr)
- or MT 4011 - Design of Manufacturing Systems and Simulation (3.0 cr)
- or MT 4012 - Manufacturing Processes (3.0 cr)
- or MT 4015 - Quality Engineering (3.0 cr)
MT 4025 - Computer Integrated Manufacturing (3.0 cr)
MT 4201 - Statistical Process Control (3.0 cr)
MT 4501 - Manufacturing Product/System Design I (3.0 cr)

Electives
Take 18 or more credit(s) from the following:
BUS 3xxx
BUS 4xxx
MT 3xxx
MT 4xxx

Program for Individualized Learning B.A.

Requirements for this program are current for Fall 2006.
Required credits to graduate with this degree: 120.
Required credits within the major: 50 to 70.
Degree: Bachelor of Arts.

This program challenges students to think alternatively and holistically about learning. A set of standards, called graduation criteria, describes the basic academic structure of the bachelor’s degree. These criteria, rather than number of credits, provide the framework for structuring the degree program and assessing its success.

Students use the graduation criteria to build their own degree programs. Students are encouraged to be creative and to use a variety of learning activities (courses and projects) to satisfy each criterion. Courses that have already been completed may be used to fulfill the graduation criteria; students can also demonstrate college-level learning achieved through work, experience, and independent study. New learning activities may explore untapped interests or build on prior learning. These activities may include independent projects, internships, work-based projects, and classroom and correspondence coursework.

A PIL degree requires achievement and excellence equal to other baccalaureate programs at the University of Minnesota. The graduation criteria require in-depth knowledge in an area of concentration (depth criteria) and broad learning in the liberal arts (breadth criteria). Regardless of the area of concentration, the B.S. emphasizes the student’s field of study, while the B.A. emphasizes broader learning in the breadth criteria.

Admission Requirements
To be considered for admission, students must submit an application that documents their ability to undertake a self-directed, individualized degree program. The program seeks students who: know why they are seeking a bachelor’s degree and why PIL is a sound choice for them; can describe their proposed academic area of study; and write well in English.

For information about University of Minnesota admission requirements, visit the Office of Admissions Web site at http://admissions.tc.umn.edu.

Program Requirements
The program serves students who want to develop an area of concentration with some or all of the following attributes:
- Focused on interdisciplinary or multidisciplinary studies, or a specialized study within a broader academic context
- Built on the academic strengths of the University
- Designed as a foundation for graduate or professional education
- Not readily available as a structured undergraduate degree program

The area of concentration, traditionally called a major, should reflect balance, depth, and quality in a field of study. The student’s area of concentration must fulfill the following criteria:
- Primary Area Studies: Through learning activities in their primary area of study, students acquire familiarity with the basic literature and vocabulary of their field, knowledge of its main theories and methods of investigation, ability to use the skills of the field, and an awareness of its relationship to contemporary and future society.
- Major Project: As a culmination of study in their area of concentration, students complete a major project that reflects substantive understanding of their field of study.
- Extended Studies in the Liberal Arts: Studies involve acquiring in-depth and advanced understanding of a focused liberal arts area; an interdisciplinary approach may also be proposed. Learning should include critical and theoretical understanding and upper division knowledge. This work goes beyond the basic requirements reflected in the LE requirements, as interpreted in the Breadth and Learning Matrix requirements in PIL.

Required Courses

Major Registrations
The PIL program is not credit-based, but it uses credits to ensure that registrations are recognized within the University system and that students qualify for residency and financial aid requirements. Tuition credits attached to registrations are not the same as conventional coursework credits and are not used to measure progress in the program or readiness to graduate, nor are they necessarily transferable to other programs or colleges. Additional registrations in PIL 3251 may be required.

- PIL 3211 - Degree Planning (5.0 cr)
- PIL 3251 - Project Registration (5.0 cr)
- PIL 3281 - Major Project (5.0 cr)
- PIL 3291 - Graduation Preparation (5.0 cr)

Most students will also need to register multiple times in one or both of the following:
- PIL 3200 - Continuing Studies (1.0-2.0 cr)
- PIL 3252 - Program Active (1.0-5.0 cr)

Program for Individualized Learning B.S.

Requirements for this program are current for Fall 2006.
Required credits to graduate with this degree: 120.
Required credits within the major: 50 to 70.
Degree: Bachelor of Science.

This program challenges students to think alternatively and holistically about learning. A set of standards, called graduation criteria, describes the basic academic structure of the bachelor’s degree. These criteria, rather than number of credits, provide the framework for structuring the degree program and assessing its success.

Students use the graduation criteria to build their own degree programs. Students are encouraged to be creative and to use a variety of learning activities (courses and projects) to satisfy each criterion. Courses that have already been completed may be used to fulfill the graduation criteria; students can also demonstrate college-level learning achieved through work, experience, and independent study. New learning activities may explore untapped...
interests or build on prior learning. These activities may include independent projects, internships, work-based projects, and classroom and correspondence coursework.

A PIL degree requires achievement and excellence equal to other baccalaureate programs at the University of Minnesota. The graduation criteria require in-depth knowledge in an area of concentration (depth criteria) and broad learning in the liberal arts (breadth criteria). Regardless of the area of concentration, the B.S. emphasizes the student’s field of study, while the B.A. emphasizes broader learning in the breadth criteria.

Admission Requirements
To be considered for admission, students must submit an application that documents their ability to undertake a self-directed, individualized degree program. The program seeks students who know why they are seeking a bachelor’s degree and why PIL is a sound choice for them; can describe their proposed academic area of study; and write well in English.

For information about University of Minnesota admission requirements, visit the Office of Admissions Web site at http://admissions.tc.umn.edu.

Program Requirements
The program serves students who want to develop an area of concentration with some or all of the following attributes:

- Focused on interdisciplinary or multidisciplinary studies, or a specialized study within a broader academic context.
- Built on the academic strengths of the University.
- Designed as a foundation for graduate or professional education.
- Not readily available as a structured undergraduate degree program.

The area of concentration, traditionally called a major, should reflect balance, depth, and quality in a field of study. The student’s area of concentration must fulfill the following criteria:

Primary Area Studies: Through learning activities in their primary area of study, students acquire familiarity with the basic literature and vocabulary of their field, knowledge of its main theories and methods of investigation, ability to use the skills of the field, and an awareness of its relationship to contemporary and future society.

Major Project: As a culmination of study in their area of concentration, students complete a major project that reflects substantive understanding of their field of study.

Extended Studies in the Area of Concentration: Students complete learning activities that bring a broader perspective to their area of concentration. These studies add knowledge that complements and expands on the primary area studies.

Students also complete the University’s liberal education requirements as reflected in the PIL Breadth and Learning Matrix requirements.

Required Courses
The PIL program is not credit-based, but it uses credits to ensure that registrations are recognized within the University system and that students qualify for residency and financial aid requirements. Tuition credits attached to registrations are not the same as conventional coursework credits and are not used to measure progress in the program or readiness to graduate, nor are they necessarily transferable to other programs or colleges. Additional registrations in PIL 3251 may be required.

PIL 3211 - Degree Planning (5.0 cr)

PIL 3251 - Project Registration (5.0 cr)
PIL 3281 - Major Project (5.0 cr)
PIL 3291 - Graduation Preparation (8.0 cr)

Students may be required to register one or more times for the following.
PIL 3200 - Continuing Studies (1.0-2.0 cr)

Radiation Therapy B.A.Sc.
Requirements for this program are current for Fall 2006.
Required credits to graduate with this degree: 120.
Required credits within the major: 69.
This program requires summer terms.
Degree: Bachelor of Applied Science

The B.A.Sc. with a major in radiation therapy provides leading-edge medical and technical courses and clinical experience in top-ranking radiation oncology departments. Radiation therapy graduates are prepared to meet the changing demands of new technologies and advancements in treatment techniques and meet national certification requirements. Didactic and clinical experiences will sharpen critical thinking and problem solving skills, and provide the knowledge base in management and education that is crucial to future advancement.

The major is offered in two locations: Rochester and the Twin Cities. In Rochester, the University of Minnesota partners with the Mayo School of Health Sciences (MSHS). Classes and clinical experiences are offered at the Mayo Clinic and other facilities within the Mayo Health System. In the Twin Cities, this program is offered in partnership with University of Minnesota Medical Center Fairview (UMMC) School of Radiation Therapy. Classes are conducted at UMMC with clinicals at UMMC and other health care sites in the Twin Cities.

Admission Requirements
Students must complete 45 credits before admission to the program.
A GPA above 2.00 is preferred for the following:

- 2.50 for students already admitted to the degree-granting college.
- 2.50 for students transferring from another University of Minnesota college.
- 2.50 for students transferring from outside the University.

Each partner program has additional specific requirements. All general education and prerequisite coursework must be completed or in progress at time of admission, including general education and preparatory courses (both locations) and partner-specific courses.

For information about University of Minnesota admission requirements, visit the Office of Admissions Web site at admissions.tc.umn.edu.

Required Courses for Admission
Preparatory Courses (both locations)
These courses are part of the general education and prerequisite courses. They must be completed or in progress at the time of application for admission. Biology is only required if it is a prerequisite for other science courses; biology is not a prerequisite for the major. On the Twin Cities campus, COMM 3402 satisfies the Oral Communication requirement. Additional program-specific general education and prerequisite courses are listed under each sub-plan.

COMM 1101 - Introduction to Public Speaking (3.0 cr)
or COMM 3605W - Persuasive Speaking and Speech Writing, WI (3.0 cr)
or GC 1461 - Oral Communication in the Public Sphere, C/PE (3.0 cr)
or RHET 1223 - Oral Presentations in Professional Settings (3.0 cr)
MATH 1031 - College Algebra and Probability, MATH (3.0 cr)
or MATH 1051 - Precalculus I (3.0 cr)
MATH 1151 - Precalculus II, MATH (3.0 cr)
GC 1281 - General Psychology, SSCI (4.0 cr)
or PSY 1001 - Introduction to Psychology, SSCI (4.0 cr)
BIOL 1009 - General Biology, BIOL SCI/L (4.0 cr)
INMD 3001 - Human Anatomy (3.0 cr)
INMD 3002 - Human Anatomy Laboratory (1.0 cr)
PHIL 1003W - Introduction to Ethics, OH, WI (4.0 cr)
or PHIL 3305 - Medical Ethics (4.0 cr)
CNES 1046 - Technical Terminology for the Health Professions (3.0 cr)
or PHAR 1002 - Health Sciences Terminology (2.0 cr)
or PHAR 5201 - Health Sciences Applied Terminology (2.0 cr)
PHYS 1101W - Introductory College Physics I, PHYS SCI/L, WI (4.0 cr)
or PHYS 1201W - Introductory Physics for Biology and Pre-medicine I, PHYS SCI/L, WI (5.0 cr)
or PHYS 1301W - Introductory Physics for Science and Engineering I, PHYS SCI/L, WI (4.0 cr)
RTT 3501 - Introduction to Radiation Therapy (2.0 cr)
RTT 3521 - Patient Care in Radiation Oncology (2.0 cr)
RTT 3541 - Pathology (1.0 cr)
RTT 3561 - Cross-Sectional Anatomy (2.0 cr)
RTT 3581 - Principles and Practices of Radiation Therapy I (4.0 cr)
RTT 3596 - Clinical Practicum I (3.0 cr)
RTT 3696 - Clinical Practicum II (3.0 cr)
RTT 4511 - Dosimetry and Treatment Planning (4.0 cr)
RTT 4581 - Principles and Practices of Radiation Therapy II (4.0 cr)
RTT 4596 - Clinical Practicum III (6.0 cr)
RTT 4601 - Project (1.0 cr)
RTT 4696 - Clinical Practicum IV (3.0 cr)
RTT 4796 - Clinical Practicum V (3.0 cr)

Program Requirements
Major Courses
ABUS 4041 - Dynamics of Leadership (3.0 cr)
HSM 3501 - Clinical Research Concepts and Practice (3.0 cr)
HSM 3521 - Health Care Delivery Systems (3.0 cr)
HSM 4501 - Writing for the Health Professions (3.0 cr)
HSM 4541 - Health Care Finance (3.0 cr)
HSM 4561 - Health Care Administration and Management (3.0 cr)
HSM 4581 - Teaching in the Health Care Setting (3.0 cr)
PHAR 3800 - Pharmacotherapy for the Health Professions (3.0 cr)
RTT 3501 - Radiation Therapy: Radiation Exposure, Imaging, Safety, and Basic Care (1.0 cr)
RTT 3521 - Radiation Therapy: Radiation Exposure, Imaging, Safety, and Basic Care Lab (1.0 cr)
RTT 3601 - Clinical Quality Assurance and Computer Applications (1.0 cr)
RTT 3551 - Radiation Oncology Physics (3.0 cr)
RTT 3701 - Advanced Radiobiology and Radiation Protection (3.0 cr)

University of Minnesota Medical Center Fairview
The following are required for admission to this program:
• Proof of immunization (records reviewed by UMMC Employee Health)
• CPR certification
• Medical physical
• Proof of health insurance
• FUMC School of Radiation Therapy application
• A minimum of 20 hours of documented shadowing/observation in an approved radiation therapy department
• Interview with Admission Committee
• Vulnerable Adults Act Background Check
• A signed Essential Functions form indicating student understanding of the essential functions for successful completion of the Radiation Therapy program
• Computer proficiency

Required Courses
UMMC Courses
Students who have earned a radiographer certificate may not need to complete these courses, as determined by the UMMC program. Students should consult their University of Minnesota adviser. RTT 2001 and 2002 may be completed after admission to the major.
PHIL 1003W - Introduction to Ethics, OH, WI (4.0 cr)
or PHIL 3305 - Medical Ethics (4.0 cr)
CNES 1046 - Technical Terminology for the Health Professions (3.0 cr)
or PHAR 1002 - Health Sciences Terminology (2.0 cr)
or PHAR 5201 - Health Sciences Applied Terminology (2.0 cr)
PHYS 1101W - Introductory College Physics I, PHYS SCI/L, WI (4.0 cr)
or PHYS 1201W - Introductory Physics for Biology and Pre-medicine I, PHYS SCI/L, WI (5.0 cr)
or PHYS 1301W - Introductory Physics for Science and Engineering I, PHYS SCI/L, WI (4.0 cr)
RTT 2001 - Radiation Therapy: Radiation Exposure, Imaging, Safety, and Basic Care (1.0 cr)
RTT 2002 - Radiation Therapy: Radiation Exposure, Imaging, Safety, and Basic Care Lab (1.0 cr)

Mayo School of Health Sciences
The following are required for admission:
• Completion of an accredited program in radiography with a GPA of 3.00 or higher
• MSHS School of Radiation Therapy application
• Vulnerable Adults Act Background Check
• Documentation of radiation oncology observation experience
• Fluency in written and spoken English; if English is a second language, fluency must be demonstrated objectively through satisfactory performance (within the last two years) on the TOEFL examination or the Michigan Test of English Language Proficiency
• Documentation of current health status and immunizations according to Mayo Clinic student policy
• Minnesota state law mandatory background checks

Required Courses
MSHS Courses
The general education requirement may be met by an ethics course approved by an adviser.

Major Courses
RTT 3601 - Clinical Quality Assurance and Computer Applications (1.0 cr)
RTT 3551 - Radiation Oncology Physics (3.0 cr)
RTT 3701 - Advanced Radiobiology and Radiation Protection (3.0 cr)
Respiratory Care B.A.Sc.
Requirements for this program are current for Summer 2006.
Required credits to graduate with this degree: 120.
Required credits within the major: 64.
This program requires summer terms.
Degree: Bachelor of Applied Science.
The B.A.Sc. with a major in respiratory care prepares students to become respiratory care practitioners with advanced clinical and professional skills. This program, offered in partnership with Mayo School of Health Sciences in Rochester, combines professional, medical, and technical courses. Courses and clinical experiences, with options for specialized clinical study, are offered at Mayo Clinic and other facilities within the Mayo Health System. Graduates will be ready to meet national certification requirements. Advanced practitioner respiratory therapists are prepared to serve as consultants to physicians, and other medical staff.

Admission Requirements
Students must complete 9 courses before admission to the program.
A GPA above 2.00 is preferred for the following:
• 2.50 for students already admitted to the degree-granting college.
• 2.50 for students transferring from another University of Minnesota college.
• 2.50 for students transferring from outside the University.

Students apply for admission to both the University of Minnesota and Mayo School of Health Sciences. The following items are required for admission to Mayo School of Health Sciences:
• No grade lower than C- in each preparatory course
• Overall GPA or 2.20 in all preparatory courses
• Proof of immunization (records reviewed by MSHS Employee Health)
• CPR certification
• Documentation of current health status and immunizations according to Mayo Clinic student policy
• Personal medical plan coverage
• Vulnerable Adults Act background check
• Complete the MSHS Respiratory Care application
• Interview with Admissions Committee
• Computer skills

For information about University of Minnesota admission requirements, visit the Office of Admissions Web site at http://admissions.tc.umn.edu.

Required Courses for Admission
Foundation Courses I
See program requirements for additional foundation courses to be completed before admission.
BIOC 1001 - Elementary Biochemistry (3.0 cr)
CHEM 1011 - Introductory Chemistry: Lecture and Laboratory, PHYS SCI/L (4.0 cr)
BIOL 2032 - General Microbiology with Laboratory (4.0 cr)
or VBS 2032 - General Microbiology With Laboratory (4.0 cr)
PHSL 1001 - Human Physiology (3.0 cr)
or PHSL 3051 - Human Physiology (4.0 cr)
PHYS 1012 - Elementary Physics (4.0 cr)
or PHYS 1101W - Introductory College Physics I, PHYS SCI/L, WI (4.0 cr)
or PHYS 1111 - Basic Physics I (3.0 cr)
Take one of the following pairs of courses
INMD 3001 - Human Anatomy (3.0 cr)
INMD 3002 - Human Anatomy Laboratory (1.0 cr)
or
INMD 3301 - Human Anatomy (3.0 cr)
INMD 3302 - Human Anatomy Laboratory (1.0 cr)

Program Requirements
Required Courses
Foundation Courses II
These courses must also be completed before admission.
MATH 1031 - College Algebra and Probability, MATH (3.0 cr)
GC 1281 - General Psychology, SSCI (4.0 cr)
or PSY 1001 - Introduction to Psychology, SSCI (4.0 cr)
PHIL 1003W - Introduction to Ethics, OH, WI (4.0 cr)
or PHIL 1003V - Honors: Introduction to Ethics, OH, WI (4.0 cr)
or PHIL 3305 - Medical Ethics (4.0 cr)
COMM 1101 - Introduction to Public Speaking (3.0 cr)
or COMM 1101H - Honors: Introduction to Public Speaking, H (3.0 cr)
or GC 1461 - Oral Communication in the Public Sphere, C/PE (3.0 cr)
or RHET 1223 - Oral Presentations in Professional Settings (3.0 cr)
CNES 1046 - Technical Terminology for the Health Professions (3.0 cr)
or PHAR 1002 - Health Sciences Terminology (2.0 cr)
or PHAR 5201 - Health Sciences Applied Terminology (2.0 cr)

Major Courses
ABUS 4041 - Dynamics of Leadership (3.0 cr)
HSM 3501 - Clinical Research Concepts and Practice (3.0 cr)
HSM 3521 - Health Care Delivery Systems (3.0 cr)
HSM 4501 - Writing for the Health Professions (3.0 cr)
HSM 4541 - Health Care Finance (3.0 cr)
HSM 4561 - Health Care Administration and Management (3.0 cr)
HSM 4581 - Teaching in the Health Care Setting (3.0 cr)
HSM 4611 - Allied Health Grand Rounds (1.0 cr)
PHAR 3800 - Pharmacotherapy for the Health Professions (3.0 cr)
RC 2011 - Foundations for Clinical Practice of Respiratory Care (4.0 cr)
RC 2021 - Patient Care Techniques (2.0 cr)
RC 3101 - Respiratory Care Modalities and Equipment I (4.0 cr)
RC 3102 - Respiratory Care Modalities and Equipment II (4.0 cr)
RC 3201 - Cardiopulmonary Patient Assessment (4.0 cr)
RC 3301 - Clinical Practice I (4.0 cr)
RC 3302 - Clinical Practice II (4.0 cr)
RC 3401 - Seminar in Respiratory Care I: Case Reports and Fundamentals of Research (1.0 cr)
RC 3402 - Seminar in Respiratory Care II: Case Reports and Fundamentals of Research (1.0 cr)
RC 3501 - Advanced Cardiopulmonary Respiratory Physiology and Pathophysiology (3.0 cr)
RC 4111 - Advanced Adult Respiratory Critical Care Techniques (3.0 cr)
RC 4301 - Seminar: Research Project and Publication (1.0 cr)
RC 4496 - Subspecialty Clinical Practicum in Advanced Respiratory Care I (3.0 cr)
RC 4596 - Subspecialty Clinical Practicum in Advanced Respiratory Care II (3.0 cr)

Take exactly 2 course(s) from the following:
RC 4201 - Subspecialization in Respiratory Care: Advanced Perinatal and Pediatric Respiratory Care (2.0 cr)
RC 4202 - Subspecialization in Respiratory Care: Advanced Cardiopulmonary Diagnostics (2.0 cr)
RC 4203 - Subspecialization in Respiratory Care: Cardiopulmonary Rehabilitation, Disease Prevention, Case Mgmt (2.0 cr)