

# AGRICULTURE PRODUCTION OPTION

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2009 – 2010

18 Months

Credits Required for Graduation: 73

Associate of Applied Science (A.A.S.) Degree

## The Demands of Modern Farming Require an Education

Because of the enormous changes that have taken place in agriculture in recent years, the individuals who manage today's farms need to be more skilled and knowledgeable than ever before. A successful farmer, whether an owner, renter, manager or crop industry employee, must have a thorough knowledge of the latest farming techniques along with a theoretical base in economics and business practices. The options included in the Agriculture Production program are designed for the student who wishes to return to the farm or ranch.

## Curriculum can be Tailored to Meet Student's Needs

The Agriculture Production curriculum is very comprehensive, including courses in nutrition, crop science, marketing, fertilizers, livestock development and maintenance, farm machinery, farm management, and decision-making. Great attention is also given to record-keeping, planning and farm accounting.

The program is designed to allow students to return to their farm or ranch operation during the spring semester of the first year and perform extensive record-keeping procedures. Students in the second year are also given the opportunity to work with area agribusinesses and/or veterinarians. Whether a student is returning to east river crop country or west river cattle land, he or she will find in this curriculum the knowledge needed to run a profitable operation.

## The Profession Requires Training and Discipline

This program is for individuals who enjoy the rural setting, like being their own boss, and have the discipline to see projects completed. Through the Agriculture Production program, such students will learn the techniques to be successful in today's highly competitive agricultural environment.

Farm operators must have enough technical knowledge about crops, growing conditions, and plant and animal diseases to make decisions that ensure the successful operation of their farms. They must also have the managerial skills necessary to organize and operate a business.

With increases in today's agriculture production costs, the instability of the farmers' market, and the increasing competition between American farmers and foreign competitors, the farm operator must be prepared to make informed decisions at the appropriate time.

## We Practice What We Preach

Lake Area Tech manages a demonstration farm in conjunction with various area ag businesses. The demonstration farm is located northwest of Watertown on county road 17. Students are involved in the operation and management of the demonstration farm.

## Recommended Background Courses

Although not required, the following courses would be beneficial to this course of study prior to attending Lake Area Technical Institute: Vocational Ag courses, Accounting, Computer, Science, Communications, Biology, English.

## COURSE DESCRIPTIONS

**AED 100 – Automated External Defibrillator (.5 credit)** To prepare individuals in the workplace to provide care for breathing emergencies, perform cardiopulmonary resuscitation (CPR), and use an automated external defibrillator (AED) for victims of sudden cardiac arrest.

**AG 100 – Soils (3 credits)** Determination of properties of various soils and their suitability for agricultural uses. Hands-on soil sampling and testing are emphasized; also, development of proficiency in interpreting soil survey maps.

**AG 102 – Crop Science (3 credits)** A comprehensive review of the plant development cycle, from seedling to harvest-ready maturity. Appropriate environmental conditions, insect and disease control, harvesting, and storage are discussed. Profitable management is emphasized.

**AG 106 – Animal Health I (2 credits)** The causes and management/control of disease and poisoning are determined.

**OR**

**AG 122 – Fertilizers (2 credits)** Identification of fertilizer elements, appropriate use, application procedures, and cost-effectiveness are covered.

**AG 126 – Weed Management (2 credits)** Training to meet federal certification: recognition of pests and noxious weeds; selection, application and disposal of chemicals; construction of a field-mapping system.

**AG 130 – Building Principles (1 credit)** This course covers all aspects of farm structure building, planning, design, and economics.

**AG 132 – Ag Structures (2 credits)** Construction fundamentals and building construction.

**AG 135 – Farm Power/Engines (1 credit)** Discusses engine principles and design, safety, oil, fuel, and coolant selection, and general engine and tractor maintenance principles.

**AG 136 – Advanced Farm Power (2 credits)** Covers fuel system maintenance, tractor and engine maintenance procedures and tractor tune-up procedures.

**AG 158 – Farm/Ranch Records (2 credits)** Application of standard financial procedures, using the computer to record, compile and complete typical financial records for farming operations.

**AG 200 – Animal Nutrition (2 credits)** A comprehensive class dealing with general principles of animal nutrition.

**AG 216 – Farm Power/Electrical Wiring (1 credit)** Covers electrical terms, circuits, design, usage, grounding, codes for wiring farm buildings and equipment, and how to troubleshoot electrical problems. AGR 218 taken concurrently.

**AG 218 – Advanced Electrical Wiring (2 credits)** This course covers service entrance panels; switching and outlet circuits; 120-volt and 240-volt single-phase power; 240-volt three-phase power; conductors and circuit protection; EMT circuits and workmanship and code compliance. AGR 216 taken concurrently.

**AG 221 – Machinery Management (2 credits)** A discussion of tractor setup, balance, and field performance; combine adjustment and field performance; machinery economics such as ownership, leasing, and investment.

**AG 226 – Commodity Marketing (2 credits)** Maximizing farm profit: Using the futures market; hedging; avoiding dangers of speculation; participating in the options market; developing a personal market strategy.

**AG 228 – Advanced Marketing (2 credits)** Discussion of risk minimization through selected marketing procedures.

**AGR 110 – Animal Science (3 credits)** The history and development of the livestock industry in South Dakota as well as selection and management of breeding stock, animal health, housing requirements and marketing strategies.

**AGR 156 – Farm Management I (2 credits)** An introduction to good management and planning procedures; organizing the farming operation as a business using proven financial procedures and budgetary projections.

**AGR 169 – Production Supervised Occupational Experience I (S.O.E.) (4 credits)** To achieve proficiency in general farm/ranch management skills students work at an established farm/ranch, usually their homes. Structured assignments must be completed. Instructors will visit the sites several times during this period.

**AGR 222 – Farm Machinery Lab (1 credit)** Hands-on activities such as combine adjustment and performance; field demonstrations; maintenance and updates; GPS and field mapping; operation, calibration adjustment, and performance.

**AGR 230 – Farm Accounting II (2 credits)** An advanced course of AG 158 which utilizes the computer to keep and complete all records for farming operations.

**AGR 232 – Farm Management II (2 credits)** This course covers how to determine the best business organization for the farm/ranch; blending multiple generations in a family operation; estate planning and generational transition; research projects and goal-setting.

**AGR 249 – Production Supervised Occupational Experience II (S.O.E.) (4 credits)** To achieve proficiency in general farm/ranch management skills, students work at an established farm/ranch, usually their homes. Structured assignments must be completed. Sixty internship hours must be completed in animal health and/or agronomy related business. Instructors will visit the sites several times during this period.

**AGR 250 – Computer Software Applications for Agriculture (2 credits)** A review and evaluation of various software packages available today. Application of software to complete typical farm/ranch use exercises so that the student will be able to use a computer effectively to meet the needs of his/her own farm or ranch.

**CIS 102 – Windows Applications for Technicians (3 credits)** Using a Windows-based microcomputer and related software, you will gain an understanding and basic operational knowledge about the Windows XP operating system, Microsoft Office word processing, and spreadsheets, presentation software, and publishing software. You will demonstrate this knowledge by scoring at least 80% on assignments, related objective, and performance tests.

**HAZ 100 – Hazardous Materials Safety (.5 credit)** Hazardous material covers identifying types of hazardous material, demonstrating personal protective equipment, and identifying blood borne pathogens.

#### **Agriculture Electives (Choose Three)**

**AG 122 – Fertilizers (2 credits)** Identification of fertilizer elements, appropriate use, application procedures, and cost-effectiveness are covered.

**AG 124 – Ag Chemicals (2 credits)** The safe use of pesticides and herbicides is emphasized. Also discussed: weed and insect identification, chemical selection, and control programs.

**AGR 120 – Seed and Grain Technology (2 credits)** Grading of grain according to federal standards, selection of high-quality seed, proper storage and conditioning of seed, identification of crop and weed seeds, operation of grading equipment.

**AGR 162 – Co-op Principles (2 credits)** Identification of the structure and scope of American cooperatives, the economic rationale, marketing and financing concepts, management, and structural dynamics.

**AGR 170 – Dairy Science (2 credits)** The history and development of the dairy industry in South Dakota as well as selection and management of breeding stock, animal health, housing requirements, and marketing strategies.

**AGR 202 – Livestock Nutrition Problems (2 credits)** Application of principles discussed in AGR 200: evaluation and formulation of suitable rations. Computers are used in this process.

**AGR 204 – Animal Health II (2 credits)** Designed to familiarize students with animal diseases, health products and feed additives.

**AGR 210 – Forages/Grasses (2 credits)** Production and management of common forages and grasses; management of tame pastures and rangelands; and various aspects of grazing practices.

**AGR 212 – Plant Diseases/Insect Identification and Control (2 credits)** Topics include pest/disease management, identification of satisfactory pest/disease control practices, and the biology of the causal organisms.

**AG 214 – Ag Chemical Equipment (2 credits)** Discusses proper use of equipment, cleaning procedures, keeping records, and disposal of waste.

**AG 224 – Facilities (2 credits)** Introduction to facility planning and design. Includes analysis of EPA regulation pertaining to on-farm fuel storage, chemical and fertilizer storage/handling, and livestock waste management.

**AGR 252 – Advanced Nutrition (2 credits)** Advanced discussion of nutrition and its effects on livestock.

**AGR 262 – Precision Agriculture (2 credits)** This course describes the basic purposes and concepts of precision farming. Basic tools of precision farming including GPS, CIS, and VRT will be used to collect, analyze, and apply the information.

**To fulfill graduation requirements, students must select one course in each of the areas listed. Courses marked with an asterisk can be transferred directly to the university system under the terms of articulation agreements.**

#### **Behavioral Science**

PSYC 100 – Psychology of Human Relations

PSYC 101 – General Psychology \*

#### **Communications**

COMM 101 – Contemporary Communication

ENGL 101 – Composition \*

SPCM 101 – Fundamentals of Speech \*

#### **Mathematics**

MATH 100 – Applied General Math

MATH 101 – Intermediate Algebra

MATH 102 – College Algebra \*

#### **Social Science**

ECON 101 – Economic Geography

ECON 105 – Leadership in the Global Workplace

ECON 201 – Principles of Microeconomics I \*

ECON 202 – Principles of Macroeconomics II \*