Programs of Study

A.A.S. Degree
- Communication — 3 credits
- Humanities/fine arts — 3 credits
- Math/science — 3 credits
- Social science — 3 credits
- Technology — 3 credits
- INM 1010 — Introduction to Information Technology
- General education electives — 6 credits
- Major field of study — 43 credits
- Total — 64 credits

A.S. Degree
- Communication — 6 credits
- Humanities/fine arts — 6 credits
- Math/science — 6 credits
- Social science — 6 credits
- Technology — 3 credits
- INM 1010 — Introduction to Information Technology
- General education electives — 5 credits
- Major field of study — 32 credits
- Total — 64 credits

Employment-oriented
- Programs prepare students to participate in and manage a diverse workforce.
- Programs are linked to employers in a variety of ways (such as field trips, on-site assignments, shadowing, and shared databases).
- Internship or field experience is required.
- Programs respond to changes in the workforce via interaction between faculty and employers.
- Programs are evaluated by a Program Improvement Audit Committee whose membership comes from business and industry.

Designed around active learning and responsive teaching
- Teachers are team leaders and project directors.
- Students are actively involved in the learning process.
- Programs emphasize application and solving real-world problems.
- Students develop portfolios of their experiences to demonstrate their personal and career development.

Technology-driven
- Technology outcomes are central to every course.
- A computer component is included in every course.
- Students gain technical competence that meets or exceeds the needs of industry.
- Students use e-mail, interactive communication technology, and the Internet.
- Interactive television and on-line course delivery enables students to take courses delivered by other higher education institutions.
- Students develop the ability to adapt to technological change that will be essential to career success.

Focused on communication, critical thinking, and working with others
Every program has curriculum focused on developing skills in three core component areas:
- Communication
  - Reading
  - Writing
  - Speaking
  - Listening
  - Using technology
- Critical Thinking
  - Problem solving
- Applied learning
- Working With Others
  - Teamwork
  - Diversity

Outcome-based
- Learner outcomes are published for each course.
- Program outcomes are published for each program.
- Clear articulation exists between courses.
- Quality is judged by measurable outcomes.

Curricular Programs

UMC programs prepare students for employment in midmanagement (A.A.S.) or management (B.S.) positions and for a wide variety of personal and career goals. Students may explore their interests within the broad spectrum of the college’s offerings and, because of the many requirements common to the various programs, may transfer from one program to another with little loss of time, including from an associate in applied science (A.A.S.) program to a bachelor of science (B.S.) program.

Degree Programs—UMC offers programs leading to the associate in applied science (A.A.S.), the associate in science (A.S.), the bachelor of science (B.S.), and the bachelor in an applied field degree. The A.A.S. programs require 64 credits, with 21 credits in general education. The A.S. programs require 64 credits, with 32 credits in general education. The B.S. programs require a minimum of 120 credits, with a minimum of 45 credits in general education. The bachelor in an applied field programs have requirements unique to each major. Upper division requirements include courses in general education and the major. Developmental courses in reading, writing, and math skills cannot be used for credit toward graduation. These courses are identified with 09xx course numbers.

General Education Requirements—An integral part of all UMC degree programs, general education is the set of common understanding and skills essential to successful living in a modern society and to functioning as a member in that society as a whole, integrated individual. Students seeking to complete the A.A.S., the A.S., or the B.S. must complete the general education requirements listed on the following page.
Internship Requirement—The internship requirement helps students obtain additional training to become better prepared for employment in their chosen field. It may be completed through on-the-job experience with a business firm, government agency, or home farm management program, as appropriate.

The internship program can be designed to fit the needs of individual students. If students do not plan to continue in a baccalaureate degree program, the internship is usually completed during the summer term between the first and second years of the A.A.S. program. Students who decide to continue in a baccalaureate degree program may substitute an upper division course for the A.A.S. internship requirement.

A minimum of 12 weeks of employment or volunteer assignments are required for satisfactory evaluation of the student’s progress. The internship assignment will be supervised by the college staff in cooperation with the employer. Students must submit reports assigned by the college staff.

All baccalaureate degrees require an internship or field experience.

Transfer—Some students complete part of their college work at UMC before attending other institutions for advanced specialization. Faculty advisers familiar with advanced specializations work closely with these students. Students may complete the A.S. before transferring to another institution.

Individuals who wish to take selected courses for self-improvement or to qualify for employment may enroll for as long as they think necessary to meet their objectives.

General Education Requirements—Baccalaureate Degrees

<table>
<thead>
<tr>
<th>Category</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 1150</td>
<td>Elementary Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Biol 1009</td>
<td>General Biology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 1020</td>
<td>Introductory Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 1103</td>
<td>General Botany</td>
<td>3</td>
</tr>
<tr>
<td>Biol 1106</td>
<td>General Zoology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 1464</td>
<td>Human Anatomy and Physiology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 1474</td>
<td>Human Anatomy and Physiology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 3022</td>
<td>Principles of Genetics</td>
<td>3</td>
</tr>
<tr>
<td>Biol 3131</td>
<td>Plant Physiology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 3722</td>
<td>Limnology</td>
<td>3</td>
</tr>
<tr>
<td>Chem 1001</td>
<td>Introductory Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Chem 1004</td>
<td>General Principles of Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>Chem 1005</td>
<td>General Principles of Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>Chem 1401</td>
<td>Elementary Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>Geol 1001</td>
<td>Introductory Geology</td>
<td>3</td>
</tr>
<tr>
<td>Phys 1001</td>
<td>Elementary Physics</td>
<td>3</td>
</tr>
<tr>
<td>Cjrs 1120</td>
<td>Criminal Justice and Society</td>
<td>4</td>
</tr>
<tr>
<td>Cjrs 3305</td>
<td>Judicial Process</td>
<td>3</td>
</tr>
<tr>
<td>Econ 1101</td>
<td>Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>Econ 1102</td>
<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>Geog 1104</td>
<td>World Regional Geography</td>
<td>3</td>
</tr>
<tr>
<td>Pol 1001</td>
<td>American Government</td>
<td>3</td>
</tr>
<tr>
<td>Pol 1054</td>
<td>Comparative Government</td>
<td>3</td>
</tr>
<tr>
<td>Psych 1001</td>
<td>General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Psych 1083</td>
<td>Developmental Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Psych 3604</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Soc 1001</td>
<td>General Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Soc 1102</td>
<td>Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>Soc 3007</td>
<td>Family Relationships</td>
<td>3</td>
</tr>
<tr>
<td>Soc 3937</td>
<td>Social Gerontology:Elders in American Society</td>
<td>3</td>
</tr>
<tr>
<td>GnEd 1000</td>
<td>Seminar for New Students</td>
<td>1</td>
</tr>
<tr>
<td>GnEd 1001</td>
<td>Directed Studies</td>
<td>1-3</td>
</tr>
<tr>
<td>GnEd 1900</td>
<td>Chancellor's Academic Success Seminar</td>
<td>1</td>
</tr>
<tr>
<td>GnEd 3804</td>
<td>Individual Studies</td>
<td>1-3</td>
</tr>
<tr>
<td>Hlth 1062</td>
<td>First Aid and CPR</td>
<td>2</td>
</tr>
<tr>
<td>Hlth 1072</td>
<td>Wellness</td>
<td>3</td>
</tr>
<tr>
<td>HPER 1151</td>
<td>Golf</td>
<td>1</td>
</tr>
<tr>
<td>HPER 1201</td>
<td>Dance:Folk, Social, Modern</td>
<td>1</td>
</tr>
<tr>
<td>HPER 1321</td>
<td>Net Activities</td>
<td>1</td>
</tr>
<tr>
<td>HPER 1331</td>
<td>Racquet Activities</td>
<td>1</td>
</tr>
<tr>
<td>HPER 1451</td>
<td>Fitness for Better Health</td>
<td>1</td>
</tr>
<tr>
<td>HPER 1461</td>
<td>Physical Training and Conditioning</td>
<td>1</td>
</tr>
<tr>
<td>HPER 1481</td>
<td>Aerobic Exercise</td>
<td>1</td>
</tr>
<tr>
<td>HPER 1601</td>
<td>Aquatic Activities</td>
<td>1</td>
</tr>
<tr>
<td>HPER 1701-1791</td>
<td>Varsity Sports</td>
<td>1</td>
</tr>
</tbody>
</table>
Accounting

(A shared major and cooperative degree program with Bemidji State University)

Accounting is an information system that represents the economic resources and responsibilities of business or nonbusiness 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. Therefore, the accounting program teaches analytical, theoretical, communication, and leadership skills necessary for effective accounting and advancement in public, private, and government careers.

After graduating, accounting majors may take the Uniform Certified Public Accounting Examination, the Certified Internal Auditor Examination, or the Certified Management Accountant Examination. Certificates are issued if a satisfactory score is earned and appropriate work experience is completed.

Accounting B.S. Program Outcomes

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

Accounting program graduates will
• use computer technology for accounting spreadsheet applications and general ledger accounting functions;
• develop and demonstrate skills in financial and cost accounting systems that are typical of most businesses;
• develop and demonstrate skills in basic tax fundamentals for individuals and businesses;
• demonstrate skills and competencies in team building and decision making;
• demonstrate skills in general education that provide a foundation for the applied curriculum;
• demonstrate a commitment to continuing professional development;
• demonstrate skills in communication, ethical decision making, and critical thinking.

Accounting Course Requirements (B.S.)

Degree Requirements: A total of 128 credits is required for graduation. Of this total, 45 credits are required in general education and 83 credits in the major; 40 credits are required in upper division courses.

General Education Requirements

Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Comp 3303—Writing in Your Profession (3 cr)
Econ 1101—Microeconomics (3 cr)
Econ 1102—Macroeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1131—Finite Math (3 cr)
Math 1150—Elementary Statistics (3 cr)
Psy 1101—General Psychology (3 cr)
Spch 1101—Public Speaking (3 cr)
General education electives (3 cr)

Math/natural science electives (6 cr) (at least 3 cr of lab science)

Humanities electives (6 cr minimum from at least two departments)

Program Requirements

Acct 1101—Principles of Accounting I (3 cr)
Acct 1102—Principles of Accounting II (3 cr)
Acct 3310—Introduction to Professional Accounting (2 cr)
Acct 3110—Accounting Systems (3 cr)
Acct 3201—Intermediate Accounting I (4 cr)
Acct 3202—Intermediate Accounting II (4 cr)
Acct 3300—Government Accounting (2 cr)
Acct 3301—Cost Accounting I (3 cr)
Acct 3302—Cost Accounting II (3 cr)
Acct 3321—Business Law I (3 cr)
Acct 3322—Business Law II (3 cr)
Acct 3404—Income Tax I (4 cr)
Acct 3405—Income Tax II (2 cr)
Acct 4110—Advanced Accounting (4 cr)
Acct 4210—Auditing I (3 cr)
Acct 4310—Auditing II (3 cr)
INM 1020—Electronic Spreadsheets (2 cr)
Mgmt 3100—Principles of Finance (3 cr)
Mgmt 3200—Principles of Management (3 cr)
Mktg 3300—Principles of Marketing (3 cr)
Business/technology electives (20 cr)
Bemidji State University electives (3 cr)

Agricultural Aviation

Agricultural aviation degree programs train students to excel in the increasingly sophisticated and competitive profession of aerial application. The associate degree program includes a core of general education, agriculture, and aviation courses. The bachelor’s degree curriculum expands on these requirements by providing greater depth and includes a series of business-related courses. Both programs are offered in collaboration with the University of North Dakota Center for Aerospace Sciences. UND Aerospace, an internationally recognized collegiate flight training center, provides aircraft, simulators, flight instructors, and aviation course materials.

Only full-time students (taking 12 credits or more) may enroll in flight training courses; others must obtain consent from the chief flight instructor. FAA pilot certification courses include: private pilot, commercial pilot, instrument rating, certified flight instructor, instrument flight instructor, multi-engine rating, and multi-engine flight instructor. Students enrolling with previous flight experience may receive college credit for their training after a flight check with the chief flight instructor.

Agricultural aviation students attend all classes on the UMC campus. Flight training is conducted at the Crookston airport, three miles north of the University.

Agricultural aviation degree programs include flight courses for which students incur costs over and above regular tuition rates. The required aviation courses associated with both degree programs include private pilot certification, commercial pilot certification, instrument rating, introductory and advanced conventional aircraft operations, and aerial applicator training.
UMC is committed to keeping costs as low as possible for agricultural aviation degree candidates. However, these costs do vary and depend on the courses taken as well as the aircraft and flight instructor time used. Call the Agriculture and Natural Resources Center Office (218/281-8101) for current cost estimates.

Typical agricultural aviation career opportunities include aerial applicator, aerial photographer, aerial firefighter, aviation sales representative, charter pilot, fixed-base operation manager, pilot representative for agricultural business, and professional flight instructor.

Agricultural Aviation A.A.S. Program Outcomes
The agricultural aviation program prepares students to be aerial applicator pilots. It also provides a background that can lead to many other aviation careers. The agricultural aviation student will
• acquire appropriate aviation certifications;
• demonstrate competencies in aeronautics;
• demonstrate technical competency in agriculture;
• complete an internship experience;
• demonstrate experience in applying principles learned through coursework during internship.

Agricultural Aviation Course Requirements (A.A.S.)
Degree Requirements: A total of 65 credits is required for graduation. Of this total, 21 credits are required in general education and 44 credits in the major.

General Education Requirements
Biol 1009—General Biology (3 cr)
Chem 1001—Introductory Chemistry (4 cr)
Comp 1011—Composition I (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
General education electives (2 cr)
Humanities electives (3 cr)
Social science electives (3 cr)

Program Requirements
AgAv 1102—Introduction to Aviation (5 cr)
AgAv 1251—Aircraft Systems and Instruments (3 cr)
AgAv 1252—Basic Attitude Instrument Flying (3 cr)
AgAv 1396—Conventional Aircraft Operations (1 cr)
AgAv 3353—Airplane Aerodynamics (3 cr)
AgAv 3354—IFR Regulations and Procedures (3 cr)
AgAv 3396—Advanced Conventional Operations (1 cr)
AgAv 3603—Aerial Applications (3 cr)
Agro 1030—Crop and Weed Identification (3 cr)
GnAg 3900—Internship (3 cr)
PIM 1030—Introduction to Plant Science (2 cr)
PIM 1031—Agronomy Lab (1 cr)
PIM 2573—Entomology (3 cr)
PIM 2640—Weed Science (4 cr)
PIM 3230—Plant Pathology (3 cr)
Soil 1293—Soil Science (3 cr)

Agricultural Aviation B.S. Program Outcomes
The agricultural aviation student will
• demonstrate competency in aeronautics;
• document appropriate aeronautic experience;
• demonstrate competency in agriculture and business;
• complete an internship experience;
• demonstrate team-building decision-making skills;
• demonstrate skills in using computer technology used in agricultural aviation;
• demonstrate ability to make contacts with various government, industry, and academic experts through collaboration;
• be prepared for a career in aviation;
• acquire appropriate aviation certification.

Agricultural Aviation Course Requirements (B.S.)
Degree Requirements: A total of 120 credits is required for graduation. Of this total, 45 credits are required in general education, 63 credits in the major, and 12 credits in electives; 40 credits are required in upper division courses.

General Education Requirements
Biol 1009—General Biology (3 cr)
Biol 1103—General Botany (3 cr)
Chem 1001—Introductory Chemistry (4 cr)
Chem 1401—Elementary Biochemistry (4 cr)
Comp 1011—Composition I (3 cr)
Comp 1011—Composition II (3 cr)
Econ 1101—Microeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1031—College Algebra and Analytical Geometry (3 cr)
or Math 1150—Elementary Statistics (3 cr)
Psy 1001—General Psychology (3 cr)
Rhet 3562—Technical and Professional Writing (3 cr)
Spch 1101—Public Speaking (3 cr)
Humanities electives (6 cr)
General education electives (4 cr)

Program Requirements
AgAv 1102—Introduction to Aviation (5 cr)
AgAv 1251—Aircraft Systems and Instruments (3 cr)
AgAv 1252—Basic Attitude Instrument Flying (3 cr)
AgAv 1396—Conventional Aircraft Operations (1 cr)
AgAv 3353—Airplane Aerodynamics (3 cr)
AgAv 3354—IFR Regulations and Procedures (3 cr)
AgAv 3396—Advanced Conventional Aircraft Operations (1 cr)
AgAv 3603—Aerial Applications (3 cr)
Agro 1030—Crop and Weed Identification (3 cr)
Agro 3444—Crops Production (3 cr)
GnAg 3900—Internship (3 cr)
Mktg 1100—Introduction to Entrepreneurship (3 cr)
Mktg 3200—Personal Selling (3 cr)
PIM 1030—Introduction to Plant Science (2 cr)
PIM 1031—Agronomy Lab (1 cr)
PIM 2573—Entomology (3 cr)
PIM 2040—Weed Science (4 cr)
PIM 3230—Plant Pathology (3 cr)
Soil 1293—Soil Science (3 cr)
SWM 3103—Meteorology (2 cr)
Agro 3652—Senior Seminar in Horticulture and Agronomy (1 cr)
and/or GnAg 3652—Agricultural/Natural Resource Seminar (1 cr)
Agriculture electives (7 cr, with 6 cr in 3xxx courses)
Open electives (12 cr)
Agricultural Business

Students in the agricultural business two-year program focus on a combination of technical agriculture and business courses based on a general education foundation. Graduates of this program may be employed in agribusiness firms such as rural cooperatives, grain and livestock marketing firms, implement dealerships, and chemical companies. The agricultural business curriculum is flexible to allow specialization in student interest areas.

Agricultural Business A.A.S. Program Outcomes
Agricultural business graduates will demonstrate
• an understanding of the broad field of agriculture;
• an understanding of the development and use of business records;
• the ability to evaluate entrepreneurial opportunities in production agriculture and/or agribusiness;
• the skills necessary to obtain entry-level jobs in agribusiness.

Agricultural Business Course Requirements (A.A.S.)
Degree Requirements: A total of 67 credits is required for graduation. Of this total, 28 credits are required in general education and 39 credits in the major.

General Education Requirements
Biol 1009—General Biology (3 cr)
Chem 1001—Introductory Chemistry (4 cr)
Comp 1011—Composition I (3 cr)
Econ 1101—Microeconomics (3 cr)
Econ 1102—Macroeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1001—Technical Math (3 cr)

or Math 1031—College Algebra and Analytical Geometry (3 cr)
Spch 1101—Public Speaking (3 cr)

Program Requirements
Acct 1101—Principles of Accounting I (3 cr)
AgEc 2530—Professional Agriselling (3 cr)
AgEc 3430—Agricultural Commodity Marketing (3 cr)
AgEc 3540—Farm Business Management (4 cr)
AgEc 3640—Agricultural Finance and Valuation (4 cr)
AnSc 1004—Introduction to Animal Science (4 cr)
GnAg 3900—Internship (3 cr)
PIM 1030—Introduction to Plant Science (2 cr)
PIM 1031—Agronomy Lab (1 cr)
Soil 1293—Introduction to Soil Science (3 cr)
Agriculture/management electives (9 cr)

Agricultural Industries Sales and Management

Agricultural Industries Sales and Management B.S. Program Outcomes
The agricultural industries sales and management program prepares students to work in agribusiness. The curriculum blends a strong base of agriculture, business management, and general education courses with flexibility to choose courses that fit student interests. Graduates in the agricultural industries sales and management program will
• demonstrate skills and competencies in agribusiness management;
• demonstrate skill and experience in team building and decision making;
• be able to use technology to support and enhance business information management and education opportunities;
• demonstrate an understanding of the broad area of agriculture from producer to final consumer;
• have experienced opportunities in participative and field learning.

Agricultural Industries Sales and Management Course Requirements (B.S.)
Degree Requirements: A total of 120 credits is required for graduation. Of this total, 45 credits are required in general education, 63 credits in the major, and 12 credits in electives; 40 credits are required in upper division courses.

General Education Requirements
Biol 1009—General Biology (3 cr)
Chem 1001—Introductory Chemistry (4 cr)
Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Comp 3303—Writing in Your Profession (3 cr)
Econ 1101—Microeconomics (3 cr)
Econ 1102—Microeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1031—College Algebra and Analytical Geometry (3 cr)
Math 1150—Elementary Statistics (3 cr)
Psy 1001—General Psychology (3 cr)
Spch 1101—Public Speaking (3 cr)

General education electives (2 cr)
Humanities electives (6 cr)

Program Requirements
Acct 1101—Principles of Accounting I (3 cr)
AgEc 2530—Professional Agriselling (3 cr)
AgEc 3050—Economics for Agribusiness Management (5 cr)
AgEc 3430—Agricultural Commodity Marketing (3 cr)
AgEc 3540—Farm Business Management (4 cr)
AgEc 3640—Agricultural Finance and Valuation (4 cr)
AnSc 1004—Introduction to Animal Science (4 cr)
GnAg 3900—Internship (3 to 4 cr)
PIM 1030—Introduction to Plant Science (2 cr)
PIM 1031—Agronomy Lab (1 cr)
Soil 1293—Introduction to Soil Science (3 cr)
Agriculture/management electives (9 cr)

Agricultural Industries Sales and Management

Agricultural industries sales and management graduates have many options in agribusiness careers. Employment opportunities in finance, marketing, sales, public relations, business management, commodities trading, consulting, production management, and commercial insurance are found in a wide array of agriculture-affiliated businesses: agricultural sales and manufacturing firms, cooperatives, farm credit/financial agencies, government agencies, production management operations.
Agriculture

The A.S. degree in agriculture prepares students for entry-level positions in agribusiness or transfer to baccalaureate programs in agriculture.

Agriculture A.S. Program Outcomes
Agriculture program graduates will
• be familiar with technology applications in the workplace;
• be prepared to be employed in entry-level positions in agribusiness;
• be prepared to transfer into a baccalaureate program of study in agriculture.

Agriculture Course Requirements (A.S.)
Degree Requirements: A total of 64 credits is required for graduation. Of this total, 34 credits are required in general education and 30 credits in the major.

General Education Requirements
Biol 1009—General Biology (3 cr)
Chem 1001—Introductory Chemistry (4 cr)
or Chem 1004—General Principles of Chemistry I (4 cr)
Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Econ 1101—Microeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1031—College Algebra and Analytical Geometry (3 cr)
Spch 1101—Public Speaking (3 cr)
Humanities electives (6 cr)
Social science electives (3 cr)

Program Requirements
GnAg 3652—Agricultural/Natural Resources Seminar (1 cr)
GnAg 3900—Internship (3 cr)
Soil 1293—Soil Science (3 cr)
Agriculture/natural resources electives (23 cr)

Agriculture and Food Systems Management

Students in the agriculture and food systems management (AFSM) program work closely with computers, machines, and people. Three emphases are offered to meet individual interests: food processing, power and machinery, and precision agriculture. Each provides a unique portfolio of technical and business skills.

Food processing: Prepares for careers in food processing, marketing, and distribution to produce consistent, quality food products. Combines creative thinking with an awareness of consumer preferences to identify consumer trends. Applies scientific production methods and maintains high standards of quality control in the processing of commodities into consumer foods.

Power and machinery: Explores new technology and labor-saving innovations in machinery, engines, and equipment that drive a multi-billion dollar global business. Careers exist in designing, testing, and marketing new products for agricultural, industrial, and consumer applications. Opportunities for service technicians continually expand as buyers demand optimum performance of their equipment investments.

Precision agriculture: Entails working to improve agricultural production practices (chemical application, seeding, tilling) by using satellites, geographical information systems (GIS), and precision data analysis. Field data collection, analysis, and application are keys to improved agricultural production management practices.

AFSM graduates may work in the field, on the line, or in the office, as precision agriculture consultants, service specialists, sales or marketing representatives, plant or project managers, equipment technicians or operator specialists, or in testing, quality control, and development. The AFSM industry includes consulting, supply, and service companies; manufacturing and processing plants; production agriculture; industry dealers and retailers; and electrical power suppliers and contractors.

Agriculture and Food Systems Management

B.S. Program Outcomes
Graduates of the food processing emphasis will be able to
• use technology to provide timely, accurate, and relevant quality assurance information to production to ensure products of consistent quality and maintain ISO programs;
• manage people in a production line or process;
• identify product, plant, and personnel hazards and set up hazard critical control points;
• develop new products and expand existing product lines and services.

Graduates of the power and machinery emphasis will be able to
• optimize the use of high-performance power and machine systems;
• use engineering principles to identify the system requirements for a specific operation;
• improve operation efficiency and return on investment.

Graduates of the precision agriculture emphasis will be able to
• use the latest computer-based mapping, variable rate, yield monitoring, and remote sensing technology;
• optimize the profitability of the farming venture;
• control the environmental impact of the operation.

Agriculture and Food Systems Management

Program Requirements (B.S.)
Degree Requirements: A total of 120 credits is required for graduation. Of this total, 45 credits are required in general education, 63 credits in the major, and 12 credits in electives; 40 credits are required in upper division courses.

General Education Requirements
Biol 1009—General Biology (3 cr)
Chem 1001—Introductory Chemistry (4 cr)
or Chem 1004—General Principles of Chemistry I (4 cr)
Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Comp 1334—Technical Writing (3 cr)
or Comp 3303—Writing in Your Profession (3 cr)
Econ 1101—Microeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1031—College Algebra (3 cr)
Learn to use the latest technologies through courses in surveying and geomatics.

Math 1150—Elementary Statistics (3 cr)
Phys 1001—Elementary Physics (3 cr)
Sphc 1101—Public Speaking (3 cr)
General education electives (2 cr)
Humanities elective (6 cr)
Social science elective (3 cr)

Program Requirements (all emphases)
Acct 1101—Principles of Accounting I (3 cr)
AFSM 1021—Introduction to Agriculture and Food Systems (1 cr)
AFSM 1034—Facility Maintenance and Safety (3 cr)
AFSM 3005—Facilities Planning and Selection (3 cr)
AFSM 3011—Manufacturing Operations and Logistics (3 cr)
AFSM 3002—Agricultural Mobile Power Systems (3 cr)
or AFSM 3012—Applied Engineering Principles (3 cr)
AFSM 4034—Quality Standards (3 cr)
GnAg 3652—Seminar (1 cr)
GnAg 3900—Internship (3 cr)

Program Requirements—Food Processing Emphasis
AFSM 1005—Global Food Systems (3 cr)
AFSM 3030—Food Safety and Microbiology (3 cr)
AFSM 3040—Production Methods and Analysis (3 cr)
AFSM 3050—Cereal Processing (3 cr)
AFSM 3052—Meat and Dairy Processing (3 cr)
AFSM 3053—Product Development (3 cr)
Chem 1401—Elementary Biochemistry (4 cr)
Agriculture/management electives (18 cr)
Open electives (12 cr)

Program Requirements—Power and Machinery Emphasis
AFSM 2250—Agricultural Machinery Management (3 cr)
AFSM 3360—Applications in Precision Agriculture (3 cr)
AgEc 2530—Professional Agriselling (3 cr)
AgEc 3540—Agricultural Finance and Valuation (4 cr)
INM 1060—Introduction to Database Management (2 cr)
Mgmt 3210—Supervision and Leadership (3 cr)
PIM 1030—Introduction to Plant Science (2 cr)
PIM 1031—Introduction to Agronomy Laboratory (1 cr)
or PIM 1032—Introduction to Horticulture Laboratory (1 cr)
Agriculture/management electives (19 cr)
Open electives (12 cr)

Program Requirements—Precision Agriculture Emphasis
AFSM 3008—Surveying and Geomatics 1 (2 cr)
AFSM 3010—Surveying and Geomatics 2 (2 cr)
AFSM 3360—Applications in Precision Agriculture (3 cr)
INM 1020—Electronic Spreadsheets (2 cr)
INM 1060—Introduction to Database Management (2 cr)
PIM 1030—Introduction to Plant Science (2 cr)
PIM 1031—Introduction to Agronomy Laboratory (1 cr)
or PIM 1032—Introduction to Horticulture Laboratory (1 cr)
PIM 2640—Weed Science (4 cr)
Soil 1293—Soil Science (3 cr)
Soil 3414—Soil Fertility (4 cr)
Agriculture/management electives (15 cr)
Open electives (12)

Agronomy/Soils

The agronomy/soils program offers a variety of specializations in crops, soils, and seed technology. The program prepares students to manage a crop and/or livestock farm, work in industry, transfer to a baccalaureate degree program, or operate a family farm in today’s competitive environment. Typical career opportunities include agricultural chemicals salesperson, crop farm operator/manager, crop products salesperson, crop research aide, elevator manager, fertilizer salesperson, field plot technician, grain inspector, seed company field representative, and seed conditioner and/or plant manager.

Agronomy/Soils A.A.S. Program Outcomes
The agronomy/soils graduate will
• demonstrate skills, knowledge, and problem-solving abilities commensurate with mid-management responsibilities;
• demonstrate communication skills necessary to assimilate information, concepts, and proposals;
• demonstrate appropriate library and research skills for organizing and applying information to problem solving and making informed judgments;
• demonstrate interpersonal skills needed to function in mid-management leadership roles and team settings;
• demonstrate integration of skills learned in general education and the major;
• demonstrate appropriate agronomy/soils technical skills;
• develop and demonstrate an attitude of continued inquiry and lifelong learning.

Agronomy/Soils Course Requirements
(A.A.S.)
Degree Requirements: A total of 67 credits is required for graduation. Of this total, 25 credits are required in general education and 42 credits in the major.

General Education Requirements
Biol 1099—General Biology (3 cr)
Biol 1103—General Botany (3 cr)
Chem 1001—Introductory Chemistry (4 cr)
Comp 1011—Composition I (3 cr)
Econ 1101—Microeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
• demonstrate computer skills for problem solving
• have skills in teamwork and individual decision making;
• demonstrate competencies in livestock/dairy industries management graduates will
• be prepared for careers in the livestock/dairy industry;
• demonstrate integration of both general education and technical coursework;
• gain practical experience through an internship;
• demonstrate the ability to make contacts with experts in the livestock/dairy industry.

Animal Industries Management

The animal industries management major leads to careers in livestock production and management or one of the many allied industries such as feed, artificial insemination, and livestock or farm equipment.

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.

Graduates may pursue careers in sales, marketing, research, and management. Typical career opportunities in these fields include artificial breeding manager; artificial breeding supervisor; breed association consultant; commission firm buyer; dairy equipment salesperson; dairy inspector; dairy products procurer; dairy research aide; DHIA supervisor; feed salesperson; livestock equipment salesperson; individual, institutional, or corporate livestock farm owner, manager, herder, feedlot supervisor, or specialty supervisor; livestock fieldworker; quality control technician; and research aide.

Animal Industries Mgmt B.S. Program Outcomes

The animal industries management major prepares students to be managers of livestock/dairy businesses and representatives for livestock/dairy service companies and breed associations. Animal industries management graduates will
• demonstrate competencies in livestock/dairy management;
• have skills in teamwork and individual decision making;
• demonstrate computer skills for problem solving and decision making;
• be able to make appropriate management decisions;
• demonstrate technical knowledge for efficient livestock production;
• demonstrate math and science knowledge pertinent to animal/dairy science;
• gain practical experience through an internship;
• be able to perform techniques necessary to breed quality livestock;
• demonstrate knowledge about herd health practices for preventive measures and problem treatment;
• demonstrate knowledge of livestock breeds and their impact on the livestock industry;
• be prepared to play an active role in the livestock industry and its impact on society.

Animal/Dairy Science Course Requirements (A.A.S.)
Degree Requirements: A total of 67 credits is required for graduation. Of this total, 28 credits are required in general education and 39 credits in the major.

General Education Requirements
Biol 1009—General Biology (3 cr)
Biol 1020—Microbiology (3 cr)
Chem 1001—Introductory Chemistry (4 cr)
Comp 1011—Composition I (3 cr)
Econ 1101—Microeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1001—Technical Mathematics (3 cr)
Comp 1011—Composition I (3 cr)
Econ 1101—Microeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1001—Technical Mathematics (3 cr)

Program Requirements
AgEc 3540—Farm Business Management (4 cr)
AnSc 1004—Introduction to Animal Science (4 cr)
AnSc 1101—Animal Evaluation (1 cr)
AnSc 1203—Animal Production Techniques (1-3 cr)
AnSc 2104—Feeds and Feeding (4 cr)
GnAg 3203—Agricultural Products and Processing (3 cr)
GnAg 3900—Internship (1-4 cr)
AFSM elective (4 cr)
Agriculture electives (0-5 cr)
Agro/Soil/SWM electives (6 cr)
Animal science electives (6 cr)

Applied Health
The Bachelor of Applied Health (B.A.H.) is an integrated four-year baccalaureate degree program developed in collaboration with Red River Community College (Winnipeg, Manitoba), Northwest Technical College (East Grand Forks, Minnesota), several regional health care facilities, and University College on the Twin Cities campus. The B.A.H. program is a distance education program delivered through computer technology, the World Wide Web, and ITV. The program of study includes a fully integrated general education core curriculum, clinical occupational field, and skill-oriented management component. The applied curriculum combines the knowledge and experiences necessary to provide clinical leadership in the changing health care arena and in entrepreneurial health care settings where clinical expertise is valued.

Applied Health B.A.H. Program Outcomes
Bachelor of applied health program graduates will
• use computer technology as a tool to effectively communicate, collaborate, manage, and present health care ideas and issues;
• demonstrate clinical leadership skills through the promotion and practice of collaborative behavior with members of teams and across teams;
• integrate multidisciplinary and multicultural perspectives and ethical values into decision-making processes;
• demonstrate the ability to plan, develop, and manage a department budget within the constraints of the regulatory health care environment.

Applied Health Course Requirements (B.A.H.)
Degree Requirements: A total of 120 credits is required for graduation. Of this total, 30 credits are required in general education, 42 credits in the major, and 48 credits in occupational course requirements.

General Education Requirements
Biol 1020—Microbiology (3 cr)
Biol 1464—Human Anatomy and Physiology I (3 cr)
Biol 1474—Human Anatomy and Physiology II (3 cr)
Comp 1011—Composition I (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1120—Finite Mathematics (3 cr)
Psy 1001—General Psychology (3 cr)
Spch 1101—Public Speaking (3 cr)
Humanities electives (6 cr)

Program Requirements
ABus 3012—Problem Solving in Complex Organizations (3 cr)
ABus 3021—Small Group Behavior and Teamwork (3 cr)
ABus 3023—Communicating for Results (3 cr)
ABus 3031—Accessing and Using Information Effectively (3 cr)
ABus 3041—Leadership in a Global and Diverse Workplace (3 cr)
ABus 3104—Management and Human Resources Practices (3 cr)
BAH 3010—Budget Planning, Development, and Management (3 cr)
BAH 3020—Quality Assurance, Utilization Review, and Risk Management (3 cr)
HRD 5762—Management of Conflict (3 cr)
HSM 3100—Essentials of Managed Care (3 cr)
HSM 3200—Management, Leadership, and Health Care Planning (3 cr)
HSM 3900—Internship (3 cr)
HSM 4210—Regulatory Compliance I (3 cr)
HSM 4212—Regulatory Compliance II (3 cr)
Occupational course requirements (48 cr) (from partner schools)
Applied Studies

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 B.S. degree.

Applied Studies B.S. Program Outcomes

Graduates will
• tailor and complete a course of study that builds on their prior education and experience;
• focus the program of study on their career development goals;
• apply active learning experiences and technology;
• demonstrate skills in communication, ethical decision making, and critical thinking.

Applied Studies Course Requirements (B.S.)

Degree Requirements: A total of 120 credits is required for graduation. Of this total, 48 credits are required in general education, 50 credits in the major, and 22 credits in electives; 40 credits are required in upper division courses.

General Education Requirements
Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Spch 1101—Public Speaking (3 cr)
Communication electives (3 cr)
Humanities electives (6 cr) (from at least two departments)
Mathematics/natural science electives (12 cr) (at least 3 cr math and 3 cr lab science)
Social science electives (6 cr) (from at least two departments)
General education electives (9 cr)

Program Requirements
AplS 3001—Individual Program Development (.5 cr)
AplS 3900—Internship/Field Experience (3 cr)
AplS 4652—Applied Studies Seminar (1.5 cr)
First area of study—technical or occupational (27 cr minimum)
Second area of study (additional courses selected across the curriculum to meet career objectives—18 cr minimum)
Open electives (22 cr)

Business—General

The A.S. degree in business prepares students for transfer to an upper division baccalaureate program.

Business—General A.S. Program Outcomes

A.S. program graduates will
• complete general education and subject area courses comparable to the first two years of a program at a baccalaureate institution;
• gain exposure to career opportunities through introductory courses that survey business and identify job possibilities;
• identify their level of academic preparation for college work and take developmental courses, where appropriate, to remedy any deficiencies in their preparation for pursuing a degree.

Business—General Course Requirements (A.S.)

Degree Requirements: A minimum of 64 credits is required for graduation, at least half of which must be in general education courses.

General Education Requirements
Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Econ 1101—Microeconomics (3 cr)
Econ 1102—Macroeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
General education electives (5 cr)
Humanities/fine arts electives (6 cr)
Math/science electives (6 cr)

Program Requirements
Acct 1101—Principles of Accounting I (3 cr)
Acct 1102—Principles of Accounting II (3 cr)
GBus 3107—Legal Environment in Business (3 cr)
Mgmt 3200—Principles of Management (3 cr)
Mktg 3300—Principles of Marketing (3 cr)
Business/technology electives (17 cr)

Business Management—Business Aviation

The business aviation emphasis in business management prepares students for careers in a wide variety of fields, but includes specialized courses and experiences that enhance the student’s opportunities for entry into the management of aviation. The importance of general education is strongly emphasized, as is a core of traditional business courses in accounting, computers, finance, marketing, and management. These courses are then complemented with aviation courses and aviation industry experience that help the graduate to quickly become a productive member of an aviation organization. Students graduate with the necessary tools to meet the increasingly sophisticated and technologically demanding requirements of twenty-first century business and aviation. Students who successfully complete the program and the appropriate number of flight hours and flight examinations may earn the following certifications: private pilot (F.A.A.), commercial pilot (F.A.A.), instrument rating, certified flight instructor, and multi-engine certification.

This area of emphasis is offered in collaboration with the University of North Dakota Center for Aerospace Sciences. UND Aerospace, an internationally recognized collegiate flight training center, provides aircraft, simulators, flight instructors, and aviation course materials.

Typical business aviation career opportunities include commercial pilot, air taxi and charter pilot, corporate pilot, airport manager, aviation pilot, airport manager, aviation sales representative, fixed base operation manager, and professional flight instructor.
Business Management—Business Aviation

B.S. Program Outcomes

Graduates of the business management program—business aviation emphasis will

• develop and demonstrate abilities in accounting, finance, marketing, management, computer information systems, team building, and human relations;

• participate in active learning as they develop technical and human relations skills through activities in courses and field experiences/internships;

• demonstrate the development of ethical values in decision making and in applying general business principles;

• develop and demonstrate skills in analyzing, identifying, and solving business problems; evaluating plans and solutions; and integrating multidiscipline concepts with decision making;

• use computer technology in preparing spreadsheets, writing reports, analyzing business problems, and preparing professional presentations; use computer technology as a tool in focused marketing and in securing real-time market information;

• demonstrate a concern for the natural environment by incorporating an environmental perspective in the development of objectives, plans, and strategies for business organizations;

• develop and demonstrate an understanding of the importance of a global perspective in business decision making and strategy development;

• demonstrate the ability to communicate clearly and concisely in written and verbal communications through the development and reporting of business documents such as marketing plans, marketing research reports, management reports, and strategic plans;

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

• demonstrate competency in aeronautics;

• document appropriate aeronautics experience;

• acquire appropriate aeronautics certification;

• be prepared for a career in aviation.

Business Management—Business Aviation

Course Requirements (B.S.)

Degree Requirements: A total of 120 credits is required for graduation. Of this total, 45 credits are required in general education, 63 credits in the major, and 12 credits in electives; 40 credits are required in upper division courses.

General Education Requirements

Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Comp 1334—Technical Writing (3 cr)
Econ 1101—Microeconomics (3 cr)
Econ 1102—Macroeconomics (3 cr)
GnEd 1000—Seminar for New Students (1 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1031—College Algebra and Analytical Geometry (3 cr)
Math 1150—Elementary Statistics (3 cr)
Phys 1001—Elementary Physics (3 cr)
Psy 1001—General Psychology (3 cr)

Srch 1101—Public Speaking (3 cr)
General education electives (2 cr)
Humanities electives (6 cr) (from at least two departments)
Social science electives (3 cr)

Program Requirements

Acct 1101—Principles of Accounting I (3 cr)
Acct 1102—Principles of Accounting II (3 cr)
AgAv 1102—Introduction to Aviation (5 cr)
AgAv 1251—Aircraft Systems and Instruments (3 cr)
AgAv 1252—Basic Attitude Instrument Flying (3 cr)
AgAv 3353—Airplane Aerodynamics (3 cr)
AgAv 3354—IFR Regulations and Procedures (3 cr)
AgAv 3414—Certified Flying Instructor (5 cr)
AgAv 3415—Instrument Flight Instructor (4 cr)
GBus 3101—Legal Environment in Business (3 cr)
INM 1020—Electronic Spreadsheets (2 cr)
Mgmt 3100—Principles of Finance (3 cr)
Mgmt 3200—Principles of Management (3 cr)
Mgmt 3210—Supervision and Leadership (3 cr)
Mgmt 3220—Human Resource Management (3 cr)
or Mktg 3250—Promotional Strategies (3 cr)
Mgmt 3290—Operations Management (3 cr)
or Mktg 3360—Global Business (3 cr)
Mgmt 3800—Studies in Management Strategies (3 cr)
Mgmt 3900—Internship (3 cr)
Mktg 3350—Principles of Marketing (3 cr)
SWM 3103—Meteorology and Climatology (2 cr)
Open electives (12 cr)

Business Management—Management

The management emphasis in business management program prepares students for business management positions. It emphasizes managing resources, identifying and solving problems, working with others, collecting and analyzing data, and evaluating results. The program builds on foundation courses in communications, math, economics, and psychology. In addition to marketing, management, and application coursework, the program offers courses in computer technology, accounting, finance, business law, and current topics of importance to business organizations.

Typical career opportunities in business management include small business owner/manager, human resource manager, operations manager, production manager, and project manager.

Business Management—Management B.S.

Program Outcomes

Refer to the first nine program outcomes in Business Aviation.

Business Management—Management Course Requirements (B.S.)

Degree Requirements: A total of 120 credits is required for graduation. Of this total, 45 credits are required in general education, 60 credits in the major, and 15 credits in electives; 40 credits are required in upper division courses.

General Education Requirements

Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Comp 3303—Writing in Your Profession (3 cr)
Econ 1101—Microeconomics (3 cr)
Econ 1102—Macroeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1031—College Algebra and Analytical Geometry (3 cr)
Math 1150—Elementary Statistics (3 cr)
Psy 1001—General Psychology (3 cr)
Spch 1101—Public Speaking (3 cr)
General education electives (3 cr)
Humanities electives (6 cr) (from at least two departments)
Natural science electives (3 cr)
Social science electives (3 cr)

Program Requirements
Acct 1101—Principles of Accounting I (3 cr)
Acct 1102—Principles of Accounting II (3 cr)
GBus 3107—Legal Environment in Business (3 cr)
INM 1020—Electronic Spreadsheets (2 cr)
Mgmt 3100—Principles of Finance (3 cr)
Mgmt 3200—Principles of Management (3 cr)
Mgmt 3210—Supervision and Leadership (3 cr)
Mgmt 3220—Human Resource Management (3 cr)
Mgmt 3250—Operations Management (3 cr)
Mgmt 3260—Current Topics (3 cr)
Mgmt 3600—Management Decision Making (3 cr)
Mgmt 3800—Studies in Management Strategies (3 cr)
Mgmt 3900—Internship (3 cr)
Mktg 1100—Introduction to Entrepreneurship (3 cr)
Mktg 3300—Principles of Marketing (3 cr)
Mktg 3360—Global Business (3 cr)
Business/technology electives (13 cr)
Open electives (15 cr)

Business Management—Marketing

A marketing emphasis in business management prepares students for career fields in marketing. The program emphasizes a consumer orientation and focuses on researching, identifying, market segmenting, and satisfying the consumer. The program also highlights global issues, creativity, competition, and consumer psychology. Career fields for this emphasis may include advertising, research, sales, distribution, purchasing, or product management.

Business Management—Marketing B.S. Program Outcomes
Refer to the first nine program outcomes in Business Aviation.

Business Management—Marketing Course Requirements (B.S.)
Degree Requirements: A total of 120 credits is required for graduation. Of this total, 45 credits are required in general education, 60 credits in the major, and 15 credits in electives; 40 credits are required in upper division courses.

General Education Requirements
See Business Management—Management

Program Requirements
Acct 1101—Principles of Accounting I (3 cr)
Acct 1102—Principles of Accounting II (3 cr)
GBus 3107—Legal Environment in Business (3 cr)
INM 1020—Electronic Spreadsheets (2 cr)
Mgmt 3100—Principles of Finance (3 cr)
Mgmt 3200—Principles of Management (3 cr)
Mgmt 3900—Internship (3 cr)
Mktg 1100—Introduction to Entrepreneurship (3 cr)
Mktg 3200—Personal Selling (3 cr)
Mktg 3250—Promotional Strategies (3 cr)
Mktg 3300—Principles of Marketing (3 cr)
Mktg 3310—Buyer Behavior (3 cr)
Mktg 3340—Marketing Research (3 cr)
Mktg 3350—Marketing Management (3 cr)
Mktg 3360—Global Business (3 cr)
Mktg 3800—Studies in Creative Marketing (3 cr)
Open electives (15 cr)

Dietetic Technician

The dietetic technician program prepares students to be registered dietetic technicians. The program is approved by the American Dietetic Association. Dietetic technicians are employed by hospitals, public health nutrition programs, long-term care facilities, child nutrition and school lunch programs, nutrition programs for the elderly, and food service systems management firms.

Dietetic Technician A.A.S. Program Outcomes
Dietetic technician graduates will be able to
• take diet histories;
• screen patients for nutritional status;
• perform diet calculations;
• supervise dietetic assistants, diet clerks, and food service personnel;
• purchase food and keep inventory record;
• use computer systems to calculate payroll, record laboratory data, verify diet orders, and adjust recipes;
• provide diet counseling and education to individuals or groups;
• recommend and write menus for clients.

Students develop their laboratory skills under the guidance of faculty with industry experience.
Dietetic Technician Course Requirements (A.A.S.)

Degree Requirements: A total of 70 credits is required for graduation. Of this total, 27 credits are required in general education and 43 credits in dietetics.

General Education Requirements
- Biol 1020—Microbiology (3 cr)
- Biol 1464—Human Anatomy and Physiology I (3 cr)
- Biol 1474—Human Anatomy and Physiology II (3 cr)
- Chem 1004—General Chemistry I (4 cr)
- Comp 1011—Composition I (3 cr)
- HSM 1010—Medical Terminology (2 cr)
- INM 1010—Introduction to Information Technology (3 cr)
- Math 1150—Elementary Statistics (3 cr)
- Psy 1001—General Psychology (3 cr)

Program Requirements
- FScN 1123—Fundamentals of Nutrition (3 cr)
- FScN 1273—Medical Nutrition Therapy (3 cr)
- FScN 1313—Lifecycle Nutrition (3 cr)
- FScN 1654—Nutrition Care: Principles and Practices (3 cr)
- FScN 1999—Dietetic Practicum (4 cr)
- FScN 3203—Community Nutrition (3 cr)
- FScN 3211—Professional Issues (1 cr)
- FScN 3310—Elements of Food Science (3 cr)
- FScN 3494—Food Systems Management (4 cr)
- FScN 3900—Internship (2 cr)
- HRI 1111—Introduction to Food Preparation (3 cr)
- HRI 1112—Sanitation and Safety (2 cr)
- HRI 1121—Principles of Quantity Food Production (3 cr)
- HRI 3241—Hospitality Selection and Procurement (3 cr)
- Soc 3937—Social Gerontology: Elders in American Society (3 cr)

Early Childhood Education

(A collaborative baccalaureate degree and teacher licensure program with Bemidji State University; policies for admission to this teacher education program are available from the early childhood education program manager.)

The B.S. degree in early childhood education is a career-oriented program that prepares students to be effective teachers of young children from birth through age eight or third grade.

Graduates of this program must be competent to meet the developmental needs of children and families and the programming needs of a high-quality early childhood education program.

Significant opportunities for professional positions exist in this field, including employer-sponsored or community-based licensed early childhood care and education centers, public schools, Head Start, accredited early childhood programs, and early childhood family education programs.

This degree program has four academic core areas of required coursework—education core, early childhood and family core, infant and toddler education core, and preprimary education core—and two areas of emphasis—primary education and program management. All majors must be admitted into the teacher education program prior to enrollment in the first education course (Ed 3102) and they must maintain a 2.50 GPA to continue enrollment in ECE and Ed courses. All majors will take required courses in the four academic core areas. These courses and their required field experiences will prepare graduates to design, implement, and evaluate developmentally appropriate learning experiences for young children in early childhood settings, to collaborate with families, to effectively manage resources (human, fiscal, physical), and to communicate with the community.

Students who wish to finish their teacher licensure within their degree program, or who wish to teach in public school classrooms with kindergarten through third grade, will need to complete the primary education emphasis. Students who wish to increase their academic preparation for supervisory, management, and/or leadership roles in the field may choose the program management emphasis.

Early Childhood Education B.S. Program Outcomes

Graduates of the program in early childhood education will be able to
- demonstrate understanding of how children differ in their development and approaches to learning and use this knowledge to provide opportunities that support the physical, social, emotional, language, cognitive, and aesthetic development of all young children from birth through age eight;
- plan and implement developmentally appropriate curriculum and teaching practices based on knowledge of individual children, the community, and curriculum goals and content;
- use individual and group guidance and problem-solving techniques to develop positive and supportive relationships with children and develop personal self-control, self-motivation, and positive self-esteem;
- establish and maintain positive, collaborative relationships with families;
- articulate a philosophy and rationale for decisions, continually self-assessing and evaluating the effects of their choices and actions on others as a basis for program planning and modification and continuing professional development;
- plan and implement administrative systems that effectively carry out the program’s mission, goals, and objectives;
- demonstrate ability to carry out management principles and tasks associated with planning, organizing, staffing, leading, and monitoring and controlling for quality;
- serve as an advocate on behalf of young children and their families, improved quality of programs and services for young children, and working conditions for early childhood educators;
- promote effective and collaborative community relations and use this knowledge to build networks and coalitions as needed.

Early Childhood Education Course Requirements (B.S.)

Degree Requirements: A total of 120 credits is required for graduation with the program management emphasis; a total of 125 credits is required for graduation with the primary education emphasis required for completion of teacher
licensure. Of these totals, 45 credits are required in general education, 60 credits in the major program core, and 15-20 credits in the major emphasis; 40 credits are required in upper division courses.

**General Education Requirements**

- Comp 1011—Composition I (3 cr)
- Comp 1013—Composition II (3 cr)
- INM 1010—Introduction to Information Technology (3 cr)
- Sphc 1101—Public Speaking (3 cr)
- Communication electives (3 cr)
- General education electives (6 cr)
- Humanities electives (6 cr) (art and music designated)
- Math/natural science electives (12 cr) (at least 3 cr math and 3 cr lab science)
- Social science electives (6 cr) (from at least 2 departments)

**Early Childhood Education B.S. Program Requirements**

**Education Core (10 cr, both emphases)**

- Ed 3102—Introduction/Foundations of Education (3 cr)
- Ed 3110—Psychological Foundations for Teaching (3 cr)
- Ed 3140—Human Relations in Education (2 cr)
- Hlth 3400—Health and Drugs in Society (2 cr)

**Early Childhood and Family Core (19 cr, both emphases)**

- ECE 2100—Child Development and Learning (3 cr)
- ECE 3500—Young Children With Special Needs (3 cr)
- ECE 4730—Understanding and Supporting Parenting (3 cr)
- ECE 4750—Family, School, and Community Relations (3 cr)
- ECE 4880—Administration of Early Childhood Programs (4 cr)
- Ed 3670—Foundations of Early Childhood Education (3 cr)

**Infant and Toddler Education (14 credits, both emphases)**

- ECE 3410—Learning Environments for Infants and Toddlers (4 cr)
- ECE 3420—Nurturing and Collaborative Relationships for Infants and Toddlers (2 cr)
- ECE 3430—Teaching Practicum: Infant and Toddler (3 cr)
- ECE 3440—Infant and Toddler Student Teaching (5 cr)

**Preprimary Education (17 credits, both emphases)**

- ECE 4700—Developmentally Appropriate Preprimary Education (3 cr)
- ECE 4710—Child Guidance Theories and Practice (3 cr)
- ECE 4720—Teaching Practicum: Preprimary (3 cr)
- ECE 4811—Preprimary Student Teaching (5 cr)
- Ed 3677—Relations and Management in Early Childhood Education (3 cr)

**Emphasis: Primary Education (20 cr; completes course requirements for Board of Teaching licensure)**

- Ed 3207—Reading in the Primary Grades (3 cr)
- Ed 3408—Creative Expression in Elementary Education (3 cr)
- Ed 3770—Mathematics in Primary Education (3 cr)
- Ed 3777—Social and Physical Sciences in Primary Education (3 cr)
- Ed 4827—Primary Student Teaching (8 cr)
- OR

**Emphasis: Program Management (15 cr; without Board of Teaching licensure)**

- Acct. 1101—Principles of Accounting I (3 cr)
- Mgmt 3200—Principles of Management (3 cr)
- Mgmt 3210—Supervision and Leadership (3 cr)
- Mktg 1000—Introduction to Entrepreneurship (3 cr)
- Mktg 3300—Principles of Marketing (3 cr)

---

**Equine Industries Management**

Equine industries management graduates will understand and be able to meet the daily care, nutrition, health care, and exercise/training needs of horses in their care. They will have the knowledge, experience, and skills necessary to succeed in equine or equine-related employment and will have the business and management competencies necessary to operate an equine business. Equine industries management career positions include being a manager of boarding/breeding/training facilities; trainer/instructor; sales representative for feed, pharmaceutical, tack, or other equine-related support industries; and manager and marketer for breed associations, race tracks, or other equine facilities.

**Equine Industries Management B.S. Program Outcomes**

Equine industries management graduates will be able to

- demonstrate a knowledge of reproduction techniques required for breeding quality horses;
- demonstrate an understanding of financial aspects pertinent to management decisions;
- provide management and marketing skills in equine and related enterprises;
- work well as part of a team and as an individual;
- integrate computer skills into all aspects of organization, problem solving, and decision making in equine management;
- teach various horsemanship skills in a safe, consistent, and confident manner.

**Equine Industries Management Course Requirements (B.S.)**

**Degree Requirements:** A total of 120 credits is required for graduation. Of this total, 45 credits are required in general education, 60 credits in the major, and 15 credits in electives; 40 credits are required in upper division courses.

**General Education Requirements**

- Biol 1009—General Biology (3 cr)
- Chem 1004—Principles of Chemistry I (4 cr)
- Chem 1401—Elementary Biochemistry (4 cr)
- Comp 1011—Composition I (3 cr)
- Comp 3303—Writing in Your Profession (3 cr)
- Econ 1101—Microeconomics (3 cr)
- INM 1010—Introduction to Information Technology (3 cr)
- Math 1031—College Algebra and Analytical Geometry (3 cr)
- Math 1150—Elementary Statistics (3 cr)
- Sphc 1101—Public Speaking (3 cr)
- General education electives (4 cr)
- Humanities electives (6 cr) (from at least two departments)
- Social science electives (3 cr)

**Program Requirements**

- Acct 1101—Principles of Accounting I (3 cr)
- AnSc 1004—Introduction to Animal Science (4 cr)
- AnSc 2104—Feeds and Feeding (4 cr)
- AnSc 3104—Applied Animal Nutrition (4 cr)
- AnSc 3203—Animal Anatomy and Physiology (3 cr)
- AnSc 3304—Reproduction, AI, and Lactation (4 cr)
- AnSc 3503—Animal Health and Disease (3 cr)
- EqSc 1202—Equine Evaluation (2 cr)
Equine Science

The equine science major provides students with a well-rounded equine education, preparing them for a wide range of occupational opportunities. The major covers all the riding seats, driving, horse training, nutrition, physiology, management, and breeding. Typical career opportunities include equipment or feed salesperson, horse breeder, horse trainer, pharmaceutical salesperson, riding instructor, riding stable manager, or trail ride guide.

Equine Science A.A.S. Program Outcomes

Equine science graduates will
• be competent in basic horsemanship;
• have knowledge of horse health practices;
• have skills in basic riding in the various seats;
• demonstrate knowledge of the major breeds and their importance to the equine industry;
• demonstrate knowledge of the equine industry as a whole and its impact on the regional/national economy;
• gain practical experience through an internship;
• demonstrate knowledge of reproduction theory;
• demonstrate knowledge of equine feeding and its importance to the various developmental and working classes of horses;

Equine Science Course Requirements (A.A.S.)

Degree Requirements: A total of 67 credits is required for graduation. Of this total, 25 credits are required in general education, 39 credits in the major, and 3 credits in electives.

General Education Requirements
Biol 1009—General Biology (3 cr)
Comp 1011—Composition I (3 cr)
Econ 1101—Microeconomics (3 cr)
ISM 1010—Introduction to Information Technology (3 cr)
Spc1 1011—Public Speaking (3 cr)
Chem 1001—Introductory Chemistry (4 cr)
or
Chem 1004—General Principles of Chemistry I (4 cr)
Math 1001—Technical Math (3 cr)
or
Math 1031—College Algebra and Analytical Geometry (3 cr)
Humanities elective (3 cr)

Program Requirements
Acct 1101—Principles of Accounting I (3 cr)
AnSc 1004—Introduction to Animal Science (4 cr)
AnSc 2104—Feeds and Feeding (4 cr)

Two of the following:
EqSc 1100—Western Equitation (3 cr)
or
EqSc 1200—Hunt Seat and Dressage Equitation (3 cr)
or
EqSc 1300—Saddle Seat Equitation (3 cr)
EqSc 2102—Horse Production (2 cr)
EqSc 3102—Equine Management (3 cr)
EqSc 3403—Equine Exercise Physiology (3 cr)
EqSc 3413—Horse Training and Showing (3 cr)
EqSc 3900—Equine Internship (3 cr)
GBus 3107—Legal Environment in Business (3 cr)
Mgmt 3200—Principles of Management (3 cr)
Mktg 3300—Principles of Marketing (3 cr)
Agricultural economics elective (3 cr)
Agriculture elective (1 cr)
Open electives (15 cr)

Golf Facilities and Turf Systems Management

Professional golf course managers and turf specialists use technology and talent to balance the needs of people with those of nature.

The golf facilities and turf systems management (GFTSM) degree provides students with skills and experiences to build and maintain beautiful and functional turfgrass environments. Extensive coursework in plant science, horticulture, and turf systems helps students develop technical skills. Complementary courses in recreation management and human relations skills provide background for managing employees and customers.

Student learning blends “hands-on” with “high-tech,” in a practical, career-oriented environment. Internships may be completed at golf courses, business complexes and office parks, public recreation areas, or with industry suppliers.

Graduates will hold positions such as golf course manager or superintendent, landscape or grounds manager or supervisor, sales or marketing representative, scientist, and turf specialist.

Golf Facilities and Turf Systems Management B.S. Program Outcomes

Graduates of the golf facilities and turf systems management program will
• develop interpersonal and business management skills while gaining specialized technical knowledge in turfgrass systems;
• apply principles of plant science and nutrition and soils;
• establish, renovate, and maintain turfgrass systems;
• develop horticultural and landscaping skills;
• understand the design, operation, and maintenance of irrigation and drainage systems;
• apply integrated management practices in disease, pest, and weed control;
• appropriately manage agricultural chemical applications;
• be familiar with specialized laboratory, industry, and field equipment;
• solve problems, make sound decisions, and work well in teams;
• utilize excellent communication and public relations skills;
• supervise staff effectively and manage facilities efficiently;
• develop a lifelong commitment to inquiry and learning.
Golf Facilities and Turf Systems
Management Course Requirements (B.S.)

Degree Requirements: A total of 120 credits is required for graduation. Of this total, 47 credits are required in general education, 61 credits in the major, and 12 credits in electives; 45 credits are required in upper division courses.

General Education Requirements
Biol 1009—General Biology (3 cr)
Biol 1103—General Botany (3 cr)
Biol 3131—Plant Physiology (3 cr)
Chem 1001—Inorganic Chemistry (4 cr)
Chem 1401—Elementary Biochemistry (4 cr)
Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Econ 1101—Microeconomics (3 cr)
INM 1010—Technology in Your Future (3 cr)
Math 1031—College Algebra (3 cr)
or Math 1150—Elementary Statistics (3 cr)
Psy 1001—General Psychology (3 cr)
Spch 1101—Public Speaking (3 cr)
Spch 3431—Persuasion (3 cr)
Humanities electives (6 cr) (from two different departments)

Program Requirements
GFTS 3072—Principles of Turf Management (3 cr)
GFTS 3074—Turfgrass Pest Management (3 cr)
GFTS 3076—Turfgrass Management Systems (3 cr)
GnAg 3900—Internship (3 cr)
Hort 1021—Woody Plant Materials (4 cr)
Hort 3040—Commercial Landscape Design and Grounds Maintenance (4 cr)
Mgmt 3210—Supervision and Leadership (3 cr)
PIM 1030—Introduction to Plant Science (2 cr)
PIM 1032—Introduction to Horticulture Laboratory (1 cr)
PIM 2573—Entomology (3 cr)
PIM 2640—Weed Science (4 cr)
PIM 3230—Plant Pathology (3 cr)
PIM 4630—Senior Seminar in Horticulture and Agronomy (1 cr)
Soil 1293—Soil Science (3 cr)
Soil 3414—Soil Fertility (4 cr)
SRM 3000—Foundations of Sport and Recreation Management (3 cr)
SRM 3003—Facilities and Equipment Management (3 cr)
SWM 3011—Principles of Soil and Water Management (1 cr)
SWM 3013—Irrigation and Drainage Systems (1 cr)
Two of the following:
Hort 1030—Residential Landscape Design (3 cr)
AFSM 1034—Facilities Maintenance and Safety (4 cr)
AFSM 2250—Agricultural Machinery Management (3 cr)
Agriculture/management electives (3 cr)
Open electives (12 cr)

Health Management

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.

Health Management B.S. Program Outcomes
Health management graduates will
• use technology to provide timely, accurate, and relevant information for goal setting, program planning, and evaluation;
• understand the changing roles of physicians, nurses, and other allied health care providers and demonstrate ethical values and conduct;
• demonstrate clear and concise communication skills through verbal interaction, written documentation, and quantitative and qualitative analysis;
• validate career-life adaptability and decision-making skills by completing an internship demonstrating leadership in a health care organization;
• establish department objectives that respond to changing economic, regulatory, cultural, and social conditions;
• integrate environmental perspectives in developing functional clinical areas and redesigning facilities;
• use collaborative leadership strategies and telecommunications technology to respond to ever-changing global health care issues.
Health Management Course Requirements (B.S.)

Degree Requirements: A total of 120 credits is required for graduation. Of this total, 45 credits are required in general education, 60 credits in the major, and 15 credits in electives; 40 credits are required in upper division courses.

General Education Requirements
- Biol 1464—Human Anatomy and Physiology I (3 cr)
- Biol 1474—Human Anatomy and Physiology II (3 cr)
- Comp 1011—Composition I (3 cr)
- Comp 1013—Composition II (3 cr)
- Econ 1101—Microeconomics (3 cr)
- Hum 1301—Introduction to Humanities (3 cr)
  or  Hum 3310—Culture and Technology (3 cr)
- INM 1010—Introduction to Information Technology (3 cr)
- Math 1031—College Algebra and Analytical Geometry (3 cr)
  or  Math 1131—Finite Math (3 cr)
- Phil 1001—Introduction to Philosophy (3 cr)
- Psy 1001—General Psychology (3 cr)
- Spch 1101—Public Speaking (3 cr)
- Communication electives (3 cr)
- General education electives (6 cr)
- Math/natural science electives (3 cr)

Program Requirements
- Acct 1101—Principles of Accounting (3 cr)
- Acct 1102—Principles of Accounting II (3 cr)
- BAH 3020—Quality Assurance, Risk Management, and Utilization Review (3 cr)
- HSM 1010—Medical Terminology (2 cr)
- HSM 2010—Introduction to Health Services Organizations (2 cr)
- HSM 2030—Health Care and Medical Needs (2 cr)
- HSM 3100—Essentials of Managed Care (3 cr)
- HSM 3200—Management Leadership and Health Planning (3 cr)
- HSM 3230—Management Administration of Continuum/Extended Care Facilities (3 cr)
- HSM 3240—Comparative Systems and Global Issues in Health Care Management (2 cr)
- HSM 3900—Internship (3 cr)
- HSM 4210—Regulatory Management I (3 cr)
- HSM 4212—Regulatory Management II (3 cr)
- INM 1060—Introduction to Database Management (2 cr)
- INM 3060—Advanced Database Management (2 cr)
- Mgmt 3200—Principles of Management (3 cr)
- Mgmt 3220—Human Resource Management (3 cr)
- Mgmt 3300—Principles of Marketing (3 cr)
- Health and human services electives (9 cr)
- Open electives (15 cr)

Horticulture Course Requirements (A.A.S.)

Degree Requirements: A total of 67 credits is required for graduation. Of this total, 28 credits are required in general education and 39 credits in the major.

General Education Requirements
- Biol 1009—General Biology (3 cr)
- Biol 1103—General Botany (3 cr)
- Chem 1001—Introductory Chemistry (4 cr)
- Comp 1011—Composition I (3 cr)
- Econ 1101—Microeconomics (3 cr)
- INM 1010—Introduction to Information Technology (3 cr)
- Math 1001—Technical Math (3 cr)
  or  Math 1031—College Algebra and Analytical Geometry (3 cr)
- Spch 1101—Public Speaking (3 cr)
- Humanities elective (3 cr)

Program Requirements
- GnAg 3652—Agricultural/Natural Resource Seminar (1 cr)
- GnAg 3900—Internship (3 cr)
- Hort 1021—Woody Plant Materials (4 cr)
- Hort 3036—Plant Propagation (4 cr)
- PIM 1030—Introduction to Plant Science (2 cr)
- PIM 1032—Horticulture Laboratory (1 cr)
- PIM 2573—Entomology (3 cr)
- PIM 3230—Plant Pathology (3 cr)
- Soil 1293—Soil Science (3 cr)
- Soil 3414—Soil Fertility and Plant Nutrition (4 cr)
- Agriculture electives (11 cr)

Hotel, Restaurant, and Institutional Management

The hotel, restaurant, and institutional management program prepares students to be managers in hotels, restaurants, resorts, institutional settings, and selected hospitality businesses.

In addition to the hotel, restaurant, and institutional management and application coursework, the curriculum provides a solid foundation in marketing, management, computer technology, accounting, finance, business law, economics, ethics, and communication. As part of the program requirements, students participate in a national hospitality conference, which provides an excellent learning opportunity and a chance to meet potential employers. The Hospitality Association of the Club subsidizes conference attendance.

Hotel/restaurant management emphasis—This flexible emphasis provides both depth and breadth in the hospitality industry. Students are prepared for both front- and back-of-the-house positions in hotels, restaurants, resorts, and motels as well as for many other hospitality-related positions.

Food service administration emphasis—For students with a desire to specialize in the institutional segment of the industry, this emphasis helps prepare them for food service management positions in hospitals, colleges, nursing homes, airlines, and other food service systems management firms.
Hotel, Restaurant, and Institutional Management B.S. Program Outcomes

Graduates of the hotel, restaurant, and institutional management program will be able to

- purchase food and beverage products, formulate specifications, keep inventories, and implement appropriate cost control procedures;
- operate various types of industrial equipment commonly found in the industry;
- supervise and direct staff;
- manage the preparation and production of small and large-quantity meals;
- use American and other styles of dining room service techniques, including basic queridon service;
- design and evaluate menus;
- use computer applications such as word processing, spreadsheets, recipe development and adjustment, costing, and front office procedures;
- manage hotel reservation systems and front desk, guest check-in and check-out, and night audit functions;
- identify food-borne sanitation dangers and implement appropriate programs;
- organize and provide catered events and create culinary art displays;
- analyze and design the layout of various hospitality facilities for efficiency and effectiveness;
- identify and discuss liability and other legal pitfalls and recommend appropriate action;
- organize resources for planning and developing a marketing strategy for hospitality organizations;
- manage the selection and purchase of wines, beers, and liquors, including mixology, merchandising, sales, and serving alcoholic beverages;
- analyze the impact of travel and tourism on local, national, and global economics;
- apply nutritional principles to recipe and menu development.

Hotel, Restaurant, and Institutional Management Course Requirements (B.S.)

Degree Requirements: A total of 120 credits is required for graduation. Of this total, 45 credits are required in general education, 61-62 credits in the major, and 13-14 credits in electives based on emphasis; 40 credits are required in upper division courses.

General Education Requirements

Biol 1009—General Biology (3 cr)
Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Comp 3303—Writing in Your Profession (3 cr)
Econ 1101—Microeconomics (3 cr)
or Econ 1102—Macroeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1031—College Algebra (3 cr)
or Math 1131—Finite Mathematics (3 cr)
or Math 1142—Survey of Calculus (3 cr)
or Math 1150—Elementary Statistics (3 cr)
Psy 1001—General Psychology (3 cr)

Spc 1021—Public Speaking (3 cr)
General education electives (6 cr)
Humanities electives (6 cr) (from at least two departments)
Math/natural science electives (6 cr)

Program Requirements

Acct 1101—Principles of Accounting I (3 cr)
Acct 1102—Principles of Accounting II (3 cr)
FScN 1123—Fundamentals of Nutrition (3 cr)
HR 1111—Introduction to Food Preparation (3 cr)
HR 1112—Sanitation and Safety (2 cr)
HR 1121—Principles of Quantity Food Production (3 cr)
HR 1231—Menu Design and Analysis (3 cr)
HR 3241—Hospitality Selection and Procurement (3 cr)
HR 3311—Restaurant Operational Management (3 cr)
HR 3321—Food Beverage and Labor Control (3 cr)
HR 3411—Facility Layout and Design (3 cr)
HR 3421—Hospitality Law (3 cr)
HR 3451—Cases and Trends in Hospitality Management (3 cr)
HR 3900—Internship (3 cr)
Mgmt 3200—Principles of Management (3 cr)
Mktg 3300—Principles of Marketing (3 cr)

Courses required for hotel/restaurant management emphasis

HR 1211—Rooms Division Management (3 cr)
HR 3331—Global Tourism (3 cr)
HR 3341—Hospitality Marketing and Sales (3 cr)
HR 3431—Beverage Technology (3 cr)
HR 3441—Catering On and Off Premise (3 cr)
Open electives (13 cr)

Courses required for food service administration emphasis

FScN 1273—Medical Nutrition Therapy (3 cr)
FScN 1654—Nutrition Care: Principles and Practices (3 cr)
FScN 3211—Professional Issues in Dietetics (1 cr)
FScN 3310—Elements of Food Science (3 cr)
FScN 3494—Food Systems Management (4 cr)
Open electives (14 cr)

Hotel, Restaurant, and Institutional Management students gain valuable hands-on experience operating a student-managed restaurant.
Hotel/Restaurant and Institutional Management A.A.S. Program Outcomes

Students completing the A.A.S. degree in hotel, restaurant, and institutional management will be prepared to assume supervisory or entry-level management positions in the hospitality industry. Graduates of the hotel, restaurant, and institutional management program will be able to:

- purchase food and beverage products, formulate specifications, keep inventories, and implement appropriate cost control procedures;
- operate various types of industrial equipment commonly found in the industry;
- supervise and direct staff;
- manage the preparation and production of small and large-quantity meals;
- use American and other styles of dining room service techniques, including basic queridon service;
- design and evaluate menus;
- use computer applications such as word processing, spreadsheets, recipe development and adjustment, costing, and front office procedures;
- manage hotel reservation systems and front desk, guest check-in and check-out, and night audit functions;
- identify food-borne sanitation dangers and implement appropriate programs.

Hotel, restaurant, and institutional management career positions include front desk supervisor or assistant manager; assistant restaurant manager; assistant banquet manager; housekeeping floor supervisor; assistant manager in university food service cafeteria; food service supervisor in hospital food service; beverage controller; and assistant purchasing steward.

Hotel/Restaurant and Institutional Management Course Requirements (A.A.S.)

Degree Requirements: A total of 64 credits is required for graduation. Of this total, 21 credits are required in general education, 29 credits in the major, and 14 credits in electives.

General Education Requirements

- Comp 1011—Composition I (3 cr)
- Econ 1101—Microeconomics (3 cr)
- INM 1010—Introduction to Information Technology (3 cr)
- Math 1031—College Algebra and Analytical Geometry (3 cr)
- Math 1150—Elementary Statistics (3 cr)
- Phys 1001—Elementary Physics (3 cr)
- Psy 1001—General Psychology (3 cr)
- Spch 1101—Public Speaking (3 cr)

Program Requirements

- Acct 1101—Principles of Accounting I (3 cr)
- Acct 1102—Principles of Accounting II (3 cr)
- HRI 1111—Introduction to Food Preparation (3 cr)
- HRI 1112—Sanitation and Safety (2 cr)
- HRI 1121—Principles of Quantity Food Production (3 cr)
- HRI 1211—Rooms Division Management (3 cr)
- HRI 1231—Menu Design and Analysis (3 cr)
- HRI 3241—Hospitality Selection and Procurement (3 cr)
- Mgmt 3200—Principles of Management (3 cr)

Information Management

The two-year information management program offers courses in microcomputers, networking and programming basics, accounting and management foundations, and general education topics. It prepares graduates for employment as network technicians, web site developers, and other business positions requiring technology, network, and computer skills.

Information Management A.A.S. Program Outcomes

Information management graduates will:

- use computer technology for word processing, data management, electronic spreadsheets, and web site development;
- use computer technology to communicate globally and access the Internet for a variety of information and business purposes;
- demonstrate clear and concise written and oral communication skills;
- demonstrate interpersonal communication skills;
- develop and demonstrate an attitude of continuing inquiry and lifelong learning.

Information Management Course Requirements (A.A.S.)

Degree Requirements: A total of 64 credits is required for graduation. Of this total, 30 credits are required in general education and 34 credits in the major.

General Education Requirements

- Comp 1011—Composition I (3 cr)
- Comp 1013—Composition II (3 cr)
- Econ 1101—Microeconomics (3 cr)
- INM 1010—Introduction to Information Technology (3 cr)
- Math 1031—College Algebra and Analytical Geometry (3 cr)
- Math 1150—Elementary Statistics (3 cr)
- Phys 1001—Elementary Physics (3 cr)
- Psy 1001—General Psychology (3 cr)
- Spch 1101—Public Speaking (3 cr)

Program Requirements

- Acct 1101—Principles of Accounting I (3 cr)
- Acct 1102—Principles of Accounting II (3 cr)
- GBus 3107—Legal Environment in Business (3 cr)
- INM 1015—Basics of Microcomputer Hardware and Software (3 cr)
- INM 1020—Electronic Spreadsheets (2 cr)
- INM 1060—Introduction to Database Management (2 cr)
- INM 1200—Publishing and Programming on the Internet (3 cr)
- INM 3040—Principles of Object-Oriented Programming (3 cr)
- INM 3100—Microcomputer Systems Architecture (3 cr)
- INM 3120—Managing Local Area Networks (3 cr)
- INM 3150—Graphic and Interface Design (3 cr)
- Mgmt 3200—Principles of Management (3 cr)
Information Networking Management

The information networking management program prepares students for positions in technology, networking, and other information management positions in business, industry, and education. Graduates will have the knowledge, experience, and skills to succeed in technology-related careers and the business and management competencies for mid-management positions such as information network specialists, network and intranet administrators, web masters, technology project managers, and information systems managers. In addition to traditional classroom experiences, students may take various courses to prepare for Microsoft certification.

Information Networking Management B.S.

Program Outcomes

Information networking management graduates will

- demonstrate abilities in computer information networking, database management, programming, accounting, and general management;
- demonstrate active learning and career/life adaptability through an internship experience;
- demonstrate human relations and career/life adaptability skills in problem solving, decision making, and responding to change;
- demonstrate skills in decision making through business networking and solving information systems problems;
- use computer technology in preparing programs, presentations, written reports, and spreadsheets;
- use computer technology to manage local area networks and access the Internet for a variety of information resource/business purposes;
- demonstrate an environmental perspective in the development of solutions for business networking problem solving;
- demonstrate global and ethical perspectives in information networking decision making;
- demonstrate the ability to communicate clearly and concisely in written and oral communications through technical reports, solutions to information networking problems, and feasibility studies.

Information Networking Management Course Requirements (B.S.)

Degree Requirements: A total of 120 credits is required for graduation. Of this total, 45 credits are required in general education, 60 credits in the major, and 15 credits in electives; 40 credits are required in upper division courses.

General Education Requirements

Chem 1001—Introductory Chemistry (4 cr)
Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Econ 1010—Microeconomics (3 cr)
Hum 3110—Culture and Technology (3 cr)
INM 1015—Basics of Microcomputer Hardware and Software (3 cr)
INM 1020—Electronic Spreadsheets (2 cr)
INM 1060—Introduction to Database Management (2 cr)
INM 1200—Publishing and Programming on the Internet (3 cr)
INM 3040—Principles of Object-Oriented Programming (3 cr)
INM 3050—Advanced Object-Oriented Programming (3 cr)
INM 3060—Advanced Database Management (2 cr)
INM 3090—Internship Seminar (3 cr)
INM 3100—Microcomputer Systems Architecture (3 cr)
INM 3110—Microcomputer Operating Systems (3 cr)
INM 3120—Managing Local Area Networks (3 cr)
INM 3150—Graphic and Interface Design (3 cr)
INM 3210—Introduction to Analysis and Design of Information Systems (2 cr)
INM 3220—Advanced Design and Management of Information Systems (1 cr)
INM 3900—Internship (3 cr)
INM 4010—Wide Area Networking with TCP/IP (3 cr)
or INM 3160—Digital Audio and Video Production (3 cr)
INM 4020—Project Management in Technology and Telecommunications (3 cr)
Mgmt 3200—Principles of Management (3 cr)
Mktg 3300—Principles of Marketing (3 cr)
Open electives (15 cr)

Manufacturing

The bachelor of manufacturing (B.M.) is a career-oriented program that prepares students to manage people and machines in a manufacturing environment. Program graduates will be able to supervise a manufacturing process and manage human and mechanical resources within budgetary constraints. Graduates will also be able to set and monitor product quality.

The program is technology-focused and offers seamless progression between coursework completed at a two-year institution and coursework presented by UMC while working in industry. Students will be prepared to enter their technological field with a specific set of technical skills and will make an immediate contribution in the manufacturing industry. While working, students complete management and technological coursework to fulfill degree requirements.

The program is for two-year graduates, incoming freshmen, and working graduates in industrial and business fields who have experience in manufacturing or other business settings. Graduates with A.S. and A.A.S. qualifications are also eligible for admission. Distance education components of the program are delivered through interactive and real-time electronic communication technology at a variety of locations. It is also possible to complete the first two years of the program at Northwest Technical College and the last two years at UMC.
Manufacturing B.M. Program Outcomes
Bachelor of manufacturing graduates will be able to
• play a growing supervisory and management role in their workplace;
• 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;
• accurately and efficiently control the movement of materials;
• do a safety audit using a comprehensive approach to safety problems in the workplace, including OSHA standards, developing safety awareness, and hazard analysis.

Manufacturing Course Requirements (B.M.)
Degree Requirements: A total of 120 credits is required for graduation; 40 credits are required in upper division courses.

General Education Requirements and Prerequisites
Acct 1101—Principles of Accounting I (3 cr)
Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Econ 1101—Microeconomics (3 cr)
Math 1031—College Algebra and Analytical Geometry (3 cr)
Spch 1101—Public Speaking (3 cr)

Program Requirements
BM 4034—Quality Standards (3 cr)
Comp 3303—Writing in Your Profession (3 cr)
Mgmt 3100—Principles of Finance (3 cr)
Mgmt 3200—Principles of Management (3 cr)
Mgmt 3210—Supervision and Leadership (3 cr)
Mgmt 3250—Operations Management (3 cr)
Mktg 3300—Principles of Marketing (3 cr)
Spch 3431—Persuasion (3 cr)

Select 18 credits from the following:
BM 3005—Facilities Planning and Selection (3 cr)
BM 3011—Manufacturing Operations and Logistics (3 cr)
BM 3012—Applied Engineering Principles (3 cr)
BM 3020—Industrial Safety (3 cr)
BM 3804—Individual Studies (1-3 cr)
BM 3900—Internship (1-3 cr)
GBus 3107—Legal Environment in Business (3 cr)
INM 3100—Microcomputer Systems Architecture (3 cr)
INM 3120—Managing Local Area Networks (3 cr)
INM 4010—Wide Area Networking With TCP/IP (3 cr)
INM 4020—Project Management in Technology and Telecommunication (3 cr)
Transfer credits or open electives (60 cr)

Marketing and Management
Marketing and management prepares students for supervisory or entry-level management positions in business organizations. Marketing and management career options include retail store manager, assistant general manager, physical distribution manager, sales representative, purchasing agent, warehouse manager, and consumer service manager.

Marketing and Management A.A.S. Program Outcomes
Marketing and management graduates will be able to
• participate in active learning and demonstrate an understanding of basic business principles using case studies, business simulations, and internship experiences;
• use computer technology and demonstrate communication skills in preparing spreadsheets, writing reports, analyzing business problems, and preparing professional presentations;
• develop and demonstrate ethical values, a concern for the natural environment, a global perspective, and human relations skills through individual and team activities in class and in business situations.

Marketing and Management Course Requirements (A.A.S.)
Degree Requirements: A total of 64 credits is required for graduation. Of this total, 21 credits are required in general education and 43 credits in the major.

General Education Requirements
Comp 1011—Composition I (3 cr)
Econ 1101—Microeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1031—College Algebra and Analytical Geometry (3 cr) or Math 1150—Elementary Statistics (3 cr)
Psy 1001—General Psychology (3 cr)
General education electives (3 cr)
Humanities/fine arts electives (3 cr)

Program Requirements
Acct 1101—Principles of Accounting I (3 cr)
Acct 1102—Principles of Accounting II (3 cr)
GBus 3107—Legal Environment in Business (3 cr)
INM 1020—Electronic Spreadsheets (2 cr)
Mgmt 3200—Principles of Management (3 cr)
Mgmt 3210—Supervision and Leadership (3 cr)
Mgmt 3900—Internship (3 cr)
Mktg 1100—Introduction to Entrepreneurship (3 cr)
Mktg 3250—Promotional Strategies (3 cr)
Mktg 3300—Principles of Marketing (3 cr)
Business/technology electives (14 cr)
Natural Resources

The natural resources program introduces students to the broad field of natural resource management, emphasizing the relatedness of resource uses and practical applications. The role of public agencies and private organizations in natural resource management is emphasized to familiarize students with the necessary technical and communication skills and knowledge needed in the workplace.

Degree options include a bachelor of science (B.S.) in natural resources with emphases in

- natural resources law enforcement;
- natural resources management;
- park management;
- soil and water technology.

An associate degree in applied science (A.A.S.) in natural resources is also available.

Natural Resources B.S. Program Outcomes

- demonstrate competencies in integrated resource management;
- gain experience in applying resource management principles to case studies, field trips, and individual internships;
- demonstrate group problem-solving and decision-making skills through team projects and capstone courses;
- be exposed to experts in the field through guest lecturers, field trips to agency field stations and other academic institutions, and attending professional meetings;
- understand workplace technology through lab exercises, guest lecturers, field trips, and individual internships;
- demonstrate skills in general education that provide a foundation for the applied curriculum;
- become aware of the necessity of continuing professional development.

Natural Resources Course Requirements (B.S.)

Degree Requirements: A total of 120 credits is required for graduation. Of this total, 45 credits are required in general education, 63 credits in the major, and 12 credits in electives; 40 credits are required in upper division courses.

General Education Requirements (all emphases except Natural Resources Law Enforcement)

Biol 1009—General Biology (3 cr)
Biol 1103—General Botany (3 cr)
Chem 1001—Introductory Chemistry (4 cr)
Comp 1013—Composition II (3 cr)
Comp 3303—Writing in Your Profession (3 cr)
Econ 1101—Microeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1031—College Algebra and Analytical Geometry (3 cr)
Phys 1001—Elementary Physics (3 cr)
Spch 1101—Public Speaking (3 cr)
General education electives (2 cr)

Humanities electives (6 cr) (from at least 2 departments)
Social science electives (3 cr)

Program Requirements (all emphases)

GnAg 3652—Agriculture/Natural Resource Seminar (1 cr)
GnAg 3900—Internship (3 cr)
Mgmt 3210—Supervision and Leadership (3 cr)
NatR 1233—Introduction to Natural Resources (3 cr)
NatR 1244—Elements of Forestry (4 cr)
NatR 3344—Land Use Planning (4 cr)
NatR 3364—Plant Taxonomy (3 cr)
NatR 3374—Ecology (3 cr)
NatR 3630—Geographic Information Systems (4 cr)
Soil 1293—Soil Science (3 cr)

Program Requirements—Natural Resource Management Emphasis

AFSM 3008—Surveying and Geomatics I (2 cr)
AFSM 3010—Surveying and Geomatics II (2 cr)
NatR 3203—Park and Recreational Area Management (3 cr)
NatR 3699—Integrated Resource Management (3 cr)
NatR 3654—Wildlife Ecology and Management (4 cr)
NatR 3660—Prairie Ecosystem Management (3 cr)
PIM 1030—Introduction to Plant Science (2 cr)
PIM 1031—Agronomy Lab (1 cr)
SWM 3224—Soil and Water Conservation (4 cr)
Agriculture/natural resources electives (8 cr)
Open electives (12 cr)

Program Requirements—Park Management Emphasis

NatR 3203—Park and Recreational Area Management (3 cr)
NatR 3699—Integrated Resource Management (3 cr)
Agriculture/natural resource electives (16 cr)
Horticulture electives (7 cr)
Management elective (3 cr)
Open electives (12 cr)

Program Requirements—Soil and Water Technology Emphasis

AFSM 3008—Surveying and Geomatics I (2 cr)
AFSM 3010—Surveying and Geomatics II (2 cr)
Geol 1001—Introductory Geology (3 cr)
NatR 3699—Integrated Resource Management (3 cr)
PIM 1030—Introduction to Plant Science (2 cr)
PIM 1031—Agronomy Laboratory (1 cr)
Soil 3519—Soil Morphology (3 cr)
SWM 3009—Hydrology and Water Quality (4 cr)
SWM 3011—Principles of Soil and Water Management (1 cr)
SWM 3012—Water Management Systems and Design (1 cr)
SWM 3013—Irrigation and Drainage Systems (1 cr)
SWM 3224—Soil and Water Conservation (4 cr)
Agriculture/natural resources electives (5 cr)
Open electives (12 cr)
Natural Resources—Natural Resources Law Enforcement

This program provides integrated instruction in the field of natural resources law enforcement. Natural resources core coursework, including wildlife and fisheries, recreation, land use planning, and forestry management are combined with criminal justice/law enforcement classes. This program is offered in collaboration with the Department of Criminal Justice at Bemidji State University.

Coursework may be applied toward eligibility to take the Minnesota Peace Officer Standards and Training (P.O.S.T.) certification examination and attend the summer skills session (additional first aid and traffic law training required).

Career opportunities for graduates include conservation officer or game warden; park ranger or manager; visitor contact officer; security officer with national, state, or county agencies (National Park Service, U.S. Fish and Wildlife Service, Bureau of Land Management, state natural resource agencies, etc.); or local law enforcement agencies.

Natural Resources—Natural Resources Law Enforcement B.S. Program Outcomes

The program in natural resources law enforcement prepares students to become natural resource law enforcement personnel, providing an interdisciplinary background in natural resource management and criminal justice/law enforcement. The criminal justice portion of the coursework is delivered collaboratively with Bemidji State University. Graduates will work primarily with public resource management agencies in career areas such as conservation law enforcement, park ranger or management, and visitor contact officer.

Graduates of the natural resources program with a natural resources law enforcement emphasis will

- be prepared to attend the peace officers skills training academy.

Refer also to the Natural Resources B.S. Program Outcomes.

Natural Resources—Natural Resources Law Enforcement Course Requirements (B.S.)

Degree Requirements: A total of 120 credits is required for graduation. Of this total, 46 credits are required in general education, 62 credits in the major, and 12 credits in electives; 40 credits are required in upper division courses.

General Education Requirements

Biol 1009—General Biology (3 cr)
Biol 1103—General Botany (3 cr)

or

Biol 1106—General Zoology (3 cr)
Chem 1001—Introductory Chemistry (4 cr)

or

Chem 1004—General Principles of Chemistry I (4 cr)
Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Comp 3303—Writing in Your Profession (3 cr)
CRJS 3305—Judicial Process (3 cr)
INSM 1010—Introduction to Information Technology (3 cr)

See Natural Resources Course Requirements (B.S.)
Natural Resources—Park Management

This program provides an integrated approach to park and recreational area management. A combination of natural resources, horticulture, and management courses prepare students for park and resource management positions, typically with federal, state, county, and city recreation agencies. A series of wilderness management elective coursework is delivered collaboratively with the Arthur Carhart National Wilderness Training Center at the University of Montana. Flexibility in the choice of major course electives allows students to build a customized program that meets their specific career goals.

Career opportunities in park management include visitor use assistant, park manager, assistant park manager, interpreter, city or county park maintenance supervisor or technician, turf and grounds manager for resorts, backcountry/wilderness ranger, and recreation technician or aide.

Natural Resources—Park Management B.S. Program Outcomes

The program in park management prepares students to become park and recreational managers by providing an interdisciplinary background in natural resource management, horticulture, management and/or wilderness management, and general education. Graduates will work primarily with public recreation resource management agencies in areas such as visitor contact/management, park management, interpretation, park maintenance, and wilderness management.

Refer to the Natural Resources B.S. Program Outcomes.

Natural Resources—Park Management Course Requirements

See Natural Resources Course Requirements (B.S.)

Natural Resources—Soil and Water Technology

This program provides an integrated approach to soil and water conservation, watershed management, and land management. A combination of natural resources and agriculture courses prepares students for land management positions, typically with county, state, or federal natural resource agencies.

Career opportunities for students with a B.S. degree in soil and water technology include soil conservationist, soil and water conservation district manager, district conservationist, land use planner, wetlands coordinator, and conservation engineering technician.

Students also receive a background appropriate for pursuing graduate work in a soil and water related field.

Natural Resources—Soil and Water Technology B.S. Program Outcomes

The program in soil and water technology prepares students to become integrated resource managers by providing an interdisciplinary background in agriculture, natural resource management, and general education. Graduates will work primarily with public resource management agencies, particularly those concerned with soil and water conservation and water quality.

Refer to the Natural Resources B.S. Program Outcomes.

Natural Resources—Soil and Water Technology Course Requirements (B.S.)

See Natural Resources Course Requirements (B.S.)

Natural Resources

A.A.S. natural resource career positions include soil and water technician; watershed district technician; conservation technician working with wildlife managers, researchers, and foresters; shooting preserve manager; county, state, or federal park aide or assistant; and city or county park maintenance supervisor.

Natural Resources A.A.S. Program Outcomes

Natural resources (A.A.S.) graduates will

• demonstrate appropriate technical skills for an entry-level internship or permanent position in natural resources;
• demonstrate general education skills needed to succeed in advanced courses;
• demonstrate basic writing and oral skills;
• demonstrate effective human relations skills;
• develop and demonstrate an attitude of continued inquiry and lifelong learning.

Natural Resources Course Requirements (A.A.S.)

Degree Requirements: A total of 67 credits is required for graduation. Of this total, 28 credits are required in general education and 39 credits in the major.

General Education Requirements

Biol 1009—General Biology (3 cr)
Chem 1001—Introductory Chemistry (4 cr)
Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Econ 1101—Microeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1001—Technical Math (3 cr)
Math 1031—College Algebra and Analytical Geometry (3 cr)
Spch 1101—Public Speaking (3 cr)
Humanities elective (3 cr)

Program Requirements

AFSM 1034—Facility Maintenance and Safety (3 cr)
AFSM 3008—Surveying and Geomatics I (2 cr)
AFSM 3010—Surveying and Geomatics II (2 cr)
GnAg 3652—Agriculture/Natural Resources Seminar (1 cr)
GnAg 3900—Internship (3 cr)
NatR 1233—Introduction to Natural Resources (3 cr)
NatR 1244—Elements of Forestry (4 cr)
NatR 3203—Park and Recreational Area Management (3 cr)
NatR 3364—Plant Taxonomy (3 cr)
Soil 1293—Soil Science (3 cr)
Agriculture/natural resources electives (12 cr)
Plant Industries Management—Agronomy and Horticulture

The B.S. in plant industries management is a career-oriented program that combines science-based agricultural training and education with a strong liberal arts background to produce graduates skilled in the highly technical fields of agronomy, soils, and horticulture.

The flexibility of the agronomy emphasis enables students to build a thorough understanding of crop science with a concentration in areas such as crop production, diversified agriculture, agricultural chemicals, fertilizers, integrated pest management, seed conditioning and technology, and other areas related to production and quality in the food and fiber industry.

Career opportunities in agronomy include agricultural chemicals salesperson, crop product salesperson, crop research technician, elevator manager, fertilizer salesperson, laboratory technician, seed and grain inspector, soil testing technician, seed analyst, seed company field representative, crop consultant, seed conditioning plant manager, crop improvement field representative, and crop production.

The horticulture emphasis exposes students to various disciplines within horticulture, such as plant propagation, woody and herbaceous plant materials, turf, residential and commercial landscaping, greenhouse and nursery production, and floral design/flower shop management. Faculty work with students to develop a plan of study tailored to the individual.

Career opportunities in horticulture include floral designer, garden center manager, greenhouse operator, horticulture supplies salesperson, nursery manager, golf course grounds manager, landscape contractor, landscape designer, and public grounds supervisor.

Plant Industries Management B.S. Program Outcomes

Plant industries management graduates will

- demonstrate competencies in agronomy, soils, and horticulture;
- demonstrate applied and practical knowledge in coursework, judging teams, and field experiences/internships;
- demonstrate skills in teamwork and decision making;
- demonstrate the ability to use computers and laboratory, industry, and field equipment;
- collaborate effectively with experts from businesses, industries, and other academic institutions;
- demonstrate abilities required to assume a position in plant industry management;
- demonstrate integration of skills learned in general education and the major;
- develop and demonstrate an attitude of continued inquiry and lifelong learning.

Plant Industries Management Course Requirements (B.S.)

Degree Requirements: A total of 122 credits is required for graduation. Of this total, 47 credits are required in general education, 63 credits in the major, and 12 credits in electives; 40 credits are required in upper division courses.

General Education Requirements (both emphases)

- Biol 1009—General Biology (3 cr)
- Biol 1103—General Botany (3 cr)
- Biol 3022—Principles of Genetics (3 cr)
- Biol 3131—Plant Physiology (3 cr)
- Chem 1001—Introductory Chemistry (4 cr)
- Chem 1401—Elementary Biochemistry (4 cr)
- Comp 1011—Composition I (3 cr)
- Comp 1013—Composition II (3 cr)
- Econ 1101—Microeconomics (3 cr)
- INM 1010—Introduction to Information Technology (3 cr)
- Math 1031—College Algebra and Analytical Geometry (3 cr) or Math 1150—Elementary Statistics (3 cr)
Spc 1101—Public Speaking (3 cr)
Humanities electives (6 cr) (from at least 2 departments)
Social science electives (3 cr)

**Program Requirements (both emphases)**
- GnAg 3900—Internship (3 cr)
- PIM 1030—Introduction to Plant Science (2 cr)
- PIM 2573—Entomology (3 cr)
- PIM 2640—Weed Science (4 cr)
- PIM 3023—Plant Breeding (3 cr)
- PIM 3030—Research Techniques (3 cr)
- PIM 3230—Plant Pathology (3 cr)
- PIM 4630—Senior Seminar in Horticulture and Agronomy (1 cr)
- Soil 1293—Soil Science (3 cr)
- Soil 3414—Soil Fertility (4 cr)
- AgEc, AFSM, or Mgmt electives (6 cr)

**Program Requirements—Agronomy Emphasis**
- PIM 1031—Introduction to Agronomy Lab (1 cr)

**18 credits from the following:**
- Agro 1030—Crop and Weed Identification (3 cr)
- Agro 1540—Seed Conditioning and Techniques (4 cr)
- Agro 2840—Grain and Seed Evaluation (4 cr)
- Agro 3130—Forages (3 cr)
- Agro 3444—Crop Production (4 cr)
- PIM 3630—Integrated Crop Management (3 cr)
- Soil 3519—Soil Morphology (3 cr)
- SWM 3009—Hydrology and Water Quality (3 cr)
- SWM 3224—Soil and Water Conservation (4 cr)
- Agronomy/agriculture electives—9 credits

Open electives (12 cr)

**Program Requirements—Horticulture Emphasis**
- Hort 1021—Woody Plant Materials (4 cr)
- Hort 3034—Commercial Floriculture Crops: Spring (4 cr)
- Hort 3036—Plant Propagation (4 cr)
- PIM 1032—Introduction to Horticultural Laboratory (1 cr)

**10 credits from the following:**
- Hort 1030—Residential Landscape Design (3 cr)
- Hort 1031—Perennials (2 cr)
- Hort 1081—Floral Design and Foliage Plants (2 cr)
- Hort 1082—Floral Design and Florist Operations (2 cr)
- Hort 3033—Commercial Floriculture Crops, Fall (4 cr)
- Hort 3040—Commercial Landscape Design and Ground Maintenance (4 cr)
- Hort 3072—Turf Management (3 cr)
- Agriculture electives (5 cr)

Open electives (12 cr)

---

**Scientific and Technical Communication**

*A joint degree program with the University of Minnesota, Twin Cities*

Scientific and technical communicators apply modern techniques and technologies to the distribution of knowledge in industry, business, education, and government. They write and design information for audiences ranging from scientists to management to consumers of technological products and services. To accomplish their objectives, scientific and technical communicators must first be familiar with and be able to apply principles of audience analysis, writing and editing, usability and testing, visual communication, communication technology, communication research and theory, and oral communication. The interdisciplinary curriculum combines the

necessary theory and practical experience in a program with the flexibility to allow students to plan a course of study appropriate to their career goals.

**Scientific and Technical Communication B.S. Program Outcomes**

Scientific and technical communication graduates will demonstrate an ability to:

- use a wide range of communication technologies, including print, graphics, and multimedia;
- continue as active learners in their communities, staying abreast of changes in their field and understanding how those changes interact with changes in the broader culture;
- understand the ethical implications of their work plus its impact on local and global communities and the environment;
- work collaboratively both as leaders and as team participants.

**Scientific and Technical Communication Course Requirements (B.S.)**

**Degree Requirements:** A total of 120 credits is required for graduation. Of this total, 51 credits are required in general education, 55 credits in the major, and 14 credits in an emphasis area; 40 credits are required in upper division courses.

**General Education Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 1031</td>
<td>3 cr</td>
</tr>
<tr>
<td>Hist 1301</td>
<td>3 cr</td>
</tr>
<tr>
<td>Hum 3310</td>
<td>3 cr</td>
</tr>
<tr>
<td>INM 1010</td>
<td>3 cr</td>
</tr>
<tr>
<td>Lit 3001</td>
<td>3 cr</td>
</tr>
<tr>
<td>Math 1031</td>
<td>3 cr</td>
</tr>
<tr>
<td>Phil 1001</td>
<td>3 cr</td>
</tr>
<tr>
<td>Pol 1054</td>
<td>3 cr</td>
</tr>
<tr>
<td>Psy 1001</td>
<td>3 cr</td>
</tr>
<tr>
<td>Spch 1101</td>
<td>3 cr</td>
</tr>
<tr>
<td>Agro 1540</td>
<td>4 cr</td>
</tr>
<tr>
<td>Agro 2840</td>
<td>4 cr</td>
</tr>
<tr>
<td>Agro 3130</td>
<td>3 cr</td>
</tr>
<tr>
<td>Agro 3444</td>
<td>3 cr</td>
</tr>
<tr>
<td>PIM 1030</td>
<td>3 cr</td>
</tr>
<tr>
<td>PIM 3023</td>
<td>3 cr</td>
</tr>
<tr>
<td>PIM 3030</td>
<td>3 cr</td>
</tr>
<tr>
<td>PIM 3230</td>
<td>3 cr</td>
</tr>
<tr>
<td>PIM 3630</td>
<td>3 cr</td>
</tr>
<tr>
<td>PIM 4630</td>
<td>3 cr</td>
</tr>
<tr>
<td>Soil 1293</td>
<td>3 cr</td>
</tr>
<tr>
<td>Soil 3414</td>
<td>3 cr</td>
</tr>
<tr>
<td>AgEc, AFSM, or Mgmt electives</td>
<td>6 cr</td>
</tr>
<tr>
<td>Social science electives</td>
<td>3 cr</td>
</tr>
<tr>
<td>Humanities electives</td>
<td>6 cr</td>
</tr>
<tr>
<td>Open electives</td>
<td>12 cr</td>
</tr>
</tbody>
</table>

---

Spc 1101—Public Speaking (3 cr)
Humanities electives (6 cr) (from at least 2 departments)
Social science electives (3 cr)

**Program Requirements (both emphases)**
- GnAg 3900—Internship (3 cr)
- PIM 1030—Introduction to Plant Science (2 cr)
- PIM 2573—Entomology (3 cr)
- PIM 2640—Weed Science (4 cr)
- PIM 3023—Plant Breeding (3 cr)
- PIM 3030—Research Techniques (3 cr)
- PIM 3230—Plant Pathology (3 cr)
- PIM 4630—Senior Seminar in Horticulture and Agronomy (1 cr)
- Soil 1293—Soil Science (3 cr)
- Soil 3414—Soil Fertility (4 cr)
- AgEc, AFSM, or Mgmt electives (6 cr)

**Program Requirements—Agronomy Emphasis**
- PIM 1031—Introduction to Agronomy Lab (1 cr)

**18 credits from the following:**
- Agro 1030—Crop and Weed Identification (3 cr)
- Agro 1540—Seed Conditioning and Techniques (4 cr)
- Agro 2840—Grain and Seed Evaluation (4 cr)
- Agro 3130—Forages (3 cr)
- Agro 3444—Crop Production (4 cr)
- PIM 3630—Integrated Crop Management (3 cr)
- Soil 3519—Soil Morphology (3 cr)
- SWM 3009—Hydrology and Water Quality (3 cr)
- SWM 3224—Soil and Water Conservation (4 cr)
- Agronomy/agriculture electives—9 credits

Open electives (12 cr)

**Program Requirements—Horticulture Emphasis**
- Hort 1021—Woody Plant Materials (4 cr)
- Hort 3034—Commercial Floriculture Crops: Spring (4 cr)
- Hort 3036—Plant Propagation (4 cr)
- PIM 1032—Introduction to Horticultural Laboratory (1 cr)

**10 credits from the following:**
- Hort 1030—Residential Landscape Design (3 cr)
- Hort 1031—Perennials (2 cr)
- Hort 1081—Floral Design and Foliage Plants (2 cr)
- Hort 1082—Floral Design and Florist Operations (2 cr)
- Hort 3033—Commercial Floriculture Crops, Fall (4 cr)
- Hort 3040—Commercial Landscape Design and Ground Maintenance (4 cr)
- Hort 3072—Turf Management (3 cr)
- Agriculture electives (5 cr)

Open electives (12 cr)

---

**Scientific and Technical Communication**

*A joint degree program with the University of Minnesota, Twin Cities*

Scientific and technical communicators apply modern techniques and technologies to the distribution of knowledge in industry, business, education, and government. They write and design information for audiences ranging from scientists to management to consumers of technological products and services. To accomplish their objectives, scientific and technical communicators must first be familiar with and be able to apply principles of audience analysis, writing and editing, usability and testing, visual communication, communication technology, communication research and theory, and oral communication. The interdisciplinary curriculum combines the
STC 3258—Information Gathering Techniques in Scientific and Technical Communication (3 cr)
STC 3652—Senior Seminar in Scientific and Technical Communication (3 cr)
STC 3701—Rhetorical Theory: Persuasion and the Literature of Science (3 cr)
STC 3900—Internship in Scientific and Technical Communication (3 cr)
Science and technology emphasis (14 cr minimum)

Because students declare and help design their own emphasis area, many courses can be applied toward the major. Students should contact the scientific and technical communication adviser at UMC for details. This requirement corresponds to “15 credits in an emphasis area” noted above.

Sport and Recreation Management

The sport and recreation management program provides students with 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, technology-driven, focused on communication and human relations, and outcome-based.

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

Sport and Recreation Management B.S.

Program Outcomes

Sport and recreation management graduates will be able to demonstrate:

• skills in general education that provide the foundation for a baccalaureate degree;
• competencies in the principles of management, marketing, and promotions;
• skills in composition, communication, and computer applications;
• competencies in sport and recreation principles.

Sport and Recreation Management Course Requirements (B.S.)

Degree Requirements: A total of 120 credits is required for graduation. Of this total, 45 credits are required in general education, 63 credits in the major, and 12 credits in electives; 40 credits are required in upper division courses.

General Education Requirements
Comp 1011—Composition I (3 cr)
Comp 1013—Composition II (3 cr)
Econ 1101—Microeconomics—3 credits
or Econ 1102—Macroeconomics (3 cr)
INM 1010—Introduction to Information Technology (3 cr)
Math 1031—College Algebra and Analytical Geometry (3 cr)
Math 1150—Elementary Statistics (3 cr)
Soc 3937—Social Gerontology (3 cr)
Spch 1101—Public Speaking (3 cr)
Communication electives (3 cr)
General education electives (6 cr)
Humanities electives (6 cr) (from at least two departments)
Math/science electives (6 cr) (at least 3 must be in a lab science)

Program Requirements
Acct 1101—Principles of Accounting I (3 cr)
Acct 1102—Principles of Accounting II (3 cr)
GBus 3107—Legal Environment in Business (3 cr)
Hlth 1062—First Aid (2 cr)
Hlth 1072—Wellness (3 cr)
Hlth 3400—Health and Drugs in Society (3 cr)
HPER 1151-1791—physical education activities (7 cr)
INM 1020—Electronic Spreadsheets (2 cr)
or INM 1060—Introduction to Database Management Software (2 cr)
or INM 1200—Programming/Publishing to the Internet (3 cr)
Mgmt 3100—Principles of Finance (3 cr)
Mgmt 3200—Principles of Management (3 cr)
Mktg 3250—Promotional Strategies (3 cr)
Mktg 3300—Principles of Marketing (3 cr)
Mgmt 3210—Supervision Leadership (3 cr)
or Mgmt 3220—Human Resource Management (3 cr)
or Mktg 3600—Management Decision Making (3 cr)
or Mktg 3340—Marketing Research (3 cr)
SRM 3000—Foundations of Sport and Recreation (3 cr)
SRM 3001—Sports Nutrition (3 cr)
SRM 3002—Sport and Recreation Law (3 cr)
SRM 3003—Facility and Equipment Management (3 cr)
SRM 3005—Sports Information and Newsletters (3 cr)
SRM 3900—Internship in Sport and Recreation (3 cr)
SRM 4009—Seminar in Sport and Recreation Management (1 cr)
INM/Mgmt/Mktg electives (2-3 cr)
Open electives (12 cr)

Technical Communication Minor

The technical communication minor program prepares students to communicate on multiple levels through writing and speech, within and between organizations. The minor complements all UMC major degree programs.

The technical communication minor provides:

• the opportunity to demonstrate, in writing samples, the latest theory and practice in technical writing, including the ability to use word processing/desktop publishing/graphics software and industry standards of style and documentation;
• an understanding of how to organize and present written material clearly, coherently and concisely;
• the processes used to write and produce final documents following a logical methodology;
• critical thinking processes used to analyze documentation design, processes, and communication technology to facilitate communication and collaboration within and between organizations for growth and efficiency;
• processes used to adapt, direct, write, edit, and produce information for particular audiences;
• experience, through internships, of interacting with clients and other writers to design, write, and produce documents according to client specifications and needs;
• professional development opportunities for businesses, organizations, and institutions in the region.

Requirements

Comp 1334—Technical Writing (3 cr)
Comp 3313—Advanced Technical Writing (3 cr)
INM 1200—Programming and Publishing to the Internet (3 cr)
Mgmt 3200—Principles of Management (3 cr)
or Mgmt 3210—Supervision and Leadership (3 cr)
Mktg 3300—Applied Marketing Concepts (3 cr)
Rhet 3257—Scientific and Technical Presentation (3 cr)
or Rhet 3401—Accessing Information Through Electronic Media (3 cr)
or Rhet 4561—Editing and Style for Technical Communicators (3 cr)
or STC 3701—Rhetorical Theory: Persuasion and the Literature of Science (3 cr)
Spch 3431—Persuasion (3 cr)

Aerospace Studies (Air Force ROTC)

(A cooperative program with North Dakota State University)

UMC students may participate in the Air Force Reserve Officer Training Corps program through an agreement between UMC, North Dakota State University, the University of North Dakota, and the U.S. Air Force. The purpose of this program is to enable qualified undergraduate students to become commissioned officers in the United States Air Force. AFROTC learning experiences are of long-range value whether one pursues a military or civilian career. Upon completion of the AFROTC curriculum and graduation UMC, students are commissioned as second lieutenants in the U.S. Air Force.

The program is conducted by North Dakota State University faculty on the University of North Dakota campus in Grand Forks, located 25 miles from the UMC campus.

The initial assignment options available to an Air Force second lieutenant include the following:
• Enter the Air Force and complete the designated technical training course prerequisite to the student's specialty, i.e., flight training, research and development, management, or support functions;
• Apply for a delay in entering active duty for the purpose of pursuing an advanced degree;
• Enroll in one of several Air Force-sponsored graduate study programs while serving with full pay as an Air Force officer.

The aerospace studies curriculum is divided into two courses of instruction: the General Military Course (GMC), which parallels the freshman and sophomore academic years, and the Professional Officer Course (POC), which parallels the junior and senior academic years. Students in the four-year program normally attend four weeks of field training at a designated Air Force base during the summer between their sophomore and junior years. The student who chooses not to enroll in the GMC (first two years) may still earn a commission by enrolling in a special two-year program during the junior and senior years. Admission to this special program requires the student to make application early in the sophomore year. Qualified students will then participate in a six-week field training program at an Air Force base the summer prior to their junior year.

Cadets enrolled in the POC (junior and senior years) receive a monetary allowance of $150 per month. AFROTC college scholarships are awarded to the best-qualified students and are available for one to four years. These grants cover up to full tuition, incidental lab fees, and $432 per year for textbooks, plus the regular $150 allowance per month. POC Incentive Scholarships are also available for students not already on scholarship. They pay $3,000 per year for tuition and $450 per year for books.

Upon entering the Air Force, students who wish to become Air Force pilots receive 48 weeks of pilot training leading to the rating of Air Force pilot.