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ONLINE

AGRONOMY
E-LEARNING ACADEMY

COURSES

Agronomy Essentials
Nutrient Management
Precision Agriculture

UPCOMING SESSIONS

January 11, 2023
June 7, 2023
September 13, 2023

COURSES DELIVERED 100% ONLINE FOR AGRICULTURE PROFESSIONALS.

The business of growing crops has become increasingly complicated in recent years, as agriculture has been challenged with growing demands to increase production while minimizing the environmental impact. New technologies and a knowledge-based future will demand a more thorough understanding of the entire crop production system. We prepare agriculture professionals for the work of tomorrow in a flexible and convenient format.

Courses start every **January**, **June**, and **September.**
If you complete all three courses, you will receive a *Crop Professional Certificate.*

67

CEUs AVAILABLE

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EVERY GIANT LEAP STARTS WITH ONE SMALL STEP

AGRONOMY ESSENTIALS

100% ONLINE
12-WEEK COURSE
25 CEUS*

The Agronomy Essentials course follows the growing season, beginning with a study of soil and land, then proceeding through seed selection, planting, growth, development, nutrients, diagnostics, pest management, harvest, and storage. It is designed for students to complete one unit every two weeks, but students can work ahead as they choose. The course is open for 12 weeks and each unit requires approximately four to five hours of study. Once a student completes a unit and its test, the next unit opens.

> *"GREAT EXPERIENCE OVERALL. COVERING THESE BASICS HAS BEEN EXTREMELY HELPFUL TO MY UNDERSTANDING OF THE FIELD AND MAKES ME FEEL BETTER INFORMED WHEN TALKING WITH CUSTOMERS AND EQUIPMENT DEALERS."*

SYLLABUS

UNIT 1: UNDERSTANDING THE LAND/FIELD PREPARATION

- Soil Texture and Structure, Biological, and Chemical Properties
- Water and Solute Movement in Soils, Irrigation, Drainage Methods
- Site Characterization, Legal Land Descriptions, Understanding Soil and Field Maps
- Tillage and Residue Management, Soil Restrictive Layers
- Soil Conservation, Water and Air Quality

UNIT 2: PLANT NUTRITION/SOIL FERTILITY

- Essential Elements, Plant Functions and The Nitrogen Cycle
- Soil and Plant Nutrient Assessment
- Fertilizers and Manures
- Fertilizer Application, Placement and Timing
- Fertilizer Additives and Soil Amendments

UNIT 3: CROP AND VARIETY SELECTION/PLANTING

- Crop Types and Cropping Systems, Crop Improvement
- Seed Selection and Characteristics of Corn, Soybeans and Wheat Crop Testing
- Planter and Drill Operation
- Corn, Soybean, Wheat and Forage Management Practices
- Precision Farming

UNIT 4: CROP GROWTH/DEVELOPMENT/DIAGNOSTICS

- Corn Growth and Development
- Soybean Growth and Development
- Small Grains and Forages Growth and Development
- Photosynthesis and Plant Growth, Cell and Leaf Anatomy
- Crop Diagnostics and Troubleshooting

UNIT 5: CROP PROTECTION/PEST MANAGEMENT

- Weed Identification and Management Principles
- Insect Identification and Management Principles
- Disease Identification and Management Principles
- Pesticide Application and Stewardship

UNIT 6: HARVESTING AND MARKETING THE CROP

- Crop Harvest, Storage and Quality
- Marketing and Basic Economics

*Certified Crop Advisers are eligible for CEUs

NUTRIENT MANAGEMENT

100% ONLINE
12-WEEK COURSE
24 CEUS*

Managing nutrients is one of the more complicated aspects of producing crops. Agricultural nutrient applications are associated with some of today's most concerning environmental issues, including impacts on water quality and contributions to greenhouse gasses. In addition, crop nutrient expenses are second only to land costs as an overall expense for farmers.

Professionals in many areas of agriculture depend upon understanding soil chemistry and how nutrient management can increase the health and bounty of crop production. Knowledge of nutrients and their management can allow individuals involved in better setting strategies and improving recommendations.

"GREAT COURSE, ESPECIALLY WHEN COMBINED WITH AGRONOMY ESSENTIALS AND PRECISION AGRICULTURE - IT ALL TIES IN TOGETHER."

NUTRIENT MANAGEMENT

100% ONLINE
12-WEEK COURSE
24 CEUS*

SYLLABUS

MODULE 1: INTRODUCTION TO NUTRIENT MANAGEMENT

Essential macronutrients and micronutrients, the 4R concept, adaptive management, nutrient management planning, regulations protecting air and water quality

MODULE 2: SOIL FERTILITY

Nutrient sources, forms in the soil, cations and anions, factors affecting nutrient movement and availability, leaching, mineralization, nutrient interactions

MODULE 3: SOIL ORGANIC MATTER AND MICROBIOLOGY

Role of microbes on nutrient uptake and availability, crop residue and soil organic matter management, use of cover crops

MODULE 4: NITROGEN IN THE SOIL

The nitrogen cycle including mineralization, nitrification, immobilization, denitrification and symbiotic fixation, factors affecting nitrogen trans- formations

MODULE 5: PHOSPHORUS AND POTASSIUM IN THE SOIL

Phosphorus and potassium forms and transformations, soil factors affecting availability to plants

MODULE 6: HARVESTING AND MARKETING THE CROP

Forms and transformations of Calcium, Magnesium and Sulfur, and soil Factors affecting availability to plants

MODULE 7: SOIL PH AND SOIL AMENDMENTS/ SALT AFFECTED

Soil acidity, alkalinity, and salinity effects on crop production, active and reserve acidity, managing soil environments with soil amendments

MODULE 8: NUTRIENT ASSESSMENT AND DIAGNOSTICS

Soil and plant sampling techniques, site-specific sampling, lab tests for soil and plants, types and use of sensors, factors affecting lab and sensor results

MODULE 9: FERTILIZERS AND FERTILIZER ADDITIVES

Fertilizer analyses, characteristics of fertilizer products, field characteristics that affect use, elemental vs. oxide, calculations, use of fertilizer additives

MODULE 10: NITROGEN IN THE SOIL

Sufficiency level, removal/replacement, and nutrient balance approach- es, P-based vs. N-based, how recommendations are derived, probabil- ities of response

MODULE 11: NITROGEN APPLICATION TIMING AND PLACEMENT

Crop response and environmental considerations regarding different Methods of nitrogen applications

MODULE 12: P AND K APPLICATION, TIMING AND PLACEMENT

Crop response and environmental considerations regarding preplant, sidedress, and split applications of Phosphorus and Potassium

*Certified Crop Advisers are eligible for CEUs

PRECISION AGRICULTURE

100% ONLINE
12-WEEK COURSE
18 CEUS*

The application of information technology to crop production has already transformed many aspects of crop production and promises even more. The Precision Agriculture course delves into the technology and techniques of site-specific farming. The course provides knowledge from which practitioners working in agriculture can better understand the science of site-specific farming to help themselves, their customers, and their companies. Each weekly module concludes with a video discussion involving farmers and retailers who are successfully using the technology in their profession.

"DURING THE COURSE, I WAS ABLE TO SEE THE BIG PICTURE OF HOW FARMERS USE DATA TO MAKE DECISIONS, WHICH IS REALLY CRUCIAL IN AGRICULTURE TODAY."

PRECISION AGRICULTURE

100% ONLINE
12-WEEK COURSE
18 CEUS*

SYLLABUS

MODULE 1: INTRODUCTION TO PRECISION AGRICULTURE

Scope and overview of the technologies and their applications

MODULE 2: GLOBAL POSITIONING SYSTEMS

Global navigation systems used around the world, how they work, equipment, factors affecting accuracy

MODULE 3: DIFFERENTIAL CORRECTION

Ground-based and space-based correction systems, levels of accuracy, manual guidance and auto guidance

MODULE 4: SENSORS

Satellite, aerial, UAV, and proximal sensing platforms; active vs. passive sensing; spectral, spatial and temporal resolution; soil, crop and weather sensors

MODULE 5: SOIL & WATER SPATIAL VARIABILITY

Soil formation and change across landscapes, soil mapping technology and utility, precision land management, irrigation and drainage

MODULE 6: NUTRIENT SPATIAL VARIABILITY

Grid and zone sampling approaches, developing management zones, nutrient-specific sensors, equipment for nutrient VRT

MODULE 7: CROP SPATIAL VARIABILITY

Yield monitors for grain and non-grain crops, calibration of monitors, data cleaning, yield map interpretation, yield stability, crop quality sensors

MODULE 8: GEOGRAPHIC INFORMATION SYSTEMS (GIS)

GIS coordinate systems, map scales and standards, capture, storage, editing, analysis, display, image classification

MODULE 9: AUTOMATION

Implement steering, VRT seeding, planter unit controllers, variable hybrid/ variety planting, spray boom and nozzle controllers, boom leveling

MODULE 10: DATA ANALYSIS

Experimental design, data quality, compatibility, privacy, interpretation and correlation, product comparisons

MODULE 11: TELEMATICS

Understanding telematics technology, wireless network applications, product comparisons

MODULE 12: PRECISION FARMING ECONOMICS AND ADOPTION

Cost effectiveness of guidance systems, section controllers, site-specific management in various crops, regions, situations

*Certified Crop Advisers are eligible for CEUs

TAUGHT BY WORLD-CLASS SUBJECT MATTER EXPERTS

BRUCE ERICKSON

PHD, CPAG

DESIGNER AND INSTRUCTOR

Dr. Bruce Erickson is Purdue University's Agronomy Education Distance and Outreach Director. Dr. Erickson completed his undergraduate degree at Iowa State University in agronomy, then began his professional career as an agronomist with Pioneer/Corteva. After completing his Master's Degree at Iowa State University in crop production and physiology and his Doctoral Degree in agronomy at Purdue, Dr. Erickson joined the staff of the Purdue Department of Agronomy.

Dr. Erickson previously served as Senior Technical Designer at Agri-Business Group in Indianapolis. He was Director of Cropping Systems Management and Associate Director of the Center for Commercial Agriculture, where he worked extensively with precision farming and crop production economics research. Most recently, he was the Agronomic Education Manager for the American Society of Agronomy, where he was responsible for the International CCA performance objectives and development of the International CCA Exam, the India CCA Exam, and the Mexico CCA Exam.

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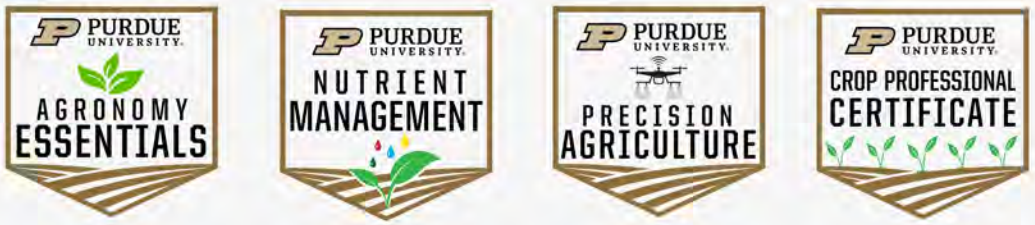
DIGITAL BADGES

Earn a digital badge for each course you complete. Use the badge to set yourself apart and share your verifiable new skills on social platforms and add it to your LinkedIn page.



CROP PROFESSIONAL CERTIFICATE

Complete all three of the online courses and you will receive a personalized, gold foil-embossed framed Crop Professional Certificate in addition to personalized certificates for each individual course.

CONTACT US

For more information about Purdue's Agronomy e-Learning Academy, visit ***purdue.biz/Agronomy*** or email us at ***elearn@purdue.edu.***

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