

AGRICULTURE

The Agribusiness management major prepares students for careers in a variety of businesses involved with the agricultural and food industry. Our graduates have obtained positions in agricultural lending, agronomy, agricultural sales, cooperative management, elevator management, government program administration, and grain trading.

Students majoring in agribusiness management may pursue a four-year bachelor of science degree or a two-year associate of science degree. In addition, a minor in agribusiness management is available.

A major strength of the Southwest Minnesota State University agribusiness major is a required business curriculum core. This business core enables students to obtain minors or majors in other business disciplines with a minimum of additional credits. Students are encouraged to obtain minors in other areas such as accounting, business administration, economics, marketing, foreign languages, and computer science. Students considering a graduate degree, such as an M.S. or Ph.D. **(In agribusiness management or agricultural economics, students should talk to an advisor about these plans as soon as possible while enrolled at Southwest Minnesota State University.)**

Students can select an emphasis in one of the following three areas:

- Farm Management.
- Agricultural Finance.
- Agricultural Marketing and Procurement.

By completing an agribusiness management degree with an emphasis in one of these areas, a student can develop the necessary skills for positions ranging from farming/ranching to agribusiness management.

Requirements:

- Students intending to major in agribusiness management must meet certain requirements before being accepted into the major program.
- Transfer students must eliminate all deficiencies within two semesters of entry into the Agribusiness Management Program.
- A minimum GPA of 2.3 in all major and minor programs is required to graduate.
- No more than three AGBU 499 Internship (1-6 cr.) can be used as agribusiness management elective credits.

Note: Scholarships are available for academically strong students majoring in agribusiness through the Cooperative Scholarship Program and other agribusiness scholarship programs. Job and internship placement has been excellent with agribusinesses in the Southwest Minnesota State University service region.

Note: Students must complete a minimum of 120 credits to graduate with a Bachelor's degree.

Programs Associates

- Agribusiness Management, AS (<http://catalog.smsu.edu/academic-programs-degrees/agriculture/agribusiness-management-as/>)

Bachelors

- Agribusiness Management, BS (<http://catalog.smsu.edu/academic-programs-degrees/agriculture/agribusiness-management-bs/>)
- Agricultural Communications and Leadership, BS (<http://catalog.smsu.edu/academic-programs-degrees/agriculture/agricultural-communications-leadership-bs/>)
- Agricultural Education, BS (<http://catalog.smsu.edu/academic-programs-degrees/agriculture/agricultural-education-bs/>)
- Agriculture, BAS (<http://catalog.smsu.edu/academic-programs-degrees/agriculture/agriculture-bas/>)
- Sustainable Agricultural Solutions, BS (<http://catalog.smsu.edu/academic-programs-degrees/agriculture/agricultural-solutions-bs/>)

Minors

- Agribusiness Management, Minor (<http://catalog.smsu.edu/academic-programs-degrees/agriculture/agribusiness-management-minor/>)
- Agricultural Economics, Minor (<http://catalog.smsu.edu/academic-programs-degrees/agriculture/agricultural-economics-minor/>)
- Animal Science Minor (<http://catalog.smsu.edu/academic-programs-degrees/agriculture/animal-science-minor/>)

Undergraduate Courses Agribusiness Management

AGBU 101 Seminar I: Career Development & Portfolio Design Credits: 1

AGBU 101 is a required course for SMSU Agribusiness Majors. The course should be taken in the freshman year or in the first year of transfer. This course introduces the goals and student learning outcomes of the Agribusiness major and SMSUs Liberal Education Plan. Students use the course to identify career goals, relate those goals to their academic choices, and create electronic program portfolio to assess progress in achieving program goals and student learning outcomes.

Fall: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00160843/>)

AGBU 276 Soil Science and Management Credits: 2

To enable students to gain some basic knowledge of soils and how they can best be managed for long run optimum production.

Fall: Department Discretion **Summer** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00000031/>)

AGBU 330 Commodity Futures & Options Trading Credits: 3

A study of how to use futures and options contracts to hedge price risk. Stress is placed on the use of agricultural commodity contracts by farmers and agribusinesses working with farmers.

Pre-Requisite : ECON 201

Fall: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00000033/>)

AGBU 331 Financial Futures and Options Trading Credits: 3

Financial futures and options contracts are presented as a means for hedging and speculating. Economic and financial theories are used to analyze specific transactions.

Pre-Requisite : FIN 230 OR MATH 200

Fall: Department Discretion **Summer** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00000034/>)

AGBU 365 Farm and Ranch Management I Credits: 3

Budgeting and financial analysis are used to study how to maximize profit and efficiency in resource use for a farming operation. Microcomputer spreadsheets and other programs are used for class projects.

Pre-Requisite : MGMT 221 OR BADM 280 AND ACCT 211

Fall: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00001963/>)

AGBU 366 Farm and Ranch Management II Credits: 3

Computer farm management aids, risk analysis, FIN PACK, farm business organization selection, income tax management, disinvestment, and estate planning.

Pre-Requisite : AGBU 365 AND FIN 230

Fall: Department Discretion **Summer** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00001964/>)

AGBU 400 International Agricultural Development Credits: 3

This course emphasizes the role agriculture plays in the development process. On completion of this course, the students should be able to explain the role of agriculture in the development process, analyze the effects of developing country economic policies on the agricultural sector, and use economic reasoning and tools such as graphs to analyze the agricultural sector.

Pre-Requisite : ECON 201

Fall: Even Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00001971/>)

AGBU 410 Cooperative & Agribusiness Management Credits: 3

The organizational, legal, financial and managerial aspects of doing business as a cooperative corporation are examined in this course. Relationships between member-patrons, directors and the manager of the cooperative are analyzed using case studies. The business activities of a cooperative corporation are computer-simulated and analyzed.

Pre-Requisite : ECON 300 OR ECON 210

Fall: Department Discretion **Summer** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00000041/>)

AGBU 420 International Agribusiness Management Credits: 3

A comprehensive analysis is conducted of the role of agribusinesses in international trade and development. Case studies involving agribusinesses are analyzed to identify the issues and methods used to market, finance, and manage the import-export of agricultural products.

Pre-Requisite : ECON 201

Fall: Department Discretion **Summer** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00001965/>)

AGBU 440 Agricultural Marketing Credits: 3

Analysis of farm prices and the effect of supply, demand and institutional forces on farm income and farm income policy.

Pre-Requisite : ECON 201

Spring: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00001970/>)

AGBU 460 Agricultural Finance Credits: 3

A comprehensive look at all facets of extending agricultural and agribusiness loans, from analysis of the financial statements of agricultural enterprises to dealing with problem loans. Emphasizes general principles of banking management and evaluation, fulfillment of credit needs, and uses of capital from the perspective of both borrowers and lenders.

Pre-Requisite : ACCT 212 and senior status.

Spring: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00217947/>)

AGBU 475 Agricultural and Food Policy Credits: 3

This course will describe and evaluate past and future policies developed to deal with income distribution, resource use and changes in technology in the food and agriculture system.

Pre-Requisite : ECON 201

Spring: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00001966/>)

AGBU 486 Special Topics Credits: 1-4

A study of more advanced topics in agribusiness not normally provided as part of the curriculum.

Fall: Department Discretion **Summer** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00000045/>)

AGBU 494 Independent Study Credits: 1-4

Arranged Independent Study in Agribusiness

Fall: Department Discretion **Spring:** Department Discretion **Summer** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00000046/>)

AGBU 495 Seminar II: Career Readiness & Portfolio Assessment Credits: 1

AGBU 495 is a required course for SMSU Agribusiness Majors. Students use electronic portfolios to evaluate their academic accomplishments and career readiness. Students evaluate and communicate the content of their portfolios using the goals and student learning outcomes of the Agribusiness program. Performance evaluation also includes SMSUs Liberal Education Plan Rubrics for written and speech communication, information literacy, and critical thinking. Agribusiness students systematically analyze and communicate what they have learned in their degree program, and synthesize those results to create valuable plans for their future careers after degree completion.

Pre-Requisite : AGBU 101 and senior status.

Spring: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00160844/>)

AGBU 499 Internship Credits: 1-6

The opportunity to pursue an internship is designed to supplement course materials with actual related work experience. Students are expected to integrate disciplinary knowledge into a real world setting. The student will submit weekly reports on work assignments as well as a report at the conclusion of the internship. The number of credits allowed will depend on the magnitude of the internship.

Fall: Department Discretion **Spring:** Department Discretion **Summer** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00000047/>)

Agricultural Education

AGED 201 Communication & Leadership Skills for Agricultural Educators Credits: 3

Personal leadership development is a journey of self-discovery. This course is designed to provide you with an opportunity to explore your personal leadership potential. Using a variety of self-assessments and reflection, students will identify personal motivators, ethics, values and vision. This course is designed for all students who are interested in positions of leadership and who want to learn more about making themselves, as well as the groups and teams they work with more effective. The class uses discussion, reflection and self-assessment to provide a base for personal growth and development. Leadership development from an individual perspective is the center of the course. Interpersonal competencies are explored. In addition, principles of communication as they relate to agriculture and leadership will be highlighted.

Fall: Even Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221457/>)

AGED 220 Agricultural Mechanics for Agricultural Educators Credits: 4

AGED 220 is designed to assist students in understanding the principles and practices of mechanical systems that include fluid, electrical, and fuel-powered units; the design, fabrication, construction, and use of agricultural structures, equipment, and systems; measuring tools and equipment; and product storage, water management, waste management, and materials handling.

Fall: Even Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221518/>)

AGED 301 Advising Youth Organization & Supervising Work Experiences Credits: 3

This course introduces students to the role and structure of the agricultural student organization (such as FFA and 4-H) as an integral component in developing the student through individual, cooperative and collaborative activities that prepare the student for a role in the school, community, and workplace. This course introduces students to the Three Circle Model (FFA, SAE, classroom instruction). Techniques for coordinating and advising an FFA chapter in conjunction with developing and conducting Supervised Agricultural Experiences (SAEs) are thoroughly explained. The foundations of work-based learning, including the development of workplace skills, career exploration strategies, as well as state and federal labor laws are also discussed.

Spring: Odd Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221505/>)

AGED 351 Prof. Development in Agricultural Education: Internship & Job Shadowing Credits: 1-3

This course is designed to provide students with experiential learning opportunities in order to make connections between the theory and practice of academic study and the practical application of the professional agricultural work environment. The number of credits allowed is dependent upon the magnitude of the internship.

Summer All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221483/>)

AGED 401 Agricultural Education: 5-12 Methods Credits: 3

This course is designed to help future agriculture teachers put instructional theory into practice. It will provide an integrated coverage of methods of classroom instruction, management and assessment. The methodology of the course will include practicum, lesson construction, practice teaching, in class exercises, discussions and Socratic questioning. This course will address agricultural program development, performance or skill-based instruction, problem solving, lesson planning, assessment procedures and techniques, and methods relevant to teaching agricultural science, technologies, and career-leadership skills to diverse students, grades 5-12.

Pre-Requisite : Requires minimum credits: 60

Fall: Odd Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221484/>)

Agronomy

AGRO 115 Professional Development in Agriculture: Orientation & Career Planning Credits: 1

This course provides an orientation to the profession of agronomy, agronomy curriculum and college life. Choosing the right majors, resume and cover letter writing, interviewing skills, graduate schools and careers in agronomy profession will be discussed.

Fall: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002568/>)

AGRO 132 Principles & Practices of Crop Production Credits: 4

This is an introductory course in agronomy with a goal to provide the general principles underlying crop production. The course examines the dynamics and functions of crop communities, influence of the environment on crop production, plant morphology and metabolism, crop growth and development, plant breeding as well as soil water management. Other topics that will be discussed are cultural practices associated with optimum crop production and commercial production of selected field crops.

Fall: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002566/>)

AGRO 212 Grain & Forage Crop Management Credits: 3

Production and management practices for corn, soybeans, small grain, and forage crops common to Midwestern U.S. agriculture. Topics to be covered are growth and development, plant characteristics, crop quality, production practices including crop rotation, tillage, soil fertility, cultivar selection, planting strategies, pest management, and harvesting techniques that optimize production and sustains the natural resource base needed to produce high quality and high yielding crops. Principles of grain and forage crop management will also be utilized in solving on-farm problems.

Fall: Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002569/>)

AGRO 250 Sustainable Gardening Credits: 4

Gardening and local food production has become increasingly popular as consumers have become more aware of sustainability and rising food costs. This course focuses on establishment and management practices for both small scale and field scale gardens that promote sustainability. Topics to be covered include plant characteristics, plant growth and development, techniques for establishing a garden, management methods for soil health, pests, weeds, and diseases.

Goal: Goal: 03- Natural Science

Fall: All Years **Summer:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00228472/>)

AGRO 315 Professional Development in Agriculture: Internship Credits: 4

An internship with a professionally relevant component. Students are responsible for finding internship opportunities.

Fall: All Years **Spring:** All Years **Summer:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002633/>)

AGRO 325 Seed Science and Grain Grading Credits: 4

Seed formation and development, germination, maturation, dormancy, vigor, conditioning, and quality evaluation. Seed marketing, organization of the Federal Grain Inspection Agency, development and implementation of regulations governing grain inspection, procedures, techniques, and equipment used in grain grading.

Pre-Requisite : AGRO 101 OR AGRO 132 OR BIOL 302

Fall: Department Discretion **Spring:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002539/>)

AGRO 332 Crop Quality, Traits, & Utilization Credits: 2

Pre- and post-harvest factors affecting the quality of crops. Characteristics, uses, and processing of major food crops. Crop marketing and food safety.

Fall: Department Discretion **Spring:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002634/>)

AGRO 341 Principles of Pest Management Credits: 4

Effects of insects and diseases on agronomic crops. Identification of important groups of insect pests, causal agents, and diagnosis of major crop diseases. Analysis of hosts and the environmental factors influencing the increase and spread of crop pests. Emphasis on the use of integrated pest management strategies.

Fall: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002635/>)

AGRO 390 Introduction to Precision Agriculture Credits: 3

The course gives an overview of precision agriculture. Emphasis will be on the different technologies that are currently in use and their applications. Topics include geographical information systems, geographical positioning systems, geo-stationary satellite systems, remote sensing, soil/landscape variability, soil fertility, soil sampling and testing, data collection, processing and management, site-specific farm management, yield monitoring systems, yield maps, and economic considerations in site specific farming.

Fall: Department Discretion **Spring:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002636/>)

AGRO 415 Professional Development in Agriculture: Senior Seminar-Capstone Credits: 2

Leadership, Decision-making and Problem-solving. Forum where students interact with professionals in the field of agronomy. Course will include presentations from speakers working in agricultural fields and lectures. Students will have to prepare position papers and solutions to current issues affecting Minnesota Agriculture.

Spring: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00214641/>)

AGRO 422 Principles of Weed Science Credits: 3

This is an applied science course. The course covers: -The identification, biology, and ecology of weeds, -Weed management by cultural, mechanical, chemical, and biological means, -Integrated Weed Management, -Herbicides and factors influencing their use, -Sprayer calibration and dosage calculations, and -Laws and regulations governing herbicide use.

Pre-Requisite : AGRO 132

Fall: Department Discretion **Spring:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00163729/>)

AGRO 440 Plant Breeding Credits: 3

An introductory plant breeding course designed to provide the basic principles of cultivar development. Emphasis will be on traditional methods used in developing improved cultivars of field crops and the genetic principles on which breeding methods are based. Additional topics to be covered include biotechnology and germplasm preservation.

Fall: Department Discretion **Spring:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002640/>)

AGRO 450 Issues in Sustainable Agriculture Credits: 2

This course examines the concept of sustainable agriculture by looking at the three major themes of sustainability. Students will be introduced to the social, economic, and environmental issues affecting agricultural sustainability. The patterns and trends of agricultural production systems will be examined and strategies for implementing sustainable agricultural enterprises discussed. This is a team-taught course and will include lectures, discussions, guest speakers, and field trips.

Spring: Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00002639/>)

AGRO 454 Experimental Design in Agriculture Credits: 4

This course deals with the design of experiments for agronomic and plant breeding research. Design, analysis, and interpretation of both field and greenhouse experiments will be discussed.

Pre-Requisite : MATH 200 OR PSYC 200 OR FIN 230

Fall: Department Discretion **Spring:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00206256/>)

AGRO 494 Independent Study Credits: 1-4

Arranged Independent Study in Agronomy

Fall: All Years **Spring:** All Years **Summer:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00168776/>)

Agricultural Solutions

AGSO 215 Regenerative Grazing and Pasture Management Credits: 2

Students in this course will benefit from both experiential and theoretical learning opportunities as they examine the integration of crop and soil science, pasturage, plant breeding, climatology and integrated pest management disciplines. This course is an exciting chance to learn the principles of regenerative agriculture, and apply these ideas in a real-world pasture setting. Students will learn to evaluate and develop crop management strategies that make the most efficient use of natural resources such as manure, solar radiation, water, and soil, as well as other external inputs utilized for field crop management.

Spring: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221512/>)

AGSO 315 Plant and Soil Nutrition Credits: 3

This course builds on the foundation of crop science and soil science to further investigate the relationship between soil and crop plants. Students will review basic concepts of plant nutrition and soil characteristics in order for students to identify connections and the symbiotic benefits of each component. Topics covered also include soil and plant uptake, deficiencies, toxicities, causes and remedies, as well as plant and soil analysis methods.

Pre-Requisite : AGRO 132

Spring: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00206777/>)

AGSO 499 Internship Field Experience Credits: 2

The opportunity to pursue an internship is designed to supplement course materials with actual related work experience. Students are expected to integrate disciplinary knowledge into a real world setting. The student will submit weekly reports on work assignments as well as a report at the conclusion of the internship. This course is required for all Agricultural Solutions majors. Students are responsible for finding internship opportunities.

Fall: Department Discretion **Spring:** Department Discretion **Summer:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00177218/>)

Animal Science

ANSC 101 Introduction to Animal Science Credits: 3

The purpose of this course is to provide an overview of animal agriculture with a focus on management practices related to the health, husbandry, feeding, breeding, and marketing of beef and dairy cattle, small ruminants, swine, poultry, horses, and alternative agricultural species. This will be accomplished through lectures and hands-on experiences during laboratory sessions. Live animals will be used during laboratories in accordance with federal regulations, and all laboratories will be conducted with respect for the animals.

Fall: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00184577/>)

ANSC 111 Introduction to Veterinary Medicine Credits: 2

This course offers students an orientation to the field of veterinary technology. Students become familiar with veterinary medical terminology, as well as role of the veterinary technician in the field of veterinary medicine. The course additionally provides students the opportunity to examine current and future employment opportunities and essential job duties. The course strongly emphasizes the key roles of professional attitudes and ethical responsibilities.

Fall: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221515/>)

ANSC 131 Beekeeping and Honey Production Credits: 2

Students in this course learn the life history and habits of the honey bee. The course offers opportunities to examine modern methods of apiary management, honey and wax production, and the utilization and maintenance of beehive equipment. Students also learn about pollination behaviors, and investigate the identity and control of bee diseases.

Fall: Odd Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221518/>)

ANSC 141 Horsemanship: Lecture and Lab Credits: 2

This course offers students the opportunity to learn the basic principles of superior horsemanship. The course includes both classroom and hands-on learning experiences. The course covers the practical and theoretical aspects of care, good grooming, safe handling, and healthy feeding practices. Students learn to recognize vital signs and common health problems. Students are also introduced to the equine industry, and become familiar with horse breeds and registry.

Fall: Even Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221521/>)

ANSC 201 Animal Nutrition Credits: 3

This course introduces the principles of nutrition and feeding of domestic animals. Students learn about the necessary and science-based characteristics of feeds, and the fundamental nutritional requirements of livestock. The course includes a comparative study of farm animal digestive systems, and also covers the terminology and classification of feedstuffs and nutrient values. Students will learn to analyze and evaluate the importance of alternative feeding formulations for different animal types and classifications. The course will also focus on managing rations that are efficient, balanced and environmentally sound.

Pre-Requisite : ANSC 101

Spring: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221522/>)

ANSC 251 Introduction to Meat Science Credits: 3

This course introduces students to the fundamentals of meat science and provides an overview of the meat industry. Students learn about the nutritional qualities of meat as a food source, and understand the important aspects of fresh and processed meat technology. The course offers students the opportunity to study the structure of muscle, the conversion of muscle to meat, food safety, meat quality, color, cooking, grading, inspection, curing, and processing.

Spring: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221495/>)

ANSC 301 Animal Anatomy and Physiology Credits: 3

This course trains students to compare and identify anatomical structures and basic physiological body functions of domestic animals. The course includes a thorough review of animal body systems, including: muscular, skeletal, integumentary, histology, and special sense organs. The course also examines the integration of body regulatory systems of domestic animals.

Pre-Requisite : ANSC 101 AND BIOL 100 OR BIOL 200

Fall: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221496/>)

ANSC 311 Animal Reproduction Technologies Credits: 3

Students in this course will examine the technologies employed in manipulating reproduction in farm animals, including beef and dairy cattle, pigs, sheep, goats, horses and poultry. The course also introduces students to the commercial application of in-vitro produced cattle embryos, and familiarizes students with current and future reproductive technologies, such as cloning and the production of transgenic animals. Students will also explore the ethical implications of modern agricultural production methods.

Pre-Requisite : ANSC 101 AND BIOL 100 OR BIOL 200

Spring: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221524/>)

ANSC 499 Animal Science Internship Credits: 1-3

The opportunity to pursue an Animal Science internship is designed to supplement the academic content of SMSUs Animal Science program with actual related work experience. Students are expected to integrate disciplinary knowledge into a real world setting. The student will submit weekly reports on work assignments as well as a report at the conclusion of the internship. The number of credits allowed will depend on the magnitude of the internship.

Fall: Department Discretion **Spring:** Department Discretion **Summer** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00221537/>)