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**Farm Operations & Management – Crops Program**

**Course Curriculum**

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| **Semester 01**   (Tuition: $2,500  Books: $210-$370) |
| **Course #** | **Course Title** | **Credits** |
| 10-006-116 | Introduction to Soils | 3 |
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| Credits: 3 Lecture Hours: 36 Lab Hours: 36Course is designed to provide the student with fundamental knowledge of soil and soil composition. Students will study soil types, formation factors, physical properties, biological properties and basic soil chemistry. Units covering tillage, conservation, pH and soil management will also be included. Students will gain the skills required to interpret soil survey maps and recognize qualities of various soil types. The student will perform soil sampling, residue measurements, compaction assessments and soil loss determinations per crop rotation guidelines. |
| 10-006-121 | Agribusiness Computer Applications | 2 |
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| Credits: 2 Lecture Hours: 18 Lab Hours: 36Students will develop skills in the use of agricultural applications of computer technologies including: Farmworks; creating and using spreadsheets in Excel; creating and using documents in Word; creating documents in Power Point; using email; using farm financial record keeping programs; using an IPAD and apps; and appropriate social media etiquette. |
| 10-006-160 | Plant Science | 3 |
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| Credits: 3 Lecture Hours: 36 Lab Hours: 36Provides fundamental knowledge of plant components and their functions. Topics include pollinating and propagating plants, germinating seeds, plant nutrients, and factors affecting photosynthesis, respiration, and transpiration. Participants will experience plant components and their functions through the completion of hands-on activities. |
| 10-006-169 | Career Development in Agriculture | 2 |
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| Credits: 2 Lecture Hours: 18 Lab Hours: 36Student will develop individual leadership and employment qualities, in addition to exploring the agricultural industry and available careers. Subjects to be covered include; personal evaluation, goal setting, career opportunities, career exploration, current issues in agriculture, employment preparation, and interviewing skills. Also included are units covering workplace regulations, employment seeking, and motivational styles and techniques. |
| 10-070-104 | Ag Safety, Electrical & Maintenance | 2 |
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| Credits: 2 Lecture Hours: 18 Lab Hours: 36Students will learn skills necessary to help them make general repairs and identify proactive maintenance steps of all types of equipment throughout a farmstead. Safety while performing daily tasks will be included in every unit. Emphasis areas include selecting personal protective equipment, working around cattle, crop storage, farm chemicals and fluids storage, safety awareness of electrical systems both on equipment and around the farmstead, selecting proper tools to perform maintenance procedures, and ATV safety. Students will gain an understanding of viewing the farmstead with a safety focus to recognize farm hazards and being aware of corrective measures that are needed to make the farmstead safe for all personnel on the farm. |
| 31-801-310 | Workplace Communication | 2 |
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| Credits: 2 Lecture Hours: 36 Lab Hours: 18Students apply oral, written, listening, and non-verbal skills to workplace situations. Students discover how to use communication as the key to solving workplace problems, resolving conflicts, working as members of a team, and effectively giving and receiving criticism. Students develop an understanding of diversity in the workplace, harassment issues, and the impact of substance abuse on the job. Prerequisites: Communication 1 (73-851-710), or An undeclared major student. |
| 31-804-305 | Applied Mathematics | 2 |
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| Credits: 2 Lecture Hours: 54Students compute with rational numbers. They make and convert various measurements. Students use formulas to solve problems. They compute dimensions of geometric shapes. Students use statistical tools to represent and analyze data. They analyze various financial situations. Students use basic right triangle trigonometry to solve problems. In each topic area, students solve application problems. |
|  |  | **16** |
| **Semester 02**   (Tuition: $2,160  Books: $330-$500) |
| **Course #** | **Course Title** | **Credits** |
| 10-006-124 | Pesticide Applicator Training | 1 |
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| Credits: 1 Lecture Hours: 18The learner will develop a strong understanding and basis of pest application training techniques, methods and standards used in the industry today. This class prepares students to take the Commercial Pesticide Applicator Certificating and Licensing exam category 1.1 Field and Vegetable Crops for the state of Wisconsin. |
| 10-006-126 | Pest ID & Mgt/Crop Scouting | 3 |
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| Credits: 3 Lecture Hours: 36 Lab Hours: 36The student will learn and develop skills, practices, and principles of identifying and managing pests that are a problem for a variety of common regionally grown agricultural crops. The student will learn control measures and application; proper use and safety measures; how to identify insects, weeds, and diseases in crops; various stages of growth related to timeliness of treatment; and methods of applying control measures. The student will learn principles to follow regarding the different ways of crop scouting. |
| 10-006-180 | Animal Science | 3 |
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| Credits: 3 Lecture Hours: 36 Lab Hours: 36This course provides fundamental knowledge of the animal science field. Topics include animal health, animal environments, anatomy and physiology, genetics and reproduction, animal feedstuffs, and job related safety. Participants will experience animal concepts through the completion of hands-on activities. |
| 32-070-322 | Operations of Field Equipment | 3 |
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| Credits: 3 Lecture Hours: 36 Lab Hours: 72Students learn the operating principles of production equipment used on crop, livestock and dairy farms in southwest Wisconsin. Emphasis is placed on understanding the principle of machine adjustments to achieve optimum efficiency of the machine with the overall goal of reducing downtime during that critical planting and harvesting season. Students will develop a pre-season maintenance schedule based off of equipment used on their farm. |
| 32-070-324 | On-Farm Machinery Maintenance | 1 |
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| Credits: 1 Lecture Hours: 18 Lab Hours: 18Students will develop skills necessary to prepare farm equipment for the upcoming season applying information from the equipment’s owner’s manual to ensure the proper maintenance procedures are used to adjust the machine to achieve the best productivity it was designed for. During this process students will gain knowledge of common lubricants, service requirements, filters, belts, chains and implement drive systems. |
| 32-442-301 | Related Welding | 2 |
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| Credits: 2 Lecture Hours: 18 Lab Hours: 54The student creates weldments in flat, vertical, horizontal, and overhead positions. These weldments will utilize SMAW, MIG, TIG, brazing and oxyfuel. All operations will adhere to AWS Code. |
|  |  | **13** |
| **Semester 03**   (Tuition: $440) |
| **Course #** | **Course Title** | **Credits** |
| 32-080-302 | Farm Operations & Management Internship | 3 |
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| Credits: 3 Lecture Hours: 0 Occupational Hours: 216The student will have the opportunity to apply course work to a practical, on-the-job situation. Goals and task lists are followed. Pre-requisites: Animal Nutrition (10-006-104) or Pest ID & Management/Crop Scouting (10-006-126) or Machinery Maintenance (32-070-323) |
|  |  | **3** |
| **Semester 04**   (Tuition: $2,420  Books: $150-$200) |
| **Course #** | **Course Title** | **Credits** |
| 10-006-113 | Precision Ag Technologies | 3 |
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| Credits: 3 Lecture Hours: 36 Lab Hours: 36Student will study fundamental processes of the Global Positioning System (GPS) with emphasis on its application to agricultural production. Technical aspects of the GPS satellites, differential correction, and hardware will be covered. The specific applications of the technology in agriculture for navigation, mapping, soil management, variable rate technology (VRT), and yield monitoring will be discussed and demonstrated by the student. Student will gain exposure to technology cost, and potential economic benefit of technology application. Student will also be introduced to the operation of Geographic Information Systems (GIS). |
| 10-006-130 | Row Crop Production Management | 2 |
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| Credits: 2 Lecture Hours: 18 Lab Hours: 36Course will provide the student knowledge necessary to plan, produce, protect, harvest, and store commodity row crops commonly produced in Wisconsin. Specific attention will be given to variety selection, seed bed preparation, fertilization, planting, weed control, insect control, disease control, harvesting, drying, and storing of crops. Late season field scouting will be covered. Harvest losses, yield determination, and Integrated Pest Mgt. will also be included. Commodity grading, sample collection, and the calibration of yield monitors will be covered. Field trips will be used to effectively reinforce the material presented in class. Students will demonstrate the ability to perform a crop profitability comparison. |
| 10-006-131 | Forage Crop Production Management | 2 |
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| Credits: 2 Lecture Hours: 18 Lab Hours: 36Course will provide the student knowledge necessary to plan, produce, protect, harvest, and store forage crops commonly produced in Wisconsin. Specific attention will be given to variety selection, seed bed preparation, fertilization, planting, weed control, insect control, disease control, harvesting, and storing of crops. Late season field scouting will be covered. Harvest losses, yield determination, and Integrated Pest Mgt. will also be included. Forage sample collection and quality grading standards will be covered. Field trips will be used to effectively reinforce the material presented in class. Students will demonstrate the ability to perform a crop profitability comparison. |
| 32-070-319 | Forage Equipment | 3 |
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| Credits: 3 Lecture Hours: 36 Lab Hours: 72Students learn the principles of the field operation and reconditioning of hay harvesting equipment. Students learn the different designs of hay cutting equipment and the maintenance procedures associated with the different designs found today. They move through the course to the hay harvesting equipment including small square balers, large square balers, round balers and forage harvesters. Students will learn the repair and field adjustment to the knotters used on small and large square balers, the wrapping options found on round balers and forage harvesters and their headers. |
| 32-070-320 | Grain Harvesting Equipment | 3 |
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| Credits: 3 Lecture Hours: 36 Lab Hours: 72Students learn proper operating procedures, adjust, and maintain many of the different types of harvesting equipment used on modern farms. Students learn the different types of combine construction and how this affects productivity. Students check for field loss and adjust combines to provide maximum efficiency. |
| 32-080-307 | Introduction to Farm Business Management | 2 |
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| Credits: 2 Lecture Hours: 36 Lab Hours: 36This course will cover the financial aspects of managing a farm. Topics of study will include: risk management, business structures, tax preparation, budgeting, balance sheets, cost of production, calculating cash flows, understanding the loan process, and depreciation. Students will use Excel and other computer applications to develop an understanding of topics. |
|  |  | **15** |
| **Semester 05**   (Tuition: $2,250  Books: $30-$40) |
| **Course #** | **Course Title** | **Credits** |
| 10-006-127 | Soil Fertility and Fertilizers | 2 |
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| Credits: 2 Lecture Hours: 18 Lab Hours: 36Course will cover the fundamental and applied principles and concepts of soil fertility and plant nutrition. Attention will be given to the nutrient requirements of the commonly produced agronomic crops of our area. Course will provide the student with the information necessary to plan and produce agronomic crops based on crop needs and available resources. Students will be able to interpret soil test reports and make recommendation based on given information for related crop plants. In-field activities will be used to effectively reinforce the material presented in class. |
| 10-070-101 | Field Application Equipment | 2 |
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| Credits: 2 Lecture Hours: 18 Lab Hours: 36Students learn to operate, recondition and maintain field application equipment such as manure spreaders, fertilizer spreaders and field sprayers used on modern farms and cooperatives. Students learn calibration procedures for liquid and dry fertilizer applicators. They will learn common terminology used when working with control monitors and associated equipment. |
| 32-006-301 | On-Farm Employment Relations | 2 |
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| Credits: 2 Lecture Hours: 36 Lab Hours: 36Introduces topics that relate to employment on a farm. Topics include personality, relationships, decision-making and social relations as they apply to everyday living and working in both family and non-family businesses. Personnel management techniques include: development of goals, determining personnel needs, finding and recruiting the right people, training, performance appraisals, promotions and terminations. Students will also learn about creating handbooks, writing job descriptions, and proper paperwork to have on file for employees. |
| 32-006-302 | On-Farm Nutrient Management Planning | 2 |
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| Credits: 2 Lecture Hours: 36 Lab Hours: 36Students will define reasons for developing a nutrient management plan for farms and the necessary components of a nutrient management plan according the NRCS WI NM 590 standard. Topics discussed will be soil testing, conservation plans, manure management, and management of nutrient credits and applied nutrients (nitrogen, phosphorus, potassium) and pH. Specialized software will be used to create a nutrient management plan. |
| 32-006-303 | On-Farm Commodity Marketing | 3 |
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| Credits: 3 Lecture Hours: 36 Lab Hours: 54Students will learn the operation and use of agricultural commodity markets as it applies to enterprise risk management. Topics include cash markets; futures markets and futures option markets; basis; hedging and forward pricing; price discovery; fundamental analysis; technical analysis and risk management strategies. Students will participate in simulated commodity activities using real-time pricing to practice the concepts taught during the course. |
| 32-080-308 | Advanced Farm Business Management | 3 |
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| Credits: 3 Lecture Hours: 54 Lab Hours: 36The student will be able to evaluate the major strengths and weaknesses of a farm business using income statements, bench marking, and the farm financial ratios. Understanding how to manage the farm for tax purposes along with succession planning will also be covered. Students will also explore various farming enterprises and techniques to manage profit margins. Excel and other computer applications will be used to evaluate a farm business. |
|  |  | **14** |
| **Total Credits: 61** |
| **Estimated Total Tuition: $9,770** |