



# AGRIBUSINESS SCIENCE & TECHNOLOGY

## Associate in Applied Science (AAS) Program Code: 10-006-2 Total Credits: 61-62

Mid-State's Agribusiness Science & Technology program prepares students to be owners or employees of a farm business in all sectors of the agriculture industry or work in businesses that support the agriculture industry. The program includes dairy and livestock management and traditional crop production. You'll learn to develop a nutrient management plan, calculate cost of production, and develop a long-term facility and equipment plan as well as a farm business plan. Hands-on experiences include taking soil samples; identifying diseases, insects, and weeds that impact profitability; and working with livestock nutrition and management. Graduates obtain a private pesticide applicators certificate.

**Estimated tuition and fees:** [mstc.edu/programcosts](http://mstc.edu/programcosts)

### ACADEMIC ADVISOR

To schedule an appointment with an academic advisor, call 715.422.5300. Academic advisors will travel to other campuses as necessary to accommodate student needs. For more information about advising, visit [mstc.edu/advising](http://mstc.edu/advising).

### CHECKLIST:

This section will be completed when meeting with your academic advisor.

- FAFSA ([www.fafsa.gov](http://www.fafsa.gov))
- Financial Aid Form(s)  
Form(s): \_\_\_\_\_
- Follow-Up Appointment:  
Where: \_\_\_\_\_  
When: \_\_\_\_\_  
With: \_\_\_\_\_
- Official Transcripts  
Mid-State Technical College  
Student Services Assistant  
1001 Centerpoint Drive  
Stevens Point, WI 54481
- Other: \_\_\_\_\_  
\_\_\_\_\_



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**ADAMS CAMPUS**  
401 North Main  
Adams, WI 53910

**MARSHFIELD CAMPUS**  
2600 West 5th Street  
Marshfield, WI 54449

**STEVENS POINT CAMPUS**  
1001 Centerpoint Drive  
Stevens Point, WI 54481

**WISCONSIN RAPIDS CAMPUS**  
500 32nd Street North  
Wisconsin Rapids, WI 54494

# CAREER PATHWAY • BEGIN AT ANY POINT

HIGH SCHOOL STUDENT

COLLEGE TRANSFER

RETURNING ADULT

## CREDIT FOR PRIOR LEARNING AND EXPERIENCE

### CREDIT FOR PRIOR LEARNING AND EXPERIENCE

- Certifications and Licenses
- High School Credit
- Military Experience
- National/Standardized Exams
- Transfer Credit
- Work and Life Experience

Learn about Credit for Prior Learning at [mstc.edu/cpl](http://mstc.edu/cpl).

## CERTIFICATE

### AGRICULTURE DIESEL ENGINES AND EQUIPMENT

Certificate • 5 Credits

### AGRONOMY EQUIPMENT BASICS

Certificate • 5 Credits

### INTRODUCTION TO AGRICULTURE BUSINESS

Certificate • 8 Credits

### INTRODUCTION TO AGRICULTURE TOPICS

Certificate • 10 Credits

For more information and additional opportunities, visit [mstc.edu/career-accelerator](http://mstc.edu/career-accelerator).

## TECHNICAL DIPLOMA

### AGRIBUSINESS AGRONOMY TECHNICIAN

Technical Diploma • 27 Credits

#### Start Your Career

- Grower
- Field Worker
- Irrigator

### FARM OPERATION

Technical Diploma • 27 Credits

#### Start Your Career

- Production Agriculturalist
- Herdsman
- Livestock Breeder

## ASSOCIATE IN APPLIED SCIENCE (AAS)

### AGRIBUSINESS SCIENCE & TECHNOLOGY

Associate in Applied Science (AAS) • 61-62 Credits

#### Start Your Career

- Agronomy Technician
- Herdsman
- Production Agriculture Manager

## BACHELOR'S DEGREE

### BACHELOR'S DEGREE OPTIONS

Arizona State University, Bellevue University, Colorado State University Global, Concordia University, Franklin University, Grand Canyon University (GCU), Iowa State University, Lakeland University, Milwaukee School of Engineering (MSOE), Mount Mary University (MMU), Northern Michigan University, South Dakota State University, University of Maryland Global, University of Phoenix, UW-Green Bay, UW-Oshkosh, UW-Platteville, UW-River Falls, UW-Stevens Point, UW-Stevens Point at Marshfield, UW-Stout, UW-Whitewater, Western Governor's University, and Wisconsin Private-Nonprofit Universities/Colleges.

For more information and additional opportunities, visit [mstc.edu/transfer](http://mstc.edu/transfer).

## OTHER OPTIONS

### RELATED PROGRAMS

- Arborist Technician
- Utility Tree Trimmer

## OUTCOMES

Employers will expect you, as an Agribusiness Science & Technology graduate, to be able to:

- Create a crop management plan.
- Develop an agribusiness management plan.
- Apply economic and marketing strategies to agribusiness industry.
- Apply relevant technologies.
- Create a livestock management plan.
- Investigate opportunities in agribusiness.
- Interact as a professional in agribusiness.

## TECHNICAL SKILLS ATTAINMENT

The Wisconsin Technical College System (WTCS) has implemented a requirement that all technical colleges measure outcomes attained by students. This requirement is called Technical Skills Attainment (TSA). The main objective of TSA is to ensure graduates have the technical skills needed by employers. Students are notified of TSA reporting in Principles of Crop Management, Agribusiness Financial Analysis, Agriculture Business Management, Intro to Animal Science, and Intro to Precision Agriculture.

## NOTES:

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## STUDENT HANDBOOK

Visit [mstc.edu/studenthandbook](http://mstc.edu/studenthandbook) to view Mid-State's student handbook, which contains information about admissions, enrollment, appeals processes, services for people with disabilities, financial aid, graduation, privacy, Mid-State's Student Code of Conduct, and technology.

## GRADUATION REQUIREMENT

The GPS for Student Success course is required for all Mid-State program students and is recommended to be completed before obtaining 12 credits. (Not counted in the total credit value for this program.) Some students are exempt from this requirement. Please see your program advisor for more information.

### GPS for Student Success

**10890102 ..... 1 credit**

Integrate necessary skills for student success by developing an academic plan, identifying interpersonal attributes for success, adopting efficient and effective learning strategies, and utilizing Mid-State resources, policies, and processes. This course is recommended to be completed prior to obtaining 12 credits and is a graduation requirement unless you receive an exemption from your program advisor.

## ADDITIONAL COURSES AS NEEDED

The following courses may be recommended or required if the student does not achieve minimum Accuplacer scores.

### College Reading and Writing 1

**10831104 ..... 3 credits**

Provides learners with opportunities to develop and expand reading and writing skills to prepare for college-level academic work. Students will employ critical reading strategies to improve comprehension, analysis, and retention of texts. Students will apply the writing process to produce well-developed, coherent, and unified written work.

### Pre-Algebra

**10834109 ..... 3 credits**

Provides an introduction to algebra. Includes operations on real numbers, solving linear equations, percent and proportion, and an introduction to polynomials and statistics. Prepares students for elementary algebra and subsequent algebra-related courses.

## SAMPLE FULL-TIME CURRICULUM OPTION

| Term                       |  | 13-14 credits |
|----------------------------|--|---------------|
| 10006105                   | Agribusiness Financial Analysis                                  | 2             |
| 10080105                   | Intro to Soil Science  | 3             |
| 10091102                   | Intro to Animal Science  | 3             |
| 10093101                   | Integrated Pest Management ☑                                     | 2             |
| 10804107                   | College Mathematics ☑  | 3             |
|                            | <b>-or-</b>  |               |
| 10804118                   | Intermediate Algebra with Applications ☑                         | 4             |
| Term                       |  | 17 credits    |
| 10070103                   | Basic Agriculture Electrical, Mechanical, and Irrigation Systems | 3             |
| 10093102                   | Intro to Precision Agriculture                                   | 3             |
| 10091103                   | Animal Nutrition   | 4             |
| 10801195                   | Written Communication ☑ <b>-or-</b>                              |               |
| 10801136                   | English Composition 1 ☑  | 3             |
| 10806114                   | General Biology  | 4             |
| Term                       |  | 14 credits    |
| 10006104                   | Intro to Agriculture Engineering Technology                      | 3             |
| 10006007                   | Agriculture Internship <b>-or-</b>                               |               |
| 10006110                   | Agriculture Capstone   | 2             |
| 10090101                   | Agriculture Business Management                                  | 3             |
| 10093104                   | Principles of Crop Management                                    | 3             |
| 10801196                   | Oral/Interpersonal Communication ☑ <b>-or-</b>                   |               |
| 10801198                   | Speech ☑   | 3             |
| Term                       |  | 17 credits    |
| 10003101                   | Agricultural Diesel Engine Systems                               | 3             |
| 10006101                   | Agricultural Computations  | 3             |
| 10006102                   | Agribusiness Equipment & Facilities                              | 2             |
| 10006103                   | Introduction to Food Science                                     | 3             |
| 10809166                   | Intro to Ethics: Theory & Application ☑                          | 3             |
| 10809198                   | Intro to Psychology ☑ <b>-or-</b>                                |               |
| 10809188                   | Developmental Psychology ☑                                       | 3             |
| <b>Total credits 61-62</b> |  |               |

☑ This course has options available to receive credit for prior learning (CPL) or work experience. Visit the website at [mstc.edu/cpl](http://mstc.edu/cpl) or contact your advisor for details.

Please Note:

- This curriculum sequence is only for student planning. Actual student schedules will vary depending on course availability.
- Program completion time may vary based on student scheduling and course availability. For details, go to [mstc.edu/schedule](http://mstc.edu/schedule).

## SAMPLE PART-TIME CURRICULUM OPTION

| Term                       |  | 6 credits   |
|----------------------------|--|-------------|
| 10080105                   | Intro to Soil Science  | 3           |
| 10091102                   | Intro to Animal Science  | 3           |
| Term                       |  | 7 credits   |
| 10091103                   | Animal Nutrition   | 4           |
| 10093102                   | Intro to Precision Agriculture                                   | 3           |
| Term                       |  | 6 credits   |
| 10090101                   | Agriculture Business Management                                  | 3           |
| 10093104                   | Principles of Crop Management                                    | 3           |
| Term                       |  | 8 credits   |
| 10006101                   | Agricultural Computations  | 3           |
| 10006102                   | Agribusiness Equipment & Facilities                              | 2           |
| 10003101                   | Agricultural Diesel Engine Systems                               | 3           |
| Term                       |  | 7 credits   |
| 10006105                   | Agribusiness Financial Analysis                                  | 2           |
| 10093101                   | Integrated Pest Management ☑                                     | 2           |
| 10801195                   | Written Communication ☑ <b>-or-</b>                              |             |
| 10801136                   | English Composition 1 ☑  | 3           |
| Term                       |  | 10 credits  |
| 10070103                   | Basic Agriculture Electrical, Mechanical, and Irrigation Systems | 3           |
| 10801196                   | Oral/Interpersonal Communication ☑ <b>-or-</b>                   |             |
| 10801198                   | Speech ☑   | 3           |
| 10806114                   | General Biology  | 4           |
| Term                       |  | 8-9 credits |
| 10006104                   | Intro to Agriculture Engineering Technology                      | 3           |
| 10006007                   | Agriculture Internship <b>-or-</b>                               |             |
| 10006110                   | Agriculture Capstone   | 2           |
| 10804107                   | College Mathematics ☑  | 3           |
|                            | <b>-or-</b>  |             |
| 10804118                   | Intermediate Algebra with Applications ☑                         | 4           |
| Term                       |  | 9 credits   |
| 10006103                   | Introduction to Food Science                                     | 3           |
| 10809166                   | Intro to Ethics: Theory & Application ☑                          | 3           |
| 10809198                   | Intro to Psychology ☑ <b>-or-</b>                                |             |
| 10809188                   | Developmental Psychology ☑                                       | 3           |
| <b>Total credits 61-62</b> |  |             |

### MULTIPLE MEASURES

**Multiple Measures Writing (MMW):** High school GPA of 2.6 and successful completion of 2.0 credits of high school writing courses with a "C" or better

**Multiple Measures Math 1 (MMM\_1):** High school GPA of 2.6 and successful completion of 1.0 credits of high school math (Algebra 1 or equivalent) with a "C" or better

**Multiple Measures Science 1 (MMS\_1):** High school GPA of 2.6 and successful completion of 1.0 credits of high school lab science course with a "C" or better

**Multiple Measures Reading (MMR):** High school GPA of 2.6 and successful completion of 2.0 credits of high school literature courses with a "C" or better

**Multiple Measures Math 2 (MMM\_2):** High school GPA of 2.6 and successful completion of 2.0 credits of high school math including Algebra 1 and Algebra 2 with a "C" or better

**Multiple Measures Science 2 (MMS\_2):** High school GPA of 2.6 and successful completion of 1.0 credits of high school chemistry with a "C" or better

*Past high school and college transcripts are used in making course placement decisions.*

# COURSE DESCRIPTIONS

## Agribusiness Equipment & Facilities

**10006102.....2 credits**

Examines arrangement and design of efficient farm buildings and equipment as well as construction requirements. Farmstead planning includes mapping of present facilities as well as evaluating usefulness and planning long and short-range goals for farmstead changes to improve economics, safety, efficiency and aesthetics. Environmental factors and animal wellness needs are identified, including space, ventilation, nutrition, and care. Also examines the appropriate use and care of feed, fertilizer, planting and harvesting equipment, and dairy and livestock equipment and facilities. Possible equipment/facility changes are discussed and business expansion is analyzed.

## Agribusiness Financial Analysis

**10006105.....2 credits**

This course provides the student opportunities to develop necessary business skills for operating a successful farm business. These skills involve analyzing, evaluating, creating and decision-making. These skills will be used with balance sheets, Income & Expense projections, cash flow needs, budget creation, benchmarking, cost of production, inventories, credit needs and history along with loan decisions.

## Agricultural Computations

**10006101.....3 credits**

Deals with the application of quantitative tools to support agribusiness management decisions. These management decisions are executed using spreadsheet and data analysis (e.g., Microsoft Excel) while using elementary mathematical tools in an agricultural economics context. This course is designed to prepare students for upper-level agribusiness courses as well as real-world situations in agriculture.

## Agricultural Diesel Engine Systems

**10003101.....3 credits**

Students learn the different uses of diesel engines in an agricultural setting. This course also provides an introduction to fuel systems, exhaust systems, and electrical systems. Use of technical service resources and precision measuring is stressed.

## Agriculture Business Management

**10090101.....3 credits**

Examines the farm business as a complex set of enterprises that all need to be managed effectively to be successful and sustainable. Students learn to develop a business plan, set short- and long-term goals, identify and implement alternatives for reaching goals. Includes strategies and tools to monitor success. Students also learn to organize and maintain farm business records as well as how to interpret and analyze the records to make sound farm management decisions.

## Agriculture Capstone

**10006110.....2 credits**

This project-based course gives students the opportunity to demonstrate technical competency of agribusiness classroom study. The project simulates many of the tasks students are expected to perform as an agricultural professional. A capstone research paper and portfolio will be due at the end of this course.

*Prerequisite: Instructor approval.*

## Agriculture Internship

**10006007.....2 credits**

This course provides an opportunity for students to apply concepts of agribusiness classroom study with specific off-campus real-life agricultural experiences at local employers. An organized plan of experiences built around agriculture competencies is planned, supervised, and evaluated by the instructor and cooperating business supervisor.

*Prerequisites: Admission to the Agribusiness and Science Technology or Agronomy Technician program and completion of at least 12 credits of agriculture course work in the areas of 10006, 10070, 10080, 10090, 10091, or 10093.*

## Animal Nutrition

**10091103.....4 credits**

Includes classification and function of nutrients, deficiency symptoms, characterization of feedstuffs, and formulation of diets for domestic animals. They are also able to successfully understand the digestive processes of mono-gastric and ruminant animals.

## Basic Agriculture Electrical, Mechanical, and Irrigation Systems

**10070103.....3 credits**

Students learn the fundamentals of electrical systems related to agricultural equipment and facilities. This course also builds an understanding of the AC electrical circuits used in today's agricultural businesses. Students use digital multi-meters to diagnose common electrical problems found in agricultural electrical circuits, equipment, and motors. Topics discussed include safety precautions, Ohm's law, generators, batteries, electric motors, water heaters, overcurrent protection, conductor sizing, and national electrical code requirements.

# COURSE DESCRIPTIONS

## College Mathematics ☑

**10804107 .....3 credits**

This course is designed to review and develop fundamental concepts of mathematics in the areas of algebra, geometry, trigonometry, measurement and data. Algebra topics emphasize simplifying algebraic expressions, solving linear equations and inequalities with one variable, solving proportions and percent applications. Geometry and trigonometry topics include; finding areas and volumes of geometric figures, applying similar and congruent triangles, applying Pythagorean Theorem, and solving right triangles using trigonometric ratios. Measurement topics emphasize the application of measurement concepts and conversion techniques within and between U.S. customary and metric system to solve problems. Data topics emphasize data organization and summarization skills, including: frequency distributions, central tendency, relative position and measures of dispersion. Special emphasis is placed on problem solving, critical thinking and logical reasoning, making connections, and using calculators.

*Prerequisite: High School GPA of 2.6 and MMM\_1 or Accuplacer Arithmetic of 250 and QAS 234 or ACT Math score of 17 or Pre-Algebra 10834109 with a "C" or better*

## Developmental Psychology ☑

**10809188.....3 credits**

Studies human development throughout the lifespan and explores developmental theory and research with an emphasis on the interactive nature of the biological, cognitive, and psychosocial changes that affect the individual from conception to death. Application activities and critical thinking skills enable students to gain an increased knowledge and understanding of themselves and others.

*Prerequisite: High School GPA of 2.6 and MMR and MMW or Accuplacer Reading Skills of 236 and Writing of 237 or ACT of 15 Reading/16 English*

## English Composition 1 ☑

**10801136 .....3 credits**

Learners develop and apply skills in all aspects of the writing process. Through a variety of learning activities and written documents, learners employ rhetorical strategies, plan, organize and revise content, apply critical reading strategies, locate and evaluate information, integrate and document sources, and apply standardized English language conventions.

*Prerequisite: High School GPA of 2.6 and MMW or Accuplacer Writing of 262 or ACT English score of 20 or completion of College Reading and Writing 1 10831104 with a "C" or better*

## General Biology

**10806114 ..... 4 credits**

Introduces general biological concepts and principles. Emphasis is on cell structure and function, genetics, evolution, and taxonomical relationships. Consideration is also given to diversity among the various kingdoms.

*Prerequisite: High School GPA of 2.6 and MMS\_1 or Accuplacer Reading Skills of 249 or ACT Reading score of 15*

## Integrated Pest Management ☑

**10093101.....2 credits**

An effective and environmentally sensitive approach to pest management. Learners explore various approaches in integrated pest management (IPM) and gather information on the life cycles of pests and their interactions with the environment. This information in combination with available pest control methods are used to identify the most economical pest management options, with the least possible hazard to people, property, and environment.

## Intermediate Algebra with Applications ☑

**10804118 ..... 4 credits**

This course offers algebra content with applications. Topics include properties of real numbers; order of operations; algebraic solution for linear equations and inequalities; operations with polynomial and rational expressions; operations with rational exponents and radicals; and algebra of inverse, logarithmic, and exponential functions.

*Prerequisite: High School GPA of 2.6 and MMM\_1 or Accuplacer Arithmetic of 263 and QAS 234 or ACT Math score of 19 or QAS of 245 or Pre-Algebra 10834109 with a "C" or better*

## Intro to Agriculture Engineering Technology

**10006104.....3 credits**

Studies engineering concepts and principles as they apply to farm power and machinery, electrical energy and processing, structures and environment, irrigation and drainage, and food engineering. Students are exposed to techniques in design, planning, construction, and performance evaluation.

## Intro to Animal Science

**10091102 .....3 credits**

Introduces the basics of livestock management. Examines management of dairy, beef, sheep, and other common livestock with concentration on nutrition, feedstuff's classification, reproduction, genetics, animal behavior, animal health, and sustainable agriculture practices. Includes basic husbandry and care procedures for animals. A livestock management plan will be created and analyzed.

## Intro to Ethics: Theory & Application ☑

**10809166 .....3 credits**

Provides a basic understanding of the theoretical foundations of ethical thought. Diverse ethical perspectives are used to analyze and compare relevant issues. Students critically evaluate individual, social, and/or professional standards of behavior, and apply a systemic decision-making process to these situations.

*Prerequisite: High School GPA of 2.6 and MMR and MMW or Accuplacer Reading Skills of 236 and Writing of 237 or ACT of 15 Reading/16 English*

## Intro to Precision Agriculture

**10093102 .....3 credits**

Explores agricultural applications of GPS, yield monitoring systems, and mapping. Students learn to interpret maps generated by precision agriculture equipment. Learners experience setup, calibration and operation of equipment/software designed to support the production crop industry.



# COURSE DESCRIPTIONS

## **Intro to Psychology** ☑

**10809198** .....**3 credits**

This science of psychology course is a survey of multiple aspects of behavior and mental processes. It provides an overview of topics such as research methods, theoretical perspectives, learning, cognition, memory, motivation, emotions, personality, abnormal psychology, physiological factors, social influences, and development.

*Prerequisite: High School GPA of 2.6 and MMR and MMW or Accuplacer Reading Skills of 236 and Writing of 237 or ACT of 15 Reading/16 English*

## **Intro to Soil Science**

**10080105** .....**3 credits**

Designed to provide students with fundamental knowledge of soil and soil composition. Includes study of soil types, formation factors, physical properties, biological properties, and basic soil chemistry. Units covering tillage, conservation, pH, soil management, plant nutrients, and fertilizer sources are also included. Students gain the skills required to interpret soil test reports and soil survey maps and recognize qualities of various soil types. Students perform soil sampling, residue measurements, compaction assessments, and soil loss determinations per crop rotation guidelines.

## **Introduction to Food Science**

**10006103** .....**3 credits**

Offers students unique opportunities to learn where their food supply comes from, how the food is produced, and how consumption is met on a global basis. Applying science principles to food production will enhance the student's ability to understand the phenomena of food production.

## **Oral/Interpersonal Communication** ☑

**10801196** .....**3 credits**

Focuses on developing effective listening techniques and verbal and nonverbal communication skills through oral presentation, group activity, and other projects. The study of self, conflict, and cultural contexts will be explored, as well as their impact on communication.

*Prerequisite: High School GPA of 2.6 and MMR and MMW or Accuplacer Reading Skills of 236 and Writing of 237 or ACT of 15 Reading/16 English*

## **Principles of Crop Management**

**10093104** .....**3 credits**

The basic principles and concepts of sound agronomic practices are discussed for corn, soybeans, small grains, and forage crops grown in Wisconsin. All sound agronomy practices are emphasized for each crop area as it relates to cultural and other specific inputs of crop production, environmental factors, and sustainable systems.

## **Speech** ☑

**10801198** .....**3 credits**

Explores the fundamentals of effective oral presentation to small and large groups. Topic selection, audience analysis, methods of organization, research, structuring evidence and support, delivery techniques, and other essential elements of speaking successfully, including the listening process, form the basis of this course. Includes informative, persuasive, and occasion speech presentations.

*Prerequisite: High School GPA of 2.6 and MMR and MMW or Accuplacer Reading Skills of 253 and Writing of 262 or ACT of 21 Reading/19 English or completion of College Reading and Writing 1 10831104 with a "C" or better*

## **Written Communication**

**10801195** .....**3 credits**

Develops writing skills which include prewriting, drafting, revising, and editing. A variety of writing assignments are designed to help the learner analyze audience and purpose, research and organize ideas, and format and design documents based on subject matter and content. Also develops critical reading and thinking skills through the analysis of a variety of written documents.

*Prerequisite: High School GPA of 2.6 and MMW or Accuplacer Writing of 262 or ACT English score of 20 or completion of College Reading and Writing 1 10831104 with a "C" or better*