

AGRICULTURAL TECHNOLOGY

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Program Options for Students Enrolled in Agricultural Technology at NIACC

A.A.S. Degree: Associate in Applied Science

Agricultural Operations Management

Agricultural Sales & Service

Agricultural Marketing & Finance

E-Agribusiness

The Agricultural Technology Division at NIACC recognizes that new and evolving technologies, along with improved agricultural business methods and new farming systems have a significant impact on how agricultural producers, service providers, processors, and manufacturers do business. As we prepare students for the challenges of the twenty-first century, we have developed a comprehensive curriculum that addresses the needs of students entering the agricultural job market regarding technology adoption, profitable production systems, and sound business management. The agricultural curriculum for all four degree programs provides a combination of general and technical education core classes emphasizing science, technology, communications, business, and computer skills. You may select any one of the four specific technology areas—operations management, sales & service, marketing & finance, E-agribusiness, and be assured that quality student service continues from recruitment through job placement and life long learning.

Students completing the five-term Agricultural Operations Management degree program or Agricultural Sales & Service degree program may elect to have a live stock production specialist or crop production specialist designation attached to their degree if they have specialized that course of study with 10 hours of approved elective course work in live stock or crop production. Approval granted upon joint Ag staff members' acceptance of the Agricultural Technology Degree curriculum plan.

A.G.S. Degree: Associate in General Studies

Diploma: Agricultural Technology

Students may receive an Agricultural Technology diploma by completing 32 semester hours of approved course work. The diploma may carry an agricultural specialty designation in crop production, animal science, or

Ag business management. (This is contingent upon completion of 22 hours of Agricultural core courses and 10 approved elective credits related to the area of specialty.) Approval granted upon joint Ag staff members' acceptance of a curriculum plan.

NIACC's A.A. or A.S. Degree

Ag Transfer

The range of career opportunities and majors in agriculture is so great that it is impossible to list a suggested curriculum for each. The catalog for Iowa State University states: Requirements for any four-year curriculum are at least as extensive as those shown below.

- Communication Skills I & II 8 s.h.
- Mathematics, Chemistry, Computer Science, Physics, and Statistics 13 s.h.
- Biological Principles, Zoology, Botany, Microbiology, Genetics 6 s.h.
- Economics, Government, Psychology, Sociology (Economics, Government required of most curriculums) 6 s.h.
- Art, History, Literature, Music, Philosophy . . . 6 s.h.

Since there is a wide variation in the required courses for the various curriculums in agriculture, it is the responsibility of each student, in consultation with his/her advisor or counselor, to determine the specific courses required for the particular curriculum or major in which the student is interested.

Iowa State University

NIACC and Iowa State University's Department of Agricultural Education and Studies have teamed up to design a unique program in agriculture. The first two years of the program can be taken at NIACC and the final two years are completed at Iowa State University. Students completing the NIACC program are awarded an associate in applied science degree in Agricultural Operations. Those continuing on to complete the two-year program at ISU will receive a bachelor of science degree in Agricultural Studies. Note: Iowa State University College of Agriculture students must certify English proficient by obtaining a "C" or better in written and verbal communication courses. Students completing the prescribed courses will fulfill the College of Agriculture's intensive requirements in ethics, problem solving, communication, and environment.

The following courses have been articulated with Iowa State University's College of Agriculture.

- Animal Science I 3 s.h.
- Animal Science II 3 s.h.
- Computer Applications for Agriculture 3 s.h.
- Crop Science I 3 s.h.
- Crop Science II 3 s.h.
- Intro to Ag Business 3 s.h.

NIACC Farm Lab

The NIACC Farm Lab's primary mission is to transfer information assimilated from agricultural demonstration projects conducted with industry, institutional partners, and students. The NIACC Farm Lab plans and conducts demonstrations and educational programs that exhibit systems which efficiently manage agricultural resources, enhance rural profitability, protect environments, and demonstrate new and promising technologies.

During President Bill Clinton's visit to North Iowa Area Community College, he praised NIACC's agricultural programs "...technology and information...are transforming everything, including agriculture..." "I just came from a demonstration...of a computer program using satellite information that tells farmers the difference in their soil composition, their average yields, and gives them all kinds of information...they never could have gotten before. That is how far we have come..." The President praised NIACC's role as a community college educating students and providing information to the community by saying: "North Iowa Area Community College ...is a symbol for what I think we ought to be doing in America." "NIACC is:...community-based, nonbureaucratic, sensitive to the needs of its customers...a place where everybody can come...changing all the time as the economy changes and as the needs of the community and students change...a community institution that will take not only the student, but the community, into the future."

More than 300 acres of cropland, plus livestock production facilities, are dedicated to the NIACC Farm Lab for student education. These resources are being utilized to demonstrate advanced cropping systems, agricultural technologies, and livestock production. The project is made possible through industry partnerships. More than 20 agricultural corporations are partners with NIACC providing opportunities for NIACC's agricultural technology students to be directly involved in the experiments and demonstrations. Agricultural Technology students are the beneficiaries of these partnerships which bring cutting edge technology, new information, and job opportunities.

Educational focus areas include: no-till farming systems, GPS/GIS, site specific farming technology, transgenic crop demonstrations, specialty crops utilization, remote sensing technology, manure management, swine reproduction and artificial insemination technology, swine and beef genetic evaluation, live stock nutrition studies, beef cattle embryo transfer, and electronic livestock management technologies.

NIACC is dedicated to providing students with learning opportunities related to the latest technology used in livestock production. The Agriculture Division has established the Swine A.I. Center which houses A.I. quality boars, from which students can learn to collect, process, market semen and develop genetic lines of show pigs. Students are also involved in the breeding, development, management, preparation, and marketing of show pigs, club calves, and breeding cattle. The

Farm Lab routinely uses the Heat Watch system (electronic estrus detection) for identifying cows in heat, and flushes several donor cows each year for embryo transfer.

Agricultural technology at NIACC begins with one year of general and technical education core classes emphasizing science, communication, and business. You may then select one of the many program and specialty options leading to graduation, transfer, diploma, or work.

Important components to your education are two, eight-week employment experiences built into the curriculum. These experiences allow students to earn and learn; the work experience is invaluable in securing employment following graduation.

Program Requirements

Entrance

Due to the highly technical nature of these programs and NIACC's commitment to giving students the best possible opportunity for success, you will be scheduled for advisement sessions to discuss your career plans, educational background, transcripts, test scores, life experiences, and motivation which will aid us in designing a positive educational experience for you. Prior to first-time class registration, students desiring unconditional admission to the Agricultural Technology Program will be assessed for math, science, reading, and writing competency by one or more of the following:

1. ACT
2. NIACC assessment using (COMPASS) tests for basic education skills OR
3. Acceptance into an honors program of study

Students who are unable to demonstrate general education competencies in math, science, reading, or writing areas will be required to develop an educational enhancement plan and may want to consider the option of additional course work in the area of deficiency, prior to graduation.

Graduation

During the semester applying for graduation, students will:

1. Be assessed for minimum general education competency by completing the General Education (college English, math, computer, communications, and science) Proficiency Exam or approved alternative evaluation.
2. Demonstrate agricultural skill proficiencies by completing an Agricultural Technology exit exam consisting of oral and written components.
OR
Submit a capstone project.

Agricultural Operations Management

The Agricultural Operations Management curriculum provides for the study of agriculture with emphasis on crop, soil, and animal sciences supported with a strong basis of economic, management, and human relations skills. The program is designed to provide future farmers, farm managers, and production career students the basic and technical training necessary for success. The program's graduates receive an associate in applied science degree.

SUGGESTED SCHEDULE

This is a possible sequence of courses. A list of course corequisites and prerequisites will be prepared to allow the student to determine their own sequence of courses to complete the program.

First Term - Fall

30:101 Communication Skills I	4 s.h.
70:112 Animal Science I	3 s.h.
90:182 Computer Applications for Ag	3 s.h.
90:186 Soil Science	3 s.h.
90:264 Intro to Farm Operation	3 s.h.
	16 s.h.

Second Term - Spring

70:212 Animal Science II	3 s.h.
90:160 Crop Science I	3 s.h.
90:183 Ag Economics	3 s.h.
92:151 Ag Business Accounting	3 s.h.
General Ed. Elective	3 s.h.
	15 s.h.

Third Term - Summer

90:161 Crop Science II	3 s.h.
90:267 Precision Ag Technology	2 s.h.
92:260 Advanced Computer Applications	2 s.h.
	7 s.h.

Fourth Term - Fall

89:100 Cooperative Work Experience	4 s.h.
89:150 Employment Strategies	1 s.h.
90:185 Commodity Marketing	2 s.h.
Math Elective	minimum of 2 s.h.
Approved Ag Electives	6 s.h.
	15 s.h.

Fifth Term - Spring

89:100 Cooperative Work Experience	4 s.h.
90:285 Ag Finance Management	2 s.h.
92:272 Employment Relations & Business Decisions	2 s.h.
92:273 Equipment Maintenance and Management	2 s.h.
Approved Ag Electives	4 s.h.
	14 s.h.
Total Hours	67 s.h.

Agricultural Sales and Service

The Agricultural Sales and Service curriculum is designed to prepare individuals who seek employment in a business or industry providing supplies and/or services for agriculture. It provides a sound agricultural foundation and develops strengths in the areas of salesmanship, business management, human relations skills, and information management. The program leads to an associate in applied science degree.

SUGGESTED SCHEDULE

This is a possible sequence of courses. A list of course corequisites and prerequisites will be prepared to allow the students to determine their own sequence of courses to complete the program.

First Term - Fall

30:101 Communication Skills I	4 s.h.
70:112 Animal Science I	3 s.h.
90:170 Intro to Ag Business	3 s.h.
90:182 Computer Applications for Ag	3 s.h.
90:186 Soil Science	3 s.h.
	16 s.h.

Second Term - Spring

70:212 Animal Science II	3 s.h.
90:160 Crop Science I	3 s.h.
90:183 Ag Economics	3 s.h.
92:151 Ag Business Accounting	3 s.h.
General Ed. Electives	3 s.h.
	15 s.h.

Third Term - Summer

90:161 Crop Science II	3 s.h.
90:267 Precision Ag Technologies	2 s.h.
92:260 Advanced Computer Applications	2 s.h.
	7 s.h.

Fourth Term - Fall

89:100 Cooperative Work Experience	4 s.h.
89:150 Employment Strategies	1 s.h.
90:185 Commodity Marketing	2 s.h.
Math Elective	minimum of 2 s.h.
Approved Ag Electives	6 s.h.
	15 s.h.

Fifth Term - Spring

89:100 Cooperative Work Experience	4 s.h.
90:189 Salesmanship/Advertising	2 s.h.
90:285 Ag Finance Management	2 s.h.
92:272 Employment Relations & Business Decisions	2 s.h.
Approved Ag Electives	4 s.h.
	14 s.h.
Total Hours	67 s.h.

Agricultural Marketing and Finance

The Agricultural Marketing and Finance curriculum provides for the study of agriculture with emphasis on business management, agricultural marketing, finance economics, information management, and human relations skills. It is supported with a strong basic agriculture technology core of instruction. Successful graduates will receive an associate in applied science degree and may have the option of continuing their education at a four-year institution.

SUGGESTED SCHEDULE

This is a possible sequence of courses. A list of course prerequisites and pre requisites will be prepared to allow the student to determine their own sequence of courses to complete the program.

First Term - Fall

30:101 Communication Skills I	4 s.h.
70:112 Animal Science I.....	3 s.h.
90:170 Intro to Ag Business.....	3 s.h.
90:182 Computer Applications for Ag.....	3 s.h.
90:186 Soil Science.....	3 s.h.
	16 s.h.

Second Term - Spring

15:150 Accounting Principles I	3 s.h.
30:102 Communication Skills II	4 s.h.
70:212 Animal Science II	3 s.h.
90:160 Crop Science I.....	3 s.h.
90:183 Ag Economics.....	3 s.h.
	16 s.h.

Third Term - Summer

90:161 Crop Science II.....	3 s.h.
90:267 Precision Ag Technologies.....	2 s.h.
92:260 Advanced Computer Applications	2 s.h.
	7 s.h.

Fourth Term - Fall

15:120 Business Law I	3 s.h.
15:151 Accounting Principles II	3 s.h.
80:134 Microeconomics.....	3 s.h.
89:150 Employment Strategies	1 s.h.
90:185 Commodity Marketing.....	2 s.h.
Ag Electives.....	2 s.h.
	14 s.h.

Fifth Term - Spring

89:100 Cooperative Work Experience.....	4 s.h.
90:285 Ag Finance Management.....	2 s.h.
92:263 Ag Futures & Options.....	2 s.h.
92:272 Employment Relations & Business	
Decisions.....	2 s.h.
Ag Electives.....	4 s.h.
	14 s.h.
Total Hours	67 s.h.

E-Agribusiness

Internet access, e-commerce and information technologies are revolutionizing the landscape of agribusiness and production agriculture. The E-Agribusiness curriculum is designed to prepare individuals who desire to utilize e-commerce technology to conduct business. The program provides a sound foundation in agriculture, business, and information technology, and develops strengths in the areas of communication, computer applications, business management, Internet function, and entrepreneurship. Completion of the program results in the award of associate in applied science degree.

ENTRANCEREQUIREMENTS

1. Completion of Algebra II in high school with a "C" or better, or
2. College Intermediate Algebra or equivalent with a "C" or better, or
3. COM PASS Algebra test with a score of 76-100
4. Students must demonstrate computer literacy by completing 1 year of high school computer courses, or
5. Be currently enrolled in Computer Applications for Ag (90:182) or its equivalent.

COURSE REQUIREMENTS

Students have considerable flexibility to select courses which will structure the program for their personal career goals.

General Education:

30:101	Communication Skills	4 s.h.
	Electives	8 s.h.

Agriculture Technology:

89:100	Coop Work Experience	4 s.h.
90:170	Intro to Ag Business	3 s.h.
90:182	Computer Applications	3 s.h.
92:272	Employment Relations	2 s.h.
	Ag Electives	14 s.h.

E-Commerce Requirements:

15:156	Networking I	4 s.h.
15:169	Media Experience	3 s.h.
15:186	Internet Programming I	3 s.h.
15:191	Intro to E-Commerce	3 s.h.
15:196	Structure & Design	3 s.h.
15:197	Internet Law	3 s.h.
	E-Commerce Elective	3 s.h.

Free Electives:

	Elective Courses	9 s.h.
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Total Hours 69 s.h.

SUGGESTED SCHEDULE

This is a possible sequence of courses. A list of course corequisites and prerequisites will be prepared to allow students to determine their own sequence of courses to complete the program.

First Term - Fall

15:169	Media Experience	3 s.h.
30:101	Communication Skills I	4 s.h.
90:170	Intro to Ag Business	3 s.h.
90:182	Computer Applications	3 s.h.
	Ag Elective	3 s.h.
	Total	16 s.h.

Second Term - Spring

15:196	Structure & Design	3 s.h.
	General Education Elective	3-4 s.h.
	Ag Electives	3 s.h.
	Free Electives	6 s.h.
	Total	15-16 s.h.

Third Term - Summer

15:186	Internet Programming I	3 s.h.
	General Education Elective	3 s.h.
	Total	6 s.h.

Fourth Term - Fall

15:156	Networking I	4 s.h.
15:191	Intro to E-Commerce	3 s.h.
	General Education Elective	3-4 s.h.
	Ag Electives	3-4 s.h.
	Free Electives	3 s.h.
	Total	16-18 s.h.

Fifth Term - Spring

15:197	Internet Law	3 s.h.
89:100	Coop Work Experience	4 s.h.
92:272	Employment Relations and Business Decisions	2 s.h.
	E-Commerce Elective	3 s.h.
	Ag Electives	6 s.h.
	Total	18 s.h.

Total Hours 71-74 s.h.

Agricultural Technology Electives

If electives are required for your Ag studies, counselors and Ag instructors will help you select courses from the following course listing which will help focus your specialty study:

AG ELECTIVES

- 15:120 Business Law I
- 15:151 Accounting Principles II
- 90:169 Swine Production
- 90:171 Animal Nutrition
- 90:189 Salesmanship/Advertising and Retailing
- 90:264 Introduction to Farm Operation
- 90:282 Soils/Crop Management
- 90:293 Beef Cattle Production
- 92:166 Animal Health
- 92:168 Crop Production Lab
- 92:176 Welding
- 92:189 Ag Real Estate Evaluation
- 92:261 Site-Specific Crop Management
- 92:262 Swine A.I. Center Management
- 92:263 Agriculture Futures and Futures Options
- 92:264 Horse Essentials/Equine Essentials/Horse Care and Management
- 92:270 Live Stock Production Lab I
- 92:271 Live Stock Production Lab II
- 92:273 Equipment Maintenance and Management

Course Descriptions -

15:120 Business Law I (3 s.h.) Prerequisite: None. Law as applied to business transactions and business relationships. An introduction to jurisprudence and the courts, contracts, commercial paper, sales, and security agreements. (45-0)

15:150 Accounting Principles I (3 s.h.) An introductory accounting course: analyzing transactions, matching principle, adjusting and closing entries, financial statements, receivables, inventories, fixed assets and intangible assets, current liabilities, corporations (capital stock transactions, dividends, income and taxes, stockholder's equity, investment in stocks), bonds payable, investment in bonds. (45-0)

15:151 Accounting Principles II (3 s.h.) Prerequisite: 15:150, Accounting Principles I, or equivalent. Course covers Statement of Cash Flows, financial statement analysis, job order and process cost systems, cost behavior, budgeting, standard costing, differential analysis and product pricing, capital investment analysis, activity-based costing, and just-in-time manufacturing. Emphasis is on management's use of accounting information. (45-0)

15:156 Networking I (4 s.h.) This course provides an overview of networking, including such topics as networking advantages, OSI layers, addressing and routing protocols, and LAN design, topologies, and cabling. (60-0)

15:169 Media Experience (3 s.h.) Prerequisite: 15:140, Introduction to Computers and Information Systems. This course covers comprehensively the latest version of HTML. Students will learn good coding practices and be introduced to web development tools and FTP programs. Students will also be introduced to CSS (Cascading Style Sheets), image management, and basic JavaScript. (30-30)

15:186 Internet Programming I (3 s.h.) Prerequisite: 15:169, Media Experience, and 15:196, Structure and Design, or permission of the instructor. This course will teach the fundamentals of client-side web scripting with JavaScript. Students will learn about browser-related object models and their associated properties, events, and methods. Students will work with these models to create documents on the fly, create pop-up documents, manage images, manage framesets, create roll-overs, enable and validate form elements, manage cookies, create and maintain basic databases, define and enable custom objects, and create various web-related tools. (30-30)

15:191 Introduction to E-Commerce (3 s.h.) Prerequisite: 15:140, Introduction to Computers and Information Systems. This course provides students with foundational skills and general information about electronic business solutions on the World Wide Web. Topics will include features of Internet marketing, sales, computer graphics, and network security. Students will also be introduced to Internet-related programming concepts and tools used to create web-based solutions. (30-30)

15:196 Structure and Design (3 s.h.) A fundamental requirement for people in the Information Technology field is the ability to organize a solution to a problem. This, in and of itself, is a difficult task. Often, however, this skill takes a backseat to learning code or is lost in the complexity of the task. Structure and Design concentrates on the process of developing a logical algorithmic solution to a problem. (45-0)

15:197 Internet Law (3 s.h.) Students will learn and examine legal issues associated with e-commerce, including but limited to, intellectual property protection, rights of privacy, content control, anti-trust, and problems of jurisdiction. (45-0)

30:101 Communication Skills I (4 s.h.) Improvement of skills in reading, writing, speaking, and listening, with an emphasis on expository methods of development and personal experience as supporting material. Students may be requested to use word processors and the Writer's Workbench analyses programs, the Writer's Workbench STEPS programs, and the structuring sentences video series. Students must meet minimum competency requirements in writing and speaking to receive a grade of "C" or higher. (60-0)

30:102 Communication Skills II (4 s.h.) Prerequisite: 30:101, Communication Skills I. Students must have earned a "C" or higher grade in Communication Skills I before enrolling in Communication Skills II. A continuation of 30:101 with an emphasis on argumentative and persuasive writing and speaking, on research methods, and on

language. Students may be requested to use word processors, Writer's Workbench analyses, Writer's Workbench STEPS, and sentence structuring videos. Students must meet minimum competency requirements in writing and speaking to receive a grade of "C" or higher. (60-0)

70:112 Animal Science I (3 s.h.) This course is designed to provide students with a general overview of the live stock in dustry. It iden tifies the ways in which do mestic ani mals serve the ba sic needs of hu mans for food, fiber, shelter, protection, fuel and emotional well-being. Stu dents will de velop an un der stand ing of and be able to ap ply the ba sic prin ci ples of ani mal se lec tion, breed ing, ge netics, feed ing, health, and hus bandry prac tices. As a stu dent, you will be come fa mil iar with the eco nomic and so cial is sues that con front the live stock in dustry. (45-0)

70:212 Animal Science II (3 s.h.) This course ap plies ad vanced prin ci ples of live stock pro duction and man age ment. Areas of em pha sis in clude: a re view of ani mal hus bandry prac tices, which result in greater performance and profit; live stock fa cil i ties re quire ments; pro duction trends, ani mal health, and nu tri tional re quire ments for live stock pro duced in the Mid west; em pha sis on swine and beef cat tle pro duction. (45-0)

80:134 Microeconomics (3 s.h.) Prerequisi te: 80:133, Macroeco nomics. An in tro ductory study of how peo ple use scarce re sources to sat isfy un lim ited wants. The em pha sis is on the be hav ior and de cision mak ing by in di vidual con sum ers, en tre pre neurs, work ers, and oth er re source own ers in the prod uct and re source mar kets and the re sult ing ef fects on the ef fi ciency with which re sources are used. (45-0)

89:100 D Cooperative Work Experience (4 s.h.) Prac ti cal train ing on the job un der the co op er a tive su per vi sion of the Col lege and work su per vi sor. (0-240)

89:150 Em ploy ment Strat egies (1 s.h.) De velop skills nec es sary to en ter the job mar ket and ex pe ri ence long-term ca reer growth. Stu dents learn ba sic job seek ing tech niques, job keep ing skills, and strat egies for con tin ued growth. (15-0)

90:160 Crop Sci ence I (3 s.h.) Top ics cov ered in clude: plant anat omy and phys i ol ogy; plant clas si fi ca tion and ID; pest clas si fi ca tion and ID; and pes ti cides, pest man age ment, ap pli ca tion equip ment, cal i bra tion, laws/reg u la tions. Stu dents will take the Iowa Core Manual ex a mi na tion as a re quire ment for this course. (38-15)

90:161 Crop Sci ence II (3 s.h.) Basic con cepts and prin ci ples of plant-soil-climate re la tion ships. Man age ment prin ci ples nec es sary for suc cess ful crop pro duction with ma jor em pha sis on corn, soybeans, small grains, and le gume crops com mon to North Iowa ag ri cul ture. (38-15)

90:168 Ag Math (2 s.h.) This course is de signed for stu dents seek ing an As so ci ate of Ap pli ed Sci ence De gree in Ag ri cul ture. Ag Math is a de velop men tal course in the fun da men tals of arith me tic and ele men tary equa tion solv ing. (30-0)

90:169 Swine Pro duction (2 s.h.) This course ap plies ad vanced prin ci ples of swine pro duction and man age ment. Areas of em pha sis in clude: a re view of swine hus bandry prac tices, which result in greater per for mance and profit; live stock fa cil i ties re quire ments and main tenance, ani mal health, re pro duction, and nu tri tional re quire ments. Stu dents will have the op por tu nity to ap ply skills learned in the class room to the swine op er a tion at the NIACC Farm Lab. (30-0)

90:170 Introduction to Agricultural Business (3 s.h.) Basic eco nomic con cepts, prin ci ples, and prac tices re flected in ag ri cul ture. An over view of the ma jor com ponents of an ag ri cul tural busi ness or gan iza tion and the eco nomic fun da men tals in volved in or gan izing, op erating, and man aging an ag ri cul tural busi ness. (45-0)

90:171 Ani mal Nu tri tion (2 s.h.) Fun da men tals of nu tri tion that deal with monogastric and ru mi nant ani mals. Ma te ri als cov ered will en able stu dents to iden tify sources, com po sition and func tions of vari ous feed stuffs. Stu dents will learn to eval uate and formu late live stock ra tions and will be able to make feed ing rec om men da tions based upon vary ing live stock, en vi ron ment and man age ment con di tions. (30-0)

90:182 Computer Applications for Agriculture (3 s.h.) This course is de signed for stu dents seek ing an As so ci ate of Ap pli ed Sci ence De gree in Ag ri cul ture or for stu dents trans fer ring on to a four-year in sti tu tion pur suing a de gree in ag ri cul ture. Stu dents will be in volved in tech niques that make the per sonal com puter a more pro duc tive tool in ag ri cul ture. Stu dents will also have the op por tu nity to see how com puters en able bet ter man age ment de cision-mak ing and im proved eco nomic ef fi ciency of ag ri cul tural op er a tions. Ma jor topic area of in struc tion is the Microsoft Office 2000 pack age. (30-30)

90:183 Ag ri cul tural Eco nomics (3 s.h.) This course is de signed for stu dents seek ing an As so ci ate of Ap pli ed Sci ence De gree in Ag ri cul ture. Stu dents will study the role of ag ri cul ture in the Amer i can eco nomy. Ba sic eco nomic con cepts, the com po sition and pric ing of ag ri cul tural prod ucts, gov ern ment and mon e tary pol i cy will be dis cussed. A study of this coun try's ag ri cul tural eco nomic pol i cies with a look at how oth er coun tries' ag ri cul tural eco nomic pol i cies affect us. The eco nomic de ci sion-mak ing pro cess will be taught built upon the man age ment func tion of plan ning, or gan izing, di rect ing, and con trol ling. (45-0)

90:185 Commodity Marketing (2 s.h.) Ele ments of producer mar ket ing of ma jor Mid west crops with em pha sis on for mu lat ing mar ket ing goals and plans. Mar ket ing tools, fu tures and op tion mar kets, spec u la tion, hedg ing, and risk man age ment. (30-0)

90:186 Soil Sci ence (3 s.h.) In tro duction to the phys i cal, chem i cal, and bi o log i cal prop er ties of soils with an em pha sis on the func tions of the soil as a me di um to sup port plant life. A re view of the sources and func tions of ma jor and mi nor plant ele ments, fer til izers and their prop er ties, soil ac idity, lim ing ma te ri als, and soil con ser va tion. (38-15)

90:189 Salesmanship/Advertising and Retailing (2 s.h.) Technique of selling and advertising of agricultural goods and services. Sales presentations and advertising setups of agricultural goods and services will serve as a basis for this course. (30-0)

90:264 Introduction to Farm Operation (3 s.h.) Introduction to Farm Operation is a unique study experience with hands-on activities in the learning lab at NIACC. Students enrolled in this three-credit course participate in the management and operation of the NIACC Teaching Farm Lab. The primary objective of this course is to provide experience in the planning, purchasing, production, construction, maintenance, marketing, and investment decisions associated with a diversified Iowa farm operation. (10-90)

90:267 Precision Ag Technology Systems (2 s.h.) Prequisite: Intro to Computers or Ag Computer Applications or demonstrated proficiency with computers. Microcomputer technology applications in agriculture with global positioning systems, geological information systems, mapping systems, graphics interface, field sensing, and equipment control related to site specific farming applications. Electronics/computers applied to practical problems in modern agricultural systems to sense, monitor, and control various processes in agronomic and animal environments. Utilization of GPS and GIS systems to analyze, manipulate, and manage Ag resources and related problems. Evaluating and using information systems and electronic communications for business profit. (15-30)

90:282 Soil and Crop Management (2 s.h.) Prequisite: 90:186, Soil Science, or its equivalent. The use of advanced technology for crop production. (30-0)

90:285 Agricultural Finance Management (2 s.h.) Financial requirements of individual farms and farm cooperative organizations. The administration and policies of lending in institutions and farm credit. (30-0)

90:293 Beef Cattle Production (2 s.h.) This course is designed to help students identify the primary biological principles that contribute to raising productive beef cattle, to integrate biological and economic principles that comprise effective management decisions needed to produce profitable cattle, and to enhance the understanding and communication between all segments of the beef industry. The course material identifies the primary management principles and practices needed by commercial and seed stock producers to raise productive and profitable cattle that can meet the specifications needed by the beef industry. (30-0)

92:151 Ag Business Accounting I (3 s.h.) Principles of debit, credit, the recording of data in various types of journals, posting of the ledgers, the worksheet, financial statements and their interpretation, analysis, adjusting, and closing the books at the end of the fiscal period. (45-0)

92:166 Animal Health (2 s.h.) This course provides a basic overview of animal health principles and practices that enable students to identify the major diseases of live stock, prescribe treatment and properly administer

treatment. The course includes a review of animal insects, parasites, and reproductive management. The course allows students to develop strategies aimed at disease prevention, disease treatment and improved animal performance while providing concern for the animal's well being. (30-0)

92:168 A or B Crop Production & Lab (1 or 2 s.h.) (0-30) or (0-60) Problem-solving approach to crop management. Principles and practices of agricultural science are used in the discussion of management problems and operations related to crop production at the NIACC Farm Lab. Students will participate in the management and operations of the NIACC Farm Lab. Field trips and guest speakers. (0-30) or (0-60)

92:176 Welding (2 s.h.) An introductory course teaching basic skills in the areas of shielded metal arc welding, gas metal arc welding, and oxy acetylene welding, cutting and brazing. The basic fundamentals of each process are covered. Safe welding practices are taught. The course provides skill application in all positions, on mild steel with single and multi-pass welds with backing strips. (15-30)

92:189 Ag Real Estate Evaluation (2 s.h.) Concepts of appraisal and pricing of real estate, along with development, growth, and value of real estate. Methods of acquiring and financing real estate and estate planning. (30-0)

92:260 Advanced Computer Applications (2 s.h.) Prequisite: 90:182, Computer Applications for Agriculture; 90:186, Soil Science; and 70:112, Animal Science; or with instructor approval. An advanced course that allows the student to apply the fundamentals of computers, accounting, crops, and live stock. Intended to enhance the foundations of early knowledge, in each area, with the ability to make more efficient, effective decisions. (30-0)

92:261 Site-Specific Crop Management (2 s.h.) Pre-requisite: 90:186, Soil Science, or its equivalent. The use of advanced technologies for crop production. (30-0)

92:262 Swine A.I. Center Management (1-3 s.h.) Students will be responsible for the operation and management of the Swine A.I. Center. During the period of instruction students will develop skills as so cited with the artificial insemination of swine. This hands-on experience utilizes the NIACC's industry-leading swine lab facility which includes housing of gilts, sows and boars; bright and easily accessible training areas, a fully equipped laboratory for semen processing, evaluation, extension, packaging, and storage. The course emphasizes boar management, training, reproductive physiology, semen evaluation and packaging, artificial insemination techniques, semen marketing, and business management. (15-30, 30-60, or 45-90)

92:263 Agriculture Futures and Futures Options (2 s.h.) Prerequisite/Corequisite: Commodity Marketing. Advanced commodity marketing concepts, principles, and terminology. (30-0)

92:264 Horse Essentials/Equine Essentials/Horse Care and Management (2 s.h.) General concepts of breed type and identification; the selection process; nutrition requirements; the reproduction cycle; the importance of genetics; general health; and management requirements will build a strong background for those interested in owning a horse of their own or pursuing a career in equine management. (30-0)

92:270 Live stock Pro duc tion Lab I (1 or 2 s.h.) Students will develop live stock husbandry skills associated with profitable beef and swine production. This hands-on experience emphasizes production practices that increase reproductive efficiency, insure herd health, increase pounds of market production, provide proper nutrition, and assure high market value. Students will assist in the selection, breeding, parturition, processing, feeding, fitting, and marketing of hogs and cattle. Students will evaluate, modify, and manage live stock facilities for maximum production efficiency. (0-30 or 60)

92:271 Live stock Pro duc tion Lab II (1 or 2 s.h.) Students will develop live stock husbandry skills associated with profitable beef and swine production. This hands-on experience emphasizes production practices that increase reproductive efficiency, insure herd health, increase pounds of market production, provide proper nutrition, and assure high market value. Students will assist in the selection, breeding, parturition, processing, feeding, fitting, and marketing of hogs and

cattle. Students will evaluate, modify, and manage live stock facilities for maximum production efficiency. (0-30 or 60)

92:272 Employment Relations and Business Decisions (2 s.h.) This course is designed for students seeking an Associate of Applied Science Degree in Agriculture. Provides students with a management and supervisory learning experience. The course emphasizes the role of management in today's agribusiness environment. Principles of managerial control, coordination, communication, motivation, and organization are discussed. The role of management supervision and its influence on employee productivity, satisfaction, and organizational effectiveness is a major part of the course. (30-0)

92:273 Equipment Maintenance and Management (2 s.h.) Maintenance and management of agricultural machinery and power units. (23-45)

Are you considering transferring to a four-year college or university?

Students who earn associate degrees in the Agricultural Technology programs at NIACC may wish to apply their studies toward a bachelor's degree in agriculture or agriculture-related fields at a four-year college or university. For further information on options in agricultural studies at Iowa State University, please see pages 125-149 in the catalog or speak with a NIACC advisor.