

APS AGRONOMY AND AGRICULTURAL MECHANICS

Faculty

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Mission

The Agronomy-Agricultural Mechanics Division is dedicated to the development of innovative individuals in the agronomy, horticulture and agricultural equipment disciplines. These degree programs prepare students for lifelong careers in agronomy, horticulture, and ag equipment industries. Graduates gain technical knowledge necessary for success in their chosen career path and obtain skills for lifelong learning and community leadership.

NCTA's campus includes a farm laboratory with over 500 acres of crop and pasture land combined. The farm has three center-pivots including a state-of-the-art Reinke center-pivot irrigation system. Ag mechanics, welding and irrigation technology laboratories are fully equipped. Additionally, the NCTA greenhouse and high tunnel, Nebraska Statewide Arboretum affiliate site and campus ground, and the surrounding community provide living laboratories for horticulture students.

Agronomy-Ag Mechanics Core Courses

The following courses are required for all Associate of Applied Science degree options.

| | | |
|--------------------|--|-------|
| AGR 2903 | INTERNSHIP | 3 |
| ECN 1103 | INTRODUCTION TO AG ECONOMICS | 3 |
| or ECN 1203 | MICROECONOMICS | |
| ABM 2963 | FARM, RANCH, AND SMALL BUSINESS RECORD KEEPING | 3 |
| or ACT 1103 | ACCOUNTING I | |
| ABM 2854 | FARM & RANCH MANAGEMENT | 3-4 |
| or MGT 2103 | MGT CONCEPTS | |
| AGR 2983 | CAPSTONE | 3 |
| Total Credit Hours | | 15-16 |

Agricultural Equipment Management Option-Associate of Applied Science Degree

- Students will be able to safely operate, troubleshoot and maintain agricultural equipment.

Associate of Applied Science Core

| | |
|------------------------|----|
| Complete requirements | 17 |
| Credit Hours Subtotal: | 17 |

Agronomy-Ag Mechanics Core

| | |
|------------------------|-------|
| Complete requirements | 15-16 |
| Credit Hours Subtotal: | 16 |

Equipment Management Courses

| | |
|-------------------------------------|-------------------|
| Select 20 credits of the following: | 20 |
| AEQ 1071 | INDUSTRIAL SAFETY |

| | |
|----------|--------------------------------|
| AEQ 1103 | SMALL ENGINES |
| AEQ 1171 | FARM EQUIP & SAFETY |
| AEQ 1203 | WELDING |
| AEQ 1313 | INTERMEDIATE WELDING |
| AEQ 1501 | INTRODUCTION TO ELECTRIC CODE |
| AEQ 1503 | DC CIRCUIT ANALYSIS |
| AEQ 1513 | AC CIRCUIT ANALYSIS |
| AEQ 1651 | HARVEST OPERATIONS |
| AEQ 2103 | AG CHEMICAL APPLICATION |
| AEQ 2303 | EQUIP PREVENTATIVE MAINTENANCE |
| AEQ 2213 | ADVANCED WELDING |
| AEQ 2323 | PRECISION FARM TECH |
| AEQ 2404 | MECHANIZED IRRIGATION SYSTEMS |
| AEQ 2522 | METAL FABRICATION |

Credit Hours Subtotal: 20

Electives

| | |
|--------------------------|-------|
| Advisor Guided Electives | 17-18 |
| Credit Hours Subtotal: | 17 |

Total Credit Hours 70

Agronomy Industry Management Option-Associate of Applied Science Degree

- Students will be able to apply economically sound and environmentally sustainable agricultural crop production practices in the Great Plains.

Associate of Applied Science Core

| | |
|------------------------|----|
| Complete requirements | 17 |
| Credit Hours Subtotal: | 17 |

Agronomy-Ag Mechanics Core

| | |
|------------------------|-------|
| Complete requirements | 15-16 |
| Credit Hours Subtotal: | 16 |

Agronomy Option Core

| | |
|-----------------------|----|
| Complete requirements | 23 |
|-----------------------|----|

See below:

| | |
|----------|---------------------|
| AGR 1091 | CROP PRACTICUM I |
| AGR 1201 | SOILS LAB |
| MKT 2203 | AG MARKETING |
| AGR 1204 | PRINCIPLES OF SOILS |
| AGR 1591 | CROP PRACTICUM II |
| AGR 2091 | CROP PRACTICUM III |
| AGR 2304 | SOIL FERTILITY |
| AEQ 2323 | PRECISION FARM TECH |
| AGR 2353 | PEST MANAGEMENT |
| AGR 2403 | CROP MANAGEMENT |

Credit Hours Subtotal: 23

Agronomy Specialization

Select 6 credits of the following: 6

| | |
|----------|--------------------------------|
| AEQ 1203 | WELDING |
| AEQ 2103 | AG CHEMICAL APPLICATION |
| AEQ 2303 | EQUIP PREVENTATIVE MAINTENANCE |
| AGR 1103 | CROP SCIENCE |

| | | |
|--------------------------|-----------------------|----|
| AGR 1213 | NATURAL RES MNGT | |
| AGR 1891 | CROPS JUDGING I | |
| AGR 2383 | IRRIGATION MANAGEMENT | |
| AGR 2892 | CROPS JUDGING II | |
| ASI 2303 | RANGE MANAGEMENT | |
| Credit Hours Subtotal: | | 6 |
| Electives | | |
| Advisor Guided Electives | | 8 |
| Credit Hours Subtotal: | | 8 |
| Total Credit Hours | | 70 |

Diversified Agriculture Management Option-Associate of Applied Science Degree

- Students will be able to apply economically sound and environmentally sustainable agricultural crop production practices in the Great Plains.

| | | |
|---|-------------------------------|--------------|
| Associate of Applied Science Core | | 17 |
| Agronomy-Ag Mechanics Core | | 15-16 |
| Credit Hours Subtotal: | | 33 |
| Diversified Agriculture Core | | |
| See below: | | 8 |
| AGR 1201 | SOILS LAB | |
| AGR 1204 | PRINCIPLES OF SOILS | |
| ASI 1304 | ANIMAL MANAGEMENT | |
| Credit Hours Subtotal: | | 8 |
| Diversified Agriculture Specialization | | |
| Select two of the following: | | 6-7 |
| AEQ 2323 | PRECISION FARM TECH | |
| AGR 2304 | SOIL FERTILITY | |
| AGR 2383 | IRRIGATION MANAGEMENT | |
| AGR 2353 | PEST MANAGEMENT | |
| AGR 2403 | CROP MANAGEMENT | |
| AEQ 2103 | AG CHEMICAL APPLICATION | |
| AEQ 2404 | MECHANIZED IRRIGATION SYSTEMS | |
| Select two of the following: | | 6 |
| ASI 1203 | FEEDLOT SYSTEMS | |
| ASI 1213 | LIVESTK & CARC EVAL | |
| ASI 1253 | NUTRITION | |
| ASI 2203 | FEEDS & FEEDING | |
| ASI 2303 | RANGE MANAGEMENT | |
| ASI 2353 | LIVESTOCK BREEDING | |
| ASI 2753 | BEEF PRODUCTION SYSTEMS | |
| Credit Hours Subtotal: | | 12 |
| Electives | | |
| Advisor Guided Electives | | 17 |
| Credit Hours Subtotal: | | 17 |
| Total Credit Hours | | 70 |

Agronomy Option-Associate of Science Degree (transfer)

- Students will demonstrate a basic knowledge in the areas of biology, chemistry, mathematics, and oral/written communication along with a basic understanding of agriculture consistent with standards set for baccalaureate degrees.

| | | |
|-------------------------------------|-------------------------|----|
| Associate of Science Core | | |
| Complete requirements | | 24 |
| Credit Hours Subtotal: | | 24 |
| Agronomy Specialization | | |
| Select 24 credits of the following: | | 24 |
| ABM 2854 | FARM & RANCH MANAGEMENT | |
| ACT 1103 | ACCOUNTING I | |
| AEQ 2323 | PRECISION FARM TECH | |
| AGR 1091 | CROP PRACTICUM I | |
| AGR 1591 | CROP PRACTICUM II | |
| AGR 2091 | CROP PRACTICUM III | |
| AGR 1201 | SOILS LAB | |
| AGR 2304 | SOIL FERTILITY | |
| AGR 1204 | PRINCIPLES OF SOILS | |
| ASI 2303 | RANGE MANAGEMENT | |
| AGR 2353 | PEST MANAGEMENT | |
| AGR 2383 | IRRIGATION MANAGEMENT | |
| AGR 2403 | CROP MANAGEMENT | |
| ECN 1203 | MICROECONOMICS | |
| ECN 1303 | MACROECONOMICS | |
| MKT 2203 | AG MARKETING | |
| Credit Hours Subtotal: | | 24 |
| Electives | | |
| Advisor Guided Electives | | 16 |
| Credit Hours Subtotal: | | 16 |
| Total Credit Hours | | 64 |

Mechanized Systems Management Option-Associate of Science Degree (transfer)

| | | |
|---|-------------------------|----|
| Associate of Science Core | | |
| Complete requirements | | 24 |
| Mechanized Systems Management Core | | |
| 29 | | |
| ABM 2854 | FARM & RANCH MANAGEMENT | |
| AEQ 1503 | DC CIRCUIT ANALYSIS | |
| AEQ 1513 | AC CIRCUIT ANALYSIS | |
| AGR 1201 | SOILS LAB | |
| AGR 2304 | SOIL FERTILITY | |
| AGR 1204 | PRINCIPLES OF SOILS | |
| AGR 2403 | CROP MANAGEMENT | |
| ASI 1304 | ANIMAL MANAGEMENT | |
| ECN 1203 | MICROECONOMICS | |
| ECN 1303 | MACROECONOMICS | |
| Credit Hours Subtotal: | | 53 |
| Electives | | |

| | |
|--------------------------|----|
| Advisor Guided Electives | 11 |
| Credit Hours Subtotal: | 11 |
| Total Credit Hours | 64 |

Ag Chemical Application Certificate

- Students will be able to mix and apply agricultural chemicals safely and efficiently.
- Students will be able to interact professionally with colleagues and clients.

Ag Chemical Application, Certificate

| | | |
|---------------------------------------|---------------------------------|-------|
| AEQ 2103 | AG CHEMICAL APPLICATION | 3 |
| AEQ 2323 | PRECISION FARM TECH | 3 |
| AGR 2353 | PEST MANAGEMENT | 3 |
| Advisor Guided Electives (AGR or AEQ) | | 6 |
| AGR 1881 | APPLIED AGRICULTURAL EXPERIENCE | 1-3 |
| or AGR 2903 | INTERNSHIP | |
| Total Credit Hours | | 16-18 |

agriculture certificate

- Provide foundational knowledge in crop and animal food production systems and a basic understanding of natural resource and agribusiness management.

| | | |
|--------------------------|------------------------------|----|
| AGR 1011 | AGRICULTURAL CAREERS | 1 |
| AGR 1103 | CROP SCIENCE | 3 |
| AGR 1213 | NATURAL RES MNGT | 3 |
| ECN 1103 | INTRODUCTION TO AG ECONOMICS | 3 |
| ASI 1304 | ANIMAL MANAGEMENT | 4 |
| Advisor Guided Electives | | 3 |
| Total Credit Hours | | 17 |

Irrigation Technician Certificate

- Students will gain a foundational knowledge in electricity and mechanized irrigation systems in order to effectively and safely service, repair, troubleshoot, and install center-pivot systems.
- Students will be able to interact professionally with colleagues and clients.

Irrigation Technician, Certificate

| | | |
|--------------------|-------------------------------|----|
| AEQ 1071 | INDUSTRIAL SAFETY | 1 |
| AEQ 1501 | INTRODUCTION TO ELECTRIC CODE | 1 |
| AEQ 1503 | DC CIRCUIT ANALYSIS | 3 |
| AEQ 1513 | AC CIRCUIT ANALYSIS | 3 |
| AEQ 2404 | MECHANIZED IRRIGATION SYSTEMS | 4 |
| SPC 1103 | SALES COMM | 3 |
| Total Credit Hours | | 15 |

Welding Certificate

- Students will be able to perform welding and fabrication technical skills.
- Students will be able to interact professionally with colleagues and clients.

Agricultural Welding, Certificate

| | | |
|--------------------|----------------------|----|
| AEQ 1071 | INDUSTRIAL SAFETY | 1 |
| AEQ 1203 | WELDING | 3 |
| AEQ 1313 | INTERMEDIATE WELDING | 3 |
| AEQ 2213 | ADVANCED WELDING | 3 |
| AGR 2903 | INTERNSHIP | 3 |
| Total Credit Hours | | 13 |

Crop Production Certificate

- Students will gain a foundational knowledge in crop production related principles and practices.

Crop Production Core (choose 15 credit hours of the following) 15

| | | |
|----------|-------------------------|--|
| AEQ 2103 | AG CHEMICAL APPLICATION | |
| AEQ 2323 | PRECISION FARM TECH | |
| AGR 1204 | PRINCIPLES OF SOILS | |
| AGR 2304 | SOIL FERTILITY | |
| AGR 2383 | IRRIGATION MANAGEMENT | |
| AGR 2353 | PEST MANAGEMENT | |
| AGR 2403 | CROP MANAGEMENT | |

Credit Hours Subtotal: 15

Electives

Advisor Guided Electives (AGR or AEQ Courses) 5

Credit Hours Subtotal: 5

Total Credit Hours 20

Diversified Agriculture Certificate

- Students will gain a foundational knowledge in crop and livestock production principles and practices.

Complete the following:

| | | |
|--|------------------------------|----|
| ECN 1103 | INTRODUCTION TO AG ECONOMICS | 3 |
| ASI Courses | | 6 |
| AGR Courses | | 6 |
| Agriculture Elective Courses (AEQ, AGR, ASI) | | 5 |
| Credit Hours Subtotal: | | 20 |
| Total Credit Hours | | 20 |

AEQ 1071 INDUSTRIAL SAFETY

Description: Designed to acquaint students with standard industry practices and emergency procedures and develop an awareness of job hazards. Students will prepare for a CPR/First Aid exam and receive some bulk handling equipment training (forklift/skid steer).

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Graded

AEQ 1103 SMALL ENGINES

Description: A complete course in gasoline engine operation. It consists of operational theory and nomenclature including the internal components and its air, fuel, lubrication, and cooling system. This course will emphasize small and multi-cylinder gas and diesel engines.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AEQ 1153 EQUIPMENT PRINCIPLES

Description: Students will be exposed to the basic principles of agricultural equipment including power trains, hydraulics, fuel systems and electricity. Alternative devices will be studied.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AEQ 1171 FARM EQUIP & SAFETY

Description: An orientation into the safe operation of tractors, combines, balers, skid loaders, and other common farm equipment. Students will be expected to demonstrate their ability to safely operate several types of equipment.

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Graded

AEQ 1203 WELDING

Description: Develop fundamental skills and procedures for oxy/acetylene, arc, and wire feed welding in flat position. Included will be basic blueprint interpretation and weld symbols, with metal cutting and preparation techniques.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AEQ 1313 INTERMEDIATE WELDING

Description: (Pre req: AEQ 1203 or equivalent) Develop skills in vertical, horizontal and overhead position arc and wire feed welding. Plasma Arc Cutting and a small assigned construction project are included. Use of a spool gun and TIG equipment will be introduced.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AEQ 1501 INTRODUCTION TO ELECTRIC CODE

Description: Introduction to Nebraska state electrical law and the National Electric Code as they pertain to the working electrician.

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Graded

AEQ 1503 DC CIRCUIT ANALYSIS

Description: Fundamentals of DC electricity as applied to series, parallel, and series-parallel circuits. Diagnosis and troubleshooting of circuits with test equipment.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AEQ 1513 AC CIRCUIT ANALYSIS

Description: Fundamentals of AC electricity including alternating current theory, waveform quantities and characteristics, and network analysis. Diagnosis and troubleshooting simple circuits with proper test equipment.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AEQ 1651 HARVEST OPERATIONS

Description: The course will primarily focus on grain harvest operations. Grain combine setup and operation will be emphasized. Students will gain an understanding of factors influencing harvest efficiency including estimating harvest losses. Combine yield monitor operation will also be included.

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Graded

AEQ 1713 CARPENTRY

Description: Learning basic tools and techniques of carpentry as it would pertain to a farm and ranch, including selection, use and maintenance of hand and power tools; selection of wood construction materials; construction of joints; application of finishes; and using these basic skills to follow a plan in the construction of a functional project.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AEQ 2103 AG CHEMICAL APPLICATION

Description: A course to provide career based training for a commercial applicator of pesticides, fertilizers and other agricultural chemicals. A foundation for the safe and effective use of agricultural chemicals will be emphasized. Students will gain experience and knowledge in the calibration, operation and maintenance of agricultural chemical application equipment. Preparation for obtaining a commercial pesticide applicator license will be included.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AEQ 2211 HYDRAULICS

Description: Basic study of hydraulic concepts, applications, and operation as applied to power equipment systems. This class also includes study of the diagnosis of power equipment with the emphasis on hydraulic problems.

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Graded

AEQ 2213 ADVANCED WELDING

Description: (Pre req: AEQ 1313 or equivalent) Students will develop skills using a spool gun and TIG welding, and additional arc and wire feed welding on a wide variety of metals. The second eight weeks is devoted toward preparation for American Welding Society certification.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AEQ 2303 EQUIP PREVENTATIVE MAINTENANCE

Description: A study of economic principles and principles of operation, adjustments, repair, maintenance, and tune-up of farm vehicles (automotive, tractors, and powered farm equipment vehicles).

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AEQ 2323 PRECISION FARM TECH

Description: A comprehensive overview of precision farming techniques used in crop production including: GPS systems and applications; yield monitors and map interpretation; grid/zone soil sampling and soil sensors; remote sensing techniques; variable-rate equipment and strategies, and GIS software utilization.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AEQ 2404 MECHANIZED IRRIGATION SYSTEMS

Description: Prerequisites: AEQ 1501, AEQ 1503, AEQ 1513.

Fundamentals of mechanized irrigation systems focusing on center-pivot components. Technical service and operation will be emphasized. Application of industrial electrical components and controls.

Credit Hours: 4

Max credits per semester: 4

Max credits per degree: 4

Grading Option: Graded

AEQ 2413 DIESEL ENGINE

Description: A study of cost effective maintenance programs for agriculture power equipment. Included is nomenclature, operational theory, adjustment and maintenance of agriculture gasoline and diesel engines. Lab includes the disassembly of a diesel engine.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AEQ 2522 METAL FABRICATION

Description: Prerequisite: AEQ 2213. Students will develop advanced metal-working skills with AC aluminum TIG welding, additional wire feed welding with aluminum, and programmable welding with development of programming, service, and equipment maintenance. Further skills will include basic use of metal lathe and precision measurement. The second eight weeks will include preparation for American Welding Society (AWS) aluminum certification (D1.2), a second opportunity for AWS steel certification (D1.1), and some small welding project planning and construction.

Credit Hours: 2

Max credits per semester: 2

Max credits per degree: 2

Grading Option: Graded

AEQ 2604 WELDING APPRENTICESHIP

Description: (Pre req: approval by Division Chair) The apprenticeship provides job experience in your field of study at an approved work location. Official agreements are entered into between the student, employer, and the college. The internship must last a minimum of 8 weeks averaging at least 40 hours per week. A written journal of daily work activities plus a 10 minute PowerPoint presentation are required upon completion. Students must submit a list of learning objectives prior to the apprenticeship and include discussion of these within their presentation. The student and employee will also complete a survey at the conclusion of the apprenticeship.

Credit Hours: 4

Max credits per semester: 4

Max credits per degree: 4

Grading Option: Pass No Pass

AEQ 2801 REINKE CERTIFICATION

Description: Prerequisites: AEQ 1501, AEQ 1503, AEQ 1513. Students will complete the Reinke Platinum PLUS Certified Technician training program. The course is an on-line training program developed by Reinke with integrated exams at the end of each training module. Students will be expected to complete the training sessions on their own time; however, faculty assistance will be available. To receive a Pass for the course, students must meet performance standards established by Reinke.

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Pass No Pass

AGR 1011 AGRICULTURAL CAREERS

Description: Students will be exposed to the great diversity of careers that support the agricultural industry. Educational requirements to prepare for these agricultural careers will also be explored.

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Graded

AGR 1073 INVASIVE PLANTS

Description: Invasive plants can be found nearly everywhere on Earth. The flora of our planet is constantly being redistributed by either natural or human forces. The change in locations of plant species has affected, and continues to affect, ecosystems around the world. In this course, students will learn how invasive plants are able to establish in regions outside of their native range. Students will develop an understanding of the importance of invasive plants at the global scale and learn how species, which are fairly being in on ecosystem, can have significant negative impacts in others. The focus will be on how and why invasive plants become established and their impacts on ecosystems.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AGR 1091 CROP PRACTICUM I

Description: This is the first course of a 3-course sequence that integrates students into the crop production on NCTA's farm laboratory. Students will work as a team to develop a crop management plan for one of NCTA's crop fields. The plan will include actual production practices, budgeting and marketing of the harvested crop. Crop planting and harvest will be conducted by the students and possibly some ag chemical applications. Due to farm size limitations, the practicum courses will be limited to just Agronomy majors.

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Graded

AGR 1103 CROP SCIENCE

Description: Students will develop a global understanding of the food, feed, and fiber system. Crop production strategies to maximize yield and quality while sustaining resources and the environment will be emphasized. Principles of crop growth and development, pest management and technology for crop production will be covered.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AGR 1116 AGRICULTURE APPLICATIONS

Description: This course is designed for students to gain experience in handling conditions on the farm daily. Students will receive hands on experience.

Credit Hours: 6

Max credits per semester: 6

Max credits per degree: 6

Grading Option: Graded

AGR 1201 SOILS LAB

Description: Laboratory activities dealing with physical, biological and chemical properties of soils that support plant growth.

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Graded

AGR 1204 PRINCIPLES OF SOILS

Description: A study of soil formation and the chemical, physical and biological properties of soils through a combination of lecture and lab learning activities. The course will emphasize soil conditions that affect crop growth. Management strategies to sustain long-term soil health and crop productivity will be covered.

Credit Hours: 4

Max credits per semester: 4

Max credits per degree: 4

Grading Option: Graded

AGR 1213 NATURAL RES MNGT

Description: A study of our natural resources with special emphasis on soil and water management including land classification, conservation practices, and protection methods used to conserve our natural resources, plus the role of government agencies in Natural Resource Management.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AGR 1591 CROP PRACTICUM II

Description: This course is the second of a three course sequence that will be required for all agronomy majors. The 3-course practicum sequence will provide another direct assessment of the agronomy program learning outcome of "applying economically sound and environmentally sustainable agriculture crop production practices." The practicum courses will also increase student utilization of the college's farm laboratory.

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Graded

AGR 1603 INTRODUCTION TO URBAN AGRICULTURE

Description: An introduction to the history, definitions, principles, practices, and innovations of agricultural production in urban and pre-urban settings. Topics will include urban farming systems including traditional and emerging systems such as controlled environment and hydroponics, animal systems in urban settings, urban food systems, community gardens, policies regarding urban agriculture, food access and security, urban agriculture's role in community and society, agricultural marketing in urban setting, and sustainable urban agricultural best practices.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AGR 1661 AGRONOMY ORIENTATION

Description: This course will provide students the opportunity to develop their "intercultural knowledge and competence" and "information literacy" skills and abilities. It will also include group activities to help formulate career goals, improve academic success skills, develop a resume and select and appropriate internship.

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Graded

AGR 1881 APPLIED AGRICULTURAL EXPERIENCE

Description: Instructor permission required for enrollment. The course will provide agricultural experiential learning activities that meet the specific needs of the academic program pursued. Learning experiences will emphasize hand's-on activities in the field or laboratory that reflects the student's chosen career. Experiences will be designed collaboratively between NCTA and any collaborating partners. Credit hours for the experience will be awarded to match the experience and meet requirement designated in the Credit Hour Policy.

Credit Hours: 1-6

Min credits per semester: 1

Max credits per semester: 6

Max credits per degree: 6

Grading Option: Graded

AGR 1891 CROPS JUDGING I

Description: This course will cover all principles of agronomy to prepare students to compete in crops judging contests that operate under the North American Colleges and Teachers of Agriculture (NACTA) contest guidelines.

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 3

Grading Option: Graded

AGR 1991 INDEPENDENT STUDY

Description: Individual or group projects in research, literature review, or extension of course work under the supervision and evaluation of a Major faculty member who is willing and available to contract with the student. (Pre req: Approval of project by Instructor, Division Chair, and Advisor)

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Graded

AGR 2002 WILDLIFE HABITAT MGT

Description: A course that studies the most common Nebraska Wildlife species that are managed for harvest throughout the state. The habitat requirements and management techniques for each wildlife species will be covered. Current wildlife habitat support programs will be reviewed.

Credit Hours: 2

Max credits per semester: 2

Max credits per degree: 2

Grading Option: Graded

AGR 2091 CROP PRACTICUM III

Prerequisites: AGR 1591 Crop Practicum II

Description: This is the third of a 3-course sequence that integrates students into the crop production of NCTA's farm laboratory, Students will work as a team to develop a crop management plan for one of NCTA's irrigated crop fields. The plan will include actual production practices, budgeting and marketing of the harvested crop. Crop planting and harvest will be conducted by the students and possibly some ag chemical applications. Due to farm size limitations, the practicum courses will be limited to just Agronomy majors.

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Graded

AGR 2103 BUILDING CONSTRUCTION

Description: A study of materials, techniques, and design used for farm and ranch facilities. Lab time will include the construction of Ag building, fences, and facilities on the NCTA campus.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AGR 2153 ORGANIC FOOD PRODUCTION

Description: An introduction to the history, definitions, principles, and practices of organic food production. Topics include soil husbandry, integrated pest management, farming systems including diversified vegetables, perennial fruit, agronomic field crops, meat, egg, and milk production, organic certification, and marketing.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AGR 2201 COMMERCIAL AG CARRIER

Description: A course of study designed to enable students to successfully obtain their CDL with all necessary endorsements. This course of study targets agricultural employees and producers. It is not intended for those seeking fulltime employment as commercial truck drivers. (Pre req: Must be a full time NCTA student)

Credit Hours: 1

Max credits per semester: 1

Max credits per degree: 1

Grading Option: Pass No Pass

AGR 2304 SOIL FERTILITY

Description: Dynamics of essential plant nutrients in the soil environment. Sustainable and profitable fertility management of agronomic and horticultural crops will be emphasized. Characteristics of the fertilizer materials, fertilizer application methods and fertilizer rate calculations will be covered.

Credit Hours: 4

Max credits per semester: 4

Max credits per degree: 4

Grading Option: Graded

AGR 2353 PEST MANAGEMENT

Description: Identification of plant pests, including morphology and life cycles of selected insects, weeds and diseases. Pest control methods will include chemical, physical, mechanical, cultural and biological techniques. Application of integrated pest management will be stressed.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AGR 2383 IRRIGATION MANAGEMENT

Description: Efficient irrigation management strategies of agronomic crops. Irrigation techniques, irrigation scheduling, equipment selection, and water use regulations will be covered. Sustainable utilization of our water resources will be emphasized.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AGR 2403 CROP MANAGEMENT

Description: Integration of principles of crop and soil science, plant breeding, climatology and integrated pest management in the development and evaluation of crop management practices. Students will be able to apply economically sound and environmentally sustainable crop production strategies in the Great Plains.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AGR 2714 FARM BEGINNINGS

Description: The Farm Beginnings Program consists of a series of sessions offered throughout the year by Nebraska Extension with cooperation from NCTA. The sessions focus on alternative agriculture and cover a variety of topics, including building networks, goal setting, whole farm planning, building your business plan, marketing, business and farm management and financials management. In addition to learning first-hand from successful farmers, participants will develop their own business plan as they progress through the course.

Credit Hours: 4

Max credits per semester: 4

Max credits per degree: 4

Grading Option: Graded

AGR 2823 INTRODUCTION TO GLOBAL AGRICULTURE AND NATURAL RESOURCES

Description: Overview of global relationships in agriculture and natural resources that affect Nebraska, the United States, and the world. Emphasis on gaining perspectives of the social, technological, economic, environmental, and political issues impacting the world food system.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AGR 2892 CROPS JUDGING II

Description: This course will cover all principles of agronomy to prepare students to compete in crops judging contests that operate under the North American College and Teachers of Agriculture (NACTA) contest guidelines.

Credit Hours: 2

Max credits per semester: 2

Max credits per degree: 6

Grading Option: Graded

AGR 2903 INTERNSHIP

Description: (Pre req: approval by Division Chair) The internship provides job experience in your field of study at an approved work location. Official agreements are entered into between the student, employer, and the college. The internship must last a minimum of 8 weeks averaging at least 40 hours per week (NOTE: students must honor length agreed upon by employer). A written journal of daily work activities plus a 10 minute PowerPoint presentation are required upon returning from internship. Students must submit a list of learning objectives prior to the internship and include discussion of these with their presentation. The student and employer will also complete a survey at the conclusion of the internship.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Pass No Pass

AGR 2983 CAPSTONE

Description: This course is designed to culminate the student's experience in their APS or AMS program and will focus on tying together functional aspects of a farm, ranch, or entrepreneurial venture. The class will culminate with a workable business plan, understand the legal and regulatory environment of their proposed enterprise, and be ready to move into formation. Included in this plan will include facility design, applicable management plans, and a complete financial package for the proposed operation that will include a cash flow, net worth, one year and three year budget, and what-if analysis. This course allows students an opportunity to integrate tools learned in their respective program.

Credit Hours: 3

Max credits per semester: 3

Max credits per degree: 3

Grading Option: Graded

AGR 2992 INDEPENDENT STUDY

Description: Individual or group projects in research, literature review or extension of course work under the supervision and evaluation of a Major faculty member who is willing and available to contract with the student. The student will present his/ her independent study proposal to the Major Division Chair and faculty for their approval. (Pre req: Approval of project by Instructor, Advisor, and Division Chair)

Credit Hours: 2

Max credits per semester: 2

Max credits per degree: 2

Grading Option: Graded

1. Students will be able to effectively communicate in oral and written form.
2. Students will be able to gather, assimilate, and process information to reach sound logical conclusions in their chosen career pathway.
3. Students will be able to apply economic principles of accounting, marketing and budgeting to agronomy or agricultural mechanics enterprises.
4. Students will be able to exhibit required knowledge and skills consistent with their chosen field of study. (Technical Competence)

Ag Equipment

Suggested Sequence of Study

| Course | Title | Credit Hours |
|--------------------|-------------------------------------|--------------|
| First Year | | |
| Fall | | |
| AEQ 1203 | WELDING | 3 |
| AEQ 1501 | INTRODUCTION TO ELECTRIC CODE | 1 |
| AEQ 1503 | DC CIRCUIT ANALYSIS | 3 |
| AEQ 1513 | AC CIRCUIT ANALYSIS | 3 |
| AGR 1661 | AGRONOMY ORIENTATION | 1 |
| ECN 1103 | INTRODUCTION TO AG ECONOMICS | 3 |
| SPC 1103 | SALES COMM | 3 |
| Credit Hours | | 17 |
| Spring | | |
| AEQ 1071 | INDUSTRIAL SAFETY | 1 |
| AEQ 1313 | INTERMEDIATE WELDING | 3 |
| AEQ 2404 | MECHANIZED IRRIGATION SYSTEMS | 4 |
| AEQ 2801 | REINKE CERTIFICATION | 1 |
| ACT 1103 | ACCOUNTING I | 3 |
| MTH 1403 | AGRICULTURAL MATHEMATICS | 3 |
| ENG 1503 | TECHNICAL COMMUNICATION I | 3 |
| Credit Hours | | 18 |
| Summer | | |
| AGR 2903 | INTERNSHIP | 3 |
| Credit Hours | | 3 |
| Second Year | | |
| Fall | | |
| AEQ 1103 | SMALL ENGINES | 3 |
| AEQ 2213 | ADVANCED WELDING | 3 |
| ABM 2854 | FARM & RANCH MANAGEMENT | 4 |
| AED 1023 | INTERPERSONAL SKILLS FOR LEADERSHIP | 3 |

| | | |
|--------------------|------------------------------------|----|
| BIO 1313 | PLANT SCIENCE | 3 |
| BIO 1321 | AGRONOMIC PLANT SCIENCE LABORATORY | 1 |
| Credit Hours | | 17 |
| Spring | | |
| AEQ 2303 | EQUIP PREVENTATIVE MAINTENANCE | 3 |
| AGR 2983 | CAPSTONE | 3 |
| AEQ 2103 | AG CHEMICAL APPLICATION | 3 |
| Electives | | 6 |
| Credit Hours | | 15 |
| Total Credit Hours | | 70 |

Agronomy Suggested Sequence of Study

| Course | Title | Credit Hours |
|--------------------|-------------------------------------|--------------|
| First Year | | |
| Fall | | |
| AGR 1204 | PRINCIPLES OF SOILS | 4 |
| AGR 1201 | SOILS LAB | 1 |
| AGR 1091 | CROP PRACTICUM I | 1 |
| AGR 1661 | AGRONOMY ORIENTATION | 1 |
| BIO 1313 | PLANT SCIENCE | 3 |
| BIO 1321 | AGRONOMIC PLANT SCIENCE LABORATORY | 1 |
| ECN 1103 | INTRODUCTION TO AG ECONOMICS | 3 |
| Electives | | 3 |
| Credit Hours | | 17 |
| Spring | | |
| AGR 2304 | SOIL FERTILITY | 4 |
| AGR 1591 | CROP PRACTICUM II | 1 |
| AEQ 2323 | PRECISION FARM TECH | 3 |
| ACT 1103 | ACCOUNTING I | 3 |
| MTH 1403 | AGRICULTURAL MATHEMATICS | 3 |
| SPC 1103 | SALES COMM | 3 |
| Credit Hours | | 17 |
| Summer | | |
| AGR 2903 | INTERNSHIP | 3 |
| Credit Hours | | 3 |
| Second Year | | |
| Fall | | |
| AGR 2353 | PEST MANAGEMENT | 3 |
| AGR 2383 | IRRIGATION MANAGEMENT | 3 |
| AGR 2091 | CROP PRACTICUM III | 1 |
| ABM 2854 | FARM & RANCH MANAGEMENT | 4 |
| AED 1023 | INTERPERSONAL SKILLS FOR LEADERSHIP | 3 |
| ENG 1503 | TECHNICAL COMMUNICATION I | 3 |
| Credit Hours | | 17 |
| Spring | | |
| AGR 2403 | CROP MANAGEMENT | 3 |
| MKT 2203 | AG MARKETING | 3 |

| | | |
|--------------------|-------------------------|----|
| AGR 2983 | CAPSTONE | 3 |
| AEQ 2103 | AG CHEMICAL APPLICATION | 3 |
| Electives | | 5 |
| Credit Hours | | 17 |
| Total Credit Hours | | 71 |

Diversified Agriculture Suggested Sequence of Study

| Course | Title | Credit Hours |
|--------------------|-------------------------------------|--------------|
| First Year | | |
| Fall | | |
| AGR 1201 | SOILS LAB | 1 |
| AGR 1204 | PRINCIPLES OF SOILS | 4 |
| AGR 1661 | AGRONOMY ORIENTATION | 1 |
| BIO 1313 | PLANT SCIENCE | 3 |
| BIO 1321 | AGRONOMIC PLANT SCIENCE LABORATORY | 1 |
| ECN 1103 | INTRODUCTION TO AG ECONOMICS | 3 |
| Electives | | 4 |
| Credit Hours | | 17 |
| Spring | | |
| AGR 2304 | SOIL FERTILITY | 4 |
| ACT 1103 | ACCOUNTING I | 3 |
| MTH 1403 | AGRICULTURAL MATHEMATICS | 3 |
| SPC 1103 | SALES COMM | 3 |
| Electives | | 3 |
| Credit Hours | | 16 |
| Summer | | |
| AGR 2903 | INTERNSHIP | 3 |
| Credit Hours | | 3 |
| Second Year | | |
| Fall | | |
| ASI 1304 | ANIMAL MANAGEMENT | 4 |
| ASI 1253 | NUTRITION | 3 |
| ABM 2854 | FARM & RANCH MANAGEMENT | 4 |
| AED 1023 | INTERPERSONAL SKILLS FOR LEADERSHIP | 3 |
| Electives | | 3 |
| Credit Hours | | 17 |
| Spring | | |
| ASI 2753 | BEEF PRODUCTION SYSTEMS | 3 |
| MKT 2203 | AG MARKETING | 3 |
| AGR 2983 | CAPSTONE | 3 |
| Electives | | 6 |
| ENG 1503 | TECHNICAL COMMUNICATION I | 3 |
| Credit Hours | | 18 |
| Total Credit Hours | | 71 |

Agronomy Transfer

Suggested Sequence of Study

| Course | Title | Credit Hours |
|--------------------|-------------------------------------|--------------|
| First Year | | |
| Fall | | |
| AGR 1201 | SOILS LAB | 1 |
| AGR 1204 | PRINCIPLES OF SOILS | 4 |
| AGR 1091 | CROP PRACTICUM I | 1 |
| AGR 1661 | AGRONOMY ORIENTATION | 1 |
| BIO 1313 | PLANT SCIENCE | 3 |
| BIO 1321 | AGRONOMIC PLANT SCIENCE LABORATORY | 1 |
| ECN 1203 | MICROECONOMICS | 3 |
| AED 1023 | INTERPERSONAL SKILLS FOR LEADERSHIP | 3 |
| Credit Hours | | 17 |
| Spring | | |
| AGR 2304 | SOIL FERTILITY | 4 |
| AGR 1591 | CROP PRACTICUM II | 1 |
| MTH 2252 | TRIGONOMETRY | 2 |
| ECN 1303 | MACROECONOMICS | 3 |
| ENG 1903 | WRITING & INQUIRY | 3 |
| HTY 1303 | AMERICAN HISTORY AFTER 1877 | 3 |
| Credit Hours | | 16 |
| Second Year | | |
| Fall | | |
| AGR 2353 | PEST MANAGEMENT | 3 |
| MTH 2203 | INTRODUCTION TO STATISTICS | 3 |
| AGR 2091 | CROP PRACTICUM III | 1 |
| ABM 2854 | FARM & RANCH MANAGEMENT | 4 |
| Electives | | 5 |
| Credit Hours | | 16 |
| Spring | | |
| AGR 2403 | CROP MANAGEMENT | 3 |
| CHM 1014 | CHEMISTRY IN CONTEXT I | 4 |
| MKT 2203 | AG MARKETING | 3 |
| SPC 1113 | PUBLIC SPEAKING | 3 |
| Elective | | 3 |
| Credit Hours | | 16 |
| Total Credit Hours | | 65 |

| | | |
|--------------------|-------------------------------------|----|
| AGR 1204 | PRINCIPLES OF SOILS | 4 |
| BIO 1313 | PLANT SCIENCE | 3 |
| BIO 1321 | AGRONOMIC PLANT SCIENCE LABORATORY | 1 |
| ECN 1203 | MICROECONOMICS | 3 |
| AED 1023 | INTERPERSONAL SKILLS FOR LEADERSHIP | 3 |
| Credit Hours | | 16 |
| Spring | | |
| AGR 2304 | SOIL FERTILITY | 4 |
| MTH 2252 | TRIGONOMETRY | 2 |
| ECN 1303 | MACROECONOMICS | 3 |
| ENG 1903 | WRITING & INQUIRY | 3 |
| Electives | | 4 |
| Credit Hours | | 16 |
| Second Year | | |
| Fall | | |
| AEQ 1503 | DC CIRCUIT ANALYSIS | 3 |
| AEQ 1513 | AC CIRCUIT ANALYSIS | 3 |
| MTH 2203 | INTRODUCTION TO STATISTICS | 3 |
| ABM 2854 | FARM & RANCH MANAGEMENT | 4 |
| ASI 1304 | ANIMAL MANAGEMENT | 4 |
| Credit Hours | | 17 |
| Spring | | |
| AGR 2403 | CROP MANAGEMENT | 3 |
| CHM 1014 | CHEMISTRY IN CONTEXT I | 4 |
| SPC 1113 | PUBLIC SPEAKING | 3 |
| AEQ 2323 | PRECISION FARM TECH | 3 |
| HTY 1303 | AMERICAN HISTORY AFTER 1877 | 3 |
| Credit Hours | | 16 |
| Total Credit Hours | | 65 |

Mechanized Systems Management transfer

Suggested Sequence of Study

| Course | Title | Credit Hours |
|-------------------|----------------------|--------------|
| First Year | | |
| Fall | | |
| AGR 1201 | SOILS LAB | 1 |
| AGR 1661 | AGRONOMY ORIENTATION | 1 |