

This is the Course Descriptions, Organization, Policies, and World Wide Web Directory sections from the 1997-1999 University of Minnesota, Crookston Catalog

A prerequisite course listed by number only (e.g., prereq 3322) is in the same department as the course being described.

In prerequisite listings, comma means "and."

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## Accounting (Acct)

Acct 1020f,w,s. Principles of Accounting I. (4 cr; prereq Math 1001 or Math 1111 or instructor consent; T) Basic principles of the complete accounting cycle.

Acct 1030w,s. Principles of Accounting II. (4 cr; prereq 1511; T) Emphasis on accounting procedures for the assets and liabilities commonly found in business and/or introduction to accounting for partnerships and corporations.

Acct 1040s. Principles of Accounting III. (4 cr; prereq 1512; T) Introduction to management techniques and decision making using accounting data.

Acct 3020f. Intermediate Accounting I. (4 cr; prereq 1513) Review of the accounting cycle with advanced work in balance sheet presentation, income measurements, cash flow, and inventory valuation methods.

Acct 3030w. Intermediate Accounting II. (4 cr; prereq 1614) Continuation of 1614 with emphasis on plant and equipment, intangibles, long-term debt, investments, and paid-in capital.

Acct 3040s. Intermediate Accounting III. (4 cr; prereq 1624) Continuation of 1624 including comprehensive study of retained earnings, correcting errors, financial statement analysis, funds flow, and price level change.

Acct 3120f. Cost Accounting I. (3 cr; prereq 1511, 1512) Basic cost accounting procedures and the job order cost system.

Acct 3130w. Cost Accounting II. (3 cr; prereq 1643) Process cost system, standard costs, and various techniques of handling specialized cost accounting problems.

The following are accounting B.S. program requirements. This program is a shared major and cooperative degree with Bemidji State University, which offers these courses.

Acct 3060. Income Taxes I. (4 cr) Federal income tax laws and regulations concerning taxable income and tax computation as they affect individuals, partnerships, and corporations.

Acct 3070. Income Taxes II. (4 cr) See 3060.

Acct 3180. Government Accounting. (4 cr) Budget, report, and statement preparation; appropriations; conformity to laws; integrity of special funds.

Acct 3404. Advanced Accounting I. (4 cr) Accounting for partnerships and combined corporate entities, consolidated statements, fiduciary accounting, institutional accounting, international transactions, SEC and the accountant.

Acct 3405. Advanced Accounting II. (4 cr) See 3404.

Acct 3406. Auditing I. (4 cr) Auditor's duties and responsibilities. Kinds of audits and audit programs. Preparing audit working papers and financial statements, compiling audit data.

Acct 3407. Auditing II. (4 cr) Auditor's responsibility and liability, ethics and standard of professional conduct, auditing electronic data systems, applications of statistical audit techniques.

Acct 3409. Accounting Theory. (4 cr) Methodology, concepts, measurements, structure.

Acct 3410. Financial Accounting Problems. (4 cr) In-depth study of financial accounting problems adapted to current business conditions.

Acct 3411. Specialized Accounting Problems. (4 cr) In-depth study of managerial, tax, and nonprofit accounting problems adapted to current business conditions.

Acct 3420. Seminar in Management Accounting. (4 cr) Integrates economics and business finance; organization and behavior, including ethical considerations; public reporting standards; auditing and taxes; periodic reporting for internal and external purposes; and decision analysis, including modeling and information systems. For students interested in management accounting careers and the Certificate of Management Accounting (C.M.A.).

## Agricultural Aviation (AgAv)

AgAv 1102f. Introduction to Aviation I. (5 cr; 6 lect, 6 lab hrs per wk; T) Preparation for the FAA private pilot written examination. FAA regulations, weather, air and radio navigation, flight safety, emergency procedures, aerodynamics, aircraft performance, the flight computer.

AgAv 1103w. Introduction to Aviation II. (2 cr; 6 lect, 6 lab hrs per wk, 4 wks; T) Continuation of 1102. Students must complete appropriate flight lessons to satisfactorily complete the course.

AgAv 1251s. Aircraft Systems and Instruments. (4 cr; 4 lect, 6 lab hrs per wk; T) Flight instruments; reciprocating engines; propellers; electrical, environmental, hydraulic, pneumatic, fuel, ignition, lubrication, and pressurization systems. Students must complete appropriate flight lessons to satisfactorily complete the course.

AgAv 1252s. Basic Attitude Instrument Flying. (4 cr; 4 lect, 6 lab hrs per wk; T) Interpreting and operating VOR, ADF, DME, RNAV, RMI, HSI, and Flight Director systems. Instrument charts required for IFR flight. Students must complete appropriate flight lessons to satisfactorily complete the course.

AgAv 1396f,w,s. Conventional Aircraft Operations. (2 cr; 2 lect, 6 lab hrs per wk; T) Ground school and dual flight instruction for flight instructor endorsement to operate tailwheel airplanes.

AgAv 3353w. Airplane Aerodynamics. (4 cr; 4 lect, 6 lab hrs per wk; T) Maneuvers, flight computers, regulations, aerodynamics, performance, stability, control, weight and balance, and special flight conditions for commercial pilots. Students must complete appropriate flight lessons to satisfactorily complete the course.

AgAv 3354f. IFR Regulations and Procedures. (4 cr; 4 lect, 6 lab hrs per wk; T) Regulations, procedures, and publications for operating IFR in the national airspace system. Terminal and enroute procedures. Students must complete appropriate flight lessons to satisfactorily complete the course.

AgAv 3355f. Multiengine Systems and Procedures. (3 cr; 3 lect, 6 lab hrs per wk; T) Operating light, twin-engine airplanes. Pilot actions for managing normal and abnormal aircraft situations. Multiengine aircraft systems. Students must complete appropriate flight lessons to satisfactorily complete the course.

AgAv 3396s. Advanced Conventional Aircraft Operations. (2 cr; 2 lect, 6 lab hrs per wk; T) Ground school and dual flight instruction for advanced pilot maneuvering and flight applications of tailwheel airplanes. Students must complete appropriate flight lessons to satisfactorily complete the course.

AgAv 3412w. CFI Certification I. (4 cr; 4 lect, 6 lab hrs per wk; T) Flight instructor responsibilities and teaching concerns. Fundamentals of teaching and learning, flight training syllabi, effective evaluation and analysis of flight maneuvers associated with private pilot, commercial pilot, and flight instructor certificates.

AgAv 3414s. CFI Certification II. (3 cr; 3 lect, 6 lab hrs per wk; T) Continuation of 3412. Students must complete the CFI certificate to satisfactorily complete the course.

AgAv 3415f. Instrument Flight Instructor. (6 cr; 6 lect, 6 lab hrs per wk; T) Instructor responsibilities and techniques. Instrument flight, ATC system, charts, publications, IFR rules. Students must complete the instrument rating for a flight instructor certificate to satisfactorily complete the course.

AgAv 3416w. Multiengine Flight Instructor. (3 cr; 3 lect, 6 lab hrs per wk; T) Teaching in a multiengine airplane. Multiengine aerodynamics and performance, analysis of multiengine operations, engine out operations, flight instructor responsibilities, flight safety concerns, instrument flight maneuvers. Students must obtain a multiengine airplane rating for the CFI certification to satisfactorily complete the course.

AgAv 3603s. Aerial Application. (5 cr; 5 lect, 6 lab hrs per wk; T) State and federal regulations, aircraft performance, weight and balance determination, special techniques. Chemical precautions and rate calculations, environmental issues, flight training. Students must complete appropriate flight lessons to satisfactorily complete the course.

AgAv 3722f,s. CFI Practicum. (1cr; 6 lab hrs per wk; T) Practical work experience as a CFI in an FAR 141-approved curriculum supervised by an experienced flight instructor.

## Agricultural Economics (AgEc)

AgEc 1211f,w,s. Agricultural Computing. (1 cr; 1 lect, 1 lab hr per wk; T)

Microcomputer farm business applications. Farm records. Visicalc for decision making. Partial budgeting. Word processing.

AgEc 1374f,w. Farm Records and Analysis. (4 cr; 4 lect hrs per wk; T)

Farm records for enterprise analysis. Farm asset inventory. Depreciation procedures. Farm income tax. Net worth statement. Crop expense allocation. Feed allocation. Measures of earnings. Enterprise analysis.

AgEc 1584f,w. Professional Agriselling. (4 cr; 4 lect hrs per wk; T)

Use of technical and agricultural knowledge in the agricultural market. Planning and conducting informational meetings, exhibiting at farm and trade shows, importance of service and timeliness in agribusiness, and practice in making agrisales presentations.

AgEc 3001f. Applied Microeconomics. (4 cr; prereq Econ 1101, Math 1111; 4 lect hrs per wk; T)

Individual consumers, resource owners, business firms, market operation behavior in a free-enterprise economy as it relates to agribusiness. Use of economic principles to improve management decision making.

AgEc 3005s. Applied Macroeconomics. (4 cr; prereq Econ 1101, Econ 1102, Math 1111; 4 lect hrs per wk; T)

How do we measure our economy and what does it tell us? Students gather and analyze the varied amounts and types of information available about domestic and international economies to improve agribusiness management decisions.

AgEc 3404w,s. Agricultural Marketing. (4 cr; prereq Econ 1101; 4 lect hrs per wk; T)

The food and fiber system. Prices and marketing costs. Government programs. Commodity marketing, futures and strategies (simulation).

AgEc 3554f,w. Modern Farm Management and Technology. (4 cr; prereq Econ 1101; 4 lect hrs per wk; T)

Application of economic principles in problem solving and farm management decision making. Use of computer information systems in planning, development of enterprise, whole farm and cash flow budgets. Risk management strategies.

AgEc 3604f,s. Agricultural Finance. (4 cr; prereq Acct 1511, Econ 1101; 4 lect hrs per wk; T)

Analysis of investment opportunities and financing policies for farm and agribusiness firms. Financial documents. Legal aspects of credit. Financial intermediaries serving agriculture. Planning, organizing, and controlling business performance.

AgEc 3784w. Agricultural Business Sales and Management. (4 cr; prereq 1584; 3 lect, 2 lab hrs per wk; T)

Students work with agribusiness firms to assess their current business situation, future challenges and opportunities, and develop a plan for achieving desired outcomes. Student teams present plans to the class and representatives of the agribusiness firm.

## Agronomy (Agro)

Agro 1063f,s. Crop and Weed Identification. (3 cr; 1 lect, 4 lab hrs per wk; T)

Morphological characteristics used in plant and seed identification. Identifying economically important crops and weeds throughout the United States in all stages of growth.

Agro 1184f,w. Field Crops—Production Principles. (4 cr; 3 lect, 2 lab hrs per wk; T)

Principles and cultural practices used in growing certain row crops, small grains, oil and specialty crops.

Agro 1565s. Seed Conditioning and Technology. (5 cr; prereq 1063 or instructor consent; 3 lect, 2 lab hrs per wk; T)

Seed laws and certification standards, purity analysis, germination tests, vigor tests, principles of seed conditioning, and handling equipment. Tours of facilities processing small grains, sunflowers, grasses, and legumes.

Agro 1644w,s. Agricultural Chemicals. (4 cr; prereq Biol 1009, Soil 1294; 3 lect, 2 lab hrs per wk; T)

Nature and properties of agricultural chemicals primarily used as fertilizers, herbicides, insecticides, fungicides, and plant growth regulators.

Agro 3024f or w. Plant Breeding. (4 cr; prereq Biol 3022; 4 lect hrs per wk; fall, even yrs; winter, odd yrs; T)

Plant breeding applied to field and horticultural crops. Emphasis on genetic systems, quantitative inheritance, methods of hybridization, selection testing; increase, distribution, and certification of new varieties.

Agro 3034f or w. Weed Science. (4 cr; prereq 1644; 3 lect hrs, 2 lab hrs per wk; fall, odd yrs; winter, even yrs; T)

Mechanical, cultural, biological, and chemical weed control practices and factors affecting control. Herbicide classification and modes of action.

Agro 3060s. Research Techniques in Agronomy. (3 cr; 2 lect, 2 lab hrs per wk; T)

Experimental design and methodology in plant science research. Basic philosophy, data interpretation and analysis, and application of research information to practical management situations.

Agro 3110f. Forages. (4 cr; prereq 1184 or instructor consent; 3 lect, 2 lab hrs per wk; even yrs; T)

Characteristics, distribution, preservation, and uses of forage crops for pasture, silage, hay, and soil improvement. Cultural practices, disease and insect control, seed production, forage storage. Interrelationships between animals and plants as they relate to selection, production, and utilization of forage crops.

Agro 3120s. Grain and Seed Evaluation. (3 cr; prereq 1063, 1184 or 3110; 1 lect, 4 lab hrs per wk; T)

Analytical techniques, procedures, and practices used in interpreting official U.S. grain standards. Identifying seeds of crops, weeds, and diseases. Lab practice in grading grain according to the U.S. Standards for Grain.

Agro 3150f. Advanced Identification, Seed Analysis, and Grain Grading. (3 cr; prereq 1063, 1184, 3120 or instructor consent; 9 lab hrs per wk; T)

Advanced training in crop, weed, and disease identification, seed analysis, and grain grading (both plants and seeds). Students may compete in intercollegiate regional and national contests.

Agro 3164w. Plant Pathology. (4 cr; prereq 1184 or Hort 1010, Biol 1009; 3 lect, 2 lab hrs per wk; T)

Nature, diagnosis, and management of plant diseases. Identification, control, and life cycles of representative plant diseases significant in the Upper Midwest that illustrate plant pathology principles.

Agro 3484w. Specialty Crop Production. (4 cr; prereq 1184, 1644; 3 lect, 2 lab hrs per wk; T)

Principles of land selection, agricultural chemical alternatives, soil fertility, diseases and insect control, harvest and storage of specialty crops. Utilization, biology, optimizing production, and specialized marketing considerations based on potatoes, sugar beets, dry edible beans, canola, vegetable crops, buckwheat, and field peas.

Agro 3652w,s. Plant Industries Seminar. (4 cr; prereq sr standing; 4 lect hrs per wk; T)

Capstone course in which students participate individually and in teams in preparing and presenting discussions on agriculture topics and solving problems using scientific methods.

## Animal Science (AnSc)

AnSc 1014f,w. Introduction to Animal Science. (4 cr; 3 lect, 2 lab hrs per wk; T)

General principles of the livestock industry with emphasis on management, breeding, feeding, and care of dairy cattle, horses, beef cattle, sheep, and swine.

AnSc 1141f. Animal Evaluation. (1 cr [may be repeated for 3 cr max]; 2 lab hrs per wk; T)

Conformation, breed characteristics, type and their importance in evaluation. Techniques of evaluation and oral reasons.

AnSc 1204f. Feeds and Feeding. (4 cr; prereq high school chemistry or basic chemistry; 2 lect, 4 lab hrs per wk; T)

Identifying feed grains, forages, and supplemental feeds and additives commonly used in the Upper Midwest. Bushel weights, price and cost per unit calculations. Moisture content, contamination, and other factors influencing feed quality, nutritional value, price, and storage.

Introduction to feed nutrients, feed utilization, animal digestive tracts and nutritional requirements, and feed composition tables. Rudimentary ration formulation with cost calculations and feed budgets. Feed processing methods and their influence on storage, digestion, and value.

AnSc 1303w. Dairy Techniques. (3 cr; 1 lect, 4 lab hrs per wk; T)

Practical skills for quality milk production and the care and management of dairy cattle and calves.

AnSc 1442w,s. Advanced Animal Evaluation. (2 cr [may be repeated for 6 cr max]; prereq 1141; 4 lab hrs per wk; T)

Advanced techniques in evaluating and selecting cattle, sheep, and swine and preparing and delivering oral reasons.

AnSc 3004s. Principles of Animal Nutrition. (4 cr; prereq 1014, 1204, Chem 1001, Math 1001; 3 lect, 2 lab hrs per wk; T)

Composition of feeds and their use for livestock. Selecting feedstuffs, methods of formulating rations, practical applications to livestock industries.

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AnSc 3102s. Dairy Products. (2 cr; 2 lab hrs per wk plus dairy processing exper; T)

Chemical composition and nutritional value of milk and milk products. Microbiology, sanitation and food safety concerns for producers and consumers. Food processing experience at a dairy foods processing facility required.

AnSc 3220s. Animal Breeding. (4 cr; prereq Biol 3022; 3 lect, 2 lab hrs per wk)

Applying quantitative genetic principles to farm animal breeding. Emphasis on evaluating males, females, and breeding systems. Genetic improvement rates.

AnSc 3322w. Reproduction of Farm Animals. (4 cr; prereq 3454; 3 lect, 2 lab hrs per wk)

Growth, development, puberty, and maturation of the reproductive tract of selected mammals. Endocrinology of the reproductive process, including estrus cycle, pregnancy, and parturition. Reproduction as one component of successful livestock production and its inter-relationships with nutrition, disease, management practices, productivity, genetics, and environment. Heat detection, pelvic measurements, estrus synchronization, artificial insemination, rectal palpation for pregnancy. Planning successful animal reproduction programs.

AnSc 3404s. Applied Animal Nutrition. (4 cr; prereq 3004, Chem 1004, Chem 3001; 3 lect, 2 lab hrs per wk)

Applying nutritional principles to economical and successful feeding of swine, sheep, beef, horses, and dairy cattle. Nutrient requirements and how to meet them. Quality influences on nutritional value and pricing. Current concepts/research in the field with implications. Nutritional/metabolic diseases and disorders with emphasis on prevention through dietary management. Protein sources, protection, nonprotein nitrogen. Micronutrients of concern and how supplied. Formulation of adequate diets including supplemental and/or complete feeds.

AnSc 3454f. Animal Anatomy and Physiology. (4 cr; prereq Biol 1009; 3 lect, 2 lab hrs per wk; T)

Anatomy and physiology of cattle, sheep, horses, and swine. Organization of the body into tissues and organs, identification and comparison and contrast of different species. Growth, development, and function of selected bodily systems. Pathological conditions that can be anticipated in each.

AnSc 3601s. Swine Production and Management. (4 cr; prereq 1014, 3004 or instructor consent; 3 lect, 2 lab hrs per week; odd yrs)

Breeding, feeding, managing, selecting, marketing, and managing health. Farrowing and raising of pigs, breeding and management of the sow herd, replacements and boars. Use of computer technology in records (Pig Champ), nutrition, and management.

AnSc 3602s. Sheep Production and Management. (4 cr; prereq 1014, 3004 or instructor consent; 3 lect, 2 lab hrs per wk; even yrs)

Sheep management using feeding, breeding, selection, health, and physiological materials from prior coursework. Lambing, feeding lambs, breeding, and applying emerging technologies as appropriate. Computer records, ewe indexing, ration formulation, evaluation.

AnSc 3603f. Beef Production and Management. (4 cr; prereq 1014, 3004 or instructor consent; 3 lect, 2 lab hrs per wk; odd yrs)

Application of nutrition, genetics, physiology, economics and evaluation techniques to production and management of beef cattle enterprises. Health management and beef cattle disease production. Computer simulations; CHAPS analysis of a cow herd.

AnSc 3604f. Dairy Production. (4 cr; prereq 1014, 3004 or instructor consent; 2 lab hrs per wk; T)

Growth and development of dairy cattle. Genetics and breeding, dairy nutrition, growth and development of the heifer to first calving, getting cows into production and their subsequent management.

AnSc 3654s. Animal Health and Disease. (4 cr; prereq 3454; 3 lect, 2 lab hrs per wk)

Diseases that affect farm animals with emphasis on preventive health practices, health management plans, and immunology. Influence of environment and other stress factors on animal health with emphasis on alleviating stressors. Labs on animal health management skills.

AnSc 3703s. Animal Science Seminar. (2 cr; prereq sr standing or approval; 2 lect hrs per wk; T)

Survey of current literature; presenting special topics. Preparing abstracts, outlines, and visual aids as appropriate. Evaluating seminars. Using library and other resources, including computerized search.

AnSc 3904s. Dairy Farm Management. (5 cr; prereq 3604, AgEc 3554; 3 lect, 4 lab hrs per wk; T)

Planning, budgeting (cash, feed, machinery, etc.), facilities, labor force, implementing programs, and other factors required for the successful operation of a modern dairy operation. Field trips.

## Applied Studies (ApIS)

ApIS 3001f,w,s. Individual Program Development. (2 cr)  
Research and design individual program of study that demonstrates integration of completed and proposed courses into a degree plan that includes appropriate outcomes related to individual career objectives.

ApIS 3652. Applied Studies Seminar. (2 cr; prereq within 18 cr of degree completion, adviser consent; on demand)

Capstone course in which current issues are studied; students present projects demonstrating integration of coursework, application of technology, and senior-level competence in selected areas of study.

ApIS 3803f,w,s,su. Directed Studies. (1-4 cr [may be repeated for 9 cr max]; prereq upper div status, adviser consent, div approval)  
Designed by the students and faculty member to meet individual student needs in an area not included in a regular course.

ApIS 3900f,w,s,su. Internship/Field Experience. (1-4 cr [may be repeated for 4 cr max]; prereq adviser consent; T)  
Supervised professional work experience at selected sites. Reports and consultation with faculty adviser and employer.

## Art (Art)

Art 1152f. Drawing and Design. (2 cr; T)

Basic elements of drawing and design. Pencil, pen and ink, charcoal, soft pastels. Foundations of perspective, value, composition through landscape, still life, some figure drawing.

Art 1252w. Color and Design. (2 cr; T)

Color theory and application of design techniques. Applying watercolors, pen and ink with watercolors, soft pastels and charcoal, colored pencils, oils, or acrylics to fabric, wood, masonite, canvas, and/or watercolor paper.

Art 1352s. Art Design and Techniques. (2 cr; T)

Basic concepts of three-dimensional design applied to various projects emphasizing structure. A variety of media including clay.

## Bachelor of Applied Health (BAH)

BAH 3010w. Budget Planning, Development, and Management. (4 cr; prereq jr standing; T)

Principles of departmental and unit budgeting. Operating expenses, capital and cash budgets, budget reports and variances. Students generate a departmental or unit budget in a selected clinical area.

BAH 3020s. Quality Assurance, Utilization Review, and Risk Management. (4 cr; prereq jr standing; T)

Examines quality assessment activities in health care facilities. Emphasis on case management, utilization review, patient care evaluation, and risk management activities. Methodologies and strategies include quantitative and qualitative data analysis. Students generate or update a Quality Assurance Plan.

## Bachelor of Manufacturing (BM)

BM 3010f,w,s. Materials Handling and Logistics. (4 cr; prereq Econ 1101; T)

Accurately and efficiently controlling the movement of materials. Managing the physical flow of products and how that links with the organization's major function (e.g., finance, marketing, operations management).

BM 3020f,w,s. Industrial Safety. (4 cr; T)

Comprehensive approach to safety problems in the workplace, including OSHA standards, developing safety awareness, safety auditing, and hazard analysis.

BM 3703f,w,s. Individual Studies. (1-4 cr; prereq jr standing)

Individualized study of current topics in the student's major or a supporting discipline. Specific content and credit depend on student's interest, needs, and depth of study.

BM 3900f,w,s,su. Internship. (2-4 cr; prereq jr standing)  
Supervised professional work experience in production organizations. Reports and consultation with faculty adviser and employer.

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## Biology (Biol)

Biol 1009f,w,s. General Biology. (5 cr; prereq high school biology; 4 lect, 2 lab hrs per wk; T)

Introduction to major biological concepts and cellular processes common to various life forms, with emphasis on cell structure reproduction, genetics energy transformations, population dynamics, ecology, and homeostatic mechanisms.

Biol 1103w. General Botany. (4 cr; prereq 1009; 3 lect, 2 lab hrs per wk; T)

Fundamental principles of plant biology with emphasis on morphology, anatomy, taxonomy, evolution, and physiology.

Biol 1106s. General Zoology. (4 cr; prereq 1009; 3 lect, 2 lab hrs per wk)

Survey of animal phyla; structure, function, behavior, adaptation, evolutionary relationships.

Biol 1464f. Human Anatomy and Physiology I. (4 cr; 3 lect, 2 lab hrs per wk)

Systematic study of structure and function of human body systems: integumentary; skeletal, muscular, circulatory, lymphatic, respiratory.

Biol 1474w. Human Anatomy and Physiology II. (4 cr; prereq 1464; 3 lect, 2 lab hrs per wk)

Systematic study of structure and function of human body systems: digestive, urinary, nervous, endocrine, reproductive.

Biol 1565. Microbiology. (3 cr; 2 lect, 2 lab hrs per wk; on demand; T)

Microbes—structure, growth, requirements, controls. Emphasis on aseptic techniques, body defenses, diseases, and applied microbiology.

Biol 1665w. Microbiology. (4 cr; prereq 1009 or 1464; 3 lect, 2 lab hrs per wk; T)

Morphology, classification, and culturing of bacteria and other economically important microorganisms.

Biol 3022s. Principles of Genetics. (4 cr; prereq 1009, Chem 1004, Math 1111; 3 lect, 2 lab hrs per wk)

Basic principles of Mendelian inheritance, molecular genetics, aberrations and their implications in populations. Computer simulations.

Biol 3131s. Plant Physiology. (4 cr; prereq 1103, Chem 1004 or Chem 1401; 3 lect, 2 lab hrs per wk; odd yrs; T)

Plant functions with emphasis on higher plants. Growth and development, mineral nutrition, translocation, water relations, photosynthesis, and nitrogen metabolism.

Biol 3722s. Limnology. (4 cr; prereq 1103, Chem 1005, Phys 1001; 2 lect, 4 lab hrs per wk; even yrs; T)

Inland waters, including lakes, ponds, and rivers, and their ecology, geology, and chemistry. Impact of human activities on natural environments studied to help students make practical applications in industry, agriculture, and natural resources.

## Chemistry (Chem)

Chem 1000f,w,s. Basic Chemistry. (4 cr; prereq high school algebra or equiv; 3 lect, 3 lab hrs per wk; T)

Structure of matter. Atomic and molecular structure and chemical change.

Chem 1001f,w,s. Introductory Chemistry. (4 cr; prereq high school algebra; high school chem recommended; 3 lect, 3 lab hrs per wk; T)

Atomic and molecular structure, nomenclature, quantitative relationships, solution chemistry, concepts of equilibrium, acid/base chemistry.

Chem 1004f,w. General Principles of Chemistry I. (5 cr; prereq equiv 2 yrs high school algebra, 1 yr high school chem; high school phys and math recommended; 4 lect, 3 lab hrs per wk; T)

Inorganic chemistry, atomic theory and structure, periodicity of elements, basic rules of oxidation and chemical combination. Solution chemistry with emphasis on acid, base, solubility, and equilibrium.

Chem 1005w,s. General Principles of Chemistry II. (5 cr; prereq 1004; 4 lect, 3 lab hrs per wk; T)

Behavior of gases, thermodynamics, properties of solutions, solution equilibria, oxidation/reduction reactions, topics in chemistry of common metals and nonmetals.

Chem 1401w,s. Elementary Biochemistry. (4 cr; prereq 1001 or 1004; 3 lect, 3 lab hrs per wk; T)

Elementary survey of biochemistry beginning with an introduction to organic chemistry as it is applied to important biochemical molecules. Intended for students who require a general, non-intensive introduction to biochemistry.

Chem 3031w. Biochemistry. (4 cr; 3 lect, 2 lab hrs per wk; beginning 1999)

Structure, function, and nomenclature of biological molecules including proteins, carbohydrates, lipids, and nucleic acids. Mechanism of enzyme and coenzyme reactions. Metabolic pathways. Nucleic acid function and protein synthesis.

## Composition (Comp)

Comp 0990. Writing Essentials III. (2 cr; on demand; T)

Students continue to practice writing paragraphs, organizing them into coherent papers. Writing process emphasized. (Credit does not apply toward graduation or transfer.)

Comp 1011f,w,s. Composition I. (4 cr; T)

Process of clear, concrete, and convincing writing. Generation and discovery of subjects, revision, editing.

Comp 1013f,w,s. Composition II. (4 cr; prereq 1011; T)

Writing summaries, reports, research papers, critiques.

Comp 1101w. Creative Writing. (4 cr; prereq 1011; T)

Introduction to creative writing—fiction, poetry, memoir. Characterization, plot, setting, dialogue. Students read and discuss published fiction as well as each other's writings.

Comp 1334s. Technical Writing. (4 cr; prereq 1013)

Methods of exposition and design principles in scientific and technical writing; types of reports; systematic procedures to solve technical and communication problems; audience analysis; practice in report writing.

Comp 3024f,w,s. Advanced Composition. (4 cr; prereq 1013; T)

Writing about subjects related to students' university academic disciplines and beyond. Emphasis on a variety of writing situations and writing for specific audiences and to solve special problems.

Comp 3303s. Professional Writing. (4 cr; prereq 1013; T)

Developing persuasive writing skills for academic, personal, and professional purposes. Effective communication principles, audiences, formats, and technologies.

Comp 3313w. Advanced Technical Writing. (4 cr; prereq 1334)

Designing documents and reports to meet user's needs and transfer technical and scientific knowledge for specific audiences.

## Continuing Education (CnEd)

Special classes in general, adult, and continuing education offered in response to student and community needs and interests.

CnEd 1000-1999f,w,s. Selected Topics. (Cr var)

## Early Childhood (ECh)

ECh 1104w. Child Growth and Development. (4 cr; T)

Human development and behavior from prenatal period through age eight. Emphasis on physical, cognitive, language, social, and emotional development.

ECh 1304f. Introduction to Early Childhood Care and Education. (4 cr; T)

Introduction to the early childhood profession, including historical and social foundations, awareness of value issues and ethical issues in working with children and their families. Includes career opportunities, concepts of quality and developmental appropriateness, indicators for high-quality early childhood programs, research on early intervention programs, current conditions in the field and the role of advocacy for children and their families.

ECh 1344s. Creative Arts and Language Arts in Early Childhood Education. (4 cr; 3 lect, 2 lab hrs per wk; T)

Creative curriculum areas of art, music, movement, and language arts emphasizing development of emerging literacy (listening, speaking, prewriting, prereading), planning, implementing and evaluating activities. Emphasis on developmentally appropriate materials and learning experiences.

ECh 1364f. Mathematics and the Sciences in Early Childhood Education. (4 cr; 3 lect, 2 lab hrs per wk; T)

Inquiry curriculum areas—math, science, social studies, nutrition, health and safety. Planning, implementing, and evaluating activities. Emphasis on developmentally appropriate materials and learning experiences.

ECh 1404f. Children's Health, Safety, and Nutrition. (4 cr; T)

Interrelationship of health, safety, and nutrition. Emphasis on promoting good health practices and developing behaviors to prevent disease.

ECh 1414f. Child Guidance and Discipline. (4 cr; prereq soph status; 3 lect, 2 lab hrs per wk; T)

Examination and implementation of learning principles relevant to child guidance. Supervised participation in an early childhood program with emphasis on guidance techniques and understanding children.

ECh 1544w or s. Education of Exceptional Children. (4 cr; prereq 1104, soph status; T)

Overview of special education. Definitions, categories of exceptionality, legal basis for special education, placement decisions and service delivery, assessment practices, collaborative roles of regular and special personnel, curriculum adaptations for children with special needs.

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ECh 1999w. Child Development Practicum. (7 cr; prereq 1344, 1364, 1414; T)  
Supervised experience in program planning and classroom management as students assume responsibilities for groups of children in an early childhood developmental program.

ECh 3134f. Infant and Toddler Programming and Practices. (4 cr; prereq 1104, 1304, 1404; T)  
Examine, integrate, and evaluate practical and theoretical issues relating to developing programming for infants and toddlers, including infant/toddler development, curriculum development, teacher and caregiver roles, working with parents, administrative concerns, and program evaluation.

ECh 3304f. Parenting: Fathers, Mothers, and Children. (4 cr; T)  
Practical knowledge of parenting roles. Interrelationships of fathers, mothers, and children. Current issues in parenting including attachment, discipline, child care, family crisis, support systems, and nontraditional parent situations. Parenting options, values, and decision making.

ECh 3334w. Child Guidance Theories and Practices. (4 cr; prereq 1104 or Psy 1093 or instructor consent; 3 lect, 2 lab hrs per wk)  
Compare and contrast theories and principles of child guidance individually and in groups. Emphasis on behavior causes, consequences, and management in both classroom and home environments. Observing and demonstrating strategies.

ECh 3424s. Home, School, and Community Relations. (4 cr; prereq Jr or sr status; T)  
Examination and critique of practices among professionals, parents, and community members and agencies. Strategies for establishing optimal environments for children and enhancing family strengths.

ECh 3434s. Administration of Early Childhood Programs. (4 cr; prereq 3600)  
Application of developmental theory, human ecological system framework, and management theory. Survey of management processes, principles, and tasks. Emphasis on government regulations, community relations, staff development, child care advocacy, and financial resource management including grant writing.

ECh 3600f,w,s. Practicum in Early Childhood Programs. (4 cr [may be repeated for 8 cr max]; prereq 3234, 3334; 12 lab hrs per wk)  
Experiential practicum in approved settings with young children, program staff, and parents. Supervised teaching experiences. Infant and toddler, preschool, and school-age placement with department approval.

ECh 3602w,s. Seminar for Early Childhood Practicum. (2 cr; prereq concurrent enrollment in 1999 or 3600)  
Assessment of practicum experiences with children. Portfolio of child development and teacher education competency areas required.

ECh 3604f,w,s. Practicum in Early Childhood Management. (4 cr; prereq 3600; 12 lab hrs per wk)  
Experiential practicum in approved educational or human service programs serving young children and parents. Emphasis on mentoring relationships and skill building for decision making.

## Economics (Econ)

Econ 1101f,w,s. Microeconomics. (4 cr)  
Pricing, resource allocation, consumption. Supply and demand, cost of production, consumer behavior. Competition and the influences of market structure.

Econ 1102f,w,s. Macroeconomics. (4 cr; T)  
Determinants of national income, national income accounting, unemployment, inflation, economic growth. Classical, Keynesian, and more recent theories. Money and banking, monetary and fiscal policy, international economic relations compared to other developed nations and less developed nations.

## Education (Ed)

The following fulfill the prekindergarten teacher licensure component of the early childhood program management B.S. This program is a shared major and cooperative degree with Bemidji State University (BSU). These BSU courses are offered to students who meet the teacher education admission criteria.

Ed 3210w or as needed. Human Relations. (3 cr)  
Causes and psychological dynamics of racism, sexism, and other forms of human oppression.

Ed 3660f. Foundations of Kindergarten and Early Childhood Education. (4 cr)

Social, psychological, historical, and educational foundations of kindergarten and prekindergarten programming. How modern programs adapt curriculum and instruction to development levels and backgrounds of young children. Content geared toward teaching kindergarten or prekindergarten. Visitations at level of professional interest required.

Ed 3670s. Relations and Management in Early Childhood Education. (4 cr)

Study and development of skills in relations with young children, parents, and coworkers. Guidance and group management techniques for working effectively with prekindergarten and young school-age children. Experience in prekindergarten and school settings.

Ed 3680s or as needed. Child Development and Early Childhood Education. (3 cr; prereq 3660)  
Major domains of development in early childhood education are studied and related to learning environment, curriculum, and teaching methods. Selected samples of programming for young children are analyzed for developmental appropriateness. Educational practices responsive to developmental characteristics are synthesized.

Ed 3760w or s. Communications in Early Childhood Education. (3 cr)  
Teaching techniques to develop communication and expression skills in young children. Emphasis on communication between teacher and child, language experience approach to beginning reading and writing, and child expression through art, music, and play. Provides a foundation for language arts in the primary grades and is part of the Kindergarten Endorsement Program. Visitations at level of professional interest required.

Ed 3810s or as needed. Teaching Young Children With Special Needs. (3 cr)  
Important aspects of education for young children in special education and mainstream settings. Students relate experiences working with young special-needs children to a developing educational philosophy.

Ed 3880su or as needed. Prekindergarten Student Teaching. (4-6 cr; prereq completion of all prekindergarten licensure courses)  
Students integrate theory and practice through working as a member of a teaching team in a licensed early childhood center. Thirty (30) clock hours are necessary for each quarter hour of credit. This is the final course in the prekindergarten licensure program. This course is also required for Special Education: Early Childhood Licensure. Requirements: journals and weekly seminar sessions. Graded satisfactory/unsatisfactory only.

## Equine Science (EqSc)

EqSc 1103f. Introduction to Equine Science. (3 cr; 2 lect, 2 lab hrs per wk; T)  
Survey of visual appraisal, structure, uses, and care of light horses. Breeds of horses and their characteristics, including soundness evaluation.

EqSc 1113f. Stock Seat Equitation. (3 cr; 1 lect, 4 lab hrs per wk; T)  
Western riding techniques. Emphasis on correct position of hands, seat, and legs.

EqSc 1122f,s. Light Horse Driving. (2 cr; 4 lab hrs per wk; T)  
Types of harness and driving vehicles, harnessing and driving techniques. Training techniques for the driving horse.

EqSc 1141f. Equine Evaluation. (1 cr [may be repeated for 3 cr max]; 2 lab hrs per wk; T)  
Conformation, breed characteristics, and type and their importance in evaluation. Horse colors, markings, and structural defects. Techniques of evaluation and oral reasons.

EqSc 1213w. Hunt Seat Equitation. (3 cr; prereq 1113 or instructor consent; 1 lect, 4 lab hrs per wk; T)  
Developing hunt seat skills and techniques, including how to ride a course of jumps. "Centered riding" techniques. Basic dressage maneuvers.

EqSc 1313s. Saddle Seat Equitation. (3 cr; prereq 1113 or instructor consent; 1 lect, 4 lab hrs per wk; T)  
Saddling, mounting, seat and hands, other saddle seat techniques. Developing equitation skills for saddle seat riding and showing.

EqSc 1442w. Advanced Equine Evaluation. (2 cr [may be repeated for 6 cr max]; prereq 1141; 4 lab hrs per wk; T)  
Advanced techniques in evaluating and selecting performance horse classes and preparing and delivering oral reasons. Scoring systems and differences between objective and subjective evaluation.

EqSc 1514w. Stable Management. (4 cr; 3 lect, 2 lab hrs per wk; T)  
Fundamentals of horse care and management, including efficient stable management. Computer record keeping, marketing and sales techniques.

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EqSc 3413f,w,s. Training and Showing. (3 cr [may be repeated for 9 cr max]; prereq two equitation courses, Jr standing; 6 lab hrs per wk; T)

All aspects of training horses. Students may work with untrained young horses or maintain or correct problems in older show horses. Various training techniques demonstrated; research papers completed on chosen techniques.

EqSc 3456s. Equine Exercise Physiology. (4 cr; prereq 3454; 3 lect, 2 lab hrs per wk; T)

Skeletal, muscular, cardiovascular, and regulatory systems of the horse. Emphasis on effect of work-related stress (mental and physical) using various physiological measures and how the various systems relate to one another; how various types of conditioning can affect each of them separately or as a whole.

EqSc 3624s. Horse Production. (4 cr; prereq 1103, 1204, 1514 or instructor consent; 3 lect, 2 lab hrs per wk; T)

Capstone course that combines knowledge from all previous equine and business courses to complete a management project. Project involves establishing, maintaining, and improving an equine business using computer technology.

EqSc 3703f,w,s,su. Individual Studies. (1-3 cr [may be repeated for 9 cr max]; prereq jr standing)

Individualized study of current topics in equine science or supporting discipline. Specific content and credit depend on student's interest, needs, and depth of study.

EqSc 3725f,w,s. Group Studies. (1-5 cr [may be repeated for 9 cr max]; prereq instructor consent)

Studies of a topic under faculty supervision.

EqSc 3900f,w,s,su. Internship. (1-4 cr; prereq soph standing; T)

Supervised professional work experience in equine businesses to help students gain an in-depth understanding of their field of study. Reports and consultations with faculty advisors and employers.

## Food Science and Nutrition (FScN)

FScN 1123f. Nutrition. (3 cr; T)

Basic functions and makeup of food substances. Food habits, fads, adequate diets, nutritional diseases.

FScN 1201f,w. Nutritional Counseling: Weight Control. (1 cr; T)

Successful weight control methods including behavior modification. Opportunity to review weight control principles in lab setting under guidance of instructor and dietetic technician students.

FScN 1273s. Diet Therapy I. (3 cr; prereq 1123; T)

Diets used as therapy for diabetes, heart disease, and gastrointestinal disease. Emphasis on diabetic exchange system and low sodium diet planning.

FScN 1312s. Nutrition Through the Life Cycle I. (2 cr; prereq 1123; T)

Nutritional needs during pregnancy, infancy, and childhood. Lectures, films, guest speakers.

FScN 1412s. Nutrition Through the Life Cycle II. (2 cr; prereq 1123; T)

Nutritional needs during the adult and later years. Lectures, films, guest speakers.

FScN 1513w. Advanced Nutrition. (3 cr; prereq 1273; T)

Nutrition concepts with emphasis on interrelationships among nutrients. Current controversial nutrition topics.

FScN 1654f. Nutritional Care: Principles and Practices. (4 cr; 3 lect, 2 lab hrs per wk; T)

Application of nutritional principles and practices in health care facilities, including medical terminology, medical charting, and diet histories. State and federal nutrition guidelines and regulations.

FScN 1672s. Dietetic Seminar. (2 cr; prereq soph status; T)

Literature review and presentation of research papers in student-selected areas of nutrition or food service management.

FScN 1703w. Diet Therapy II. (3 cr; prereq 1273, concurrent regis in 1999; T)

Diets used in treatment of kidney disease, cancer, and burns. Emphasis on use of tube feedings, nutritional assessments, and diet modifications.

FScN 1999f,w,s. Dietetic Practicum. (1-3 cr; T)

Supervised experience in variety of health care and nutrition settings. Application of classroom theories to actual operations.

FScN 3310s. Elements of Food Science. (4 cr; 3 lect, 2 lab hrs per wk; prereq Chem 1001 or Chem 1004; T)

Chemical and physical properties of foods and principles of food selection and preparation. Lab illustrates lecture topics and demonstrates applications of scientific principles used in food preparation and processing.

FScN 3493f. Institutional Food Service Administration. (3 cr; prereq HRI 1112; T)

Management principles in an institutional food service with emphasis on quality assurance, public relations, computer applications, financial controls, employee training, and health care legislation.

## General Agriculture (GnAg)

GnAg 3652w,s. Agricultural/Natural Resource Seminar. (2 cr; prereq jr or sr standing; 2 lect hrs per wk)

Current issues in agriculture and natural resources. Oral presentations and discussion by students and faculty.

GnAg 3703f,w,s,su. Individual Studies. (1-3 cr [may be repeated for 9 cr max]; prereq jr standing)

Individualized study of current topics in student's major concentration of study or supporting discipline. Specific content and credit depend on student's interest, needs, and depth of study.

GnAg 3725f,w,s. Group Studies. (1-5 cr [may be repeated for 9 cr max]; prereq instructor consent)

Studies of a topic under faculty supervision.

GnAg 3900f,w,s,su. Internship. (1-4 cr; prereq soph standing; [may be repeated to 6 cr max]; T)

Supervised professional work experience in agricultural businesses and government agencies to help students gain an in-depth understanding of their field of study. Reports and consultations with faculty advisers and employers.

## General Business (GBus)

GBus 1023w,s. Consumer Economics. (3 cr)

Application of economic principles to major consumer decisions. Personal and family finance problems that confront the American consumers. Immediate and foreseeable future needs of college students as consumers and citizens.

GBus 1113f. Beginning Keyboarding. (3 cr; T)

Mastering the computer keyboard using the touch system.

GBus 1603s. Principles of Insurance. (3 cr; T)

Principles and fundamentals of insurance of various types, risk of retailing, managing retail risks, buying insurance, handling claims.

GBus 1803f,w,s,su. Special Problems in Business. (1-4 cr; T)

Special, intermediate, and advanced business problems.

GBus 1981w,s. Internship Seminar. (1 cr; T)

How to plan for securing and successfully completing an internship.

Internship policies and objectives, samples of forms.

GBus 3107f,w,s. Legal Environment in Business. (4 cr; T)

Basic legal principles with emphasis on contracts and negotiable instruments, fundamental principles of commercial law, business organizations, and the law of real and personal property.

The following are accounting B.S. program requirements. This program is a shared major and cooperative degree with Bemidji State University, which offers these courses.

GBus 1280. Quantitative Methods in Business. (4 cr)

Decision theory, mathematical programming, network models and simulations.

GBus 3150. Business Law I. (4 cr)

Principles of law in the U.S. legal system. Contracts, sales, negotiable instruments, bank deposits and collections, secured transactions, bankruptcy, suretyship.

GBus 3160. Business Law II. (4 cr)

Agency law, partnerships, corporations, federal securities law, accountant's legal liability, employer/employee relationships, property, insurance, trusts, estates.

## General Education (GnEd)

GnEd 1000f,w,s. Freshman-Year Seminar. (2 cr; T)

Helps freshmen adjust to the University, develop a better understanding of the learning process, and acquire basic academic "survival skills." Open to all freshmen.

GnEd 1800. International Reciprocal Student Exchange.

(1-36 cr [may be repeated]; prereq instructor consent; on demand)

Up to one year of study in regular classes of member institutions in the United Kingdom. Open to any student, subject to placement and acceptance by host institution.

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GnEd 1805f,w,s. Special Problems in General Education. (1-4 cr [may be repeated for 9 cr max]; prereq adviser consent, div approval)

Independent study to provide learning experiences in areas in which courses are unavailable.

GnEd 1900f,w,s. Chancellor's Academic Success Seminar. (1 cr; limited to students on academic contract; T) Comprehensive study skills program. (Credit does not apply toward graduation or transfer.)

GnEd 3703f,w,s. Individual Studies. (1-4 cr [may be repeated for 9 cr max]; prereq upper div status, adviser consent, div approval)

Individualized study of topics in student's major or supporting discipline. Specific content and credit depend on student's interest, needs, and depth of study.

## Geography (Geog)

Geog 1104f,s. Introduction to Geography. (4 cr; T) Introduction to major geographical relationships and interdependence of populations. Population characteristics, major economic and political phenomena, rural-urban concerns, mapping systems.

## Geology (Geol)

Geol 1001f. Introductory Geology. (5 cr; 4 lect, 2 lab hrs per wk; T)

Survey of Earth including its composition, structure, and dynamics; understanding of internal and surface processes related to theories of sea floor and continental movement; summary of geological history and the development of life.

## Health (Hlth)

The following course fulfills the prekindergarten teacher licensure component of the early childhood program management B.S. This program is a shared major and cooperative degree with Bemidji State University, which offers the course.

Hlth 3910f or as needed. Health and Drug Education. (4 cr) Study of health related issues in modern society as they relate to personal and community health. Particular emphasis on chemical abuse, chronic and degenerative disease, mental health, environmental health, family life, and safety. Basic principles of health, nutrition, and personal health.

## Health Management (HSM)

HSM 1010fw,s. Medical Terminology. (3 cr; T) Prefixes, suffixes, and roots used to compose medical terms. Pronouncing and defining terminology related to body structure, disease, diagnosis, and treatment.

HSM 1020s. Health Care Management. (3 cr; T) Responsibilities of health care supervisor. Emphasis on structure of health care organizations and basic functions performed by health care managers in clinical and nonclinical environments.

HSM 1030f or s. Disease Conditions. (3 cr) Common disease conditions affecting various body systems. Disease pathology, diagnostic and treatment procedures.

HSM 1803f,w,s,su. Special Problems in Health Management. (1-4 cr; T) Independent exploration of a topic of interest not covered in regularly offered courses. Written report or project.

HSM 3100f or s. Essentials of Managed Care. (4 cr; T) Methods for addressing access, cost, and quality. Managed indemnity and service plans, PPOs, HMOs, ISNs, primary care options, provider contracts, carveouts.

HSM 3200f. Management, Leadership, and Health Planning. (4 cr; prereq Mgmt 3200; T) Organizational characteristics of acute and ambulatory care facilities. Management issues and strategies involving governance, clinical services, and resource allocations.

HSM 3210w. Health Law and Biomedical Ethics. (4 cr; prereq 3200; T) Concepts and principles of law as they affect management decision making in health care institutions.

HSM 3230f. Management and Administration of Continuum/Extended Care Facilities. (4 cr)

Role, organization, function and characteristics of long-term health care facilities. Administration, staffing, financing, planning/marketing, regulation, and corporate relationship as applicable to long-term care. Residents' psychological, biological, and sociological needs.

HSM 3300w or s. Comparative Systems, Global Issues, and Trends in Health Care Management. (4 cr) Analysis and comparison of world health problems and delivery systems. Geographic, political, and economic aspects of managing health facilities.

HSM 3310s. Finance and Regulatory Compliance in Health Care Management. (4 cr; prereq 3200, Acct 1040; T) Funding mechanisms and regulations governing delivery of patient care and health service reimbursement.

HSM 3804f,w,s,su. Directed Studies in Health Management. (1-4 cr; T) Independent investigation of a current health care problem or topic. Course content development supervised by a faculty member. Written report or project.

HSM 3900f,w,s su. Internship. (1-4 cr; may be repeated for 8 cr max; prereq sr status; T) Field experience in a health care organization or agency supervised by a faculty member. Internship plan must be approved in advance by HSM program director. Organization/agency assessment and major project. May be repeated once in different health care setting.

## Health, Physical Education, and Recreation (HPER)

HPER 1062f,w,s. First Aid. (2 cr; T) Standard skills and knowledge necessary to give aid to victims of accidents or sudden illness. American Red Cross certification may be obtained.

HPER 1072f or w or s. Wellness. (2 cr; T) Nutrition, physical fitness, stress management. Each student develops a personal plan for "wellness."

HPER 1151 to 1791. Physical Education Activities. (1 cr) Physical education and recreation courses begin with basic principles and skills and helps students progress toward optimum ability.

HPER 1151. Golf (T)

HPER 1201. Dance: Folk, Social, Modern

HPER 1321. Volleyball (T)

HPER 1331. Beginning Tennis (T)

HPER 1351. Racquetball-Badminton

HPER 1451. Fitness for Better Health (T)

HPER 1461. Physical Training and Conditioning

HPER 1471. Aerobic Dance Exercise

HPER 1481. Aerobic Exercise

HPER 1601. Beginning Swimming

HPER 1611. Advanced Beginners and Intermediate Swimming

HPER 1621. Swimmers

HPER 1631. Advanced Lifesaving

HPER 1641. Aquatic Exercise

HPER 1701. Varsity Sports: Football (T)

HPER 1711. Varsity Sports: Volleyball

HPER 1712. Varsity Sports: Tennis (Women)

HPER 1722. Varsity Sports: Soccer (Women)

HPER 1731. Varsity Sports: Basketball (Women)

HPER 1741. Varsity Sports: Basketball (Men) (T)

HPER 1751. Varsity: Hockey (T)

HPER 1781. Varsity Sports: Softball (Women)

HPER 1791. Varsity Sports: Baseball (Men)

## History (Hist)

Hist 1021f. History of Western Civilization I. (4 cr; odd yrs) Ancient Near East, Greece, Egypt, Rome.

Hist 1022w. History of Western Civilization II. (4 cr; even yrs) Medieval Europe from fall of Rome to the Renaissance.

Hist 1023s. History of Western Civilization III. (4 cr; even yrs) Modern Europe from the Reformation to present.

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Hist 1301f. American History I. (4 cr; even yrs; T)  
Colonial era and early national period from the Revolution through the Civil War and Reconstruction.

Hist 1302w. American History II. (4 cr; odd yrs; T)  
Gilded Age to present with emphasis on foreign involvements and wars, New Deal, civil rights, and economic developments.

Hist 1305f,w,s. Cultural Pluralism in American History. (4 cr)  
Survey of development of American society focusing on ethnic and gender roles. Cultural pluralism, racism, and inter-group relations in a comparative historical framework.

Hist 3010s. Topics in History. (4 cr; up to 8 cr; odd yrs)  
Topics of regional, national, or international importance such as Minnesota history, U.S. Civil War, Japanese history.

## Horticulture (Hort)

Hort 1010f,s. Introduction to Horticulture. (4 cr; 3 lect, 2 lab hrs per wk; T)

Environmental considerations, planting, propagation, pruning, protection of horticultural crops. Greenhouse and field experience.

Hort 1021f. Woody Plant Materials. (5 cr; 3 lect, 4 lab hrs per wk; T)  
Identification, ecology, and use of deciduous and evergreen trees, shrubs, and vines.

Hort 1023w. Foliage Plant Materials. (3 cr; prereq 1010; 2 lect, 2 lab hrs per wk; T)

Identification, use, and culture primarily of foliage plants used in interior decoration. Reference reading and field trips.

Hort 1030w. Residential Landscape Design. (4 cr; prereq 1010; 2 lect, 4 lab hrs per wk; T)

Planning and developing formal and informal landscape sites for residential uses.

Hort 1081w. Floral Design—Flower Shop Management. (4 cr; 2 lect, 4 lab hrs per wk)

Principles of flower arrangement and design. Management problems and decisions in retail floriculture. Planning and operating a flower shop.

Hort 3033f. Commercial Floriculture Crops, Fall. (4 cr; prereq 1010; 2 lect, 4 lab hrs per wk; T)

Identification and culture of holiday pot plants and major cut flower crops. Soil preparation, artificial mixes, soil testing, applying soil test results; greenhouse pests and life cycle control.

Hort 3034w. Commercial Floriculture Crops, Winter. (4 cr; prereq 1010; 2 lect, 4 lab hrs per wk; T)

Fundamentals of greenhouse structure and management. Emphasis on heating and cooling requirements, lighting photoperiod control, soil sterilization, production of winter grown greenhouse crops such as mums, azaleas, and cineraria.

Hort 3035s. Commercial Floriculture Crops, Spring. (4 cr; prereq 1010; 2 lect, 4 lab hrs per wk; T)

Identification and culture of annual bedding plants. Emphasis on wholesale production, use of annual flowers in residential and commercial landscape design.

Hort 3036w. Plant Propagation. (5 cr; prereq 1010, Biol 1009; 3 lect, 4 lab hrs per wk; T)

Plant propagation techniques for the commercial and home propagator. Mist system construction and operation. Plant propagation by tissue culture, seed, cutting, layering, grafting, and division.

Hort 3040f. Commercial Landscape Design and Grounds Maintenance. (5 cr; prereq 1010, 1030; 3 lect, 4 lab hrs per wk; T)

Drawing landscape plans for commercial property. Reading blueprints and commercial bidding. Applied horticulture skills in transplanting, storing and planting landscape materials. Power equipment demonstration and use: tree spade, box scraper, tractors, mowers, and other groundskeeping equipment; irrigation installation.

Hort 3072s. Turf Management. (4 cr; prereq 1010, Soil 1294; 2 lect, 4 lab hrs per wk; T)

Species identification. Cultural requirements and principles for establishing, producing, and maintaining turf. Golf course turf care and maintenance.

## Hotel, Restaurant, and Institutional Management (HRI)

HRI 1112f,w. Introduction to Food Preparation. (4 cr; 2 lect, 5 lab hrs per wk; T)

Fundamentals of food preparation. Management principles, vocabulary, cooking methods, product identification, menu and recipe writing. Stocks and soups, sauces, seafood, poultry, beef, veal, pork, lamb, vegetables, salads, pastries, desserts.

HRI 1113w. Sanitation and Safety. (3 cr; T)

Sanitation issues including food-borne illnesses and chemical poisoning, accident sources, and prevention programs.

HRI 1211f,w,s. Principles of Quantity Food Production. (4 cr; prereq 1112; 1 lect, 8 lab hours per wk; T)

Supervising and managing quantity food production in UMC's Food Service Department. Applying principles of menu planning, food preparation, staffing, purchasing, storage, sanitation, safety, and equipment operation in on-the-job setting.

HRI 1221f. Front Office Practices and Procedures. (4 cr; T)

Professional front office management and relevant operational procedures. Emphasis on issues related to strategic management of hotel/motel front office operations.

HRI 1231w. Housekeeping Management and Techniques. (3 cr; T)

Professional housekeeping management, techniques, and tools. Emphasis on department planning and management.

HRI 1251s. Menu Planning. (3 cr; T)

Menu design and principles of merchandising, art, copy, and profit making. Menus for varied operations in the food industry.

HRI 3311f. Tourism and the Travel Industry. (3 cr; prereq Econ 1101; T)

Tourism as a product and its effect on the local economy. Develop tourism plan and strategy, their impact on the community. Travel trends, motivations, handler profile. Issues related to international tourism, travel sales distribution systems, and regulations governing travel agencies.

HRI 3321w. Hospitality Selection and Procurement. (4 cr; prereq 1112; T)

Purchasing, receiving, storing, issuing, preparing and servicing, formulating specifications, judging food quality, selecting products to meet specific needs, developing security measures.

HRI 3331s. Restaurant Operational Management. (3 cr; prereq 1113, 1211, 1251, 3321; 1 lect, 3 lab hrs per wk; T)

Compare and contrast types of service (e.g., modified American, French, Russian); develop and apply menu planning techniques, cost controls, and personnel organization. Gueridon preparation and service with product merchandising.

HRI 3341s. Beverage Technology. (3 cr; prereq 1251; T)

Wines, liquors, liqueurs. Laws governing the manufacture, classification, and sale of alcoholic beverages. Characteristics of various wines with food. Emphasis on operation of a professional beverage facility.

HRI 3411f. Hospitality Marketing and Sales. (4 cr; prereq Mktg 3300; T)

Differences between hospitality services marketing and product marketing. Organizing marketing department and developing hotel marketing budget. Issues related to strategic marketing, market analysis, and market segmentation. Processes involved in pre-opening marketing of a new hotel.

HRI 3421w,s or as needed. Restaurant Practicum. (2 cr; prereq 3331; 5 lab hrs per wk; T)

Students integrate theory and applied experiences to manage an on-campus restaurant. Emphasis includes forecasting inventory, menu construction, recipe development, product demand, quality, service evaluation, recommending changes in product preparation and service methods, preparing and evaluating profit and loss information.

HRI 3431f. Hospitality Law. (3 cr; T)

Case study method used to analyze laws applicable to the operation of hotels, restaurants, motels, and other hospitality establishments.

HRI 3441s. Food, Beverage, and Labor Control. (4 cr; prereq 3321, Acct 1511; T)

Food service operation cost calculations. Relationship between cost volume and profit. Management processes used in food service to keep costs at realistic levels and achieve desired goals.

HRI 3451w. Facility Layout and Design. (3 cr; prereq 1211, 1251; T)

Impact of feasibility studies, customer profile emphasized. Students design a food service facility using interior design concepts. Hotel guest room floors and hotel configurations.

HRI 3461s. Catering. (3 cr; prereq 3331; 1½ lect, 3 lab hrs per wk; T)

Theory and application of operational and managerial principles for off- and on-premise catering for banquets, buffets, weddings, ceremonies, teas, and other special events.

## Humanities (Hum)

Hum 1301f or w or s. Self-Discovery. (4 cr)

The arts as a reflection of our search for self. Beliefs and attitudes expressed in the fine arts.

Hum 1303w or s. The Creative Mind. (4 cr; T)

Creative processes from thought to form as a means of expression.

Hum 3310f or w or s. Culture and Technology. (4 cr; T)

Historical and cultural factors shaping technology. Synthesis of integrated relationships among technology, the arts, societal practices, and values.

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# Information Networking Management (INM)

INM 1010f,w,s. Introduction to Information Technology. (4 cr; T)

Computer care; basic computer terminology; electronic mail; accessing the Internet; word processing, presentation, spreadsheet, and database software applications.

INM 1015. Emerging Information Technologies. (1 cr [may be repeated for 4 cr max]; prereq 1010; as needed; T)

Significant innovations in computer hardware, software, and information technologies.

INM 1020f,w,s. Electronic Spreadsheets. (4 cr; prereq 1010; T) Design, formulas, functions, macros, database applications, data representation graphics.

INM 1060w,s. Introduction to Database Management Software. (4 cr; prereq 1010; T)

Using database management software and database file structures. Field definition and programming, record management, data entry form design, management report specifications, using interface programming.

INM 1200f,w,s. Programming and Publishing to the Internet. (4 cr; prereq 1010; T)

HTML language, graphics preparation, using the common gateway interface to share data and information, file management on a World Wide Web server, providing Internet site security.

INM 1803f,w,s,su. Special Problems in Information Networking Management. (1-4 cr; prereq instructor consent; T) Individualized study of current topics not covered in regularly offered courses. Written report or project.

INM 3080f. Microcomputer Operating Systems. (4 cr; prereq 1010; T)

DOS, Windows 3.1, Windows 95, Windows NT, and UNIX operating systems. Single-user vs. multi-user systems, control operations, utilities, hardware, application software specifications.

INM 3100w. Microcomputer Operating System Service Architectures. (4 cr; prereq 1010, 3080; T)

Systems and services used to fine-tune an operating system. Systems installation and configuration procedures, troubleshooting, initialization file modification, system utilities and commands.

INM 3110f. Principles of Object-Oriented Programming. (4 cr; prereq 1010; T)

Hands-on course focusing on structured programming techniques using a visual, object-oriented programming language.

INM 3120w. Advanced Object-Oriented Programming. (4 cr; prereq 1010, 3110; T)

Object-oriented programming with visual basic and C++ languages. Program language structure, application design, systems implementation.

INM 3130s. Managing Local Area Networks. (4 cr; prereq 1010, 3080; T)

Designing, implementing, and managing a local area network. Servers, routers, bridges, gateways, transmission media, communications protocols, network security, performance tuning.

INM 3140f,w. Wide-Area Networking With TCP/IP. (4 cr; prereq 1010, 3080, 3130; T)

Computer connectivity through the Internet. Internetworking hardware and software, system design considerations, protocols, security, management.

INM 3150w,s. Graphic and Interface Design. (4 cr; prereq 1010; T)

Computer graphic and interface design as they relate to visual communication. Use of computer graphics programs to enhance communications. Projects result in hard copy and Internet products.

INM 3260w. Microcomputer Information Systems Design. (4 cr; T)

Using Computer-Assisted Software Engineering (CASE) methodologies. Hierarchical, entity-relationship, and data-flow diagramming; prototyping; data dictionaries; program-structure charting; writing user documentation.

INM 3280s. Management of Microcomputer Information Systems. (4 cr; prereq 1010, 3080, 3260; T)

Senior seminar. Students conduct an information analysis and design a comprehensive system that will support an organization's information needs. Thorough documentation of the analysis and design plus a sample program addressing an information need required.

INM 3804f,w,s,su. Directed Studies in Information Networking Management. (1-4 cr; prereq jr status, instructor consent; T)

Exploration and study of a topic related to the student's major not covered in regularly offered courses. Written report.

INM 3900f,w,s,su. Internship in Information Networking Management. (1-4 cr; instructor consent; T)

Supervised experiences in an information or networking entity within a business firm or agency. Reports and consultations with faculty advisers and employers.

## Literature (Lit)

Lit 1005f. Form and Idea in Literature. (4 cr; T)

Major forms of literature from various cultures and historical periods. Development of an informed, personal response to literature and interpretive skills required for an appreciation of literature.

Lit 1016w. Readings in American Life. (4 cr)

American literature from Puritans to present. Development of an informed, personal response to that literature. Major concerns of American writers in different eras. Introduction to interpretative skills required for an appreciation of literature.

Lit 1591s. Ethnic and Minority Literature. (4 cr)

Representative works by American minority and ethnic writers. Relevant social and historical factors and movements.

## Management (Mgmt)

Mgmt 3100f,s. Principles of Finance. (4 cr; prereq Acct 1512, Econ 1101, Econ 1102, algebra course; T)

Principle financial considerations and ratio analysis of a business. Cost of capital, asset management, capital structure planning, financial statement analysis, working capital management, short-term financing, budgeting. Integrates theory and applications.

Mgmt 3200f,w,s. Principles of Management. (4 cr; prereq Acct 1511, Psy 1001, Econ 1101 or instructor consent; T)

Theories, concepts, and skills relevant to the professional manager role. Basic functions of a manager: planning, organizing, leading, controlling. Decision making, motivation, staffing, communication, history of managerial thought, management information systems, international management, business ethics, social responsibility, change, development. Integrates theory and applications.

Mgmt 3210f,w,s. Supervision and Leadership. (4 cr; T)

Emphasis on organizational environment and behavior. Human resource systems, motivating employees, leadership, managing change, job satisfaction, communication, group processes. Interpersonal and group dynamics within an organization. Participative learning approach complements traditional teaching methods with role playing and case studies.

Mgmt 3220f. Human Resource Management. (4 cr; prereq 3200; T)

Managing people at work with emphasis on recruitment, selection, training, compensation, and evaluation. Changing nature of the world of work, labor market, labor relations, emerging legal issues, discrimination in pay and employment, effects of technological change on jobs and employment.

Mgmt 3240w. Total Quality Management Applications. (4 cr; prereq 3200; T)

Total quality assurance used in business as strategy and control device. Sampling, variance analysis, multiple regression, time series analysis, nonparametric methods, basic decision analysis. Emphasizes identification, modifications, and implementation of problem solving and process improvement. Integrates theory and applications.

Mgmt 3250s. Operations Management. (4 cr; prereq 3100, 3240, Mktg 3300 or instructor consent)

Concepts, procedures, and technologies used by managers, administrators, and employees in operating an organization. Levels of planning, material and inventory management, improving products and systems, project management.

Mgmt 3300f. Small Business Microcomputer Applications. (4 cr; prereq 3200, INM 1020)

Through individualized case assignments, students set up an accounting system, complete a predetermined set of transactions, generate profit and cash control statements, establish a records management system from an assigned data set, generate correspondence with vendors and customers, establish an assigned vendor and customer database, and complete a credit analysis.

Mgmt 3310w. Small Business Decision Making. (4 cr; prereq 3200, Mktg 3300)

Focuses on entrepreneurship through venture creation or acquisition through short case assignments. Students develop basic skills in judging qualitatively the feasibility of a new venture or acquisition. Emphasizes opportunity search, specification, and basic inputs for a business plan.

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Mgmt 3320s. Small Business Management. (4 cr; prereq 3200, Mktg 3300; T)

Each student completes of a business plan for a new venture or acquisition of an existing small business. Emphasizes financing and marketing. Plan must be of a quality acceptable to a commercial bank, Small Business Administration official, or venture capital supplier and is evaluated on both form and substance. Each student presents the plan to the class and invited venture capital suppliers.

Mgmt 3600f. Management Decision Making. (4 cr; prereq 3100, 3200, Mktg 3300 or instructor consent)

Specialized studies and cases covering management situations faced by businesses.

Mgmt 3800s. Studies in Management Strategies. (4 cr; prereq taken in final qtr or adviser consent; T)

Capstone course focusing on how firms formulate, implement, and evaluate strategies. Strategic-management concepts and techniques. Students use knowledge acquired from prior business courses, coupled with new strategic-management techniques, to chart future direction of different organizations.

Mgmt 3804f,w,s,su. Directed Studies. (1-4 cr; prereq jr status; T) Investigation of a topic related to the students major/minor. Study may include library research, discussions, seminars and projects. Students must demonstrate knowledge gained through directed study by submitting an organized and scholarly report on the investigation.

Mgmt 3900f,w,s,su. Internship. (1-4 cr; prereq jr status, instructor consent; T)

Students are employed as interns in a business firm, institution, or agency. Student reports required.

## Marketing (Mktg)

Mktg 1100f,s. Introduction to Entrepreneurship. (4 cr; T)

Economical, cultural, political, sociological, and psychological perspective on creation and evolution of entrepreneurial ventures. Students assess personal characteristics and aptitudes for careers as entrepreneurs and small business operators.

Mktg 3200w. Personal Selling. (4 cr; T)

Selling principles and processes, industrial vs. personal selling, persuasive communication, selling vs. buying, time management. Sociological and psychological influences on selling and buying process. Practical demonstration by each student required.

Mktg 3250s. Promotional Strategies. (4 cr; prereq 3300, Mgmt 3200; T)

Principles involved in developing and managing advertising, personal selling, public relations, and sales promotion programs.

Mktg 3300f,w,s. Principles of Marketing. (4 cr; prereq Econ 1101, Psy 1001 or instructor consent; T)

Principles of marketing and the strategic process. Product planning, pricing, distribution, promotional strategies. Services, nonprofit and international marketing. Integrates theory and applications.

Mktg 3310w. Buyer Behavior. (4 cr; prereq 3300; T)

Analysis of consumer and organizational buying behavior based on theoretical and applied decision-making models. Market segmentation, behavior concepts and processes, consumer and organizational decision-making models, marketing strategies for reaching a target market.

Mktg 3330s. Marketing Communications. (4 cr; prereq 3300; T)

Traditional and emerging methods of communicating with prospective or current customers. Principles of advertising theories, media evaluation and selection, sales promotion, merchandise display, personal selling, public relations.

Mktg 3340f. Marketing Research. (4 cr; prereq 3300, Math 1150; T)

The research process from a marketing perspective. Address problem information, scientific research method, analysis and interpretation of marketing data, research report writing, and decision making for marketing research. Students complete a project on a marketing research problem. Selected case applications to motivation, advertising, product sales control, and market or area research on selecting channels of distribution.

Mktg 3350f. Marketing Management. (4 cr; prereq 3300, Mgmt 3200; T)

Managing marketing at retail, wholesale, and manufacturing levels via new technologies.

Mktg 3360w. Global Business. (4 cr; prereq 3300, Mgmt 3200; T) Factors affecting marketing of goods and services and managing the organization in the international environment.

Mktg 3800s. Studies in Creative Marketing. (4 cr; prereq 3250, 3350, sr status or instructor consent; T)

Marketing topics explored using case studies and selected readings. Analysis of marketing decision, creative problem-solving exercises, and presentation of action plans are emphasized. Individual and group projects.

## Mathematics (Math)

Math 0955f,w,s. Basic Math. (2 cr; first 5 wks ; T)

Whole numbers, fractions, mixed numbers, decimals, order of operations, problem solving, calculator use, applications. (Credit does not apply toward graduation or transfer.)

Math 0965f,w,s. Problem Solving. (2 cr; prereq 0955 or instructor consent; last 5 wks; T)

Formulas, real numbers, exponents, scientific notation, linear equations, applications, introduction to geometry. (Credit does not apply toward graduation or transfer.)

Math 0990f,w,s. Elementary Algebra. (4 cr; placement test scores used for placement; T)

Signed numbers, first-degree equations and inequalities, rational expressions, fractional equations, exponents, polynomials, factoring, graphing and systems of linear equations, quadratic equations. For students with very limited or no background in algebra. (Credit does not apply toward graduation or transfer.)

Math 0995f,w,s. Intermediate Algebra. (4 cr; prereq 0990 or 1 yr high school algebra; placement test scores used for placement; T)

Real number properties and operations, first- and second-degree equations and inequalities, polynomials, factoring, rational expressions, fractional equations, exponents, radical expressions, graphing, systems of equations, functions. (Credit does not apply toward graduation or transfer.)

Math 1001f,w,s. Technical Math. (4 cr; placement test scores used for placement; T)

Signed numbers, calculator use, percentage problems, graphing, exponents, formulas, area and volume, solving linear equations, unit conversions, agriculture and business examples. (Not for transfer.)

Math 1004f. Trigonometry. (1 cr; prereq 1001 or 0990 or equiv; 2 lect hrs per wk for 5 wks; T)

Angle measurement; equation solving; basic right angle trigonometry, including use of sine, cosine, and tangent functions.

Math 1010. Topics in Industrial Math. (1 cr [may be

repeated for 4 cr max]; primarily independent study; on demand) Concepts (applications of real numbers, exponents, units and metric system); equations (applications of formulas and linear equations); graphing (graphing linear equations and solving systems of equations); applied algebra (applications of polynomials, factoring, rational expressions).

Math 1093. Applied Algebra for the Health Sciences. (3 cr; 2 lect, 2 lab hrs per wk; on demand)

Real number system, algebraic operations, area and volume, functions and graphs, system of equations, ratio and proportion, factoring, algebraic fractions, quadratic equations, exponents, radicals, logarithms, applications in health sciences.

Math 1111f,w,s. College Algebra and Analytical Geometry. (4 cr; prereq 0995 or 2 yrs high school algebra, placement test scores used for placement; T)

Basic algebraic operations, linear and quadratic equations and inequalities, variation, functions and their graphs, theory of equations, exponential and logarithmic functions, systems of equations, matrices and determinants, sequences and progressions, binomial theorem, summation notation, permutations and combinations.

Math 1120. Finite Math. (4 cr; prereq 0995 or 2 yrs high school algebra or equiv, placement test; on demand)

Linear equations (graphing and modeling), systems of linear equations and matrices, linear programming, sets, counting techniques, probability, mathematics of finance.

Math 1142s. Short Calculus. (4 cr; prereq 1111 or 3 [1/2] yrs high school algebra; T)

Derivatives, integrals, differential equations, maxima and minima, partial differentiation, applications.

Math 1150f,s. Elementary Statistics. (4 cr; prereq 0995 or 2 yrs high school algebra or instructor consent; T)

Descriptive statistics, elementary probability, normal distribution, binomial distribution, confidence intervals, tests of hypotheses, correlation, regression, chi-square, ANOVA, nonparametric methods.

## Mechanized Agriculture (MAg)

MAg 1034f,s. Agricultural Facilities Maintenance. (4 cr; 2 lect, 4 lab hrs per wk)

Emphasis on small power equipment; structures; utilities including electrification, water and waste management; use of metal fabrication techniques.

MAg 1044f,w,s. Computer-Aided Drafting and Sketching. (4 cr; 2 lect, 4 lab hrs per wk; T)

Sketching and dimensioning architectural, mechanical, and landscape projects. Use of computer-aided drafting programs to develop plan views, floor plans, elevations, pictorials, and mechanical drawings.

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MAG 1244f,s. Fabrication of Metals in Agriculture. (4 cr; 2 lect, 4 lab hrs per wk)

Arc and gas welding of ferrous and nonferrous metals. Hard surface techniques and introduction to MIG and TIG welding and plasma arc cutting. Small project work includes soldering and cold- and hot-metal working.

MAG 1333. Agricultural Building Construction. (4 cr; 2 lect, 2 lab hrs per wk; on demand; offered at non-UMC sites only; T) Selection and application of wood, concrete, and steel building materials. Construction techniques using portable, stationary, and hand construction tools. Developing criteria for quality building construction emphasized.

MAG 1554w. Electricity and Electronics in Agriculture. (4 cr; prereq Math 1001 or Math 1111 or Phys 1001; 3 lect, 2 lab hrs per wk)

Theory and practical application of electricity in agriculture. Selection and maintenance of electrical motors, heating units, lighting devices and systems, and controls. Use of electronic devices and computer control.

MAG 3002w,s. Agricultural Power Units. (5 cr; prereq Math 1111; 3 lect, 4 lab hrs per wk)

Selection of power units for drawbar, pto, and hydraulic applications. Spark ignition (SI) and compression ignition (CI) systems, drive trains, accessories. Developing service and maintenance regimens to maximize system life.

MAG 3003w. Closed Circuit Hydraulics. (2 cr; prereq Math 1111; 2 lect, 2 lab hrs per wk)

Applications of hydraulic components in systems. Selection and use of hydraulic components from manufacturer's specifications to repair or create hydraulic systems. Troubleshooting of mobile and stationary hydraulic equipment applications.

MAG 3004f. Livestock Facilities and Environmental Systems. (4 cr; prereq Math 1111; 3 lect, 2 lab hrs per wk; odd yrs)

Effects of environment on animal production. Principles of environmental control. Planning open, partial, and total environment-controlled systems for livestock; functional, economic and environmental considerations. Feed handling systems and waste management alternatives.

MAG 3006w. Post-Harvest Crop Technology and Handling. (4 cr; prereq Math 1111, Phys 1001; 3 lect, 2 lab hrs per wk; T)

Managing crop quality preservation. Crop drying storage system selection. Psychometrics. Use of computer software to select equipment and simulate crop storage processes. Crop handling methods, system planning, and cost analysis.

MAG 3009f. Surveying. (5 cr; prereq Math 1004, Math 1111; 3 lect, 4 lab hrs per wk; T)

Application of electronic surveying equipment, data loggers software, and computers to survey exercises and projects. Survey principles and theory. Use of levels, transits, and theodolites. Exercises in land measurement; differential elevations; profiles and cross-sections; ditching; land grading and earthwork; topographic survey, control surveys, and mapping; traverse surveys; curves and construction surveys.

MAG 3010w. Hydrology and Water Quality. (4 cr; prereq Math 1111, Soil 1294; 3 lect, 2 lab hrs per wk; T)

Principles and theory of surface water and groundwater quality, including but not limited to water budget, hydrologic cycle, water quantities, Darcy's Law, water quality units and flow rates, hydraulic conductivity and permeability, and lab tests for and maintenance of water quality.

MAG 3011s. Conservation Engineering/Irrigation. (4 cr; prereq 1405; 3 lect, 2 lab hrs per wk; T)

Engineering principles used in the planning of erosion control systems, drainage systems, and irrigation systems. Handbook design of drainage systems and farm water control systems. Selection and application of irrigation systems.

MAG 3250f. Agricultural Machinery Management. (4 cr; prereq Math 1001 or Math 1111; 2 lect, 4 lab hrs per wk; T)

Mechanical principles and application of field machinery and power units to varying crop, soil, and climatic conditions. Agricultural equipment selection and management principles applied to selecting machinery most appropriate for an enterprise.

MAG 3360f. Precision Agriculture Principles and Applications. (4 cr; prereq Soil 1294, Math 1001 or Math 1111; 3 lect, 2 lab hrs per wk; T)

Introduction to applications of precision agriculture. Hands-on practice of mapping fields. Grid sampling techniques and use of SGIS in fertilizer applications and analysis. Yield mapping. Other applications in production agriculture.

## Music (Mus)

Mus 1011f,w,s. UMC Choir. (1 cr [may be repeated for 9 cr max]; T)

Performing group that provides experience in many areas of choral music. Open to all students with choral music experience and/or ability to sing "in pitch." Students may be asked to take 1041 if voice development necessary.

Mus 1021w. Introduction to Music. (4 cr; T)

Music from Renaissance to present. Styles, forms, expressions. Some examples of music from various cultures compared with traditional western music.

Mus 1041f,w,s. Private Instruction. (1 cr [may be repeated for 9 cr max]; prereq instructor consent; T)

Individual music lessons in voice or instruments. One half-hour lesson per week.

Mus 1042f,w,s. Class Piano. (1 cr [may be repeated for 9 cr max]; T)

The study of piano technique and musicianship in a classroom setting using multiple electronic keyboards. Musical concepts studied include melody, harmony, rhythm, and repertoire. Suitable for beginning and intermediate piano students.

Mus 1051f,w,s. Music Ensemble/UMC Community Band/ Pep Band. (1 cr [may be repeated for 9 cr max]; prereq instructor consent; T)

Small ensemble of musicians who play brass, woodwind, and percussion instruments at concerts on and off campus and selected UMC athletic events.

Mus 1071s. Musical Theatre. (1 cr; even yrs)

Perform in a major UMC musical theatre production.

Mus 1091s. Instrumental and Choral Conducting. (2 cr; even yrs)

Conduct UMC music ensembles to develop score reading skills and conducting techniques.

Mus 1111f. Music Theory I: Foundations of Tonal Music. (3 cr; odd yrs)

Theory and notation, two-part counterpoint; consonance and dissonance; melodic contours; music fundamentals (key signatures, scales, rhythms, chordal construction).

Mus 1121w. Music Theory II: Diatonic Tonality. (3 cr; prereq 1111; even yrs)

Writing and analyzing basic diatonic tonal structures. Basic harmonic and contrapuntal relationships. Sonata, rondo, variation, minuet, and other standard categories of tonal composition.

Mus 1131s. Music Theory III: Harmony and Voice Leading. (3 cr; prereq 1121; even yrs)

Chromatic tonal practices; expanded choral vocabulary, voice leading, analysis. Basic theories of 20th-century music.

Mus 3029. Music of the Twentieth Century. (4 cr; prereq 1021 or equiv or instructor consent; odd years; T)

Various styles of 20th-century music compared to develop an understanding of human expression and compare musical forms and trends.

## Natural Resources (NatR)

NatR 1202s. Windbreak and Shelterbelt Forestry. (3 cr; prereq 1223; 2 lect, 2 lab hrs per wk; T)

Planning, establishing, and maintaining windbreaks and shelterbelts in the northern Great Plains for soil and energy conservation and wildlife habitat.

NatR 1203f. Park and Recreational Area Management. (3 cr; 3 lect hrs per wk; T)

Introduction to park and recreational area management. The recreationist; federal and state legislation; federal, state, local, and private recreation agencies; management techniques as they affect the private and public recreational area manager.

NatR 1223f. Introduction to Natural Resources. (3 cr; 3 lect hrs per wk)

Our natural resource heritage. Various fields within natural resources examined in terms of conservation practices and importance to our way of life. Career opportunities in natural resources.

NatR 1234w. Elements of Forestry. (4 cr; prereq 1223; 2 lect, 4 lab hrs per wk; T)

Forest management, ecology, silviculture, protection, and multiple-use decision-making processes. Woody forest plants; identification, growth requirements, and management techniques. Compass use and map reading. Forest products industry.

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NatR 1243w. Environmental Issues. (3 cr; prereq Biol 1009 or instructor consent; 3 lect hrs per wk; T)  
Current environmental issues examined in terms of underlying ecological principles, emphasizing individual's role in improving environmental quality. Water and air pollution, solid and hazardous waste management, noise effects, population pressures, land use issues. Energy evaluated as to conventional supplies, new possibilities, and associated use problems.

NatR 1453s. Wildlife Identification. (3 cr; prereq Biol 1009; 2 lect, 2 lab hrs per wk; T)  
Identifying Minnesota birds, mammals, fish, reptiles, and amphibians. Field study and use of museum specimens.

NatR 1563s. Principles of Fisheries Management. (3 cr; prereq 1223 or instructor consent; 2 lect, 2 lab hrs per wk; T)  
Fisheries management and fish species of Minnesota; identification, habitat requirements, management techniques. Application of microcomputer software currently used in fisheries management.

NatR 1573f. Introduction to Entomology. (3 cr; prereq Biol 1009; 2 lect, 2 lab hrs per wk; T)  
Insect taxonomy, anatomy, and physiology. Emphasis on insects of economic importance, especially in Upper Midwest. Control methods including integrated pest management.

NatR 1654w. Natural Resource Measurements. (4 cr; prereq 1234, Math 1001 or Math 1111; 2 lect, 4 lab hrs per wk; T)  
Forest and land measurement including interpretation and field use of topographic and forest-type maps and aerial photography. Tools and techniques used in timber cruising, scaling, and traversing. Applications of microcomputers, including geographic information systems (GIS) technology, to inventory procedures used by natural resource agencies. Required three-day field trip.

NatR 3099s. Integrated Resource Management. (4 cr; prereq sr status or instructor consent; 4 lect hrs per wk; T)  
Team study exploring synthesis of environmental, technical, economic, political, and administrative principles as applied to case studies and current management situations. Emphasis on decision-making process.

NatR 3103f. Meteorology and Climatology. (3 cr; prereq Phys 1001 or instructor consent; 3 lect hrs per wk; T)  
Fundamentals of weather and climate. Energy balance, weather chart analysis, atmosphere composition and circulation patterns, climates of the continents.

NatR 3244w. Land Use Planning. (4 cr; prereq sr status or instructor consent; 4 lect hrs per wk; T)  
Ecological and economic principles applied to land use planning in relation to agricultural, industrial, residential, wild land, forestry, recreational, and transportation needs.

NatR 3354s. Plant Taxonomy. (4 cr; prereq Biol 1103 or instructor consent; 2 lect, 4 lab hrs per wk; T)  
Principles of plant taxonomy with emphasis on higher vascular plants of the Upper Midwest; family characteristics, floral structure, ecology, values to human life, importance as wildlife food and cover. Methods of field study and collection.

NatR 3355f. Prairie and Wetland Plants. (3 cr; prereq 3354; 2 lect, 2 lab hrs per wk; even yrs; T)  
Identifying prairie and wetland plants emphasizing those with important livestock, wildlife, ground cover, and indicator values.

NatR 3452s. Wildlife Management Techniques. (2 cr; prereq 3454, Biol 1009; 1 lect, 2 lab hrs per wk; T)  
Field procedures used by natural resource management agencies. Nesting structure construction and maintenance, census-taking procedures, windbreak and shelterbelt establishment, nest data collection, and prescribed burning techniques covered through field exercises.

NatR 3454f. Wildlife Ecology and Management. (4 cr; prereq 3554; 3 lect, 2 lab hrs per wk; T)  
Application of ecological principles to studying and managing wildlife populations with emphasis on habitat management. Developing field and relevant agencies. Preparing management plan.

NatR 3463s. Prairie Management. (3 cr; prereq 3554; 2 lect, 2 lab hrs per wk; even yrs; T)  
Description of prairie biome of North America and its livestock, wildlife, and recreational uses. Ecology of grassland ecosystems, role of fire, grazing management, establishment and renovation techniques, carrying capacity, range assessment principles.

NatR 3554f. Ecology. (4 cr; prereq Biol 1009, Soil 1294; 3 lect, 2 lab hrs per wk; T)  
Interactions among plants, animals, and the physical environment; structure and function of ecosystems; population dynamics, biotic communities; principles of biotic succession and ecosystem management.

NatR 3620s. Geographic Information Systems. (4 cr; prereq 1654; 2 lect, 4 lab hrs per wk; T)  
Application and use of computer-based information systems in natural resource management and regional planning. Labs using a variety of software.

NatR 3721w. Environmental Law. (3 cr; prereq sr status or instructor consent; 3 lect hrs per wk; even yrs)  
Laws affecting use of water, land, air, and fish and wildlife resources. Legislative, agency, and citizen involvement in law formulation and enforcement.

## Philosophy (Phil)

Phil 1003f,w,s. Ethics. (4 cr; T)  
Strategies to understand consistency or conflict in determining what is right and good, and to think critically regarding conduct and moral decision making in contemporary society. Interdisciplinary.

## Physics (Phys)

Phys 1001w. Elementary Physics. (4 cr; prereq Math 0990 or 1 yr high school algebra; 3 lect, 2 lab hrs per wk; T)  
Fundamental laws of mechanics, fluids, temperature, and gases, electricity; wave motion; origins of modern physics; radioactivity.

## Political Science (Pol)

Pol 1001f,w. American Government and Institutions. (4 cr)  
American government and political institutions at national and state levels; how the individual can access the system. Emphasis on the evolving Constitution and social change in government and society.

Pol 1054s. Comparative Government. (4 cr)  
Government systems of the United States, former Soviet Union, Great Britain, Japan, and France. Third World and Middle Eastern countries' political and social impacts studied through current events.

## Processing Technology (PrTe)

PrTe 1001f. Introduction to Food Technology. (4 cr; T)  
Survey of the food production and distribution industry. Composition, nutrients, and processing methods of various basic foods and well-known food products.

PrTe 1005w. Global Food Systems. (3 cr; T)  
Historical preferences and consumption patterns and trends in diverse cultures and geographic regions. How global politics and national policies impact the food industry.

PrTe 1010s. Processing and Manufacturing Practices. (4 cr; prereq 1001;T)  
Packaging and processing of dairy, meat, fat, and oil products and effects of hygiene and sanitary practices on product quality and types of spoilage. Spoilage organisms with reference to microbial ecology.

PrTe 3010f. Engineering Principles I. (4 cr; T)  
Manufacturing and food industry facility, motors, lighting, floors, walls, drains, boilers, and electrical, heat transfer, and hydraulic systems.

PrTe 3012w. Engineering Principles II. (4 cr; prereq 3010; T)  
Practical applications and calculations of mass balances, heat and mass transfer, fluid flow, and pressure.

PrTe 3020f. Food Manufacturing Operations. (4 cr; T)  
Off loading, sorting, screening, cleaning, peeling, trimming, centrifugation, filtration, emulsification, crystallization.

PrTe 3030s. Critical Control I. (4 cr; prereq Biol 1665; T)  
Critical control points that present hazards in the food industry; risk management. Emphasis on food products and growth and destruction of desirable and undesirable organisms.

PrTe 3032f. Critical Control II. (4 cr; prereq 3030; T)  
Setting up HACCP procedures in accord with ISO 9000 specifications. Quality auditing and maintenance.

PrTe 3034w. Quality Management. (4 cr; prereq 3032, Math 1150; T)  
QC department responsibilities. Color, viscosity, texture, flavor; developing grades and standards of quality; acceptance sampling and inspection. Recording, reporting, using control charts.

PrTe 3040s. Food Chemistry. (3 cr; prereq Chem 1401; T)  
Chemistry, functionality, and interactions of proteins, carbohydrates, lipids, vitamins, and certain minor constituents during processing.

PrTe 3050f. Food Manufacturing Processes. (3 cr; prereq 3010, 3020, Math 1111; T)  
Heat processing (blanching, pasteurization, sterilization) and extrusion, extraction, irradiation, dehydration, drying, freezing.

PrTe 3052w. Food Processing II. (4 cr; prereq 1010, 3010; T)  
Cereal food systems (wheat and corn storage, milling and processing, baking, snack food, commodity packaging).

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In prerequisite listings, comma means "and."

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PrTe 3054s. Food Processing III. (4 cr; prereq 3020, 3030, 3050; T)  
Beverages; confections; manufactured foods; principles of evolutionary operations; steps for product development, taste testing, packaging innovation, and marketing liaison.

## Psychology (Psy)

Psy 1000w,s. Personal Growth: (Module Topic). (2 cr [may be repeated for 4 cr max])

Each module addresses distinct issues such as personal development, behavior change, and creative problem solving.

Psy 1001f,w,s. Introduction to Psychology. (4 cr; T)  
Multicultural approach to understanding psychology on several levels—biological, cognitive, affective, and social. Fundamental principles of psychology as a science, the role psychology plays in our everyday lives, and how we can implement our knowledge of psychology in the future.

Psy 1093. Developmental Psychology. (3 cr; on demand; T)  
Discipline. Psychosocial development of individual from infancy through advanced adulthood.

Psy 3604f. Introduction to Abnormal Psychology. (4 cr; prereq 1001; T)  
Multicultural approach to abnormal psychology from humanistic and scientific points of view. Systematic study of behavior pathology with emphasis on etiology and symptomatology. Perspectives on abnormal behavior. Exploration of maladaptive behavior patterns, assessment, treatment, and prevention. Field trips, clinical interviews, case studies, and films.

## Reading (Rdng)

Rdng 0951f,w,s. Reading and Writing Essentials I. (4 cr; placement test scores used for placement; T)  
Improving basic vocabulary comprehension and writing skills. (Credit does not apply toward graduation or transfer.)

Rdng 0952f,w,s. Reading and Writing Essentials II. (4 cr; placement test scores used for placement; T)  
Continued practice in reading and writing skill development. (Credit does not apply toward graduation or transfer.)

Rdng 0990. Reading Essentials III. (1 cr; on demand; T)  
Reading skill development in formulating main ideas from textbook passages; thinking critically while reading; generating questions of purpose, distinguishing opinions from facts, recognizing conclusions stated by the author, making inferences based on information in passages. (Credit does not apply toward graduation or transfer.)

Rdng 1000. Reading More Efficiently—Computer Module. (1 cr; on demand)  
Self-paced course to improve visual perception skills needed for rapid, efficient reading. Students meet with instructor at beginning and end of course. Instructor available by phone. Recommended that students complete course over a 4- to 12-week period.

## Rhetoric (Rhet)

The following are scientific and technical communication B.S. program requirements. This program is a joint degree with the Department of Rhetoric on the University's Twin Cities campus, which offers these courses.

Rhet 1303. Humanities: Science, Religion, and the Search for Human Nature. (4 cr)  
Investigation of Darwin's theory of evolution and its effect on 19th- and 20th-century institutions. Emphasis on attempts of social philosophers to extrapolate from biological theory to political, cultural, and religious life; scientific and religious ways of knowing; rise of existentialism.

Rhet 3180. Internship in Scientific and Technical Communication. (2-6 cr; prereq Comp 3024 or Comp 3303)  
On-the-job experience at the University or in industry or government.

Rhet 3257. Scientific and Technical Presentations. (4 cr; prereq Comp 3024 or Comp 3303)  
Presentations for specific situations related to technical or scientific topics. Audience analysis and adaptation, techniques of support and visualization, organization for clarity and accuracy, and techniques of interpreting and answering questions. Students make and evaluate technical and scientific presentations. Emphasis on seminar reports and professional conference papers.

Rhet 3258. Interviewing: Dynamics of Face-to-Face Communication. (4 cr; prereq Comp 3024 or Comp 3303)  
Intrapersonal and interpersonal skills in interviewing situations. Students learn to use appraisal, reprimand, complaint, persuasion, problem-solving, and counseling interview techniques and participate in a research interview project. Equal emphasis on interviewer and interviewee roles.

Rhet 3400. Managing Information on the Internet. (3 cr; prereq Comp 3024 or Comp 3303)  
Explore and construct information on the Internet. Discuss issues and controversies associated with the Internet. Prepare an on-line hypertext document that provides examples of Internet resources for students in their major.

Rhet 3560. Editing for Technical Communication. (4 cr; prereq Comp 3024 or Comp 3303)  
Editorial process; editor-writer relationship; copyediting; preparing scientific and technical documents; handling format, visuals, and quantitative materials.

Rhet 3573. Grant Proposal. (3 cr; prereq Comp 3024 or Comp 3303)  
Writing the grant proposal (establishing credibility, problem statement, program objectives, plan of action, evaluation, budget presentations, proposal summary). Real and hypothetical situations.

Rhet 3574. Publications Management. (3 cr; prereq Comp 3024 or Comp 3303)  
Management of publications from initial receipt of manuscript to first publication. Scheduling, layout and design, liaisons with printers or authors, typography, processing illustration.

Rhet 3575. Newsletter. (3 cr; prereq Comp 3024 or Comp 3303)  
Newsletter design and production. Students learn to write and edit newsletter articles and gain hands-on experience in typography, graphic design, formatting, layout, and distribution procedures. Production of a newsletter using desktop publishing software.

Rhet 3581. Document Design. (4 cr; prereq Comp 3024 or Comp 3303)  
Designing documents to meet user needs, completing drafts, evaluating effectiveness. Forms and software documentation (user guides, reference manuals, tutorials, input sheets) for databases, decision aids, computer-aided instruction, on-line programs, or visual displays. Mandatory lab as part of project team of programmers, subject matter specialists, and communication specialists.

Rhet 3582. Senior Seminar. (3 cr; prereq Comp 3024 or Comp 3303)  
Discussions of professional and ethical issues and problems related to technical communication. A capstone course, integrating oral, written, visual, organizational, and theoretical competencies.

Rhet 3700. Rhetorical Theory: Persuasion and the Literature of Science. (3 cr; prereq Comp 3024 or Comp 3303)  
Principles and history of rhetorical theory and criticism. Emphasis on classical theories, especially those of Plato and Aristotle. Practice of rhetorical criticism of contemporary communication, including scientific communication.

## Sociology (Soc)

Soc 1001f,w,s. Sociology. (4 cr; T)  
Culture, social institutions, socialization, groups, social class, race and ethnicity, collective behavior, demography, social deviance.

Soc 1007f or s. Family Relationships. (4 cr; T)  
Evolution and developmental stages of the family as an institution in American society. Emphasis on family functions, and interaction among family members and psychological and cultural forces affecting them.

Soc 1102w. Cultural Anthropology. (4 cr)  
Human culture from advent of agriculture to present. Methods used in cultural anthropology; linguistics; general theories of culture; functions of religion, law, kinship, systems, and other major influences in selected cultures.

Soc 1584w. Human Sexuality. (4 cr; T)  
Human sexuality from social, developmental, behavioral, biological, and health science perspectives. Emphasis on recognizing accurate information and understanding sexual issues to promote responsible decision making and behavior.

Soc 3937s. Social Gerontology: Elders in American Society. (4 cr; prereq 1001; T)  
Overview of demographic data and projections pertinent to the over-65 population in the United States. Characteristics, changes, and concerns of older persons, including physiological, psychological, social, economic, and political factors associated with age. Individual work with older adults.

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## Soil Science (Soil)

Soil 1294f,w,s. Soil Science. (4 cr; prereq Chem 1001; 3 lect , 2 lab hrs per wk)

Formation, classification, and composition of soils with emphasis on chemical and physical properties affecting growth and nutrition.

Soil 3225w. Soil and Water Management and Conservation. (4 cr; prereq 1294; 3 lect , 2 lab hrs per wk; T)

Management principles and practices used to increase productivity and conserve soil and water resources for agronomic crops and maintaining wildlands and environmental quality.

Soil 3416f,w. Soil Fertility and Plant Nutrition. (4 cr; prereq 1294; 3 lect , 2 lab hrs per wk; T)

Soil fertility management and its effect on crop growth. Uptake and use of specific important nutrients; use of fertilizers, their composition and characteristics; importance of residue management to maintain high productivity; environmental impact of certain agronomic practices.

Soil 3520f. Soil Morphology. (4 cr; prereq 1294, 3225; 3 lect , 2 lab hrs per wk; T)

Soil development, morphology, and description principles in the field for land use interpretations. Field and lab procedures used in soil survey investigations.

Soil 3623f. Hydrogeology. (3 cr; prereq Chem 1005, Geol 1001, Math 1111; 3 lect hrs per wk; T)

Relationships between groundwater and surface water along with application of Darcy's Law in solving distribution and flow problems in confined and unconfined media. Complex interactions among water supplies, demand, and quality.

## Spanish (Span)

Span 1104f. Beginning Spanish I. (4 cr; T)

Basic salutations and common conversational skills necessary for conducting simple business transactions and handling social situations. Emphasis on pronunciation. New vocabulary and simple idioms, verb conjugation; geography and culture of Spanish-speaking countries.

Span 1204w. Beginning Spanish II. (4 cr; prereq 1104 or 1 yr high school Spanish or instructor consent; T)

Conversational Spanish centered on day-to-day experiences. Emphasis on verb conjugation, rules of grammar, and vocabulary building. Language lab for pronunciation and inflection. Cultural awareness and appreciation.

Span 1304s. Beginning Spanish III. (4 cr; prereq 1204 or two yrs high school Spanish or instructor consent; T)

Emphasis on verb conjugation with addition of compound tenses, indicative and subjective moods. Vocabulary building. Dialogue concerning sports, travel, and service information. Language lab for pronunciation. Cultural and political dimensions of Spanish-speaking countries.

Span 1501. Culture/Civilization of Spain and Latin America. (3 cr; prereq 1304 or 2 yrs high school Spanish or instructor consent; on demand)

Culture, literature, and ways of life of the Spanish-speaking world. Continued study.

## Speech (Spch)

Spch 1101f,w,s. Speech. (4 cr; T)

Topic selection, research, organization, rehearsal, and extemporaneous delivery of informative and persuasive speeches.

Spch 3001f. Communication in Human Relationships. (4 cr) Theory, research, and application of interpersonal communication in face-to-face familial, intimate, and cross-cultural relationships.

Spch 3431f or w or s. Persuasion. (4 cr; prereq 1101)

Persuasion in interpersonal, organizational, intracultural, and intercultural relationships. Contemporary persuasion with occasional historical segments.

## Sport and Recreation Management (SRM)

SRM 3000. Foundations of Sport and Recreation Management. (4 cr; prereq Mgmt 3200; T)

Overview of scope and extent of sport and recreation management, including accounting, career opportunities, composition, computer applications, facility and equipment management, fundraising, grant writing, health and wellness, human communication, law, multilevel scheduling, management principles, marketing, and promotions.

SRM 3001. Sports Nutrition. (3 cr; prereq Biol 1009 or Chem 1001 or FScN 1123; T)

Nutrition principles applied to fitness and sport. The six nutrients, body composition, training and conditioning, weight maintenance, nutrition in competitive sports.

SRM 3002. Sport and Recreation Law. (3 cr; prereq GBus 3107, Phil 1003; T)

Legal principles affecting managers, sponsors, and users of sport and recreation programs, including the vocabulary of contract negotiation and civil rights in planning, developing, maintaining, and managing sport and recreation organizations.

SRM 3003. Facility and Equipment Management. (4 cr; T) Design, layout, and maintenance strategies for managing sports facilities. Purchasing, organizing, and maintenance strategies for managing equipment used for multiple sports and recreation activities.

SRM 3004. Electronic and Virtual Organizations. (4 cr; prereq 3003, INM 1020 or INM 1060 or INM 1200; T)

Project-oriented course emphasizing construction of electronic interaction and distribution systems for internal operations as well as interorganizational relations. Builds on skills learned in INM courses and applies them to sport and recreation. Computer applications include scheduling, safety, organization, communications, facility design, and maintenance strategies.

SRM 3005. Sports Information and Newsletters. (4 cr; prereq Comp 3024 or Comp 3033, INM 1060 or INM 1200, Math 1150, Spch 3001; T)

Media relations, public relations, data gathering and analysis, presenting information to the public and media.

SRM 4011. Internship in Sport and Recreation Management. (4 cr; prereq jr status, instructor consent; T)

Field-based learning experience for potential sport and recreation managers.

SRM 4099. Seminar in Sport and Recreation Management. (2 cr; prereq sr status, instructor consent; T)

Capstone course emphasizing design, implementation, and evaluation of an entire sport or recreation program in terms of a virtual portfolio.

## Technical Studies (TecS)

TecS 1002. Introduction to Competency Assessment Packages. (2 cr; on demand)

Identify components of the Competency Assessment Package; documentation used to identify and describe professional training and experiential learning to be evaluated for college-level equivalency.

## Theatre (Th)

Th 1121f,w,s. Theatre Production. (1 cr [may be repeated for 9 cr max]; T)

Involvement in one or more of the following: acting, directing, costuming, set construction, makeup, publicity, coaching, lighting, sound.

## Courses Offered Collaboratively With Other Higher Education Institutions

### Alexandria Technical College

Art 1452 (HUMA 1902). Art Fundamentals I. (4 cr)

Art 1552 (HUMA 1905). Art Fundamentals II. (4 cr)

### University of Minnesota, Twin Cities Department of Rhetoric

Comp 3560 (Rhet 5560). Editing for Technical Communication. (4 cr)

Comp 3573 (Rhet 5573). Grant Proposal. (3 cr)

Comp 3581 (Rhet 5581). Document Design. (4 cr)

### University of Minnesota, Twin Cities University College

ABus 3012. Problem Solving in Complex Organizations. (4 cr)

ABus 3021. Small-Group Behavior and Teamwork. (4 cr)

ABus 3023. Communicating for Results. (4 cr)

ABus 3031. Accessing and Using Information Effectively. (4 cr)

ABus 3041. Leadership in a Global and Diverse Workplace. (4 cr)

ABus 3104. Management and Human Resource Practices. (4 cr)

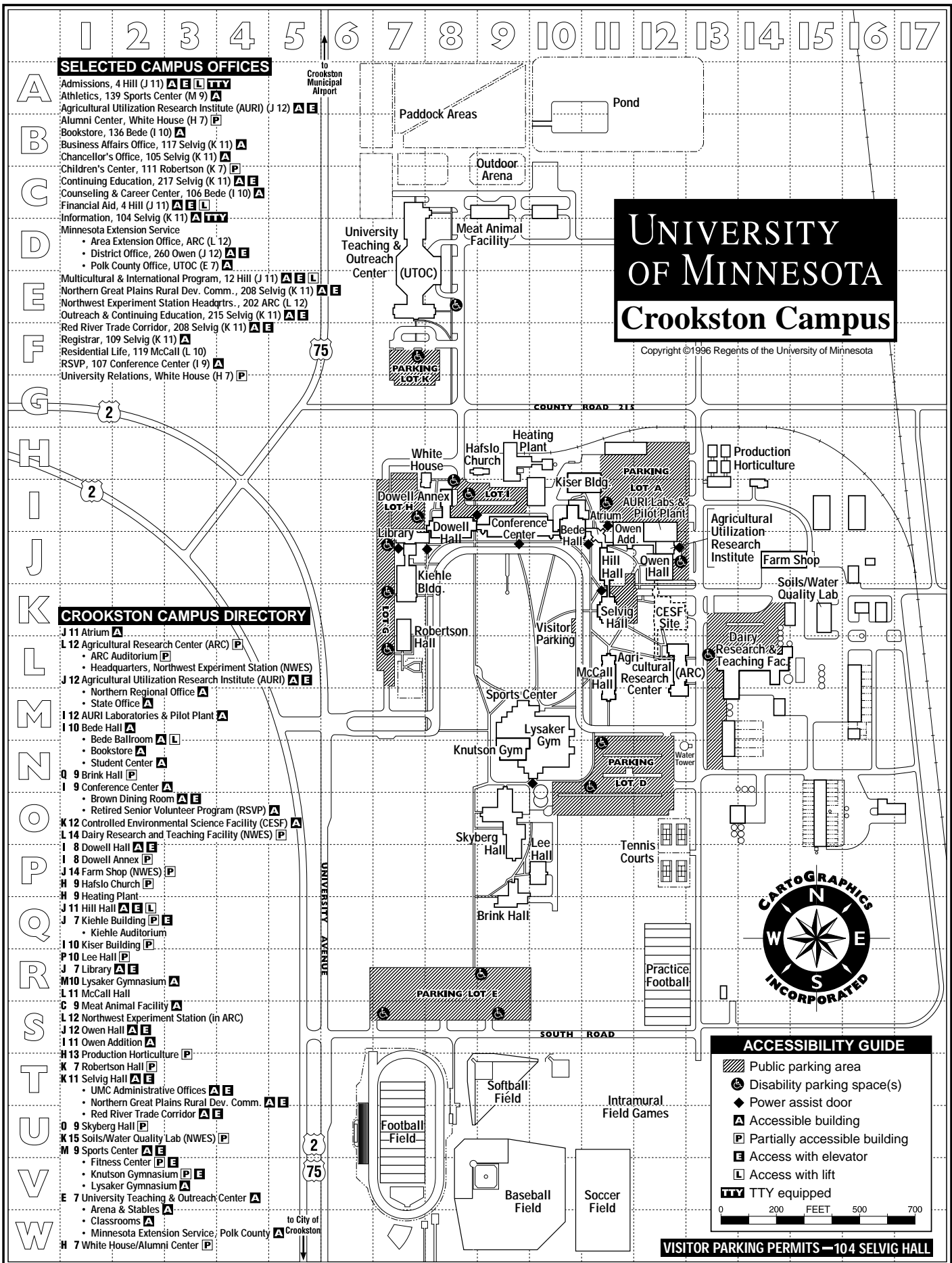
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**SELECTED CAMPUS OFFICES**

- A Admissions, 4 Hill (J 11) **A E L TTY**
- A Athletics, 139 Sports Center (M 9) **A**
- A Agricultural Utilization Research Institute (AURI) (J 12) **A E**
- B Alumni Center, White House (H 7) **P**
- B Bookstore, 136 Bede (I 10) **A**
- B Business Affairs Office, 117 Selvig (K 11) **A**
- B Chancellor's Office, 105 Selvig (K 11) **A**
- B Children's Center, 111 Robertson (K 7) **P**
- B Continuing Education, 217 Selvig (K 11) **A E**
- B Counseling & Career Center, 106 Bede (I 10) **A**
- C Financial Aid, 4 Hill (J 11) **A E L**
- C Information, 104 Selvig (K 11) **A TTY**
- D Minnesota Extension Service
  - Area Extension Office, ARC (L 12)
  - District Office, 260 Owen (J 12) **A E**
  - Polk County Office, UTOC (E 7) **A**
- E Multicultural & International Program, 12 Hill (J 11) **A E L**
- E Northern Great Plains Rural Dev. Comm., 208 Selvig (K 11)
- E Northwest Experiment Station Headqtrs., 202 ARC (L 12)
- E Outreach & Continuing Education, 215 Selvig (K 11) **A E**
- F Red River Trade Corridor, 208 Selvig (K 11) **A E**
- F Registrar, 109 Selvig (K 11) **A**
- F Residential Life, 119 McCall (L 10)
- F RSVP, 107 Conference Center (I 9) **A**
- G University Relations, White House (H 7) **P**

**UNIVERSITY OF MINNESOTA  
Crookston Campus**

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**CROOKSTON CAMPUS DIRECTORY**

- J 11 Atrium **A**
- L 12 Agricultural Research Center (ARC) **P**
  - ARC Auditorium **P**
  - Headquarters, Northwest Experiment Station (NWES)
- J 12 Agricultural Utilization Research Institute (AURI) **A E**
  - Northern Regional Office **A**
  - State Office **A**
- I 12 AURI Laboratories & Pilot Plant **A**
- I 10 Bede Hall **A**
  - Bede Ballroom **A L**
  - Bookstore **A**
  - Student Center **A**
- Q 9 Brink Hall **P**
- I 9 Conference Center **A**
  - Brown Dining Room **A E**
  - Retired Senior Volunteer Program (RSVP) **A**
- K 12 Controlled Environmental Science Facility (CESF) **A**
- L 14 Dairy Research and Teaching Facility (NWES) **P**
- I 8 Dowell Hall **A E**
- I 8 Dowell Annex **P**
- J 14 Farm Shop (NWES) **P**
- H 9 Hafslø Church **P**
- H 9 Heating Plant
- J 11 Hill Hall **A E L**
- J 7 Kiehle Building **P E**
  - Kiehle Auditorium
- I 10 Kiser Building **P**
- P 10 Lee Hall **P**
- J 7 Library **A E**
- M 10 Lysaker Gymnasium **A**
- L 11 McCall Hall
- C 9 Meat Animal Facility **A**
- L 12 Northwest Experiment Station (in ARC)
- J 12 Owen Hall **A E**
  - Owen Addition **A**
- H 13 Production Horticulture **P**
- K 7 Robertson Hall **P**
- K 11 Selvig Hall **A E**
  - UMC Administrative Offices **A E**
  - Northern Great Plains Rural Dev. Comm. **A E**
  - Red River Trade Corridor **A E**
- Q 9 Skyberg Hall **P**
- K 15 Soils/Water Quality Lab (NWES) **P**
- M 9 Sports Center **A E**
  - Fitness Center **P E**
  - Knutson Gymnasium **P E**
  - Lysaker Gymnasium **A**
- E 7 University Teaching & Outreach Center **A**
  - Arena & Stables **A**
  - Classrooms **A**
  - Minnesota Extension Service; Polk County **A**
- H 7 White House/Alumni Center **P**



**ACCESSIBILITY GUIDE**

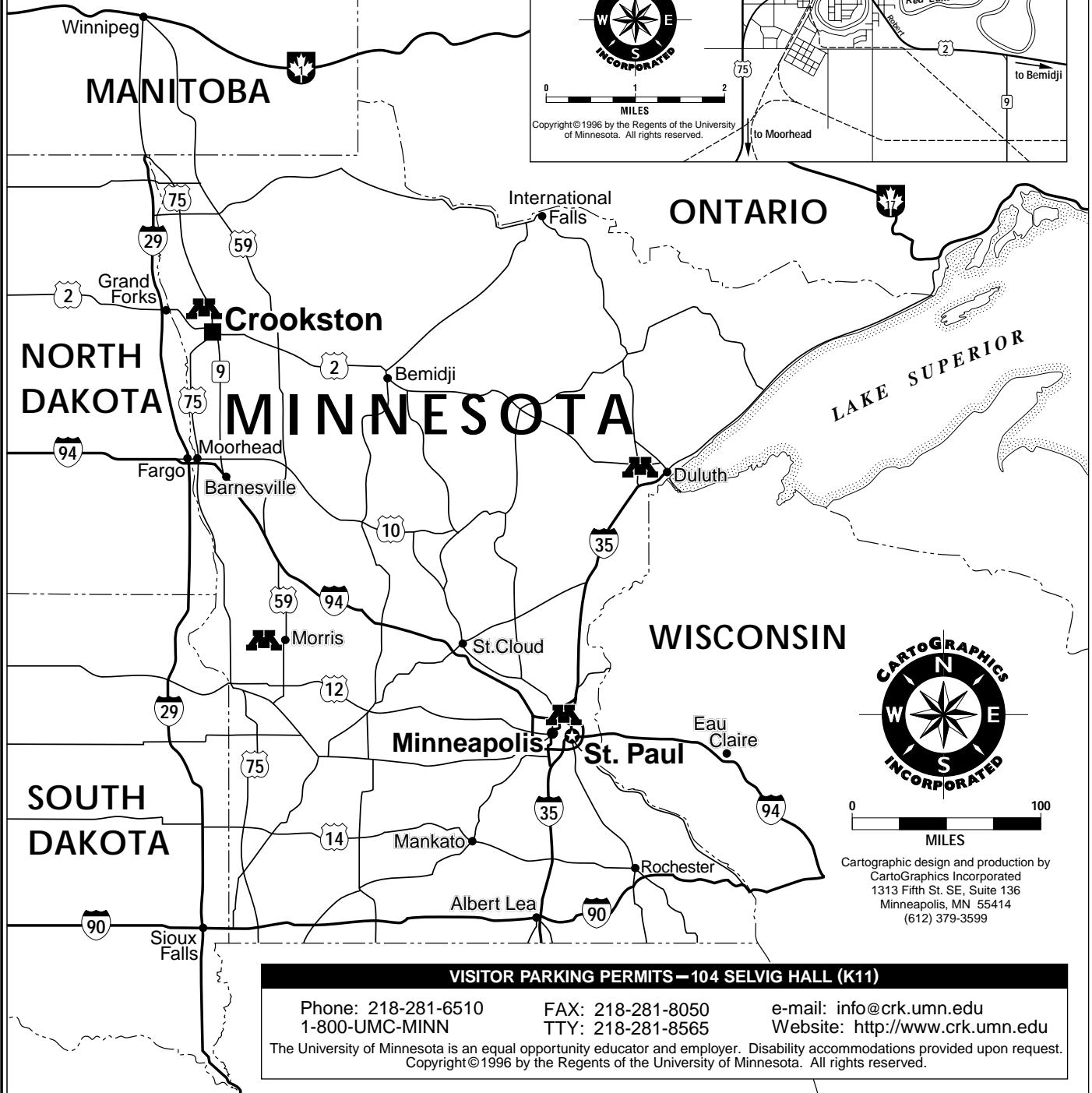
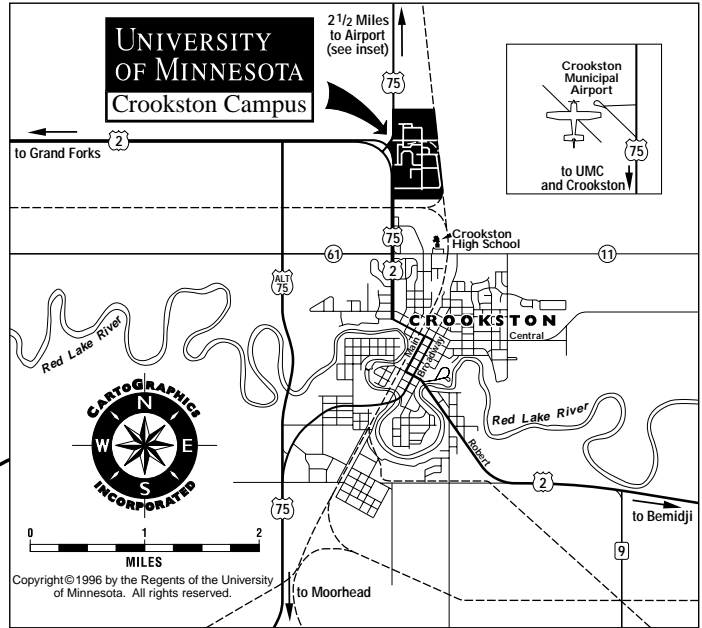
- Public parking area
- Disability parking space(s)
- Power assist door
- Accessible building
- Partially accessible building
- Access with elevator
- Access with lift
- TTY equipped

0 200 500 700 FEET

**VISITOR PARKING PERMITS — 104 SELVIG HALL**

**Distance to U of M – Crookston**

90 miles	Bemidji, MN
240 miles	Duluth, MN
375 miles	Eau Claire, WI
70 miles	Fargo, ND
24 miles	Grand Forks, ND
290 miles	Minneapolis, MN
165 miles	Morris, MN
295 miles	St. Paul, MN
320 miles	Sioux Falls, SD
150 miles	Winnipeg, Manitoba



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1-800-UMC-MINN

FAX: 218-281-8050  
TTY: 218-281-8565

e-mail: [info@crk.umn.edu](mailto:info@crk.umn.edu)  
Website: <http://www.crk.umn.edu>

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 Mark B. Rotenberg, General Counsel

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 Mechanized Agriculture  
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 Professor, Director, Athletics  
 Baird, Philip, M.S., Associate Professor,  
 Natural Resources  
 Batten, Connie, Ph.D. (ABD),  
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 Associate for Technology  
 Brorson, Sue, Ph.D., Professor,  
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 Campoverde, Marcelo, B.S., Head  
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 Cavalier, Donald, M.S., Director,  
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 Grave, Marilyn, M.S., Assistant  
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 Medal, Donald, B.S.E.E., Director,  
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 Mitchell, John, M.S., Head Softball  
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 Myers, Kenneth, M.S., Associate  
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 Neet, Sharon, D.A., Professor,  
 History and Political Science

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 Peterson, William, M.S., Professor,  
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 Prada, Mario, Ph.D., Director,  
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 Senske, Gary, M.S.,  
 Head Men's Basketball Coach  
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 Sinks, Jeff, B.F.A.,  
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 Smith, Robert, M.Ed.,  
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 Chair, Division of Management  
 Spaeth, Sonia, M.Ed., Assistant Professor,  
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 Recreation and Art  
 Stewart, Sharon, M.S.,  
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 Stumblingbear, Debbie, B.S.,  
 Coordinator of Dining Services  
 Svec, Andrew, B.A., Webmaster  
 Svedarsky, W. Daniel, Ph.D.,  
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 Treanor, Twyla, M.S., Assistant  
 Professor, Management/Information  
 Networking Management  
 Tyler, Peter, M.S., Assistant Football  
 Coach/Strength Coach/Fitness  
 Center Coordinator  
 Ueland, Erman, M.A., Associate  
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 Wagner, Roger, M.S.,  
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 Ward, Allan, M.S., Assistant Professor,  
 Education Specialist, Admissions  
 Weiler, Barbara, B.A., Assistant Director,  
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 Westrom, Lyle, Ph.D., Associate Professor,  
 Animal Science, Dairy  
 Willhite, Gary, M.S., Director,  
 Residential Life and Security Services  
 Williams, Owen, M.L.S., Director,  
 Library  
 Wilson, Laurie, M.A., Counselor,  
 Coordinator, Disabilities Services  
 Zak, John, M.S., Assistant Director,  
 Graphic Production

## Policies

**Bulletin Use**—The University of Minnesota will change to a semester-based academic calendar beginning academic year 1999-2000. This bulletin is the last quarter-based bulletin that will be produced for the University of Minnesota, Crookston. It covers academic years 1997-98 and 1998-99. Information about semester-based academic programs will be provided in the fall of 1998 in semester-transition publications.

The information in this bulletin and other University bulletins, publications, or announcements is subject to change without notice. University offices can provide current information about possible changes.

This publication is available in alternative formats upon request. Contact the Office of the Registrar, 109 Selvig Hall (218/281-8547).

This bulletin also is available in electronic format on the Internet and may be accessed at <http://www.umn.edu/commpub> on the World Wide Web.

**Equal Opportunity**—The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

In adhering to this policy, the University abides by the Minnesota Human Rights Act, Minnesota Statute Ch. 363; by the Federal Civil Rights Act, 42 U.S.C. 2000e; by the requirements of Title IX of the Education Amendments of 1972; by Sections 503 and 504 of the Rehabilitation Act of 1973; by the Americans With Disabilities Act of 1990; by Executive Order 11246, as amended; by 38 U.S.C. 2012, the Vietnam Era Veterans Readjustment Assistance Act of 1972, as amended; and by other applicable statutes and regulations relating to equality of opportunity.

Inquiries regarding compliance may be directed to Stephanie Lieberman, Director, Office of Equal Opportunity and Affirmative Action, University of Minnesota, 419 Morrill Hall, 100 Church Street S.E., Minneapolis, MN 55455 (612/624-9547).

To request disability accommodations, contact Laurie Wilson, Office for Students With Disabilities (218/281-8565).

**Access to Student Educational Records**—In accordance with regents' policy on access to student records, information about a student generally may not be released to a third party without the student's permission. (Exceptions under the law include state and federal educational and financial aid institutions.) The policy also permits students to review their educational records and to challenge the contents of those records.

Some student information—name, address, electronic (e-mail) address, telephone number, dates of enrollment and enrollment status (full time, part time, not enrolled, withdrawn and date of withdrawal), college and class, major, adviser, academic awards and honors received, and degrees earned—is considered public or directory information. Students may prevent the release of public information. To do so, they must notify the records office on their campus.

Students have the right to review their educational records. The regents' policy is available for review at 150 Williamson Hall, Minneapolis, and at records offices on other campuses of the University. Questions may be directed to the Office of the Registrar, 150 Williamson Hall (612/625-5333).

**Immunization**—Students born after 1956 who take more than one University class are required under Minnesota law to submit an Immunization Record form.

The form, which is sent along with the official University admission letter, must be filled out and returned to UMC Student Health Service within 45 days of the first term of enrollment in order for students to continue registering for classes at the University. Complete instructions accompany the form.

**Extracurricular Events**—No extracurricular events requiring student participation may be scheduled from the beginning of study day to the end of finals week. Exceptions to this policy may be granted by the Senate Committee on Educational Policy. The Senate advises all faculty that any exemption granted pursuant to this policy shall be honored and that students who are unable to complete course requirements during finals week shall be provided an alternative and timely opportunity to do so.

**Student Right-to-Know Act**—Students may receive, on request, information about campus security and graduation and retention rates at UMC. This information is available from the Office of Admissions, 4 Hill Hall.

**Smoke-Free Campus Policy**—Smoking is prohibited in all UMC facilities except for designated private residence hall rooms. Smoking is permitted outdoors. Smokers who choose to smoke outside are asked to properly dispose of smoking materials.

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Office	Phone	Location	Web address
Academic Assistance Center	281-8274	217 Owen Hall	<a href="http://www.crk.umn.edu/people/services/academasst/academasst.htm">http://www.crk.umn.edu/people/services/academasst/academasst.htm</a>
Academic Information			
Units and Programs			<a href="http://www.crk.umn.edu/yourcareer/academics/program.htm">http://www.crk.umn.edu/yourcareer/academics/program.htm</a>
Academic Degree Programs			<a href="http://www.crk.umn.edu/yourcareer/academics/alphalist/degreesalpha.htm">http://www.crk.umn.edu/yourcareer/academics/alphalist/degreesalpha.htm</a>
Accounting	281-8176	130 Dowell Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/accounting/acct.htm">http://www.crk.umn.edu/yourcareer/academics/accounting/acct.htm</a>
Activities and Events Calendar			<a href="http://www.crk.umn.edu/campusinfo/calendars/">http://www.crk.umn.edu/campusinfo/calendars/</a>
Admissions	281-8569	4 Hill Hall	<a href="http://www.crk.umn.edu/people/admissions/">http://www.crk.umn.edu/people/admissions/</a>
Administrative Office Management	281-8176	130 Dowell Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/adminoffice/AOM.htm">http://www.crk.umn.edu/yourcareer/academics/adminoffice/AOM.htm</a>
Agricultural Aviation	281-8101	109 Hill Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/agaviation/agav2.htm">http://www.crk.umn.edu/yourcareer/academics/agaviation/agav2.htm</a>
Agricultural Business	281-8101	109 Hill Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/agindustries/agbiz.htm">http://www.crk.umn.edu/yourcareer/academics/agindustries/agbiz.htm</a>
Agricultural Industries			
Sales and Management	281-8101	109 Hill Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/agindustries/AISM.htm">http://www.crk.umn.edu/yourcareer/academics/agindustries/AISM.htm</a>
Agricultural Management, Division of	281-8176	130 Dowell Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/div/aghome.htm">http://www.crk.umn.edu/yourcareer/academics/div/aghome.htm</a>
Agronomy/Soils	281-8101	109 Hill Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/agronomy/agronsoils.htm">http://www.crk.umn.edu/yourcareer/academics/agronomy/agronsoils.htm</a>
Animal/Dairy Science	281-8101	109 Hill Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/animalind/animaldairy.htm">http://www.crk.umn.edu/yourcareer/academics/animalind/animaldairy.htm</a>
Animal Industries Management—			
Dairy Mgmt.	281-8101	109 Hill Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/animalind/dairy/dairy.htm">http://www.crk.umn.edu/yourcareer/academics/animalind/dairy/dairy.htm</a>
Animal Industries Management—			
Meat Animal Mgmt.	281-8101	109 Hill Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/animalind/meatanim/meatanim.htm">http://www.crk.umn.edu/yourcareer/academics/animalind/meatanim/meatanim.htm</a>
Arts and Sciences, Division of	281-8256	109 Conference Center	<a href="http://www.crk.umn.edu/yourcareer/academics/div/arts&amp;sci.htm">http://www.crk.umn.edu/yourcareer/academics/div/arts&amp;sci.htm</a>
Athletics	281-8422	139 Sports Center	<a href="http://www.crk.umn.edu/people/athletics/title.htm">http://www.crk.umn.edu/people/athletics/title.htm</a>
Bookstore	281-8335	136 Bede Hall	<a href="http://www.crk.umn.edu/people/services/bookstore/bkstr.htm">http://www.crk.umn.edu/people/services/bookstore/bkstr.htm</a>
Business Office	281-8326	117 Selvig Hall	<a href="http://www.crk.umn.edu/people/services/businessaffairs/boff.htm">http://www.crk.umn.edu/people/services/businessaffairs/boff.htm</a>
Business Management	281-8176	130 Dowell Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/business/busmgt.htm">http://www.crk.umn.edu/yourcareer/academics/business/busmgt.htm</a>
Campus Ministry	281-8516	214 Bede Hall	<a href="http://www.crk.umn.edu/people/services/cministry/cministry.htm">http://www.crk.umn.edu/people/services/cministry/cministry.htm</a>
Campus Services			<a href="http://www.crk.umn.edu/people/services/services.htm">http://www.crk.umn.edu/people/services/services.htm</a>
Campus Overview			<a href="http://www.crk.umn.edu/info.htm">http://www.crk.umn.edu/info.htm</a>
Chancellor	281-8343	105 Selvig Hall	<a href="http://www.crk.umn.edu/greet.htm">http://www.crk.umn.edu/greet.htm</a>
Children's Center	281-8285	111 Robertson Hall	<a href="http://www.crk.umn.edu/people/services/children/childcenter.htm">http://www.crk.umn.edu/people/services/children/childcenter.htm</a>
Computer Center	281-8376	116 Dowell Hall	<a href="http://www.crk.umn.edu/technology/computerserv/computercenter.htm">http://www.crk.umn.edu/technology/computerserv/computercenter.htm</a>
Computer Help Desk	281-8000	104 Dowell Hall	<a href="http://www.crk.umn.edu/technology/computerserv/helpdesk/helpdesk.htm">http://www.crk.umn.edu/technology/computerserv/helpdesk/helpdesk.htm</a>
Concerts and Lectures			<a href="http://www.crk.umn.edu/UMCWeb/umcweb/student/clubs/concerts.htm">http://www.crk.umn.edu/UMCWeb/umcweb/student/clubs/concerts.htm</a>
Continuing Education and Outreach	281-8681	217 Selvig Hall	<a href="http://www.crk.umn.edu/outreach/main.htm">http://www.crk.umn.edu/outreach/main.htm</a>
Counseling and Career Center	281-8586	106 Bede Hall	<a href="http://www.crk.umn.edu/services/counseling/career.HTM">http://www.crk.umn.edu/services/counseling/career.HTM</a>
Course Information			<a href="http://www.crk.umn.edu/UMCWeb/umcweb/course/course.htm">http://www.crk.umn.edu/UMCWeb/umcweb/course/course.htm</a>
Crookston Community and Region			<a href="http://www.crk.umn.edu/campusinfo/crookston/community.htm">http://www.crk.umn.edu/campusinfo/crookston/community.htm</a>
Dietetic Technician	281-8176	130 Dowell Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/dietetics/Dietetic.htm">http://www.crk.umn.edu/yourcareer/academics/dietetics/Dietetic.htm</a>
Dining Services	281-8538	233 Conference Center	<a href="http://www.crk.umn.edu/people/services/diningserv/diningserv.htm">http://www.crk.umn.edu/people/services/diningserv/diningserv.htm</a>
Directory, Faculty and Staff	281-6510		<a href="http://www.crk.umn.edu/direct.htm">http://www.crk.umn.edu/direct.htm</a>
Directory, Students	281-6510		<a href="http://www.crk.umn.edu/new/indexsearch.htm">http://www.crk.umn.edu/new/indexsearch.htm</a>
Disability Services	281-8587	119 Bede Hall	<a href="http://www.crk.umn.edu/people/services/DisabilServ/disabled.htm">http://www.crk.umn.edu/people/services/DisabilServ/disabled.htm</a>
Early Childhood Education	281-8176	130 Dowell Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/ecpm/earlychild.htm">http://www.crk.umn.edu/yourcareer/academics/ecpm/earlychild.htm</a>
Early Childhood			
Program Management	281-8176	130 Dowell Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/ecpm/ChildMgt.htm">http://www.crk.umn.edu/yourcareer/academics/ecpm/ChildMgt.htm</a>
Environmental and Natural			
Resource Management	281-8101	109 Hill Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/natr/enrm.htm">http://www.crk.umn.edu/yourcareer/academics/natr/enrm.htm</a>
Equine Industries Management		C14 University Teaching	
and Outreach Center	281-8125		<a href="http://www.crk.umn.edu/yourcareer/academics/equine/eim2.htm">http://www.crk.umn.edu/yourcareer/academics/equine/eim2.htm</a>
Equine Science		C14 University Teaching	
and Outreach Center	281-8125		<a href="http://www.crk.umn.edu/yourcareer/academics/equine/ES.htm">http://www.crk.umn.edu/yourcareer/academics/equine/ES.htm</a>
Financial Aid	281-8562	4 Hill Hall	<a href="http://www.crk.umn.edu/people/finaid/">http://www.crk.umn.edu/people/finaid/</a>
Fitness Center	281-8421	141 Sports Center	<a href="http://www.crk.umn.edu/people/athletics/fitnesscenter/FC.htm">http://www.crk.umn.edu/people/athletics/fitnesscenter/FC.htm</a>
Health Management	281-8370	301 Selvig Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/healthmgmt/hm.htm">http://www.crk.umn.edu/yourcareer/academics/healthmgmt/hm.htm</a>
Health Services, Student	281-8512	115 Bede Hall	<a href="http://www.crk.umn.edu/people/services/Health_Services/Student_Health_Services.htm">http://www.crk.umn.edu/people/services/Health_Services/Student_Health_Services.htm</a>
Hotel, Restaurant,			
and Institutional Management	281-8176	130 Dowell Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/hri/umhri.htm">http://www.crk.umn.edu/yourcareer/academics/hri/umhri.htm</a>
Information for Prospective Students	281-8569	4 Hill Hall	<a href="http://www.crk.umn.edu/people/prospective/info.htm">http://www.crk.umn.edu/people/prospective/info.htm</a>
Information Management	281-8196	215 Dowell Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/inm/informgmt.htm">http://www.crk.umn.edu/yourcareer/academics/inm/informgmt.htm</a>
Information Networking Management	281-8196	215 Dowell Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/inm/INM.htm">http://www.crk.umn.edu/yourcareer/academics/inm/INM.htm</a>
Instructional Technology Center	281-8380	208 Dowell Hall	<a href="http://www.crk.umn.edu/technology/itc/ITC.htm">http://www.crk.umn.edu/technology/itc/ITC.htm</a>
Intramurals	281-8415	139 Sports Center	<a href="http://www.crk.umn.edu/people/athletics/intramurals/INTRM.htm">http://www.crk.umn.edu/people/athletics/intramurals/INTRM.htm</a>
Library	281-8399	157 Knutson Hall	<a href="http://www.crk.umn.edu/UMCWeb/library/library.htm">http://www.crk.umn.edu/UMCWeb/library/library.htm</a>
Management, Division of	281-8176	130 Dowell Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/div/mgmthome.htm">http://www.crk.umn.edu/yourcareer/academics/div/mgmthome.htm</a>
Marketing and Management	281-8176	130 Dowell Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/business/mktmgmt.htm">http://www.crk.umn.edu/yourcareer/academics/business/mktmgmt.htm</a>
Natural Resources	281-8101	109 Hill Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/natr/NATR.htm">http://www.crk.umn.edu/yourcareer/academics/natr/NATR.htm</a>
Organizational Chart, UMC			<a href="http://www.crk.umn.edu/campusinfo/maps/orgchart.htm">http://www.crk.umn.edu/campusinfo/maps/orgchart.htm</a>
Plant Industries Management—			
Agronomy	281-8101	109 Hill Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/agronomy/agron.htm">http://www.crk.umn.edu/yourcareer/academics/agronomy/agron.htm</a>
Plant Industries Management—			
Horticulture	281-8101	109 Hill Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/horticulture/hort2.htm">http://www.crk.umn.edu/yourcareer/academics/horticulture/hort2.htm</a>
Policies			<a href="http://www.crk.umn.edu/campusinfo/policies/policies.htm">http://www.crk.umn.edu/campusinfo/policies/policies.htm</a>
Processing Technology	281-8144	105 Hill Hall	<a href="http://www.crk.umn.edu/yourcareer/academics/processstech/pt2.htm">http://www.crk.umn.edu/yourcareer/academics/processstech/pt2.htm</a>
Registrar	281-8547	109 Selvig Hall	<a href="http://www.crk.umn.edu/people/services/registrar/registrar.htm">http://www.crk.umn.edu/people/services/registrar/registrar.htm</a>
Residential Life	281-8531	119 McCall Hall	<a href="http://www.crk.umn.edu/people/services/reslife/reslife.htm">http://www.crk.umn.edu/people/services/reslife/reslife.htm</a>
Student Activities	281-8505	120 Bede Hall	<a href="http://www.crk.umn.edu/people/services/studentactivities/StuAct.htm">http://www.crk.umn.edu/people/services/studentactivities/StuAct.htm</a>
Student Affairs	281-8560	7A Hill Hall	<a href="http://www.crk.umn.edu/people/studentaffairs/sa-over.htm">http://www.crk.umn.edu/people/studentaffairs/sa-over.htm</a>
Student Forum (Government)	281-8521	110 Bede Hall	<a href="http://www.crk.umn.edu/umcweb/bestedstudentcenter/stuforum.htm">http://www.crk.umn.edu/umcweb/bestedstudentcenter/stuforum.htm</a>
Student Handbook			<a href="http://www.crk.umn.edu/campusinfo/handbooks/studenthand.htm">http://www.crk.umn.edu/campusinfo/handbooks/studenthand.htm</a>
Technical Studies	281-8256	109 Conference Center	<a href="http://www.crk.umn.edu/yourcareer/academics/techstudies/isopinon.htm">http://www.crk.umn.edu/yourcareer/academics/techstudies/isopinon.htm</a>
Technical Communication	281-8256	109 Conference Center	<a href="http://www.crk.umn.edu/yourcareer/academics/techcomm/STC.htm">http://www.crk.umn.edu/yourcareer/academics/techcomm/STC.htm</a>
University of Minnesota System			<a href="http://www.umn.edu/">http://www.umn.edu/</a>
Veterans Services	281-8547	109 Selvig Hall	<a href="http://www.crk.umn.edu/people/services/veteran/vet.html">http://www.crk.umn.edu/people/services/veteran/vet.html</a>
World Wide Web Resources	281-8380	208 Dowell Hall	<a href="http://www.crk.umn.edu/technology/web/resources.htm">http://www.crk.umn.edu/technology/web/resources.htm</a>
World Wide Web Home Page	281-8380	208 Dowell Hall	<a href="http://www.crk.umn.edu/">http://www.crk.umn.edu/</a>

\* World Wide Web address information subject to change without notice