

AGRICULTURE, TECHNOLOGY AND NATURAL RESOURCES

TECHNICAL AND/OR TRANSFER

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Bismarck State College takes a comprehensive approach in preparing graduates for careers in agriculture, technology and natural resources. The program offers specialized courses, projects to apply classroom learning, freshman and sophomore seminars on career opportunities, and a cooperative education internship for on-the-job training.

Students can choose from three options: Farm and Ranch Management (FRM), Agriculture Industry and Technology (AIT), and Agriculture, Technology, Food and Natural Resources Transfer (ATFNR) to a four-year institution. Coursework is concentrated in animal science, crop and soil science, agricultural technology, farm/ranch management, and agriculture sales and service. Students can select from a variety of classes emphasizing either crop production or animal science. Graduates of the Farm and Ranch Management (FRM) and Agriculture Industry and Technology (AIT) programs are awarded an Associate in Applied Science (AAS) degree upon successful completion of the program. Students can also graduate with a double major in Agriculture Industry & Technology and Farm & Ranch Management. Both choices enhance job opportunities. A cooperative education internship helps students develop practical skills.

Technology instruction is infused throughout the curriculum in such areas as computer record keeping, biotechnology, and animal identification. Students also study the newest precision farming technology, including guidance systems, handheld GPS systems, Arcview and other GIS software, variable rate application and remote sensing.

BSC offers core courses for students planning to continue their education at a four-year agriculture college. Faculty members advise students on classes needed for the Associate in Science (AS) degree at BSC and baccalaureate degree at the chosen four-year institution. A Cooperative Education Internship is optional. BSC offers dual admission for students planning to pursue a baccalaureate degree in agriculture at North Dakota State University or Dickinson State University.

The Agriculture, Technology and Natural Resources faculty advise a "Postsecondary Agriculture Student Organization (PASO)" whose members participate in local, regional, state and national events related to leadership skills and knowledge of the agriculture industry.

For the most up-to-date information, see the Web site at bismarckstate.edu/faculty/agriculture

AGRICULTURE INDUSTRY AND TECHNOLOGY AAS DEGREE

FRESHMAN FALL SEMESTER	CREDITS
Agriculture Industry Skills (ASM 175)	3
Introduction to Animal Sciences/Lab (ANSC 114/114L)	2/1
Leadership & Presentation Techniques (H&CE 241)	2
Introduction to Agribusiness Management (AGEC 141)	2
World Food Crops/Lab (PLSC 110/110L)	2/1
Electives	3-6

FRESHMAN SPRING SEMESTER	CREDITS
Freshman Sales Seminar (AGRI 191)	1
Introduction to Agriculture Finance (AGEC 246)	3
Field Scouting Techniques (PLSC 235)	2
Select 6 to 8 credits:	
Introduction to Weed Science/Lab (PLSC 223/223L)	2/1
Soil Fertility & Fertilizers/Lab (SOIL 222/222L)	2/1
Introduction to Veterinary Science (VETS 101)	2

SUMMER SESSION	CREDITS
Cooperative Education/Internship (AGRI 197)	2
Field Scouting Techniques (PLSC 235L)	1

SOPHOMORE FALL SEMESTER	CREDITS
Introduction to Agricultural Management (AGEC 242)	4
Introduction to Soil Science/Lab (SOIL 210/210L)	2/1
Introduction to Precision Farming (AGRI 275)	3

Select 3 to 9 credits:

Introduction to Range Management (RNG 236)	3
Machinery Principles and Management/Lab (ASM 278/278L).....	2/1
Animal Health (VETS 239)	3
Electives.....	3-6

SOPHOMORE SPRING SEMESTER CREDITS

Introduction to Agricultural Marketing (AGEC 244)	3
Sophomore Seminar (AGRI 291)	1
Feeds and Feeding/Lab (ANSC 123/123L)	2/1

Select 3 to 6 credits:

Livestock Production/Lab (ANSC 220/220L)	2/1
Principles of Crop Production (PLSC 225)	3
Electives.....	3-9

ELECTIVES REQUIRED CREDITS

College Composition I (ENGL 110)	3
Fundamentals of Public Speaking (COMM 110) OR College Composition II (ENGL 120).....	3
Principles of Microeconomics (ECON 201).....	3
Business, Math, Science, Technology electives.....	6

FARM & RANCH MANAGEMENT AAS DEGREE

FRESHMAN FALL SEMESTER CREDITS

Agricultural Accounting (AGEC 142)	3
Agriculture Industry Skills (ASM 175)	3
Introduction to Animal Sciences/Lab (ANSC 114/114L).....	2/1
Leadership & Presentation Techniques (H&CE 241)	2

Required electives:

World Food Crops/Lab (PLSC 110/110L)	2/1
Electives.....	3-6

FRESHMAN SPRING SEMESTER CREDITS

Computerized Farm Record Keeping (AGEC 249).....	3
Introduction to Agriculture Finance (AGEC 246)	3

Select 7 to 10 credits:

Field Scouting Techniques (PLSC 235).....	2
Introduction to Weed Science/Lab (PLSC 223/223L)	2/1
Soil Fertility & Fertilizers/Lab (SOIL 222/222L).....	2/1
Introduction to Veterinary Science (VETS 101)	2

SUMMER SESSION CREDITS

Cooperative Education/Internship (AGRI 197)	2
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SOPHOMORE FALL SEMESTER CREDITS

Introduction to Agricultural Management (AGEC 242).....	4
Introduction to Soil Science/Lab (SOIL 210/210L)	2/1
Introduction to Precision Farming (AGRI 275).....	3

Select 3 to 9 credits:

Introduction to Range Management (RNG 236)	3
Machinery Principles and Management/Lab (ASM 278/278L).....	2/1
Animal Health (VETS 239)	3
Electives.....	3-6

SOPHOMORE SPRING SEMESTER **CREDITS**

Introduction to Agricultural Marketing (AGEC 244)3
Feeds and Feeding/Lab (ARSC 123/123L)..... 2/1
Agriculture Welding (ASM 155)3

Select 3 to 6 credits:

Livestock Production/Lab (ANSC 220/220L) 2/1
Principles of Crop Production (PLSC 225)3

Electives 3-9

ELECTIVES REQUIRED **CREDITS**

College Composition I (ENGL 110)3
Fundamentals of Public Speaking (COMM 110) OR
College Composition II (ENGL 120).....3
Principles of Microeconomics (ECON 201).....3
World Food Crops/Lab (PLSC 110/110L)..... 2/1
Business, Math, Science, Technology elective3

DOUBLE MAJOR IN FARM & RANCH MANAGEMENT AND AGRICULTURE INDUSTRY & TECHNOLOGY

Many students choose to double major in both AAS degree programs by completing a fifth semester of instruction at Bismarck State College. Two cooperative education internships are required and completion of all required courses for both programs. The class schedule is changed slightly from that listed above.

AGRICULTURE, TECHNOLOGY, FOOD AND NATURAL RESOURCES TRANSFER AS DEGREE

SUGGESTED CURRICULUM FOR ASSOCIATE IN SCIENCE:

Any student who plans to pursue an agricultural baccalaureate degree should secure an Agriculture, Technology and Natural Resources Department advisor because of numerous differences in mathematics and science requirements and agriculture classes for various degree programs. Each student should complete the following general education requirements at BSC:

Communication9
College Composition I (ENGL 110)3
College Composition II (ENGL 120).....3
Speech (COMM 110)..... 3
Arts & Humanities6
Social Sciences 6
Principles of Microeconomics (ECON 201).....3
Math, Science, & Technology15
Math (MATH 103 or above)3
Lab Science8
Enrichment 2

Agriculture electives should be selected according to the needs of the student or requirements of the transfer college.

FARM MANAGEMENT EDUCATION PROGRAM

**CONTACT PERSON: Mark Holkup • Technical Center 128G
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The Farm Management Education program provides a practical and thorough study of the farming business for farm families currently engaged in managing their farms or ranches. The course will help the farm family organize the record keeping system and then analyze their records to determine the financial strengths and weakness of the farm business as well as each of the farm enterprises.

Training in computerized farm record systems is part of the course. Class meetings are held throughout the year in various farm production areas, but much of the course content is done individually with the farm family.

This program is certified to meet the Farm Service Agency borrower training requirements. It is also available online from BSC via the Internet.

**AGRICULTURE (AGEC, AGRI, ANSC, ASM, H&CE, PLSC, SOIL, VETS)
AGRICULTURAL ECONOMICS (AGEC)**

AGEC 141	Introduction to Agribusiness Management	Fall	2 credits
This is an introductory course dealing with the economic importance of the agribusiness community and the potential for employment with the agribusiness industry.			
AGEC 142	Agricultural Accounting	Fall	3 credits
An introduction to the preparation of farm records and financial statements for use in business analysis.			
AGEC 242	Introduction to Agricultural Management	Fall	4 credits
Economic and managerial concepts related to farm or agribusiness production process, development of cost data, enterprise analysis, organization and management of production inputs.			
AGEC 244	Introduction to Agricultural Marketing	Spring	3 credits
A study of the agricultural marketing system to include cash marketing, commodity futures trading, branded products merchandising and the interrelationship of the government and international trade.			
AGEC 246	Introduction to Agricultural Finance	Spring	3 credits
Introduction to agricultural finance; provides background in farm and agribusiness credit use and evaluation. Discussion of specific financial conditions on farms and in agribusiness.			
AGEC 249	Computerized Farm Record Keeping	Spring	3 credits
Use of computer systems to initialize, and summarize farm/ranch financial and production records.			

AGRICULTURE (AGRI)

AGRI 191	Freshman Seminar	Spring	1 credit
An introductory course designed to acquaint students with the opportunities in the agricultural sales and service industry. Emphasis will be placed on sales demonstrations, promotional activities and job shadowing.			
AGRI 241	Farm Management Education	F&S	2 credit hours repeatable
The Farm Management Education program provides a practical study of the farming business for farm families currently engaged in managing their farms or ranches. Three semesters of enrollment per year.			
AGRI 242	Advanced Farm Management Education	F&S	2 credit hours repeatable
Prerequisite: Agri 241 or department approval. This course continues the application of farm management principles for decision making. Fall and spring enrollment only. Requirements - 3 years of AGRI 241 or a degree in Agriculture.			
AGRI 275	Introduction to Precision Farming	Fall	3 credits
This course is designed to introduce the student to precision farming applications. Students will receive hands-on training using handheld global positioning systems, differential global positioning systems and GIS software.			
AGRI 291	Sophomore Sales Seminar	Spring	1 credit
This course is designed to develop skills and experiences in sales procedures, processes and theory. Emphasis will be placed on communication, product knowledge, the sales presentation and the sales process.			
AGRI 294	Independent Study		1-3 credits
Independent or directed study of special topics in agribusiness. Department chairperson approval required.			
AGRI 299	Special Topics BD Variable		1-3 credits
Variable instructional topics in the field of agriculture. Repeatable with varied content. Consent of department chairperson.			
AGRI 195-295	Service Learning	F&S	1-3 credits
Maximum of six semester hours. Service learning may be accomplished by one of three methods. Joining a club that has a public service component, doing volunteer work at a non-profit organization, or taking a course that links public service with its curriculum			
AGRI 197-297	Cooperative Education/Internship		1-3 credits repeatable up to 6 semester hours
Students get on-the-job experience under qualified supervision in agribusiness occupations. Work hours are arranged by the employer, adviser, and student. Student progress is checked by oral and written reports from the employer. Student-adviser conferences are held to discuss progress and/or problems. All co-op experiences are graded on a satisfactory/unsatisfactory basis. Consent of department chairperson.			

ANIMAL SCIENCE (ANSC)

ANSC 114	Introduction to Animal Sciences	F&S	2 credits
General principles of the livestock industry and relationship to mankind. Concurrent registration in or previous successful completion of ANSC 114L is required.			

ANSC 114L	Introduction to Animal Sciences Lab	Fall	1 credit
Concurrent registration in or previous successful completion of ANSC 114 is required.			
ANSC 123	Feeds and Feeding	Spring	2 credits
Principles of feeding livestock including digestive systems, nutrient requirements, nutrient characteristics, and sources utilized in the formulation of balanced rations. Concurrent registration in or previous successful completion of ANSC 123L is required.			
ANSC 123L	Feeds and Feeding Lab	Spring	1 credit
Concurrent registration in or previous successful completion of ANSC 123 is required.			
ANSC 220	Livestock Production	Spring	2 credits
General production and management of major meat animal species. Topics include: production systems, feeding, facilities, health, economics, and marketing. Concurrent registration in or previous successful completion of ANSC 220L is required.			
ANSC 220L	Livestock Production Lab	Spring	1 credit
Concurrent registration in or previous successful completion of ANSC 220 is required.			

AGRICULTURAL SYSTEMS MANAGEMENT (ASM)

ASM 155	Agricultural Welding	Spring	3 credits
Principles and operation of oxyacetylene, electrode, and wire feed welding.			
ASM 175	Agriculture Industry Skills	Fall	3 credits
The purpose of this course is to provide students the basic fundamentals and applications of agriculture industry skills in electricity, plumbing, selecting and using hardware, measurement, and structures.			
ASM 278	Machinery Principles and Management	Fall	2 credits
Principles of agricultural machinery manufacture, sales, operation, and management. Topics include selection, replacement, operation, application, and maintenance. Concurrent registration in or previous successful completion of ASM 278L is required.			
ASM 278L	Machinery Principles and Management Lab	Fall	1 credit
Concurrent registration in or previous successful completion of ASM 278 is required.			

HUMAN AND COMMUNITY EDUCATION (H&CE)

H&CE 241	Leadership & Presentation Techniques	Fall	2 credits
Development of youth leadership professionals in educational settings; methods, principles, and practices in organizing, developing, conducting, and evaluating community-based student organizations and student leadership programs.			
H&CE 281	Early Experience	F&S	1 Credit
Field-based experience in a middle or high school educational setting. Provides an opportunity to observe and interact with students, teachers, and administrators.			

PLANT SCIENCE (PLSC)

PLSC 110	World Food Crops	Fall	2 credits
Scientific principles of crop growth, worldwide production, management alternatives, and processing for domestic and international consumption. AAS-MST. Concurrent registration in or previous successful completion PLSC 110L is required.			
PLSC 110L	World Food Crops Lab	Fall	1 credit
Concurrent registration in or previous successful completion of PLSC 110 is required.			
PLSC 223	Introduction to Weed Science	Spring	2 credits
Introduction of a basic knowledge of weeds, herbicide groups, the use of pesticides, economic and environmental considerations, personal safety, modes of action and terminology.. Concurrent registration in or previous successful completion PLSC 223L is required.			
PLSC 223L	Introduction to Weed Science Lab	Spring	1 credit
Concurrent registration in or previous successful completion of PLSC 223 is required.			
PLSC 225	Principles of Crop Production	Spring	3 credits
Principles of field crop production with emphasis on relationships of crops to their climate and production considerations as a means of managing resources and the environment.			
PLSC 235	Field Scouting Techniques	Spring	2 credit
The purpose of this course is to provide students the skills necessary for proper pest identification and crop scouting techniques. Information such as crop growth and development, pest life cycles, damage symptoms and economic thresholds will be covered. Communications skills and presentation techniques will also be emphasized.			

PLSC 235L Field Scouting Techniques Lab**Summer****1 credit**

Repeatable up to four times. Field scouting activities will be done in the field at various locations throughout the summer to give the student practical field experience. Prerequisite: PLSC 235.

RANGE SCIENCE (RNG)**RNG 236 Introduction to Range Management****Fall****3 credits**

Principles of range management, which include plant identification, range evaluation, and range improvement.

SOIL (SOIL)**SOIL 210 Introduction to Soil Science****Fall****2 credits**

Physical, chemical, and biological properties of soils as related to use, conservation, and plant growth. AAS-MST. Concurrent registration in or previous successful completion of SOIL 210L is required.

SOIL 210L Introduction to Soil Science Lab**Fall****1 credit**

Concurrent registration in or previous successful completion of SOIL 210 is required.

SOIL 222 Soil Fertility and Fertilizers**Spring****2 credits**

Principles of plant nutrition and soil nutrient availability; soil testing and fertilizer recommendations and management. Macronutrient emphasis. Concurrent registration in or previous successful completion of SOIL 222L is required.

SOIL 222L Soil Fertility and Fertilizers Lab**Spring****1 credit**

Concurrent registration in or previous successful completion of SOIL 222 is required.

VETERINARY SCIENCE (VETS)**VETS 101 Introduction to Veterinary Science****Spring****2 credits**

This course is an introduction to veterinary science. It will provide students with an overview of different breeds and species; disease and treatment fundamentals; veterinary terminology; basic pharmacology; dose calculations and public health.

VETS 239 Animal Health**Fall****3 credits**

Principles of animal health; prevention, sanitation, chemotherapy, immunology, disease symptoms, and management.