



*This is the Programs of Study section of
the 2001-2003 Crookston Catalog for
the University of Minnesota.*

Crookston Catalog

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Programs of Study

All baccalaureate degree programs at UMC

- lead to a bachelor of science or bachelor in an applied field degree.
- are applied and career-oriented. Emphasis areas permit programs to match student interests and workforce requirements.
- have a minimum of 120 total credits to permit graduation in four years.
- contain a minimum of 45 credits of general education.
- require 40 upper division credits.

In accordance with UMC’s mission, these programs help prepare students for employment. Therefore, the goal of all programs is to be

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.
- 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 online 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 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.
- Active assessment of outcomes guides curriculum decisions.
- 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 whole person integrated into that society. Specifically, there are three core component areas of general education that are integrated throughout the curriculum for every degree. These components are outlined in the section in the preceding column beginning with “Focused on communication.”

Baccalaureate degree programs require a minimum of 45 credits in certain areas of general education. The associate level degrees also require a minimum number of credits in general education. For all degrees, those credits must be distributed through courses in communication, humanities, mathematical thinking/natural science thinking, and social science.

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.

General Education Requirements

A.A.S. Degree

Communication—3 credits
Humanities/fine arts—3 credits
Math/science—3 credits
Social science—3 credits
Technology—3 credits
 ITM 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
 ITM 1010—Introduction to Information Technology
General education electives—5 credits
Major field of study—32 credits
Total—64 credits

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

Total number of credits must equal 45.

An asterisk (*) indicates a required core course.

Communication (minimum of 12 credits)

Graduates will apply coherent listening, reading, speaking, and writing skills using appropriate computer technology to communicate effectively in their career disciplines.

* Comp 1011	Composition I	3 credits
* Comp 1013	Composition II	3 credits
Comp 2334	Technical Writing	3 credits
Comp 3303	Writing in Your Profession	3 credits
Comp 3313	Advanced Technical Writing: Software Documentation	3 credits
* Spch 1101	Public Speaking	3 credits
Spch 3001	Communication in Human Relationships	3 credits
Spch 3431	Persuasion	3 credits

Communication (using technology—minimum of 3 credits)

* ITM 1010	Introduction to Information Technology	3 credits
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Humanities (minimum of 6 credits selected from at least two departments)

Graduates will demonstrate an awareness of the evolution of human cultures and a diverse heritage of ideas, values, and their expressions.

Art 1152	Drawing and Design	3 credits
Art 1252	Color and Design	3 credits
Art 1352	Art Design and Techniques	3 credits
Hist 1021	World Civilizations I	3 credits
Hist 1022	World Civilizations II	3 credits
Hist 1301	American History I	3 credits
Hist 1302	American History II	3 credits
Hist 3054	Topics in History	3 credits
Hum 1301	Introduction to the Humanities	3 credits
Hum 3310	Culture and Technology	3 credits
Lit 1005	Form and Idea in Literature	3 credits
Lit 1016	Readings in American Life	3 credits
Lit 3001	World Literature	3 credits
Mus 1011	University Singers	1 credit
Mus 1021	Introduction to Music	3 credits
Mus 1041	Private Instruction	1 credit
Mus 1042	Private Instruction: Class Piano	1 credit
Mus 1051	Band/Pep Band	1 credit
Mus 1071	Musical Theatre	1 credit
Mus 1111	Music Theory I	3 credits
Mus 1121	Music Theory II	3 credits
Mus 3011	University Singers	1 credit
Mus 3029	Music of the 20th Century	3 credits
Mus 3041	Private Instruction	1 credit
Mus 3051	Band/Pep Band	1 credit
Mus 3091	Instrumental and Choral Conducting	2 credits
Phil 1001	Introduction to Philosophy	3 credits
Phil 3003	Applied Ethics	3 credits
Span 1104	Beginning Spanish I	4 credits
Span 1204	Beginning Spanish II	4 credits
Th 1121	Theatre Production	1 credit

Mathematical Thinking/Natural Science Thinking (minimum of 12 credits with at least 3 credits of math and 3 credits of laboratory science)

Graduates will demonstrate skills in mathematical reasoning and application of critical thinking skills to analyze, raise questions, develop methods of proof, and to synthesize and integrate scientific information in laboratory settings.

Math 1004	Trigonometry	1 credit
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Math 1031	College Algebra and Analytical Geometry	3 credits
Math 1131	Finite Math	3 credits
Math 1142	Survey of Calculus	3 credits
Math 1150	Elementary Statistics	3 credits
Biol 1009	General Biology	3 credits
Biol 1020	Introductory Microbiology	3 credits
Biol 1103	General Botany	3 credits
Biol 1106	General Zoology	3 credits
Biol 1464	Human Anatomy and Physiology I	3 credits
Biol 1474	Human Anatomy and Physiology II	3 credits
Biol 3022	Principles of Genetics	3 credits
Biol 3131	Plant Physiology	3 credits
Biol 3722	Limnology	3 credits
Chem 1001	Introductory Chemistry	4 credits
Chem 1004	General Principles of Chemistry I	4 credits
Chem 1005	General Principles of Chemistry II	4 credits
Chem 1401	Elementary Biochemistry	4 credits
Geol 1001	Introductory Geology	3 credits
Phys 1012	Introductory Physics	4 credits

Social Science (minimum of 6 credits selected from at least two departments)

Graduates will demonstrate knowledge of individual and group behaviors and their impact on social institutions.

CrJs 1120	Criminal Justice and Society	4 credits
CrJs 3305	Judicial Process	3 credits
Econ 2101	Microeconomics	3 credits
Econ 2102	Macroeconomics	3 credits
Geog 1104	World Regional Geography	3 credits
Pol 1001	American Government	3 credits
Pol 1054	Comparative Government	3 credits
Psy 1001	General Psychology	3 credits
Psy 1093	Developmental Psychology	3 credits
Psy 3604	Abnormal Psychology	3 credits
Soc 1001	General Sociology	3 credits
Soc 1102	Cultural Anthropology	3 credits
Soc 3007	Family Relationships	3 credits
Soc 3937	Social Gerontology: Elders in American Society	3 credits

Other General Education Courses

Comp 1000	College Writing Laboratory	1 credit
GnEd 1000	Seminar for New Students	1 credit
GnEd 1001	Effective Reading for a Changing World	2 credits
GnEd 1803	Directed Studies	1-3 credits
GnEd 1900	Chancellor's Academic Success Seminar	.5 credit
GnEd 3804	Individual Studies	1-3 credits
Hlth 1062	First Aid and CPR	2 credits
Hlth 1072	Wellness	3 credits
PER 1151	Golf	1 credit
PER 1201	Dance: Folk, Social, Modern	1 credit
PER 1321	Net Activities	1 credit
PER 1331	Racquet Activities	1 credit
PER 1451	Fitness for Better Health	1 credit
PER 1461	Physical Training and Conditioning	1 credit
PER 1471	Olympic Weight Training	1 credit
PER 1481	Aerobic Exercise	1 credit
PER 1601	Aquatic Activities	1 credit
PER 1701-1791	Varsity Sports	1 credit

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. The accounting program teaches analytical, theoretical, communication, and leadership skills necessary for effective accounting and advancement in public, private, and government careers.

Upon completion, the graduate may choose to take one of the following exams for certification:

- Certified Public Accountant (CPA)*
- Certified Management Accountant (CMA)
- Certified Internal Auditor (CIA)

*Most states now require 150 semester credits of education to take the CPA exam or to be licensed.

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 2101—Microeconomics (3 cr)
 Econ 2102—Macroeconomics (3 cr)
 ITM 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 minimum from at least two departments)
 Math/natural science electives (6 cr) (at least 3 cr of lab science)

Program Requirements

Acct 2101—Principles of Accounting I (3 cr)
 Acct 2102—Principles of Accounting II (3 cr)
 Acct 3100—Introduction to Professional Accounting (BSU) (2 cr)
 Acct 3110—Accounting Systems (BSU) (3 cr)
 Acct 3201—Intermediate Accounting I (4 cr)
 Acct 3202—Intermediate Accounting II (4 cr)
 Acct 3300—Government Accounting (BSU) (2 cr)
 Acct 3301—Cost Accounting I (3 cr)
 Acct 3302—Cost Accounting II (3 cr)
 Acct 3321—Business Law I (BSU) (3 cr)
 Acct 3322—Business Law II (BSU) (3 cr)
 Acct 3404—Income Tax I (BSU) (4 cr)
 Acct 3405—Income Tax II (BSU) (2 cr)
 Acct 4110—Advanced Accounting (BSU) (4 cr)
 Acct 4210—Auditing I (BSU) (3 cr)
 Acct 4310—Auditing II (BSU) (3 cr)
 ITM 1020—Electronic Spreadsheets (3 cr)
 Mgmt 3100—Managerial Finance (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Mktg 3300—Principles of Marketing (3 cr)
 Business/technology electives (19 cr)
 Bemidji State University electives (3 cr)

Accounting—Accounting Information Systems

Accountants are expected to be competent in all areas of business and technology. The accounting information systems program combines general education, general business, technology, and accounting to provide the groundwork for success in the accounting and technology field.

The program establishes a solid foundation for career paths in public accounting, corporate accounting, and government and non-profit accounting. Upon completion, the graduate may choose to take one of the following exams for certification:

- Certified Public Accountant (CPA)*
- Certified Management Accountant (CMA)
- Certified Internal Auditor (CIA)

*Most states now require 150 semester credits of education to take the CPA exam or to be licensed.

Accounting—Accounting Information Systems B.S. Program Outcomes

The accounting information systems graduate will

- demonstrate skills in communication, mathematics, and general education that provide a foundation for the study of accounting;
- demonstrate skills in ethical decision making, critical thinking, and working with others;
- demonstrate skills and knowledge in financial and cost accounting systems;
- demonstrate skills and knowledge in income tax accounting;
- demonstrate skills and knowledge in auditing;
- demonstrate skills and knowledge in information technology.

Accounting—Accounting Information Systems Course Requirements (B.S.)

Degree Requirements: A total of 123 credits is required for graduation. Of this total, 45 credits are required in general education, 66 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 3303—Writing In Your Profession (3 cr)
 Econ 2101—Microeconomics (3 cr)
 Econ 2102—Macroeconomics (3 cr)
 ITM 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 minimum from at least two departments)
 Math/natural science electives (6 cr) (at least 3 credits of lab science)

Program Requirements

Acct 2101—Principles of Accounting I (3 cr)
 Acct 2102—Principles of Accounting II (3 cr)
 Acct 3110—Accounting Systems (BSU) (3 cr)
 Acct 3201—Intermediate Accounting I (4 cr)
 Acct 3202—Intermediate Accounting II (4 cr)
 Acct 3301—Cost Accounting I (3 cr)
 Acct 3302—Cost Accounting II (3 cr)
 Acct 3321—Business Law I (BSU) (3 cr)
or GBus 3107—Legal Environment in Business (3 cr)
 Acct 3404—Income Tax I (BSU) (4 cr)
 Acct 4210—Auditing I (BSU) (3 cr)
 ITM 1020—Electronic Spreadsheets (3 cr)
 ITM 1060—Introduction to Database Management (3 cr)
 ITM 3040—Visual Basic (3 cr)
 ITM 3110—Microcomputer Operating Systems (3 cr)
 ITM 3210—Introduction to Analysis and Design of Information Systems (3 cr)
 Mgmt 3100—Managerial Finance (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Mgmt 3260—Current Topics: E-Commerce (3 cr)
 Mktg 3300—Principles of Marketing (3 cr)
 ITM electives (6 cr)
 Business/technology electives (12 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 from 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. Qualified students will then participate in a five-week field training program at an Air Force base the summer between their junior and senior year.

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 textbooks. Plus, cadets receive a monthly allowance from \$250 for freshmen and up to \$400 for seniors. POC Incentive (POCI) Scholarships are also available for students not already on scholarship. POCI pays \$3,000 per year for tuition in addition to monies for textbooks. Students interested in AFROTC can contact the University of North Dakota office at 1-800-CALL UND, ext. 4733/4957.

Agricultural Aviation

(A collaborative program with the University of North Dakota)

The agricultural aviation program trains students to excel in the increasingly sophisticated and competitive profession of aerial application. Extensive coursework in aviation, agriculture, business, and general education provide the graduate with the skills for success. University of North Dakota (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 agricultural aviation program manager. 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. Non-certificate courses include

conventional gear operations, advanced conventional gear (includes aerobatics), and aerial applicator training. Students enrolling with previous flight experience may receive college credit for their training after a practical test is administered by the agricultural aviation program manager or an appointed check pilot.

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

The agricultural aviation program includes flight courses for which students incur costs over and above regular tuition rates. UMC is committed to keeping costs as low as possible for flight students. 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. For information about an associate degree program with an aviation emphasis, see agriculture associate degree programs.

Agricultural Aviation B.S. Program Outcomes

The agricultural aviation student will

- demonstrate competency in aeronautics;
- demonstrate competency in applied agronomy;
- demonstrate the use of current technology in aviation, agriculture, and applied business;
- demonstrate critical thinking to analyze situations in aeronautics and applied agriculture;
- demonstrate effective communications in working collaboratively with government agencies, industry, and academic experts.

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)
 Comp 1011—Composition I (3 cr)
 Comp 1013—Composition II (3 cr)
 Comp 3303—Writing in your Profession (3 cr)
 Econ 2101—Microeconomics (3 cr)
 ITM 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)
 Spch 1101—Public Speaking (3 cr)
 Humanities electives (6 cr)
 General education electives (5 cr)



Program Requirements

AgAv 1102—Introduction to Aviation (5 cr)
 AgAv 1221—Basic Attitude Instrument Flying (3 cr)
 AgAv 1222—IFR Regulations and Procedures (3 cr)
 AgAv 1396—Conventional Aircraft Operations (UND) (1 cr)
 AgAv 3323—Airplane Aerodynamics (3 cr)
 AgAv 3324—Aircraft Systems and Instruments (3 cr)
 AgAv 3396—Advanced Conventional Aircraft Operations (UND) (1 cr)
 AgAv 3603—Aerial Applications (3 cr)
 Agro 1030—Crop and Weed Identification (3 cr)
 Agro 3444—Crops Production (3 cr)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 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)

Aviation programs at UMC provide options for students to focus on agricultural aviation or business aviation.

Agricultural Business

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

Agricultural Business B.S. Program Outcomes

Agricultural business graduates will demonstrate

- skills that lead to satisfying and rewarding opportunities for agribusiness careers in either rural or urban settings;
- knowledge of the basic general education that provides the foundation for applied knowledge and lifelong learning;
- the broad knowledge and technical skills required for careers in agribusiness;
- a polytechnic education that enables graduates to make immediate contributions in the work place;
- skills to advance the agricultural business program in concert with industry to ensure rapid response to evolving needs.

Agricultural Business 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 2101—Microeconomics (3 cr)
 Econ 2102—Macroeconomics (3 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Math 1031—College Algebra and Analytical Geometry (3 cr)
 Math 1150—Elementary Statistics (3 cr)
 Psy 1001—Introduction to Psychology (3 cr)
 Spch 1101—Public Speaking (3 cr)
 Humanities electives (6 cr) (from at least two department)
 General education electives (2 cr)

Program Requirements

Acct 2101—Principles of Accounting I (3 cr)
 AgBu 1005—Global Food Systems (3 cr)
 AgEc 2530—Professional Agriselling (3 cr)
 AgEc 3050—Economics for Agribusiness Management (5 cr)
 AgEc 4750—Agribusiness Marketing (3 cr)
 AgEc 4760—Agribusiness Marketing Practicum (3 cr)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 cr)
 ITM 1020—Electronic Spreadsheets (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Mktg 3300—Principles of Marketing (3 cr)
 Mktg 3360—Global Business (3 cr)
 Soil 1293—Introduction to Soil Science (3 cr)
 Agriculture/management/technology electives (25 cr) (see below for suggested electives based on career interests)
 Open electives (12 cr)

Suggested electives based on career interests

Agricultural Business Management

AgEc 3640—Agricultural Finance and Valuation (4 cr)
 Mgmt 3210—Supervision and Leadership (3 cr)
 Mgmt 3250—Operations Management (3 cr)
 Mgmt 3600—Decision Support Systems (3 cr)
 Mgmt 3800—Strategic Management (3 cr)
 Mktg 1100—Introduction to Entrepreneurship (3 cr)

Agricultural Business Information Management

ITM 1060—Database Management (3 cr)
 ITM 1200—Publishing and Programming on the Internet (3 cr)
 ITM 3150—WYSIWYG Web Site, Graphics, and Interface Design (3 cr)
 ITM 3160—Digital Audio and Video Production (3 cr)

Agricultural Finance

AgEc 3430—Agricultural Commodity Marketing (3 cr)
 AgEc 3540—Farm Business Management (4 cr)
 AgEc 3640—Agricultural Finance and Valuation (4 cr)
 ITM 1020—Electronic Spreadsheets (3 cr)
 Mgmt 3600—Decision Support Systems (3 cr)
 Mktg 1100—Introduction to Entrepreneurship (3 cr)

Agricultural Sales and Marketing

Mktg 3200—Personal Selling (3 cr)
 Mktg 3250—Promotional Strategies (3 cr)
 Mktg 3310—Buyer Behavior (3 cr)
 Mktg 3340—Marketing Research (3 cr)
 Mktg 3800—Marketing Strategies (3 cr)
 Spch 3431—Persuasion (3 cr)

Global Trade in Agriculture

AgBu 3053—Products and Markets (3 cr)
 AgBu 4034—Quality Standards (3 cr)
 AgEc 4460—International Marketing Problems and Practices (4 cr)
 Hist 3054—Topics in History: America in the Global Society (3 cr)
 Lit 3001—World Literature (3 cr)
 Mgmt 3210—Supervision and Leadership (3 cr)
 Mktg 1100—Entrepreneurship (3 cr)

Food Industries Management

AgBu 3011—Manufacturing Operation and Logistics (3 cr)
 AgBu 3050—Cereal Processing (3 cr)
 AgBu 3052—Meat and Dairy Processing (3 cr)
 AgBu 3053—Products and Markets (3 cr)
 AgBu 4034—Quality Standards (3 cr)
 Mgmt 3210—Supervision and Leadership (3 cr)

Agricultural Business—Rural Economic Development

Rural communities need business development that fits their existing resources and vision for the future. Rural economic developers use their knowledge of project feasibility, methods of finance, assistance programs, marketing skills, and the reality of implementation as the ingredients for successful economic development and growth. The goal of a rural economic developer is to help create jobs that sustain families and provide attractive lifestyles. They bring leadership, vitality, focus, and vision to rural communities and strive for quality educational opportunities, health care, safety and security, low crime rates, unspoiled landscapes, and cultural and recreational activities to make a community a good place to live, work, and do business.

Agricultural Business—Rural Economic Development B.S. Program Outcomes

Graduates will

- have a broad understanding of rural economic structures and dynamics;
- be able to develop regional, local, and/or business-specific plans of action based on strengths, weaknesses, opportunities, and threats;
- have an appreciation for the risks, rewards, requirements, and limitations of entrepreneurship in rural development;

- be competent in the use of technology for information gathering, data acquisition and analysis, communication and community development;
- possess interpersonal and analytical skills for effective project, process, and personnel management;
- understand the role of ethical values in decision-making and human relations;
- communicate clearly and concisely in written, verbal, and visual mediums.

Agricultural Business—Rural Economic Development 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, 62 credits in the major, and 13 credits in electives; 40 credits are required in upper division courses.

General Education Requirements

See Agricultural Business

Program Requirements

Acct 2101—Principles of Accounting I (3 cr)
 AgBu 1005—Global Food Systems (3 cr)
 AgEc 1000—Introduction to Rural Economics Development (2 cr)
 AgEc 2530—Professional Agriselling (3 cr)
 AgEc 3050—Economics for Agribusiness Management (5 cr)
 AgEc 3575—Community Economic Development Planning (3 cr)
 AgEc 4750—Agribusiness Marketing (3 cr)
 AgEc 4760—Agribusiness Marketing Practicum (3 cr)
 AgEc 4800—Rural Economic Development Practicum (3 cr)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 cr)
 ITM 1020—Electronic Spreadsheets (3 cr)
 Mgmt 3100—Managerial Finance (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Mgmt 3320—Small Business Management (3 cr)
 Mktg 1100—Introduction to Entrepreneurship (3 cr)
 Mktg 3300—Principles of Marketing (3 cr)
 Mktg 3360—Global Business (3 cr)
 NatR 3344—Land Use Planning (4 cr)
 Rhet 4573—Writing and Managing Projects and Proposals (UMTC) (3 cr)
 Soil 1293—Introduction to Soil Science (3 cr)
 Open electives (13 cr)

Agricultural Education

(A collaborative program with the University of Minnesota, Twin Cities [UMTC] campus)

Two teaching emphasis (specializations) areas available to students at UMC are *agricultural science and technology* and *natural and managed environmental education*.

Both emphases serve students preparing to teach agriscience, agribusiness, agriculture, horticulture, food systems, agrimechanics, and natural resource management, all under the licensure field of agricultural education in public schools at the 5-12 level. Graduates of the agricultural science and technology specialization also are qualified for a broad array of agriculturally related positions in sales, management, finance, and production aspects of agriculture. Graduates

with the natural and managed environmental education specialization have an emphasis in natural resource management and education and are prepared for work in environmental learning centers.

Specific degree requirements, admission requirements, program outcomes, and professional education course descriptions are congruent with those in the UMTC [Undergraduate Catalog](#). Transfer within the collaborative agreement allows students to complete all four years on either the UMC or UMTC campus. It also allows students to make a seamless transfer between campuses.

Agricultural Education Program Requirements (B.S.)

Degree Requirements: A total of 128 credits is required for graduation. Of this total, 48 credits are required in general education, 42 credits in the major, and 38 credits in professional education; 40 credits are required in upper division courses.

General Education Requirements (both emphases)

Biol 1009—General Biology (3 cr)
 Biol 1020—Microbiology (3 cr)
 Biol 3022—Principles of Genetics (3 cr)
 Chem 1004—General 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)
 Hist 1301—American History (3 cr)
 or Hist 1302—American History II (3 cr)
 Hum 3310—Culture and Technology (3 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Lit 3001—World Literature (3 cr)
 Math 1031—College Algebra and Analytical Geometry (3 cr)
 Phys 1012—Introductory Physics (4 cr)
 Psy 1001—General Psychology (3 cr)
 Spch 1101—Public Speaking (3 cr)

Professional Education Requirements (both emphases)

AFEE 1001—Introduction to Agricultural Education (UMTC) (1 cr)
 AFEE 1002—Career Planning for Agricultural Professional (UMTC) (1 cr)
 AFEE 2096—Professional Practicum: Early Experience (UMTC) (1 cr)
 AFEE 5111—Agricultural Education: Methods of Teaching (UMTC) (4 cr)
 AFEE 5112—Agricultural Education Program Organization and Curriculum for Youth (UMTC) (4 cr)
 AFEE 5113—Agricultural Education Adult Program Development and Technology (UMTC) (3 cr)
 AFEE 5114—Agricultural Education Seminar (UMTC) (1 cr)
 EdHD 5001—Learning, Cognition, and Assessment in the Schools (UMTC) (3 cr)
 EdHD 5003—Developmental and Individual Differences in Educational Contexts (UMTC) (3 cr)
 EdHD 5005—School and Society (UMTC) (2 cr)
 EdHD 5007—Technology for Teaching and Learning (UMTC) (1.5 cr)
 EdHD 5009—Human Relations: Applied Skills for School and Society (UMTC) (1 cr)
 EdPA 5341—The American Middle School (UMTC) (3 cr)
 PubH 5003—Fundamentals of Alcohol and Drug Abuse (UMTC) (1.5 cr)
 WCFE 5697—Teaching Internship: School and Classroom Settings (UMTC) (2 cr)
 WCFE 5698—Teaching Internship (UMTC) (6 cr)

Program Requirements—Agricultural Science and Technology Education Emphasis

AgBu 1005—Global Food Systems (3 cr)
 AgEc 2530—Professional Agricultural Sales (3 cr)
 AnSc 1004—Introduction to Animal Science (4 cr)
 ASM 1044—Computer-Aided Drafting (3 cr)
or ASM 3360—Applications in Precision Agriculture (3 cr)
 ASM 1034—Facilities Maintenance and Safety (3 cr)
 Econ 2101—Microeconomics (3 cr)
 NatR 1233—Introduction to Natural Resources (3 cr)
 PIM 1030—Introduction to Plant Science (2 cr)
 PIM 1031—Introduction to Agronomy Lab (1 cr)
or PIM 1032—Introduction to Horticulture Lab (1 cr)
 Soil 1293—Soil Science (3 cr)
 AgEc/Acct electives (3 cr)
 Agro/Hort/PIM electives (3 cr)
 AnSc/EqSc electives (2 cr)
 Natural resource electives (3 cr)
 Agriculture electives (3 cr)

Program Requirements—Natural and Managed Environmental Education Emphasis

AgBu 1005—Global Food Systems (3 cr)
 AnSc 1004—Introduction to Animal Science (4 cr)
 ASM 1044—Computer-Aided Drafting (3 cr)
or ASM 3360—Applications in Precision Agriculture (3 cr)
 ASM 1034—Facilities Maintenance and Safety (3 cr)
 Econ 2101—Macroeconomics (3 cr)
or AgEc 2530—Professional Agricultural Selling (3 cr)
 NatR 1233—Introduction to Natural Resources (3 cr)
 PIM 1030—Introduction to Plant Science (2 cr)
 PIM 1031—Introduction to Agronomy Lab (1 cr)
or PIM 1032—Introduction to Horticulture Lab (1 cr)
 Soil 1293—Soil Science (3 cr)
 Agro/Hort/PIM electives (3 cr)
 AnSc/EqSc electives (2 cr)
 Natural resource electives (6 cr)
 SWM electives (4 cr)
 Agriculture electives (2 cr)

Agricultural Systems Management

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

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

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

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

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

Agricultural Systems Management B.S.

Program Outcomes

Graduates in agricultural systems management

- are well versed in agricultural foundations;
- are technically proficient and knowledgeable in agricultural technologies;
- have working knowledge of economic systems and financial management;
- possess speaking, listening, and writing communication skills;
- have a well-developed sense of professionalism.

Agricultural 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)
 Comp 1011—Composition I (3 cr)
 Comp 1013—Composition II (3 cr)
 Comp 2334—Technical Writing (3 cr)
or Comp 3303—Writing in Your Profession (3 cr)
 Econ 2101—Microeconomics (3 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Math 1031—College Algebra (3 cr)
 Math 1150—Elementary Statistics (3 cr)
 Phys 1012—Introductory Physics (4 cr)
 Spch 1101—Public Speaking (3 cr)
 General education electives (1 cr)
 Humanities elective (6 cr) (selected from two departments)
 Social science elective (3 cr)

Program Requirements (all emphases)

Acct 2101—Principles of Accounting I (3 cr)
 ASM 1021—Introduction to Agriculture and Food Systems (1 cr)
 ASM 1034—Facility Maintenance and Safety (3 cr)
 ASM 3002—Agricultural Mobile Power Systems (3 cr)
 ASM 3005—Facilities Planning and Selection (3 cr)
 GnAg 3652—Seminar (1 cr)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 cr)
 PIM 1030—Introduction to Plant Science (2 cr)
 Soil 1293—Soil Science (3 cr)

Program Requirements—Farm and Ranch Management Emphasis

AgEc 3430—Agricultural Commodity Marketing (3 cr)
 AgEc 3540—Farm Business Management (4 cr)
 AgEc 3640—Agricultural Finance and Valuation (4 cr)
 AnSc1004—Introduction to Animal Science (4 cr)
 ASM 2250—Agricultural Machinery Management (3 cr)
 ASM 3360—Applications in Precision Agriculture (3 cr)
 PIM 1031—Introduction to Agronomy Lab (1 cr)
 Agriculture/management electives (19 cr)
 Open electives (12 cr)

Program Requirements—Power and Machinery Emphasis

AgEc 2530—Professional Agriselling (3 cr)
 AgEc 3050—Economics of Agribusiness Management (5 cr)
 AgEc 3640—Agricultural Finance and Valuation (4 cr)
 ASM 2250—Agricultural Machinery Management (3 cr)
 ASM 3360—Applications in Precision Agriculture (3 cr)
 ITM 1020—Electronic Spreadsheets (3 cr)
 ITM 1060—Introduction to Database Management (3 cr)
 Mgmt 3210—Supervision and Leadership (3 cr)
 PIM 1031—Introduction to Agronomy Laboratory (1 cr)
 Agriculture/management electives (13 cr)
 Open electives (12 cr)

Program Requirements—Precision Agriculture Emphasis

AFSM 3009—Surveying (4 cr)
 ASM 3360—Applications in Precision Agriculture (3 cr)
 ASM 3511—Yield Monitoring/Data Interpretation (1 cr)
 ASM 3512—Topographical Mapping and Field Spatial Variability (1 cr)
 ASM 3513—Data Management in Precision Agriculture (1 cr)
 ITM 1020—Electronic Spreadsheets (3 cr)
 ITM 1060—Introduction to Database Management (3 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 3414—Soil Fertility (4 cr)
 Agriculture/management electives (16 cr)
 Open electives (12)

Agriculture

The A.A.S. degree in agriculture provides students with the skills necessary to obtain a variety of entry-level positions in agriculture, natural resources, and related fields. Program flexibility allows students to choose the area of emphasis that most closely fits their interests and career goals. Many students decide to pursue a baccalaureate degree upon completion of the associate degree. All of the credits earned will transfer to UMC's parallel baccalaureate program.

Agricultural Aviation—The agricultural aviation emphasis gives students the agronomic knowledge and aeronautical skills for careers as aerial applicators. Graduates have earned the appropriate flight certificates to pursue related careers as pilots in charter services, aerial fire fighting or photography, aviation sales, fixed-base operations, and flight instruction.

Agricultural Business—Agricultural business students receive a combination of general education, agriculture, and business courses sufficient for employment in a variety of agricultural businesses including rural cooperatives, grain and livestock marketing firms, implement dealerships, and chemical companies.



UMC's collegiate crops teams have consistently placed at national competitions.

Agriculture—The agriculture emphasis gives students broad exposure to production agriculture and closely related industries. Students acquire practical skills and technical knowledge they will need as agricultural producers or to gain entry-level employment in the businesses and industries that support successful farmers and ranchers.

Agronomy—The agronomy emphasis prepares graduates to work in crop farm production operations and provides entry-level education for jobs in the agricultural services sector. Employment options include seed, feed, fertilizer and chemical companies, grain inspection and elevator operations, and crop research support.

Animal Dairy/Equine/Meat Science—Students within this area of emphasis can further focus their studies on the meat animals, dairy, or equine industries. Respectively, typical careers will include rancher or assistant ranch manager, assistant herdsman, dairy equipment installer/service person, stable manager, and riding instructor.

Horticulture—For students seeking careers in production of horticultural crops, or in landscaping, nursery, florist, and horticultural supply and service businesses, this emphasis teaches the identification and production of horticultural plants as well as nutrition, soils, pest management, and environmental health and safety.

Natural Resources—Employment opportunities include technician-level jobs with conservation managers or researchers and with watershed or soil and water conservation districts. Other options include assistant-level positions with county, state, and federal parks, and supervisory/maintenance work with city and county park departments.

Agriculture A.A.S. Program Outcomes

Agriculture program graduates will

- possess the fundamental technical skills necessary to obtain entry-level employment in the field;

- have successfully completed an internship experience emphasizing participatory learning in a “real world” setting;
- be able to gather and assimilate information, follow directions, formulate ideas, and solve problems;
- apply technical knowledge and basic skills to the life-long learning requirements of a changing workplace and world;
- demonstrate effective computer, communication, and interpersonal skills.

Agriculture Course Requirements (A.A.S.)

Degree Requirements: A total of 64-67 credits is required for graduation. Of this total, 22 credits are required in general education and 42-45 in an agriculture emphasis.

General Education Requirements (all emphases)

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)
 Econ 2101—Microeconomics (3 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Spch 1101—Public Speaking (3 cr)
 Humanities electives (3 cr)

Program Requirements—Agricultural Aviation Emphasis (44 cr)

AgAv 1102—Introduction to Aviation (5 cr)
 AgAv 1221—Basic Attitude Instrument Flying (3 cr)
 AgAv 1222—IFR Regulations and Procedures (3 cr)
 AgAv 1396—Conventional Aircraft Operations (UND) (1 cr)
 AgAv 3323—Airplane Aerodynamics (3 cr)
 AgAv 3324—Aircraft Systems and Instruments (3 cr)
 AgAv 3396—Advanced Conventional Aircraft Operations (UND) (1 cr)
 AgAv 3603—Aerial Applications (3 cr)
 Agro 1030—Crop and Weed Identification (3 cr)
 Biol 1103—General Botany (3 cr)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 cr)
 PIM 1030—Introduction to Plant Science (2 cr)
 PIM 1031—Agronomy Lab (1 cr)
 PIM 2573—Entomology (3 cr)
or Soil 1293—Soil Science (3 cr)
 PIM 2640—Weed Science (4 cr)
 PIM 3230—Plant Pathology (3 cr)

Program Requirements—Agricultural Business Emphasis (45 cr)

Acct 2101—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)
 Econ 2102—Macroeconomics (3 cr)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 cr)
 Math 1001—Technical Math (3 cr)
or Math 1031—College Algebra (3 cr)
or Math 1150—Elementary Statistics (3 cr)
 PIM 1030—Introduction to Plant Science (2 cr)
 PIM 1031—Agronomy Lab (1 cr)
or PIM 1032—Introduction to Hort Lab (1 cr)

Soil 1293—Soil Science (3 cr)
 Agriculture or business electives (6 cr)
 Open electives (3 cr)

Program Requirements—Agriculture Emphasis (42 cr)

AgEc 2530—Professional Agriselling (3 cr)
 AnSc 1004—Introduction to Animal Science (4 cr)
 ASM 1034—Facilities Maintenance and Safety (3)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 cr)
 Math 1001—Technical Math (3 cr)
or Math 1031—College Algebra (3 cr)
or Math 1150—Elementary Statistics (3 cr)
 PIM 1030—Introduction to Plant Science (2 cr)
 PIM 1031—Agronomy Lab (1 cr)
 Soil 1293—Soil Science (3 cr)
 Agriculture/natural resource electives (4 cr)
 Agriculture/natural resource electives (upper division) (9 cr)
 Open electives (7 cr)

Program Requirements—Agronomy Emphasis (45 cr)

AgEc 3430—Agricultural Commodity Marketing (3 cr)
 Agro 1030—Crop and Weed Identification (3 cr)
 Biol 1103—General Botany (3 cr)
 GnAg 3652—Agriculture and Natural Resources Seminar (1 cr)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 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)
 Soil 3414—Soil Fertility and Plant Nutrition (4 cr)
 Agriculture or business electives (6 cr)
 Open electives (6 cr)

Program Requirements—Animal Dairy/Equine/Meat Science Emphasis (45 cr)

AgEc 3540—Farm Business Management (4 cr)
 AnSc 1004—Introduction to Animal Science (4 cr)
 AnSc 1101—Animal Evaluation (1 cr)
or EqSc 1202—Equine Evaluation (2 cr)
 AnSc 2104—Feeds and Feeding (4 cr)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 cr)
 Math 1001—Technical Math (3 cr)
or Math 1031—College Algebra (3 cr)
or Math 1150—Elementary Statistics (3 cr)
 Animal/dairy/equine science electives (14 cr)
 Agriculture or business electives (6 cr)
 Open electives (5-6 cr)

Program Requirements—Horticulture Emphasis (44 cr)

Biol 1103—General Botany (3 cr)
 GnAg 3652—Agriculture and Natural Resources Seminar (1 cr)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 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 Lab (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 or business electives (6 cr)
 Open electives (7 cr)

Program Requirements—Natural Resources Emphasis (45 cr)

ASM 1034—Facilities Maintenance and Safety (3 cr)
 Biol 1103—General Botany (3 cr)
 GnAg 3652—Agriculture and Natural Resources Seminar (1 cr)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 cr)
 Math 1001—Technical Math (3 cr)
 or Math 1031—College Algebra (3 cr)
 or Math 1150—Elementary Statistics (3 cr)
 NatR 1233—Introduction to Natural Resources (3 cr)
 NatR 1244—Elements of Forestry (4 cr)
 NatR 3203—Park and Recreation Management (3 cr)
 Soil 1293—Soil Science (3 cr)
 Agriculture/natural resource electives (13 cr)
 Open electives (6 cr)

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, specifically including animal nutritionist, feed salesperson, artificial insemination representative/manager, feedlot environmental specialist, breed association consultant, commission firm buyer, dairy/livestock equipment salesperson, dairy/livestock farm or ranch owner, herdsman on an individual/institutional/corporate livestock or dairy operation, dairy inspector, research assistant, dairy fieldperson, veterinary assistant, animal customs, field service technician for food processors, extension animal specialist, and agricultural lender.

Animal Industries Management B.S.

Program Outcomes

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

Animal 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, 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 1020—Microbiology (3 cr)
 Biol 3022—Principles of Genetics (3 cr)
 Chem 1004—General Principles of Chemistry I (4 cr)
 Chem 1401—Elementary Biochemistry (4 cr)
 Comp 1011—Composition I (3 cr)
 Comp 1013—Composition II (3 cr)
 or Comp 3303—Writing in Your Profession (3 cr)
 Econ 2101—Microeconomics (3 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Math 1031—College Algebra and Analytical Geometry (3 cr)
 Spch 1101—Public Speaking (3 cr)
 General education electives (1 cr)
 Humanities electives (6 cr)
 Social science electives (3 cr)

Program Requirements

AnSc 1004—Introduction to Animal Science (4 cr)
 AnSc 1101—Animal Evaluation (1 cr)
 AnSc 1201—Advanced Animal Evaluation (1 cr)
 AnSc 1203—Animal Production Techniques (1-3 cr)
 AnSc 2104—Feeds and Feeding (4 cr)
 AnSc 3004—Livestock Facilities and Environmental Systems (3 cr)
 AnSc 3023—Animal Breeding (3 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)
 AnSc 4101—Animal Science Seminar (1 cr)
 AnSc 4204—Animal Systems Management (4 cr)
 AgEc 3540—Farm Business Management (4 cr)
 GnAg 3203—Agricultural Products and Processing (3 cr)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 cr)
 AnSc 3204—Dairy Production (4 cr)
 and/or AnSc 3303—Beef Production (3 cr)
 Agricultural economics elective (4 cr)
 Agriculture electives (7-10 cr)
 Open electives (11-12 cr)

Applied Health

The Bachelor of Applied Health (B.A.H.) is an integrated four-year baccalaureate degree program delivered via distance education through 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

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

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, 48 credits in the major, and 42 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)
 ITM 1010—Introduction to Information Technology (3 cr)
 Math 1031—College Algebra and Analytical Geometry (3 cr)
or Math 1131—Finite Mathematics (3 cr)
or Math 1150—Elementary Statistics (3 cr)
 Psy 1001—General Psychology (3 cr)
or Soc 1001—Introduction to Sociology (3 cr)
 Spch 1101—Public Speaking (3 cr)
 Humanities electives (6 cr)

Program Requirements

ABus 4012—Problem Solving in Complex Organizations (3 cr)
 ABus 4022—Managing Organizational Relationships (3 cr)
 ABus 4023—Communicating for Results (3 cr)
 ABus 4104—Management and Human Resources Practices (3 cr)
 Acct 2101—Principles of Accounting I (3 cr)
 Acct 2102—Principles of Accounting II (3 cr)
 HSM 3020—Quality Improvement and Risk Management (3 cr)
 HSM 3100—Essentials of Managed Care (3 cr)
 HSM 3130—Health Management Information Systems (3 cr)
 HSM 3200—Management, Leadership, and Health Planning (3 cr)
 HSM 3240—Health Care Policy and Comparative Systems (3 cr)
 HSM 3900—Internship (3 cr)
 HSM 4100—Health Care Finance (3 cr)
 HSM 4210—Health Care Law and Biomedical Ethics (3 cr)
 HSM 4212—Regulatory Management (3 cr)
 Upper division elective (3 cr)
 Occupational course requirements (42 cr) (from partner schools)

Applied Ethics Minor/Certificate Program

The applied ethics minor/certificate program offers a minor concentration for undergraduates and a certificate program for older working adults in careers where ethical determinations are a significant matter for consideration. It will afford undergraduates a form of pre-certification training that will enhance their employment worthiness; it will provide workers in sensitive areas training necessary for maintaining their certification.

Admission Requirement—Admission is by application to the Center for Learning Foundations. Students are encouraged to develop their concentrations with faculty advisers and apply during the spring semester of their sophomore year. Admission requires a 2.00 overall GPA. Enrollment in the Directed Research and Honors Paper courses requires a 2.50 overall GPA and a 3.00 GPA in the initial 12 credits/4 courses of the concentration.

Applied Ethics Minor/Certificate Program Outcomes

On completion of the program, a student will be able to

- identify and understand ethical theories in practical application;
- investigate, understand, and assess ethical judgments in their social and cultural context with rigor, clarity, fairness, and sensitivity;
- discuss and write about moral issues and ethical problems with clarity and rhetorical force;
- work cooperatively and effectively in a team process (course, project, or community);
- assess personal progress and apply personal assessment as a model to illustrate procedures that assess general learning, concrete application, workplace dilemmas, community practices and issues, or organizational and institutional ethics.

Applied Ethics Minor/Certificate Requirements

Requirements: A total of 18 credits is required in which a minimum GPA of 3.00 must be earned.

Phil 1001—Introduction to Philosophy
or Phil 1003—Ethics (3 cr)
 Phil 3001—Applied Ethics (3 cr)
 Phil 3804—Individual Studies (2 required/3 cr each for a total of 6 cr)
 Phil 3850—Directed Research (3 cr)
 Phil 4652—Honors Paper (3 cr)

Consult minor/certificate program coordinator for more information.

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. Transfer students who are enrolled in the Air Force ROTC program can use the aerospace studies courses to meet program requirements for the applied studies B.S. degree.

Applied Studies B.S. Program Outcomes

Graduates will

- complete an individually tailored course of study that builds upon prior education and experience;
- demonstrate technical competencies in selected areas of study in an internship setting;
- demonstrate skills in communication, problem solving and working with others in an appropriate capstone experience;
- meet career development goals related to achieving a baccalaureate degree.

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)

ITM 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)

Applied Studies—Respiratory Care

The University of Minnesota, Crookston has an articulation agreement with Northwest Technical College, East Grand Forks, which allows students who complete the A.T.S. degree in respiratory care at NTC/EGF to move into the applied studies B.S. at UMC. The skills and competencies developed in the A.T.S. degree combined with achieving the B.S. degree provide students with advancement opportunities in respiratory care in hospital, clinic, and home care settings.

Applied Studies B.S.—Respiratory Care Program Outcomes

Graduates will

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

Applied Studies—Respiratory Care Course Requirements (B.S.)

Degree Requirements: A minimum of 120 credits is required for graduation. Of this total, 48 credits are required in general education, 62.5 credits in the major, and 9.5 credits in electives; 40 credits are required in upper division courses. Also see graduation residency requirements on page 23.

General Education Requirements

See Applied Studies

Program Requirements

AplS 4652—Applied Studies Seminar (1.5 cr)

First Area of Study

Respiratory care courses taken at Northwest Technical College, East Grand Forks

Hlth 140—Non Acute Respiratory Care (4 cr)

Resp 100—Introduction to Respiratory Care (3 cr)

Resp 110—Adult Critical Care (4 cr)

Resp 114—Respiratory Pharmacology (3 cr)

Resp 120—Cardiopulmonary Physiology Assessment (3cr)

Resp 124—Clinical I (3 cr)

Resp 200—Clinical II (1 cr)

Resp 204—Clinical III (3 cr)

Resp 210—Diagnostic Procedures (4 cr)

Resp 214—Clinical Cardio Respiratory Assessment (3 cr)

Resp 234—Respiratory Hemodynamics (3 cr)

Second Area of Study

Respiratory care courses taken at Northwest Technical College, East Grand Forks

Resp 240—Pediatric/Neonatal Respiratory Care (3 cr)

Resp 244—Clinical IV (3 cr)

Resp 250—Advanced Critical Care (3 cr)

Resp 256—Clinical V (3 cr)

Resp 260—Clinical VI (2 cr)

Resp 264—Clinical VII (2 cr)

Resp 270—Clinical VIII (4 cr)

Resp 274—Patient Assessment and Wellness Promotion (4 cr)

Electives (9.5 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

Graduates of the business—general A.S. program will

- demonstrate a basic understanding of business decision-making;
- demonstrate the ability to communicate effectively;
- demonstrate a basic understanding of computer software applications;
- demonstrate basic knowledge of ethical/environmental issues;
- demonstrate basic knowledge and competency in the application of business management and marketing skills;
- demonstrate understanding and capability in business prerequisite core course requirements for transition to a bachelor of science degree program.

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 2101—Microeconomics (3 cr)
 Econ 2102—Macroeconomics (3 cr)
 ITM 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 2101—Principles of Accounting I (3 cr)
 Acct 2102—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

The B.S. in business management prepares students for careers in general business and industry. Students may choose between three areas of emphasis (listed below) depending upon their career interest.

Business Management B.S. Program Outcomes

Graduates of the business management program will

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

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. 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 (UND) 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

- demonstrate competency in aeronautics;
- demonstrate the use of current technology in aviation and applied business.

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, 64 credits in the major, and 11 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 2334—Technical Writing (3 cr)
 Econ 2101—Microeconomics (3 cr)
 Econ 2102—Macroeconomics (3 cr)
 GnEd 1000—Seminar for New Students (1 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Math 1031—College Algebra and Analytical Geometry (3 cr)
 Math 1150—Elementary Statistics (3 cr)
 Phys 1012—Introductory Physics (4 cr)
 Psy 1001—General Psychology (3 cr)
 Spch 1101—Public Speaking (3 cr)
 General education electives (1 cr)
 Humanities electives (6 cr) (from at least two departments)
 Social science electives (3 cr)

Program Requirements

Acct 2101—Principles of Accounting I (3 cr)
 Acct 2102—Principles of Accounting II (3 cr)
 AgAv 1102—Introduction to Aviation (5 cr)
 AgAv 1221—Basic Attitude Instrument Flying (3 cr)
 AgAv 1222—IFR Regulations and Procedures (3 cr)
 AgAv 3323—Airplane Aerodynamics (3 cr)
 AgAv 3324—Aircraft Systems and Instruments (3 cr)
 AgAv 3414—Certified Flying Instructor (5 cr)
 AgAv 3415—Instrument Flight Instructor (4 cr)
 GBus 3107—Legal Environment in Business (3 cr)
 ITM 1020—Electronic Spreadsheets (3 cr)
 Mgmt 3100—Managerial Finance (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Mgmt 3210—Supervision and Leadership (3 cr)

Mgmt 3220—Human Resource Mgmt (3 cr)
 or Mktg 3250—Promotional Strategies (3 cr)
 Mgmt 3250—Operations Management (3 cr)
 or Mktg 3360—Global Business (3 cr)
 Mgmt 3800—Strategic Management (3 cr)
 Mgmt 3900—Internship (3 cr)
 Mktg 3300—Principles of Marketing (3 cr)
 SWM 3103—Meteorology and Climatology (2 cr)
 Open electives (11 cr)

Business Management—Management

The management emphasis in the business management program 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

Graduates of the business management program—management emphasis will

- demonstrate an understanding of leadership skills required to effectively and efficiently plan, organize, and control an organization for a competitive advantage;
- demonstrate skill in utilizing a team approach in problem solving and decision making.

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, 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 3303—Writing in Your Profession (3 cr)
 Econ 2101—Microeconomics (3 cr)
 Econ 2102—Macroeconomics (3 cr)
 ITM 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 2101—Principles of Accounting I (3 cr)
 Acct 2102—Principles of Accounting II (3 cr)
 GBus 3107—Legal Environment in Business (3 cr)
 ITM 1020—Electronic Spreadsheets (3 cr)
 ITM 1200—Publishing and Programming on the Internet (3 cr)
 Mgmt 3100—Managerial 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 3270—Fundamentals of E-Business (3 cr)
 Mgmt 3600—Decision Support Systems (3 cr)
 Mgmt 3800—Strategic Management (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 (12 cr)
 Open electives (12 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

Graduates of the business management program—marketing emphasis will

- understand the importance of having a consumer orientation and demonstrate how to effectively establish and develop business relationships;
- be aware of technological and global developments that are changing the scope of the marketing discipline.

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, 63 credits in the major, and 12 credits in electives; 40 credits are required in upper division courses.

General Education Requirements

See Business Management—Management

Program Requirements

Acct 2101—Principles of Accounting I (3 cr)
 Acct 2102—Principles of Accounting II (3 cr)
 GBus 3107—Legal Environment in Business (3 cr)
 ITM 1020—Electronic Spreadsheets (3 cr)
 ITM 1200—Publishing and Programming on the Internet (3 cr)
 Mgmt 3100—Managerial Finance (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Mgmt 3270—Fundamentals of E-Business (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 3360—Global Business (3 cr)
 Mktg 3800—Marketing Strategies (3 cr)
 Business/technology electives (12 cr)
 Open electives (12 cr)

Dietetic Technician

The dietetic technician program prepares students to be registered dietetic technicians. The program is accredited by the Commission on Accreditation for Dietetic Education of 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

The graduate will demonstrate foundation knowledge and practice skills for entry-level dietetic technician as identified by the Commission on Accreditation for Dietetic Education of the American Dietetic Association and will be able to

- demonstrate foundation knowledge in communication, physical and biological sciences, social sciences, research, food, nutrition, management, and health care systems;
- demonstrate management skills including the teamwork needed to be an effective foodservice director in a health care or institutional setting;
- practice the clinical and communication skills needed of a dietetic technician in a hospital, nursing home, or in the community setting;
- demonstrate abilities in critical thinking, problem solving and self-assessment needed to maintain competency as a dietetic professional.

Dietetic Technician Course Requirements (A.A.S.)

Degree Requirements: A total of 75 credits is required for graduation. Of this total, 28 credits are required in general education and 47 credits in dietetics.

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)
 ITM 1010—Introduction to Information Technology (3 cr)
 Psy 1001—General Psychology (3 cr)
 Biology elective (3 cr)
 Chemistry elective (4 cr)
 Math elective (3 cr)
 Social science elective (3 cr)

Program Requirements

FScN 1123—Fundamentals of Nutrition (3 cr)
 FScN 1273—Medical Nutrition Therapy (4 cr)
 FScN 1313—Lifecycle Nutrition (3 cr)
 FScN 1654—Nutrition Care: Principles and Practices (3 cr)
 FScN 1999—Dietetic Practicum (6 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 (3 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)
 HSM 1010—Medical Terminology (2 cr)
 Mgmt 3210—Supervision and Leadership (3 cr)
 HRI elective (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 teacher education 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 these educational programs: infant and toddler care and education, preschool programs, K-3 classrooms, Head Start, and early childhood family education.

This degree program has 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 3100) 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 clinical teaching 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

- understand child development and learning and use this knowledge to provide opportunities that support the development of the whole child;
- build positive caregiving relationships and use strategies for developing an appropriate learning environment;
- establish physically and psychologically safe and healthy learning environments and use critical thinking skills as they apply curriculum and instructional practices;

- use communication skills effectively to establish and maintain positive and collaborative relationships with families;
- use informal and formal assessment strategies to plan and individualize curriculum and teaching practices and use critical thinking as they interpret and plan based on assessment results;
- communicate their understanding of the effects of societal conditions, legal issues, and public policies affecting young children, families, and programs;
- apply effective practices for teaching young children and working with others as they participate in a variety of early and on-going clinical experiences with children (birth through eight years of age) and classroom teachers;

Primary education emphasis

- recognize how children's development and learning are integrated and use the central concepts and tools of inquiry for teaching language and literacy, mathematics, science, social studies, visual and performing arts, health and physical education;

Program management emphasis

- articulate a philosophy and rationale for decisions, work with others, and carry out management tasks associated with planning, organizing, staffing, leading, and monitoring and controlling for quality.

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 126 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, 58 credits in the major program core, and 17-23 credits in the major emphasis; 40 credits are required in upper division courses.

General Education Requirements

Art 1352—Art Design and Techniques (3 cr)
 Comp 1011—Composition I (3 cr)
 Comp 1013—Composition II (3 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Mus 3604—Music Methods and Materials for Children (BSU) (3 cr)
 Spch 1101—Public Speaking (3 cr)
 Communication electives (3 cr)
 General education electives (6 cr)
 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)

Program Requirements

Education Core (10 cr, both emphases)

Ed 3100—Introduction to the Foundations of Education (BSU) (3 cr)
 Ed 3110—Educational Psychology (BSU) (3 cr)
 Ed 3140—Human Relations in Education (BSU) (2 cr)
 Hlth 3400—Health and Drugs in Society (2 cr)



Early Childhood and Family Core (18 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 (3 cr)
 Ed 3670—Foundations of Early Childhood Education (BSU) (3 cr)

Infant and Toddler Education (13 credits, both emphases)

ECE 3410—Learning Environments for Infants and Toddlers (3 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 (BSU) (3 cr)

Primary Education Emphasis (23 cr; completes course requirements for Board of Teaching licensure)

Ed 3207—Reading in the Primary Grades (BSU) (3 cr)
 Ed 3301—Creative Expression in Elementary Education (BSU) (3 cr)
 Ed 3870—Mathematics in the Primary Grades (BSU) (3 cr)
 Ed 3877—Social Studies and Sciences in the Primary Grades (BSU) (3 cr)
 Ed 4827—Primary Student Teaching (BSU) (8 cr)
 Math 1011—Mathematics for Elementary Teachers (BSU) (3 cr)

Program Management Emphasis (17 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)
 Electives (2 cr)

Early childhood education majors work directly with children to develop active learning strategies.

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 or related business. Equine industries management career positions include managing 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 venues and facilities.

Equine Industries Management B.S. Program Outcomes

Equine industries management graduates will

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

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, 62 credits in the major, and 13 credits in electives; 40 credits are required in upper division courses.

General Education Requirements

Biol 1009—General Biology (3 cr)
 Biol 3022—Principles of Genetics (3 cr)
 Chem 1004—Principles of Chemistry I (4 cr)
 Chem 1401—Elementary Biochemistry (4 cr)
 Comp 1011—Composition I (3 cr)
 Comp 1013—Composition II (3 cr)
 Econ 2101—Microeconomics (3 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Math 1031—College Algebra and Analytical Geometry (3 cr)
 Math 1150—Elementary Statistics (3 cr)
 Spch 1101—Public Speaking (3 cr)
 General education electives (1 cr)
 Humanities electives (6 cr) (from at least two departments)
 Social science electives (3 cr)

Program Requirements

AnSc 1004—Introduction to Animal Science (4 cr)
 AnSc 2104—Feeds and Feeding (4 cr)
 AnSc 3023—Animal Breeding (3 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)

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 (4 cr)
 EqSc 3102—Equine Management (3 cr)
 EqSc 3403—Equine Exercise Physiology (3 cr)
 EqSc 3412—Equine Behavior and Training (1 cr)
 EqSc 3413—Horse Training and Showing (3 cr)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 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)
 Open electives (13 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

- demonstrate competencies in turfgrass systems management;
- understand the use of integrated pest management and resource preservation;
- demonstrate an awareness of the need for continuing professional development;
- demonstrate problem-solving skills in relation to turfgrass diseases, insects, weeds, and fertility issues;
- demonstrate skills in human relations and human resource management.

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—Introductory Chemistry (4 cr)
 Chem 1401—Elementary Biochemistry (4 cr)
 Comp 1011—Composition I (3 cr)
 Comp 1013—Composition II (3 cr)
 Econ 2101—Microeconomics (3 cr)
 ITM 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)
 GFTS 3077—Turf and Landscape Irrigation Design and Installation (2 cr)
 GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 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)
15 credits from the following:
 Agro 3130—Forages (3 cr)
 ASM 1034—Facilities Maintenance and Safety (3 cr)
 ASM 2250—Agricultural Machinery Management (3 cr)
 ASM 3009—Surveying (4 cr)
 Hort 1030—Residential Landscape Design (3 cr)
 Hort 3033—Commercial Floriculture Crops: Fall (4 cr)
 Hort 3034—Commercial Floriculture Crops: Spring (4 cr)
 Hort 3036—Plant Propagation (4 cr)
 Mgmt 3100—Managerial Finance (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Mgmt 3220—Human Resource Management (3 cr)
 Mgmt 3250—Operations Management (3 cr)
 Mgmt 3320—Small Business Management (3 cr)
 NatR 3203—Park and Recreation Management (3 cr)
 NatR 3344—Land Use Planning (4 cr)
 NatR 3630—Geographic Information Systems (4 cr)
 SRM 3000—Foundations of Sport and Recreation Management (3 cr)
 SRM 3003—Facilities and Equipment Management (3 cr)
 SWM 3225—Watershed Management (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

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

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 2101—Microeconomics (3 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Math 1031—College Algebra and Analytical Geometry (3 cr)
or Math 1131—Finite Math (3 cr)
or Math 1150—Elementary Statistics (3 cr)
 Psy 1001—General Psychology (3 cr)
 Spch 1101—Public Speaking (3 cr)
 Communication electives (3 cr)

General education electives (6 cr)
 Humanities electives (6 cr) (from two different departments)
 Math/natural science electives (3 cr)

Program Requirements

Acct 2101—Principles of Accounting I (3 cr)
 Acct 2102—Principles of Accounting II (3 cr)
 HSM 1010—Medical Terminology (2 cr)
 HSM 2010—Introduction to Health Services Organizations (2 cr)
 HSM 3020—Quality Improvement and Risk Management (3 cr)
 HSM 3030—Health Care and Medical Needs (2 cr)
 HSM 3100—Essentials of Managed Care (3 cr)
 HSM 3130—Health Management Information Systems (3 cr)
 HSM 3200—Management Leadership and Health Planning (3 cr)
 HSM 3230—Administration of Continuum Care Facilities (3 cr)
 HSM 3240—Health Care Policy and Comparative Systems (3 cr)
 HSM 3900—Internship (3 cr)
 HSM 4100—Health Care Finance (3 cr)
 HSM 4210—Health Care Law and Biomedical Ethics (3 cr)
 HSM 4212—Regulatory Management (3 cr)
 ITM 1020—Electronic Spreadsheets (3 cr)
 ITM 1060—Introduction to Database Management (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Mgmt 3210—Supervision and Leadership (3 cr)
 Mgmt 3220—Human Resource Management (3 cr)
 Mktg 3300—Principles of Marketing (3 cr)
 Open electives (15 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 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.

Resort/spa emphasis—Every day people face stress, pollution, and the strains of contemporary living. Spas and resorts promote well being by creating relaxing, natural, and exclusive

environments where people can feel pampered and reenergized. Depending on the focus of the spa or resort, a program or regimen can encompass food and nutrition, fitness, meditation and relaxation, or various health-related treatments.

Hotel, Restaurant, and Institutional Management B.S. Program Outcomes

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

- show competency in industry standards regarding financial accountability;
- demonstrate communication skills appropriate for the industry;
- use critical thinking processes to analyze hospitality systems;
- demonstrate collaboration within team settings;
- demonstrate appropriate use of technology as used in the hospitality industry.

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

Comp 1011—Composition I (3 cr)
 Comp 1013—Composition II (3 cr)
 Comp 3303—Writing in Your Profession (3 cr)
 Econ 2101—Microeconomics (3 cr)
 or Econ 2102—Macroeconomics (3 cr)
 ITM 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)
 Span 1104—Beginning Spanish I (4 cr)
 Spch 1101—Public Speaking (3 cr)
 General education electives (6 cr)
 Humanities electives (2 cr) (not from Spanish department)
 Math/natural science electives (9 cr) (3 cr must be a lab science)

Program Requirements

Acct 2101—Principles of Accounting I (3 cr)
 Acct 2102—Principles of Accounting II (3 cr)
 FScN 1123—Fundamentals of Nutrition (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 1231—Menu Design and Analysis (3 cr)
 HRI 3241—Hospitality Selection and Procurement (3 cr)
 HRI 3321—Food Beverage and Labor Control (3 cr)
 HRI 3421—Hospitality Law (3 cr)
 HRI 3451—Cases and Trends in Hospitality Management (3 cr)
 HRI 3900—Internship (I) (1-3 cr)
 HRI 3900—Internship (II) (1-3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Mktg 3300—Principles of Marketing (3 cr)

Courses required for hotel/restaurant management emphasis

HRI 1211—Rooms Division Management (3 cr)
 HRI 3311—Restaurant Operational Management (3 cr)
 HRI 3331—Global Tourism (3 cr)
 HRI 3341—Hospitality Marketing and Sales (3 cr)

HRI 3411—Facility Layout and Design (3 cr)
 HRI 3431—Beverage Technology (3 cr)
 HRI 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)

Courses required for resort/spa emphasis

HRI 1211—Rooms Division Management (3 cr)
 HRI 3341—Hospitality Marketing and Sales (3 cr)
 Open electives (13 cr)

15 credits from the following:

FScN 1273—Medical Nutrition Therapy (3 cr)
 Hlth 1062—First Aid and CPR (2 cr)
 Hlth 1072—Wellness (3 cr)
 HRI 3311—Restaurant Operational Management (3 cr)
 HRI 3331—Global Tourism (3 cr)
 HRI 3411—Facility Layout and Design (3 cr)
 HRI 3431—Beverage Technology (3 cr)
 HRI 3441—Catering On and Off Premise (3 cr)
 HSM 2010—Introduction to Health Services Organization (2 cr)
 HSM 3030—Health Care and Medical Needs (3 cr)
 PER 1451—Fitness for Better Health (1 cr)
 PER 1461—Physical Training and Conditioning (1 cr)
 PER 1481—Aerobic Exercise (1 cr)
 PER 1601—Aquatic Exercise (1 cr)
 SRM 3001—Sports Nutrition (3 cr)
 SRM 3003—Facility and Equipment Management (3 cr)

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

- show competency in industry standards regarding financial accountability;
- demonstrate communication skills appropriate for the industry;
- use critical thinking processes to analyze hospitality systems;
- demonstrate collaboration within team settings;
- demonstrate appropriate use of technology as used in the hospitality industry.

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)
 ITM 1010—Introduction to Information Technology (3 cr)
 General education electives (6 cr)
 Humanities/fine arts electives (3 cr)
 Mathematics/science electives (3 cr)
 Social science elective (3 cr)

Program Requirements

Acct 2101—Principles of Accounting I (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)
 HRI 3900—Internship (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Mktg 3300—Principles of Marketing (3 cr)
 HRI or adviser-approved electives (14 cr)

Hotel, Restaurant, and Institutional

Management Certificate Program Outcomes

The HRI certificate program is designed to enhance students' job skill through courses that are directly applicable to hospitality management. The program is employment oriented and designed around active, results oriented learning. All courses are online (internet based) for distance delivery. All credits can be applied towards the associate or bachelors degree. The certificate program provides both depth and breadth.

Students who complete the hotel, restaurant, and institutional management certificate program will be able to

- show competency in industry standards regarding financial accountability;
- demonstrate communication skills appropriate for the industry;
- use critical thinking processes to analyze hospitality systems.

Hotel, Restaurant, and Institutional Management Certificate Requirements

Certificate Requirements: A total of 23 credits is required for completion.

HRI 1111—Introduction to Food Preparation (3 cr)
 HRI 1112—Sanitation and Safety (2 cr)
 HRI 1231—Menu Design and Analysis (3 cr)
 HRI 3241—Hospitality Selection and Procurement (3 cr)
 HRI 3321—Food Beverage and Labor Control (3 cr)
 HRI 3331—Global Tourism (3 cr)
 HRI 3341—Hospitality Marketing and Sales (3 cr)
 HRI 3421—Hospitality Law (3 cr)

Information Management

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

Information Management A.A.S. Program Outcomes

Information management graduates will

- demonstrate abilities in the use of information systems hardware, operating systems, word processing, database management, electronic spreadsheets, and Web site development software made by industry leading computer companies;
- use computer technology to communicate globally 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, 27 credits are required in general education and 37 credits in the major.

General Education Requirements

Comp 1011—Composition I (3 cr)
 Comp 1013—Composition II (3 cr)
 Econ 2101—Microeconomics (3 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Math 1031—College Algebra and Analytical Geometry (3 cr)
 Psy 1001—General Psychology (3 cr)
 Spch 1101—Public Speaking (3 cr)
 Humanities electives (3 cr)
 Lab science electives (3 cr)

Program Requirements

Acct 2101—Principles of Accounting I (3 cr)
 Acct 2102—Principles of Accounting II (3 cr)
 GBus 3107—Legal Environment in Business (3 cr)
 ITM 1020—Electronic Spreadsheets (3 cr)
 ITM 1060—Introduction to Database Management (3 cr)
 ITM 1200—Publishing and Programming on the Internet (3 cr)
 ITM 3040—Visual Basic (3 cr)
 ITM 3100—Microcomputer Systems Architecture (3 cr)
 ITM 3110—Microcomputer Operating Systems (3 cr)
 ITM 3120—Managing Local Area Networks (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Business/technology electives (4 cr)

Information Technology Management

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

Application development emphasis—This emphasis gives students a detailed understanding and the skills necessary for career positions requiring systems analysis, application programming, and software development abilities.

Systems administration emphasis—This emphasis gives students a detailed understanding and the skills necessary for career positions requiring local and wide area networking, operating systems, application services, programming, and software support abilities.

Information Technology Management B.S. Program Outcomes

Information technology management graduates will

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

Information Technology Management 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, 58 credits in the major, and 14 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 2101—Microeconomics (3 cr)
 Hum 3310—Culture and Technology (3 cr)
 ITM 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)
 Communication electives (3 cr)
 General education electives (9 cr)
 Humanities electives (3 cr)
 Math/natural science electives (6 cr) (3 cr of lab science and 3 cr of math or science)

Program Requirements

Acct 2101—Principles of Accounting I (3 cr)
 Acct 2102—Principles of Accounting II (3 cr)
 GBus 1981—Internship Seminar (1 cr)
 GBus 3107—Legal Environment in Business (3 cr)

ITM 1060—Introduction to Database Management (3 cr)
 ITM 3040—Visual Basic (3 cr)
 ITM 3100—Microcomputer Systems Architecture (3 cr)
 ITM 3110—Microcomputer Operating Systems (3 cr)
 ITM 3120—Managing Local Area Networks (3 cr)
 ITM 3145—HTML/XML (3 cr)
 ITM 3180—Advanced Database Management Systems (3 cr)
 ITM 3210—Introduction to Analysis and Design of Information Systems (3 cr)
 ITM 3900—Internship (3 cr)
 Mgmt 3100—Managerial Finance (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Mktg 3300—Principles of Marketing (3 cr)
 Open electives (14 cr)

Courses required for application development emphasis

ITM 3050—Advanced Visual Basic (3 cr)
 ITM 3070—C++/Java (3 cr)
 ITM 3150—WYSIWYG Web Site, Graphics, and Interface Design (3 cr)
 ITM 3190—Application Development Platforms (3 cr)

Courses required for systems administration emphasis

ITM 3130—Messaging Systems (3 cr)
 ITM 3215—Applied Hacking and Systems Security (3 cr)
 ITM 4010—Wide-Area Networking With TCP/IP (3 cr)
 Mgmt 3700—Project Management (3 cr)

Information Technology Management Minor

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

Information Technology Management Minor Program Outcomes

Students completing the information technology management minor will

- demonstrate abilities in the use of information systems hardware, operating systems, and industry leading computer applications;
- use computer technology in preparing programs, presentations, and written reports;
- demonstrate the ability to communicate clearly and concisely in written and oral communications through technical reports, solutions to information technology problems, and feasibility studies;
- demonstrate human relations and career/life adaptability skills in problem solving, decision making, and responding to change;
- demonstrate an environmental perspective in the development of solutions for business and information technology problem solving;
- demonstrate global and ethical perspectives in information technology management.

Information Technology Management Minor Course Requirements

A total of 18 credits is required for this minor.

General Education Requirements

Courses required by the students major program of study.

Minor Requirements

ITM 1060—Introduction to Database Management (3 cr)
 ITM 3040—Visual Basic (3 cr)
 ITM 3100—Microcomputer Systems Architecture (3 cr)
 ITM 3110—Microcomputer Operating Systems (3 cr)



Select 6 credits from the following:

ITM 3050—Advanced Visual Basic (3 cr)
 ITM 3070—C++/Java (3 cr)
 ITM 3120—Managing Local Area Networks (3 cr)
 ITM 3130—Messaging Systems (3 cr)
 ITM 3145—HTML/XML (3 cr)
 ITM 3150—WYSIWYG Web Site, Graphics, and Interface Design (3 cr)
 ITM 3160—Digital Audio and Video Production (3 cr)
 ITM 3180—Advanced Database Management Systems (3 cr)
 ITM 3190—Application Development Platforms (3 cr)
 ITM 3210—Introduction to Analysis and Design of Information Systems (3 cr)
 ITM 3215—Applied Hacking and Systems Security (3 cr)
 ITM 4010—Wide-Area Networking With TCP/IP (3 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.

Networked classrooms allow for a wide array of educational options for students and faculty.

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

Comp 1011—Composition I (3 cr)
 Comp 1013—Composition II (3 cr)
 Econ 2101—Microeconomics (3 cr)
 Math 1031—College Algebra and Analytical Geometry (3 cr)
 Spch 1101—Public Speaking (3 cr)

Program Requirements

Acct 2101—Principles of Accounting I (3 cr)
 BM 4034—Quality Standards (3 cr)
 Comp 3303—Writing in Your Profession (3 cr)
 Mgmt 3100—Managerial 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:

AgBu 1005—Global Food Systems (3 cr)
 AgBu 3050—Cereal Processing (3 cr)
 AgBu 3052—Meat and Dairy Processing (3 cr)
 AgBu 3053—Products and Markets (3 cr)
 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)
 ITM 3100—Microcomputer Systems Architecture (3 cr)
 ITM 3120—Managing Local Area Networks (3 cr)
 ITM 4010—Wide-Area Networking With TCP/IP (3 cr)
 Mgmt 3700—Project Management (3 cr)
 Mktg 1100—Introduction to Entrepreneurship (3 cr)
 Transfer credits or open electives (60 cr)

Manufacturing Certificate

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

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

Required Courses

BM 3005—Facilities Planning and Selection (3 cr)
 BM 3011—Manufacturing Operations and Logistics (3 cr)

Electives

BM 4034—Quality Standards (3 cr)
 Mgmt 3210—Supervision and Leadership (3 cr)

The following electives are strongly recommended

BM 3012—Applied Engineering Principles (3 cr)
 BM 3020—Industrial Safety (3 cr)
 Mgmt 3100—Managerial Finance (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Mgmt 3250—Operations Management (3 cr)
 Mgmt 3700—Project Management (3 cr)
 Mktg 3300—Principles of Marketing (3 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

- demonstrate a basic understanding of business decision-making;
- demonstrate the ability to communicate effectively;
- demonstrate a basic understanding of computer software applications;
- demonstrate basic knowledge of ethical/environmental issues;
- demonstrate basic knowledge and competency in the application of business management skills;
- demonstrate the capability to directly apply basic management leadership skills and principles to functional areas in a variety of career options.

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 2101—Microeconomics (3 cr)
 ITM 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 2101—Principles of Accounting I (3 cr)
 Acct 2102—Principles of Accounting II (3 cr)
 GBus 3107—Legal Environment in Business (3 cr)
 ITM 1020—Electronic Spreadsheets (3 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 (13 cr)

Music Minor

The music minor allows students to develop a concentrated course of studies in the area of music while pursuing a major in another area. It is primarily for students who plan earn a baccalaureate degree at UMC and are able to complete the music coursework over a period of at least four years. Students completing the minor may pursue opportunities in teaching beginning to intermediate piano lessons, playing church organ, directing volunteer choirs, directing community musicals, etc. The minor complements all UMC major degree programs.

Music Minor Program Outcomes

On completion of the program, students have

- developed musical interests through gaining a broader knowledge of music;
- developed vocal and/or instrumental skills for performance;
- developed an enhanced appreciation of the performing arts;
- experienced the study of music with other students interested in music;
- enhanced their ability to gain part time employment in the field of music.

Music Minor Requirements

Requirements: A total of 18 credits is required.

Mus 1021—Introduction to Music (3 cr)
 Mus 1111—Music Theory One (3 cr)
 Mus 1121—Music Theory Two (3 cr)

Music minor electives (3 credits) chosen from the following:

Mus 1011—Choir (lower division) (1 cr)
 Mus 1041—Private Instruction (1 cr)
 Mus 1042—Class Piano (1 cr)
 Mus 1051—Band/Pep Band (lower division) (1 cr)
 Mus 1071—Musical Theater (1 cr)

Upper division course requirements (6 credits) chosen from the following:

Mus 3011—University Singers (1 cr)
 Mus 3029—Music of the Twentieth Century (3 cr)
 Mus 3041—Private Instruction (1 cr)
 Mus 3051—Band/Pep Band (1 cr)
 Mus 3091—Choral and Instrumental Conducting (2 cr)
 Mus 3604—Elementary Music Methods for Children (3 cr)

Natural Resources

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

- natural resources management;
- wildlife management;
- park management;
- water resource management;
- natural resources law enforcement.

Natural Resources B.S. Program Outcomes

Natural resource graduates will

- apply an integrated approach to resource management that incorporates environmental, economic, and social considerations;
- demonstrate appropriate technical knowledge base and practical applications necessary for employment in the natural resources field;
- perform group problem solving, decision-making, and conflict management activities to function effectively in society;
- demonstrate oral and written communication skills appropriate for a beginning natural resource professional;
- be aware of the necessity of continuing education/development in order to be successful in a changing natural resources workplace.

Natural Resources—Natural Resources Management

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

Career opportunities include resource managers with county, state, and federal agencies as well as private conservation organizations; environmental and land use planner; land reclamation manager; and natural area manager.

Natural Resources—Natural Resource Management B.S. Program Outcomes

In addition to the natural resources program outcomes, natural resource management graduates will

- understand ecological and management principles that apply to wildlife, fish, forest, soil, water, and recreation resources.

Natural Resources—Natural Resource 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

All emphases except wildlife management and natural resources law enforcement.

Biol 1009—General Biology (3 cr)
 Biol 1103—General Botany (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)
 Econ 2101—Microeconomics (3 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Math 1031—College Algebra and Analytical Geometry (3 cr)
 Phys 1012—Introductory Physics (4 cr)
 Spch 1101—Public Speaking (3 cr)
 General education electives (1 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 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 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 (4 cr)
 NatR 3630—Geographic Information Systems (4 cr)
 Soil 1293—Soil Science (3 cr)

Program Requirements—Natural Resource Management Emphasis

AFSM 3009—Surveying (4 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 (2 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)

Natural Resources—Wildlife Management

This program is for students wishing a greater concentration on wildlife in relationship to habitat requirements and land management. The major focuses on terrestrial and wetland habitats and their mammal, bird, reptile, and amphibian associates with limited emphasis on fisheries management. Graduates of the emphasis fulfill the educational requirements for certification as an associate wildlife biologist by The Wildlife Society, the professional wildlife organization. Professional relationships and student development are enhanced by a student chapter of The Wildlife

Society. Because of the competitive nature of wildlife-related positions, there is a minimum 3.00 G.P.A. graduation requirement for this emphasis.

Career opportunities for wildlife management graduates are primarily with local, state, and federal agencies and private conservation organizations. Graduates may also pursue advanced graduate studies in wildlife research and management.

Natural Resources—Wildlife Management B.S. Program Outcomes

In addition to the natural resources program outcomes, wildlife management graduates will

- understand the interrelatedness and techniques used to manage vertebrate populations and their habitat;
- understand the dynamics of wildlife populations, habitats, and appropriate monitoring techniques.

Natural Resources—Wildlife Management Course Requirements (B.S.)

Degree Requirements: A total of 120 credits is required for graduation. Of this total, 50 credits are required in general education, 59 credits in the major, and 7 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)
 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)
 Econ 2101—Microeconomics (3 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Math 1031—College Algebra and Analytical Geometry (3 cr)
 Math 1150—Elementary Statistics (3 cr)
 Phys 1012—Introductory Physics (4 cr)
 Spch 1101—Public Speaking (3 cr)
 Humanities electives (6 cr) (from at least 2 departments)
 Social science electives (3 cr)

Program Requirements

See Natural Resources—Natural Resource Management Program Requirements.

Program Requirements—Wildlife Management Emphasis

AnSc 3203—Animal Anatomy and Physiology (3 cr)
 ASM 1034—Facilities Maintenance and Safety (3 cr)
 ASM 3009—Surveying (4 cr)
 NatR 3464—Mammalogy (3 cr)
 NatR 3466—Ornithology (3 cr)
 NatR 3468—Wildlife Habitat Management Techniques (3 cr)
 NatR 3654—Wildlife Ecology and Management (4 cr)
 NatR 3660—Prairie Ecosystem Management (2 cr)
 NatR 3699—Integrated Resource Management (3 cr)
 PIM 3030—Research Techniques (3 cr)
 Open electives (7 cr)

Natural Resources—Park Management

This emphasis provides an integrated approach to park and recreation area management. A combination of natural resources, horticulture, and management courses prepare students for park and resource management positions, typically with federal, state, county, and city recreation agencies. A series of wilderness management coursework is delivered collaboratively from the Arthur Carhart National Wilderness Training Center and School of Forestry 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 include park manager, assistant park manager, visitor use assistant, interpreter, city or county park maintenance supervisor or technician, backcountry/wilderness ranger, and recreation technician or aide.

Natural Resources—Park Management B.S. Program Outcomes

In addition to the natural resources program outcomes, park management graduates will

- understand the interrelatedness and techniques used to manage both visitor use and recreational resources.

Natural Resources—Park 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

See Natural Resources—Natural Resource Management General Education Requirements on page 50.

Program Requirements

See Natural Resources—Natural Resource Management Program Requirements on page 50.

Program Requirements—Park Management Emphasis

NatR 3203—Park and Recreational Area Management (3 cr)

NatR 3699—Integrated Resource Management (3 cr)

Agriculture/natural resources electives (15 cr)

Horticulture electives (7 cr)

Management electives (3 cr)

Open electives (12 cr)

Natural Resources—Water Resource Management

This emphasis blends general courses in natural resources with agriculture, geology, soils, fisheries management, water quality, and land use planning to provide a background focused on water resources. Watersheds are examined by land cover characteristics and computerized mapping technologies in relationship to field monitoring of lakes and streams.

Career opportunities include water planner; county wetlands coordinator; fisheries technician; environmental planner; watershed district manager; and conservationist with a county Soil and Water Conservation District, state Board of Water and

Soil Resources, or federal Natural Resources Conservation Service. Students also receive a background appropriate for pursuing graduate work in a soil and water related field.

Natural Resources—Water Resource Management B.S. Program Outcomes

In addition to the natural resources program outcomes, water resource management graduates will

- understand methods of assessing land management practices at the watershed scale and how they affect water quality;
- be able to measure and use appropriate water quality parameters to assess the health of aquatic systems;
- be able to recommend appropriate land and water management practices to achieve soil conservation and water quality goals.

Natural Resources—Water Resource 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

See Natural Resources—Natural Resource Management General Education Requirements on page 50.

Program Requirements

See Natural Resources—Natural Resource Management Program Requirements on page 50.

Program Requirements—Water Resource Management Emphasis

ASM 3009—Surveying (4 cr)

Geol 1001—Introductory Geology (3 cr)

NatR 3699—Integrated Resource Management (3 cr)

NatR 3722—Limnology (3 cr)

PIM 1030—Introduction to Plant Science (2 cr)

PIM 1031—Agronomy Laboratory (1 cr)

SWM 3009—Hydrology and Water Quality (4 cr)

SWM 3225—Watershed Management (3 cr)

SWM 3224—Soil and Water Conservation (4 cr)

Agriculture/natural resources electives (4 cr)

Open electives (12 cr)

Natural Resources—Natural Resources Law Enforcement

(A collaborative program with Bemidji State University)

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

Career opportunities include the following: conservation officer or game warden with state conservation agencies, U.S. Fish and Wildlife Service, U.S. Forest Service; ranger with county, state, or national parks; officer with local or state law enforcement agencies.

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

In addition to the natural resources program outcomes, natural resource law enforcement graduates will

- understand the role of education/law enforcement in natural resource management;
- be prepared to attend the peace officer's skills training academy.

Natural Resources—Natural Resources Law Enforcement 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)

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 (BSU) (3 cr)

ITM 1010—Introduction to Information Technology (3 cr)

Math 1031—College Algebra and Analytical Geometry (3 cr)

or Math 1150—Elementary Statistics (3 cr)

Phys 1012—Introductory Physics (4 cr)

Spch 1101—Public Speaking (3 cr)

General education electives (1 cr)

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

Social science electives (3 cr)

Program Requirements

See Natural Resources—Natural Resource Management Program Requirements on page 50.

Program Requirements—Natural Resources Law Enforcement Emphasis

CrJs 1120—Criminal Justice and Society (BSU) (4 cr)

CrJs 3304—Police Process (BSU) (4 cr)

CrJs 3315—Criminology (BSU) (3 cr)

CrJs 3334—Criminal Justice Planning (BSU) (4 cr)

CrJs 3358—Criminal Law (BSU) (3 cr)

CrJs 3359—Criminal Investigation (BSU) (3 cr)

CrJs 3360—Criminal Procedure (BSU) (3 cr)

CrJs 4480—Policing People (BSU) (3 cr)

NatR 3654—Wildlife Ecology and Management (4 cr)

Open 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, public grounds supervisor, and crop scout.

Plant Industries Management B.S. Program Outcomes

Plant industries management graduates will

- demonstrate appropriate skills necessary for employment in plant industry management (agronomy and/or horticulture);
- demonstrate skills in general education and management that provide a foundation for the applied curriculum;
- develop and demonstrate an attitude of continued inquiry and lifelong learning.

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 2101—Microeconomics (3 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Math 1031—College Algebra and Analytical Geometry (3 cr)
 or Math 1150—Elementary Statistics (3 cr)
 Spch 1101—Public Speaking (3 cr)
 Humanities electives (6 cr) (from at least 2 departments)
 Social science electives (3 cr)

Program Requirements (both emphases)

GnAg 2899/3899—Pre-Internship Seminar (.5 cr)
 GnAg 3900—Internship (2 cr)
 GnAg 3901—Post-Internship Internship Seminar (.5 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)
 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 Horticulture Laboratory (1 cr)

10 credits from the following:

GFTS 3072—Turf Management (3 cr)
 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)
 Agriculture electives (5 cr)
 Open electives (12 cr)

Scientific and Technical Communication

(A collaborative 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 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.



Applied internships are a part of every degree program at UMC.

Scientific and Technical Communication B.S. Program Outcomes

Scientific and technical communication graduates will demonstrate an ability to

- communicate proficiently in both verbal and visual dimensions using a range of print, graphics, and multimedia technologies;
- responsibly manage print and electronic data;
- translate technical and scientific concepts to a general audience;
- work collaboratively in media design and production as both leaders and team participants;
- 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.

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

Degree Requirements: A total of 120 credits is required for graduation. Of this total, 44 credits are required in general education, 61 credits in the major, and 15 adviser-approved credits in an emphasis area; 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)
 Hum 3310—Culture and Technology (3 cr)
 ITM 1010—Introduction to Information Technology (3 cr)
 Math 1031—College Algebra and Analytical Geometry (3 cr)
 Phys 1012—Introductory Physics (4 cr)
 Spch 1101—Public Speaking (3 cr)
 Humanities electives (6 cr)
 Social science electives (9 cr)

Program Requirements

Comp 2334—Technical Writing (3 cr)
 Comp 3313—Advanced Technical Writing: Software Documentation (3 cr)
 ITM 1060—Introduction to Database Management (3 cr)
or Rhet 4573—Writing and Managing Projects and Proposals (3 cr)
 ITM 3040—Visual Basic (3 cr)
or ITM 3145—HTML/XML (3 cr)
 ITM 3150—WYSIWYG Website, Graphics and Interface Design (3 cr)
 Math 1150—Elementary Statistics (3 cr)
 Rhet 1001—Introduction to the Major of Scientific and Technical Communication (UMTC) (1 cr)
 Rhet 3221—Theories of Human Communication (UMTC) (4 cr)
 Rhet 3257—Scientific and Technical Presentations (UMTC) (3 cr)
 Rhet 3266—Group Process, Team Building, and Leadership (UMTC) (3 cr)
 Rhet 3671—Principles and Application of Project Management and Design I (UMTC) (3 cr)
 Rhet 3672—Principles and Application of Project Management and Design II (UMTC) (3 cr)
 Rhet 4501—Usability and Human Factors in Technical Communication (UMTC) (3 cr)
 Rhet 4561—Editing and Style for Technical Communicators (UMTC) (3 cr)
 Rhet 5562—Theory and Practice in International Business Communication (UMTC) (3 cr)
 Spch 3431—Persuasion (3 cr)
 STC 2223—The Structure of English (3 cr)
 STC 3258—Information-Gathering Techniques in Scientific and Technical Communication (3 cr)
 STC 3652—Senior Seminar in Scientific and Technical Communication (2 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 adviser-approved credits (15 cr)

Because students declare and help design their own science and technology emphasis area, many courses can be applied toward the major. Students should contact the scientific and technical communication adviser at UMC for details.

Sport and Recreation Management

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

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

Sport and Recreation Management B.S. Program Outcomes

Sport and recreation management graduates will be able to demonstrate

- competencies in general business disciplines (i.e. management, marketing, finance) as related to sport and recreation management;
- skills in written and oral communication that relate to the sport and recreation industry;
- ability to apply industry-specific technological tools and operating procedures for sport and recreation;
- knowledge of human anatomy, physiology, health and wellness;
- team building skills and the ability to work in groups.

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 2101—Microeconomics—(3 cr)
or Econ 2102—Macroeconomics (3 cr)
 ITM 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 2101—Principles of Accounting I (3 cr)
 Acct 2102—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 (BSU) (3 cr)
 ITM 1020—Electronic Spreadsheets (3 cr)
 or ITM 1060—Introduction to Database Management Software (3 cr)
 or ITM 1200—Programming/Publishing to the Internet (3 cr)
 Mgmt 3100—Managerial Finance (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 Mgmt 3210—Supervision Leadership (3 cr)
 or Mgmt 3220—Human Resource Management (3 cr)
 or Mgmt 3600—Decision Support Systems (3 cr)
 or Mktg 3340—Marketing Research (3 cr)
 Mktg 3250—Promotional Strategies (3 cr)
 Mktg 3300—Principles of Marketing (3 cr)
 PER 1151-1791—physical education activities (7 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 4099—Seminar in Sport and Recreation Management (1 cr)
 ITM/Mgmt/Mktg electives (2 cr)
 Open electives (12 cr)

- 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 2334—Technical Writing (3 cr)
 Comp 3313—Advanced Technical Writing: Software Documentation (3 cr)
 ITM 1200—Programming and Publishing on the Internet (3 cr)
 Mgmt 3200—Principles of Management (3 cr)
 or Mgmt 3210—Supervision and Leadership (3 cr)
 Mktg 3300—Principles of Marketing (3 cr)
 Rhet 3257—Scientific and Technical Presentation (UMTC) (3 cr)
 or Rhet 4561—Editing and Style for Technical Communicators (UMTC) (3 cr)
 or STC 3701—Rhetorical Theory: Persuasion and the Literature of Science (3 cr)
 Spch 3431—Persuasion (3 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;