



### **Crookston Campus**

## **Agricultural Systems Management B.S.**

*Agriculture and Natural Resources*

### **Academic Affairs**

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 56 to 63
- This program requires summer terms.
- Degree: Bachelor of Science

This program combines students' interests in machinery, technology, and crop and livestock production with superior people skills, creative thinking, and problem solving to build a career in the agricultural and food production industry.

Agricultural systems management graduates are well versed in agricultural foundations and have working knowledge of economic systems with a well-developed sense of professionalism. Companies are looking for multi-talented people who are confident around computers, machines, and business plans. The agricultural systems management program offers three areas of emphasis to provide a unique portfolio of technical and business skills that gives graduates an edge in the job market.

Program outcomes: graduates will:  
be well versed in agricultural foundations,  
be technically proficient and knowledgeable in agricultural technologies,  
have working knowledge of economic systems and financial management,  
possess speaking, listening, and writing communication skills,  
and have a well-developed sense of professionalism.

### **Program Delivery**

This program is available:

- via classroom (the majority of instruction is face-to-face)

### **Admission Requirements**

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](#).

### **General Requirements**

All students are required to complete general University and college requirements. For more information, see the [graduation requirements](#).

### **Program Requirements**

Students must complete 40 upper division credits.

#### **Agricultural Systems Management Program Requirements**

A maximum of two D grades are allowed for core courses required in the program, subplan/emphasis, and technology requirements. This includes grades earned at UMC or transferred in from another institution.

Required courses - 32 credits

[AGRO 1183](#) - Field Crops: Production Principles (3.0 cr)

[ASM 1021](#) - Introduction to Agricultural Systems Management (3.0 cr)

[ASM 1034](#) - Facility Maintenance and Safety (4.0 cr)

[ASM 2053](#) - Electricity, Controls, and Sensors in Agriculture (3.0 cr)

[ASM 3002](#) - Agricultural Mobile Power Systems (3.0 cr)

[GNAG 3899](#) - Pre-Internship Seminar (0.5 cr)

[GNAG 3900](#) - Internship (0.5 - 3.0 cr)

[GNAG 3901](#) - Post Internship Seminar (0.5 cr)

[GNAG 4652](#) - Senior Seminar (1.0 cr)

[SOIL 1293](#) - Soil Science (3.0 cr)

Choose one of the following:

[ACCT 2101](#) - Principles of Accounting I (3.0 cr)

or [ENTR 2200](#) - Introduction to Entrepreneurship and Small Business (3.0 cr)

Choose one of the following:



[ANSC 3004](#) - Livestock Facilities and Environmental Systems (3.0 cr)  
or [ASM 3005](#) - Facilities Planning and Selection (3.0 cr)

Choose one of the following:

[COMM 2334](#) - Communication Topics (3.0 cr)  
or [COMM 3431](#) - Persuasion (3.0 cr)  
or [COMM 3704](#) - Business and Professional Speaking (3.0 cr)  
or [WRIT 3303](#) - Writing in Your Profession (3.0 cr)

### Liberal Education Requirements

A minimum of 40 liberal education credits are required. Students must complete the 10 goal areas of the Minnesota Transfer Curriculum with the following specific liberal education courses required:

[BIOL 1009](#) - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)  
[CHEM 1001](#) - Introductory Chemistry [PHYS SCI] (4.0 cr)  
[COMP 1011](#) - Composition I [COMMUNICAT] (3.0 cr)  
[COMP 1013](#) - Composition II [COMMUNICAT] (3.0 cr)  
[ECON 2101](#) - Microeconomics [HI/BEH/SSC] (3.0 cr)  
[MATH 1031](#) - College Algebra [MATH THINK] (3.0 cr)  
[MATH 1150](#) - Introduction to Statistics [MATH THINK] (3.0 cr)  
[PHYS 1012](#) - Introductory Physics [PHYS SCI, PEOPLE/ENV] (4.0 cr)  
[COMM 1101](#) - Public Speaking [COMMUNICAT] (3.0 cr)

### Technology Requirement

Required courses - 3 credits of any CA courses  
CA 1xxx  
or CA 2xxx

## Program Sub-plans

Students are required to complete one of the following sub-plans.

### Bio-Fuels and Renewable Energy Technology

This emphasis focuses on the development, economics, and processes in bio-fuels and renewable energy technology. Energy conservation and efficiencies are vital parts to sustainable energy systems. World demand for energy is driving the need for sustainable energy systems.

### Bio-Fuels/Renewable Energy Systems Requirements

Required courses - 30 credits  
[AGEC 2530](#) - Professional Agriselling (3.0 cr)  
[AGEC 3640](#) - Agricultural Finance and Valuation (3.0 cr)  
[ASM 2200](#) ~~(Inactive)~~ (3.0 cr)  
[ASM 3201](#) ~~(Inactive)~~ (3.0 cr)  
[ASM 3202](#) ~~(Inactive)~~ (3.0 cr)  
[CA 1060](#) - Database Applications (3.0 cr)  
[MGMT 3200](#) - Principles of Management (3.0 cr)  
[MKTG 3300](#) - Principles of Marketing (3.0 cr)  
[NATR 1226](#) - Environmental Science and Sustainability [BIOL SCI, PEOPLE/ENV] (3.0 cr)  
[NATR 3344](#) - Land Use Planning (3.0 cr)

### Agriculture/Management Electives

Students should take 6 credits of agriculture/management electives.

### Open Electives

Students must take enough open electives credits to satisfy the 120 credit graduation requirement.

### Farm and Ranch Management

This emphasis focuses on a blend of business and production management. The program's goal is to provide a solid foundation to allow the graduate to be competitive and succeed in the changing world of modern agriculture.

### Farm and Ranch Operation Requirements

Required courses - 25 to 26 credits  
[AGEC 2310](#) - Agribusiness Financial Records (3.0 cr)  
[AGEC 3540](#) - Farm Business Management (3.0 cr)  
[AGEC 3640](#) - Agricultural Finance and Valuation (3.0 cr)  
[AGEC 4740](#) - Grain and Livestock Marketing (3.0 cr)  
[ANSC 1004](#) - Introduction to Animal Science (4.0 cr)  
[ASM 2250](#) - Agricultural Machinery Management (3.0 cr)

Choose one of the following:



[ASM 2043](#) - Welding and Manufacturing Processes (3.0 cr)  
or [ASM 2200](#) (*Inactive*)(3.0 cr)

Choose one of the following:

[ANSC 2104](#) - Feeds and Feeding (4.0 cr)  
or [ASM 3360](#) - Applications in Precision Agriculture (2.0 cr)

#### **Agriculture/Management Electives**

Students should take 9 to 10 credits of agriculture/management electives.

#### **Open Electives**

Students must take enough open electives credits to satisfy the 120 credit graduation requirement.

#### **Power and Machinery**

New technology and labor-saving innovations in machinery, engines, and equipment drive a multi-billion dollar global business. Excellent careers exist in servicing, testing, and sales and marketing of new products for agricultural, industrial, and consumer applications.

#### **Power and Machinery Requirements**

Required courses - 24 credits

[AGEC 2530](#) - Professional Agriselling (3.0 cr)  
[AGEC 3050](#) - Economics for AgriBusiness Management (3.0 cr)  
[AGEC 3640](#) - Agricultural Finance and Valuation (3.0 cr)  
[ASM 2250](#) - Agricultural Machinery Management (3.0 cr)  
[ASM 3360](#) - Applications in Precision Agriculture (2.0 cr)  
[CA 1060](#) - Database Applications (3.0 cr)  
[MGMT 3210](#) - Supervision and Leadership (3.0 cr)

Choose one of the following:

[ASM 2043](#) - Welding and Manufacturing Processes (3.0 cr)  
or [ASM 2200](#) (*Inactive*)(3.0 cr)

#### **Agriculture/Management Electives**

Students should take 11 credits of agriculture/management electives.

#### **Open Electives**

Students must take enough open electives credits to satisfy the 120 credit graduation requirement.

#### **Precision Agriculture**

Work in the field or in an office to help others improve agriculture production practices (chemical application, planting, pest management) by using satellites, geographical information systems (GIS), and precision data analysis. Field data collection, analysis, and application are keys to improving agricultural production management practices and implementing efficiencies.

#### **Precision Agriculture Requirements**

Required courses - 31 credits

[AGEC 2310](#) - Agribusiness Financial Records (3.0 cr)  
[AGEC 2530](#) - Professional Agriselling (3.0 cr)  
[AGRO 2640](#) - Applied Agriculture Chemicals (3.0 cr)  
[ASM 2250](#) - Agricultural Machinery Management (3.0 cr)  
[ASM 3009](#) - Surveying (4.0 cr)  
[ASM 3360](#) - Applications in Precision Agriculture (2.0 cr)  
[ASM 3511](#) - Yield Monitoring and Data Interpretation (1.0 cr)  
[ASM 3512](#) - Remote Sensing Applications in Precision Agriculture (1.0 cr)  
[CA 1060](#) - Database Applications (3.0 cr)  
[NATR 2630](#) - Introduction to Geographic Information Systems (3.0 cr)  
[SOIL 3414](#) - Soil Fertility and Plant Nutrition (4.0 cr)

#### **Agriculture/Management Electives**

Students should take 4 credits of agriculture/management electives.

#### **Open Electives**

Students must take enough open electives credits to satisfy the 120 credit graduation requirement.