

Fundamentals in Applied Agronomy

An introductory agronomy course offered by the American Society of Agronomy. This course is divided into four modules: Soil and Water Management, Crop Management, Nutrient Management and Pest Management. Each module contains 3 lessons.

Lectures are approximately two hours. To maximize learning, students will be expected to spend time reading and studying outside of the recorded lesson.

Course Description Fundamentals in Applied Agronomy is an introductory crops and soils course designed for the practitioner hoping to build their knowledge and skills in the topics that are most needed for a Certified Crop Adviser. Upon completion the learner should have a fundamental knowledge of soil and water, nutrient management, pest management, and crop management. Topics include basic soil physical and biological characteristics, resource conservation, irrigation, drainage, water quality, soil and tissue analysis and interpretation, fertilizers and other nutrient sources, soil pH and liming, pest identification, sampling, and control, cropping systems, planting practices, crop growth and development, harvest, storage, and managing production risk, among many others.

The course is taught using distance education technology, but a variety of practical examples and case situations will be woven into content delivery to maximize understanding and its application in the field. Whether you are personally involved in production agriculture, advising farmers as an agricultural retailer or consultant, a representative for an agricultural business or government agency, or just looking to build your expertise, this course will cover topics that should be of direct interest to you. While this course is not designed to teach a student how to take the Certified Crop Adviser exams or to cover all the topics included in local or International performance objectives, it will complement an individual's preparation in becoming a Certified Crop Adviser or Certified Professional Agronomist.

Optional Resource Materials

Preparing for the International CCA Exam <https://store.tfi.org/collections/frontpage/products/preparing-for-the-international-certified-crop-adviser-cca-exam>

Soil Fertility Manual <https://store.tfi.org/products/soil-fertility-manual-bound-with-cover-1>

Field Crop Scouting Manual (University of Illinois) You may order either the CD version (Product Number CDR880e) or the hard copy (Product Number X880e)— <https://pubsplus.uiuc.edu/> For addresses outside of the U.S. you must telephone in your order at (217)333-2007.

Please note: Much of the required reading for this course will be available from Extension and other publications available free on the Internet (see syllabus on the pages that follow).

Quizzes A ten question quiz will be offered after each lesson which must be passed (7 out of 10 or 70%) in order to move on to the next lesson in the module. There will not be a final exam for this course, and grades will not be assigned. A certificate of completion will be available after the module is completed or after the entire course is completed if you purchased the full course.

Certified individuals seeking Continuing Education Units (CEUs) will receive the CEUs after the quiz is passed by scoring 7 out of 10 or 70%. Total CEUs for all four modules for CCAs/CPAGs include 6.0 in Nutrient Management, 6.0 in Soil & Water Management, 6.0 in Pest Management and 6.0 in Crop Management or 24.0 Professional Meetings CEUs for CPSS/CPSC/CST.

Use of Class Materials Registrant agrees that the name indicated on the registration form is the sole individual receiving the on-line instruction and the only person completing the on-line quizzes. Individuals found in violation of this policy will be subject to dismissal from this course, revocation of certification, and possible loss of privileges to participate in future offerings from the American Society of Agronomy.

The PowerPoint presentations, class recordings, quizzes, worksheets, and other materials developed specifically for this class are for the educational purposes and use of students registered for this class. They are not to be copied, forwarded or shared in any way with anyone for any other use without the permission of the American Society of Agronomy.

Syllabus

Module	Topics	Reading Assignment Prior to Class
Soil and Water Management	Lesson 1. Orientation to Class. Soil Chemical, Physical and Biological Characteristics	Preparing for the International CCA Exam, pages 49-80 (see optional texts) Management of Wisconsin Soils Chapters 1 and 2: https://walworth.extension.wisc.edu/files/2018/11/Management-of-Wisconsin-Soils-A3588.pdf Using Web Soil Survey (WSS) (Explore) http://websoilsurvey.nrcs.usda.gov/app/
	Lesson 2. Site Characterization, Soil Conservation, Residue Management	Management of Wisconsin Soils Chapter 5 Managing Crop Residue with Farm Machinery http://www.agry.purdue.edu/ext/pubs/AY-280-W.pdf Public Land Survey System http://dnr.wi.gov/topic/forestmanagement/documents/plsstutorial.pdf
	Lesson 3. Water and Solute Movement, Soil/Plant Water Relations, Irrigation and Drainage	Management of Wisconsin Soils Chapter 3 Available Water Capacity (NRCS) http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051279.pdf
Crop Management	Lesson 1. Cropping Systems, Tillage, Hybrid and Variety Selection	Preparing for the Intl CCA Exam, pages 141-166
	Lesson 2. Seed Quality, Planting Practices, Crop Growth, Development, and Diagnostics	Corn Growth Stages: http://graincrops.ca.uky.edu/files/corn/CornGrowthStages_2011.pdf Growth and Development Guide for Spring Wheat http://www.extension.umn.edu/distribution/cropsystems/DC2547.html
	Lesson 3. Harvest and Storage, Managing Production Risk, Precision Farming	How an Alfalfa Plant Develops http://lib.ndsu.nodak.edu/repository/bitstream/handle/10365/9130/R648_1999.pdf?sequence=1 Soybean Growth Stages https://crops.extension.iastate.edu/files/article/SoybeanGrowthandDevelopment_0.pdf

Module	Topics	Reading Assignment Prior to Class
Nutrient Management	Lesson 1. Basic Concepts of Plant Nutrition and Soil Fertility, The Nitrogen Cycle, Soil pH	Preparing for the International CCA Exam, pages 1-48 Soil Fertility Manual Chapters 1-7 Nitrogen Basics—The Nitrogen Cycle http://nmsp.cals.cornell.edu/publications/factsheets/factsheet2.pdf
	Lesson 2. Liming and Soil Amendments; Fertilizers, Manure, & Other Nutrient Sources; Fertilizer Additives	
	Lesson 3. Soil and Tissue Analysis, Fertilizer Calculations, Nutrient Application	Soil Fertility Manual Chapters 8-11
Pest Management	Lesson 1. Principles of Integrated Pest Management, Identification of Insects, Weeds & Diseases	Preparing for the International CCA Exam, pages 89-131 Field Crop Scouting Manual (see optional texts), Chapter 1
	Lesson 2. Pest Sampling and Monitoring, Decision-Making Guidelines, Pesticide Modes of Action	Field Crop Scouting Manual, Chapter 2 and Weed Keys 2016 Weed Control Guide for Ohio, Indiana and Illinois https://mdc.itap.purdue.edu/item.asp?Item_Number=WS-16-W#.V8XTqTX1KfE Herbicide Mode of Action http://www.bookstore.ksre.ksu.edu/pubs/C715.pdf
	Lesson 3. Pest Management Strategies, Resistance Management, Pesticide Application and Safety	Field Crop Scouting Manual, Chapters 3, 4, and 5 Calibrating Pesticide Application Equipment http://msuextension.org/publications/AgandNaturalResources/MT200914AG.pdf