

# AGR 1313      Plant Science

3 hours credit

Instructor Information can be found in Modules.

## Course Description

An introductory course providing students with an overview of the basic biological principles, scientific relationships, and management practices of plants and their cultivation. The course will provide instruction in environmental, cultural, plant structure, chemistry, genetics, and development of plant production and utilization.

## Textbook Name and ISBN#:

This course uses an ebook, which can be accessed through Red Shelf Course Materials.

McMahon, M and Anton Kofranek and Vincent Rubatzky. 2020. Plant Science. (Sixth Edition). Pearson Education Inc, Hoboken, N.J. ISBN: 9780135184820.

## Instructional Techniques

Weekly module assignments of textbook reading, watching and listening to online video, and discussion of material from assignments.

## Module Lecture Quizzes

Each week you will be required to complete a module lecture quiz on the material covered that week. Each lecture quiz is worth a total of 50 points. The lecture quiz questions will be True or False, Matching, or Short Answer. Links to access each quiz can be found at the bottom of each module overview.

## Module Lab Quizzes

Each week you will be required to complete a module lab quiz on the material covered in that week. These lab quizzes will contain a differing number of questions, but each of these quizzes will be worth 25 points. The lab quiz questions will be True or False, Matching, or Short Answer. Links to access each quiz can be found at the bottom of each module overview.

## Writing Assignments

Each week you will be required to complete a module writing assignment. These assignments will be 1 or 2 open-ended questions relevant to the material covered that week. Each of these writing assignments is worth 10 points. Links to access each writing assignment can be found at the bottom of each module overview.

## Late Assignments

Yes, you may turn in assignments late but turning in assignments early, is always preferred. However, each day your assignment is late, you lose a letter grade. If you have extenuating circumstances, reach out to me and we will discuss your situation.

## Proctored Testing

eLearning courses at ICC require onsite proctored testing, which means students must complete designated assignments in a secured, observable, proctored environment. Proctored testing labs are provided free-of-charge at ICC's Fulton and Tupelo campuses, as well as partner institutions across the state. More information about proctored testing, as well as approved accommodations for out-of-state students and students with documented medical emergencies, may be reviewed by visiting the Proctored Testing Information page in the Course Information module.

## **Attendance Policy**

It is the intent of the Itawamba Community College Board of Trustees that opportunities for student success and the development of personal responsibility be a high priority for the College. One of the key factors in this endeavor is class attendance. In keeping with this intent, Itawamba Community College's faculty maintain attendance records for all classes offered by the College. It is the student's responsibility to attend class.

## **Online Class Attendance**

Students are expected to attend all classes and complete all coursework prescribed by the instructor. For online classes, submission of module assignments constitutes attendance. Attendance is counted from the first scheduled class meeting following enrollment. If a student is absent more than 15 percent of the class time (3 absences), he/she will be dropped from the class. It is the student's responsibility to monitor his/her class attendance to avoid being dropped from the class.

## **All Classes - Class Reinstatement**

A student who has been dropped from class because of excessive absences may request reinstatement to the instructor prior to the next scheduled meeting or assignment due date after the student has been notified of the drop. If the instructor denies admission, the student may appeal to the Dean of eLearning Instruction, or Vice President of Instructional Services, within 24 hours following the request to the instructor.

## **All Classes - Appeals**

Students who are not readmitted to class may appeal the decision to the Vice President of Instructional Services who will convene a committee to hear the appeal if the appeal is not otherwise resolved. The appeal must be made in writing to the appropriate Dean or Vice President of Instructional Services within two school days following denial of readmission. The appeal must include documentation that absences resulted from an emergency or an extenuating circumstance. The decision of the committee may be appealed to the President of the College whose decision will be final.

## **Grading System**

<b>Assignment</b>	<b>Point Value</b>	<b>Total Points</b>	<b>Percentage of Final Grade</b>
Module Writing Assignments (12)	10	120	6%
Module Lecture Quizzes (12)	50	600	30%

Module Lab Quizzes (12)	25	300	15%
Proctor Mid-Term Exam (1)	500	500	25%
Proctor Final Exam (1)	500	500	25%
<b>Total (38)</b>		<b>2,020</b>	<b>100%</b>

### Grading Scale

Letter Grade	Minimum Point Required	Percentage of Total Points
A	1,798 – 2,020	90% - 100%
B	1,596 – 1,797	80% - 89%
C	1,394 – 1,595	70% - 79%
D	1,192 – 1,393	60% - 69%
F	0,000 – 1,191	0% - 59%

### Student Grade Appeal Policy

Review ICC's [Student Grade Appeal Policy \(Links to an external site.\)](#) to learn about the appeal process at the assignment level and course level.

### Make-up Work

Online classes are very flexible and allow students to complete assignments at any time of the day and from most locations. Assignments are made available for a time frame that should allow for timely completion. Missed assignments typically count as an absence and result in a grade of zero. Make-up work should only be necessary for extenuating circumstances and is at the discretion of the instructor. If work is missed, please contact your instructor immediately.

### Academic Honesty Policy

Itawamba Community College is committed to academic honesty and scholarly integrity. Cheating and plagiarism erode the educational and social values of the College and deprive students of knowledge, skills, and character traits valued in the community.

Cheating is the act of deception by which a student misleadingly demonstrates that he/she has mastered information or skills on an academic exercise. Cheating includes, but is not necessarily limited to:

- submitting work that is not the student's own, including papers, assignments, or exams
- supplying or receiving in any way unauthorized information for the preparation of a test, exam, or assignment
- communicating during a test/exam with the intent of copying from or supplying information to another student
- taking a test/exam with the aid of cheat sheets, notes, or other unauthorized assistance
- improperly using technology including copying or receiving information from others, accessing computer files without authority, and altering records

- assisting any person committing an act of academic dishonesty.

Plagiarism is the representation of previously written, published, or creative work as one's own. Examples include, but are not limited to:

- representing any scholarly work of others, such as musical compositions, computer programs, visual arts, as one's own.
- offering as one's own work the words, ideas, or arguments of other persons without appropriate credit
- falsifying bibliographies.

**First Offense:** The student will receive a "0" for the assignment. The student may not drop this grade.

**Second Offense:** The student will receive an "F" for the course.

**Third Offense:** The student will be suspended from the college for two calendar years.

Review [ICC's Academic Honesty Policy \(Links to an external site.\)](#) to learn about what constitutes cheating and plagiarism, as well as the penalties associated with academic dishonesty.

## **Course Outline and Student Learning Objectives**

### **eLearning Orientation Module**

1. Comprehend and understand eLearning policies and procedures.

**NOTE:** Access to the 12 course-modules will NOT be granted until the eLearning Module is completed.

### **Module 1 Chapters 1 and 14 – Plant Science Intro & Soil, Water, and Fertility Management**

1. Discuss the role that plant science has played and continues to play in the world economy and culture.
2. Explain why modern plant scientists take into consideration production efficiency, economic viability, environmental compatibility, and social responsibility when researching the solution to a problem.
3. Describe the importance and principles of research in plant science.
4. Explain why and how land is prepared for growing plants.
5. Describe how improper soil handling degrades soil and how improper handling improves the soil.
6. Explain the practices that improve degraded soil and prevent degradation and conserve soil.
7. Discuss the basic principles and components of irrigation and drainage.
8. Describe how plant nutrition is managed through fertility practices.

### **Module 2 Chapters 2 and 15 – Terrestrial Ecosystems & Integrated Management of Pests**

1. Describe the fundamental importance and relationship of plants and other organisms in terrestrial ecosystems.
2. Describe the different biomes of the world, how they are created, and how they determine what plants grow there.
3. Explain the relationship between natural ecosystems and the ecosystems we create when we grow plants.
4. Explain what influences photosynthetic productivity in natural and cultivated ecosystems.
5. Discuss the impact that cultivating plants have on ecosystems.
6. Explain the foundational concepts of weed science, entomology, and plant pathology.
7. Discuss five major strategies for managing weeds, insects, and diseases and how they can be combined to develop an integrated plant health management (IPHM) program.

### **Module 3 Chapters 3 and 16 – Plants for Human Use & Considerations for Products, Harvest, Postharvest Handling and Marketing**

1. Discuss why plants must be cultivated for human use.
2. Describe the many ways plants are needed and used by humans.
3. Describe how growing plants impact our energy use and carbon footprint.
4. Discuss the factors to consider when doing a site analysis of the area where plants will be grown.
5. Explain the differences between traditional, organic, and sustainable production practices.
6. Describe how environmental factor management applies to growing plants.
7. Discuss the basic principles of harvesting.
8. Describe how quality changes after harvest.
9. Identify strategies to maintain quality after harvest.
10. Explain how the production of crops is linked with consumption through marketing and transport.

### **Module 4 Chapters 4 and 17 – Climate and Agronomic Crops**

1. Describe the factors that create the climate.
2. Explain the interaction between climatic variables and how they vary from location to location.
3. Describe how climate factors influence plant growth and determine what plants can grow in an area.
4. Discuss what can be done to modify climate factors to improve crop growth.
5. Discuss the cultural practices common to nearly all field crops and the reasons behind those practices.
6. List the major field crops grown for food, fiber, fuel, and other industrial uses.
7. Describe the specific cultural practices used for growing many of those crops.

### **Module 5 Chapters 5 and 18 – Soils and Forage Crops**

1. Discuss the concept that soil ecology is a complex system made up of many living and nonliving components.
2. Describe the components that make up a soil ecosystem and how they interact.

3. Describe the factors that influence soil formation and give soil its physical and chemical characteristics.
4. Describe the different types of forage and rangeland crops.
5. Explain the principles of hay and silage growing, harvesting, and storage.
6. Discuss rangeland ecology and the principles of rangeland management.
7. Describe the diverse uses of rangelands.

### **Module 6 Chapters 6 and 19 – Structure of Higher Plants and Vegetable Crops**

1. Define the terminology that describes plant cells, tissues, and organs.
2. Explain the basic functions of plant cells, tissues, and organs.
3. Explain how some of the practices we use to grow plants are directed at specific tissues and organs.
4. Explain how vegetable production benefits society.
5. Discuss the differences between field, tunnel, and greenhouse vegetable production.
6. List the basic steps to successful vegetable production.
7. Describe the basic characteristics of the major vegetable crops.

### **Mid-Term Exam**

- Will encompass Modules 1-6 and provide an opportunity for the student to display the knowledge gained from the first half of the course.

### **Module 7 Chapters 7 and 20 – Stages of Growth & Development and Temperate Fruit Crops**

1. Know the difference between plant growth and plant development and understand ways to measure each.
2. Understand the factors that affect plant growth and development and what the effects are.
3. Understand how those factors can be manipulated to control plant growth and development.
4. Recognize the categories of plant hormones, understand their role in plant growth and development, and how they are used to control plant growth and development.

### **Module 8 Chapters 8 and 21 – Plant Chemistry & Tropical and Subtropical Fruits and Nuts**

1. List the major biochemicals found in plants.
2. Explain how some of those chemicals are formed and some of their uses.
3. Describe how relatively few elements (carbon, hydrogen, oxygen, nitrogen, phosphorus, sulfur) are combined in nearly innumerable ways to create the structures or perform the functions required for plant growth and development.
4. Discuss the principal components of the tropical environment that differ from those of temperate environments, and how they influence the manner in which crop production is undertaken in the tropics and subtropics.
5. Explain the rationale for the adoption of diverse techniques and the manner in which these techniques are employed by small-landholder farmers to optimize crop production systems in diverse tropical environments.



6. Identify leading tropical fruit and nut species produced on both a large scale for export as well as in small settings near the home.

### **Module 9 Chapters 9 and 22 – Genetics & Nursery Production**

1. Explain how the basic concepts of genetics relate to the production and utilization of plants.
2. Describe the common methods of plant breeding and sexual and asexual propagation.
3. Discuss how genetic engineering is used to introduce genetic traits into plants from unrelated or distantly related organisms.
4. List the factors that go into the site and product selection for a nursery.
5. Explain the principles of field and container (including pot-in-pot) nursery crop production.
6. Discuss the importance of and the methods for testing media fertility for container production.

### **Module 10 Chapters 10 and 23 – Cultivated Plants and Floriculture**

1. Explain how plants are named and classified.
2. Use the nomenclature and system of taxonomic classification to identify plants and their relationship to each other.
3. Explain how several crops originated and where they were domesticated.
4. Discuss the importance of saving germplasm from extinction and the global system created to preserve germplasm.
5. Describe the basic greenhouse structure and components.
6. Explain how the greenhouse environment is manipulated to regulate plant growth and development.
7. Discuss the principles of growing several greenhouse crops.

### **Module 11 Chapters 11 and 24 – Photosynthesis and Turfgrasses**

1. Explain the importance of the carbon cycle to life on Earth.
2. Describe the process of photosynthesis and how radiant energy is converted to chemical energy.
3. Explain the process of respiration and how it releases the chemical energy from photosynthesis.
4. Discuss how the carbon cycle relates to practices used in growing plants.
5. Define the terms commonly used in turfgrass science.
6. Explain the principles of establishing and maintaining turfgrasses.
7. Describe the different types of turfgrass and the environmental and cultural requirements of each type.

### **Module 12 Chapters 12 and 25 – Water Relations and Landscape Plants**

1. Describe the forces that move and hold water in the soil.
2. Describe the forces that move water from the soil into and through the plant and into the air.
3. Explain the function of water in plants.

4. List the environmental characteristics that affect the growth of trees, shrubs, and herbaceous plants.
5. Describe how to choose and care for trees, shrubs, and herbaceous plants.
6. Discuss the proper planting of trees, shrubs, and herbaceous plants.
7. Explain the proper maintenance of trees, shrubs, and herbaceous plants.
8. List the names and characteristics of some of the common landscape plants.

### **Final Exam**

Will encompass Modules 7-12 and provide an opportunity for the student to display the knowledge gained from the second half of the course.

## **Gender-Based Misconduct**

Itawamba Community College is committed to providing an environment free from gender-based discrimination and misconduct. Itawamba Community College will not tolerate gender-based misconduct of any kind. For more information, please visit <http://www.iccms.edu/Portals/0/Docs/Information/Publications/StudentGuide.pdf>

### **On-Campus Services**

The College will provide options for interim and ongoing support to students who have experienced any form of gender-based misconduct. These options include, but are not limited to, changes in residential assignments, classroom or employment, no-contact orders, and/or academic support. These services may be accessed through the following offices:

- - - Director of the Tupelo Campus, Student Support Center, Tupelo/Belden, 662.620.5015
    - Director of Housing, David C. Cole Student Services Building, Fulton, 662.862.8232
    - Dean of Students/Title IX Coordinator, David C. Cole Student Services Building, Fulton, Tupelo/Fulton/Belden, 662.862.8271

### **Campus Police**

- - - Fulton Campus Police, Student Activities Center, 662.862.8300 or 662.687.2750
    - Tupelo Campus Police, Student Services Building, 662.620.5300 or 662.687.2751
    - Belden Center Police, Belden Center, 662.407.1570 or 662.687.2752

### **Off-Campus Services**

Additional services such as counseling and medical exams may be accessed off-campus. Referrals may be made by the above-listed offices. If a student wishes for his/her identity and details of the incident be kept confidential, off-campus victims' services and medical services providers can maintain confidentiality.



- - - SAFE (24-hour/confidential) 1.800.527.7233
    - North Mississippi Medical Center (Tupelo) 662.377.3000
    - Fulton Medical Clinic 662.862.5200

**If there is an emergency or to seek criminal remedy, contact 911 or:**

- - - Fulton Police Department 662.862.2299
    - Itawamba County Sheriff's Office 662.862.5575
    - Tupelo Police Department 662.841.6491
    - Lee County Sheriff's Office 662.841.9040

For more information on gender-based misconduct, see Board Policy JCA-R.

### **Supportive Services**

Itawamba Community College's Office of Supportive Services provides services to individuals who are members of special populations. Under the Carl D. Perkins Vocational and Technical Education Act of 1998, special populations include

- Individuals with disabilities;
- Individuals from economically disadvantaged families, including foster children;
- Individuals preparing for nontraditional training and employment;
- Single parents (teens and adults), including single pregnant females;
- Displaced homemakers; and
- Individuals with barriers to educational achievement, including individuals with limited English proficiency.

The Office of Supportive Services coordinators serve as liaisons between instructors, students, and school officials; facilitate student learning, and assist students with the transition from school to work.

### ***Americans with Disabilities Act***

In accordance with section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 (ADA), a student with a documented disability may apply to the Office of Supportive and Disability Services for accommodations. Assistance and information on the Fulton Campus may be obtained in the Student Services Building (662.862.8173) or on the Tupelo Campus, Student Support Building (662.620.5314).