



PLS 381, Crop Physiology

COURSE SYLLABUS: FALL 2022

INSTRUCTOR INFORMATION

Instructor: Desire Djidonou, (Dr. D), Assistant Professor – Urban/Sustainable Horticulture

Office Location: AgIT 248

Office Hours: F 12 – 1 pm; (AgIT); or by appointment

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Preferred Form of Communication: email

COURSE INFORMATION

Time & location: Asynchronous Web-based.

Materials – Textbooks, Readings, Supplementary Readings

Required Text

Plant Physiology and Development, 6th Edition. 2015. Lincoln Taiz, Eduardo Zeiger, Ian M. Møller, and Angus Murphy. Sinauer Associates.

There is a web site associated with this text, which has additional readings. See: www.plantphys.net.

Other Useful Book

Hopkins, W. G. and Norman P. A. Huner. 2007. *Introduction to Plant Physiology* 4th edition. Copy of this book will be uploaded on the course webpage in D2L.

Course Description

This course introduces the students to the fundamental processes that contribute to plant growth and development, including water relations, nutrient absorption, photosynthesis, respiration, phloem translocation and carbohydrate partitioning, and hormonal regulation. Overview of growth-limiting abiotic stresses (temperature, water deficit, nutrient deficiency) are also covered in detail.

Prerequisites: PLS 1315 or PLS 1307.

The syllabus/schedule are subject to change.

Student Learning Outcomes

When successfully completing this course, the student will be able to:

1. Describe the physiological mechanisms occurring in plant at the cellular, leaf, and whole-plant levels.
2. Demonstrate a comprehensive understanding of how these various mechanisms are integrated to form a functional plant in term of growth, development, and crop productivity.
3. Explain the physiological basis of reduction in crop growth and yield caused by various environmental stresses, including high and low temperatures, water deficits, and nutrients.

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Basic knowledge of Microsoft office (Word, Excel, and PowerPoint) and familiarity with D2L. Students will need reliable internet access to retrieve course materials and complete online quizzes and exams if needed.

Instructional Methods

Lectures: This is a lecture-based course with no laboratory activity. The lecture materials (PowerPoint slides, video recording, and additional reading materials) will be made available on the course D2L page for students to download.

Student Responsibilities

Expectation of Students

1. Students are expected to review course materials within two days after being posted on D2L to follow the course progress;
2. Completion of homework assignments, quizzes, and exams by the due dates;
3. Late submission of assignments or make-up of quizzes, exams and other work in this course will only be allowed for legitimate, pre-excused absences.

ASSESSMENTS and GRADING

Course evaluation

Exam 1	100 points
Exam 2	100 points
Exam 3	100 points
Quizzes.....	100 points
Homework Assignments.....	50 points

Exams: (Multiple Choice, T/F, Matching, Short Answer, Critical essay): There will be three one-hour exams. The exams will include material from lecture and additional reading assignments. A study guide will be provided prior to each exam. Exam dates are given below in the tentative semester schedule.

Quizzes: There will be 3 to 4 quizzes between exams. All quizzes will be available online for 48 hours in the D2L portal. The quiz will involve short questions to evaluate student learning of each complete chapter.

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Homework assignments: 1-2 questions will be given each week throughout the semester to be answered using reading materials and/or other sources. Homework assignments will be posted on D2L and due by the following lecture.

Grade Assignment

Letter grades for the course will be assigned according to the chart below:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

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COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Attendance to lectures and lab activities are required unless ill.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](#).

<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: <https://www.britannica.com/topic/netiquette>

TAMUC Attendance

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

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Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Gee Library- Room 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: studentdisabilityservices@tamuc.edu

Website: [Office of Student Disability Resources and Services](#)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.tamuc.edu/counsel

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

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Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

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COURSE OUTLINE / CALENDAR

Lecture Schedule

Week	Date	Lecture Topic	Relevant Readings
UNIT 1: Transport and Translocation of Water and Solutes			
1	Aug 29 – Sep 02	Course introduction and syllabus review	-
		Water in Plant Life	Chapter 3
2	Sep 05 – 09	Whole Plant Water Balance	Chapter 4
3	Sep 12 – 16	Mineral nutrition	Chapter 5
		Nutrient Absorption/Transport	Chapter 6
UNIT 2: Photosynthesis and Respiration			
4	Sep 19 – 23	EXAM 1	Chapter 3-6
		Photosynthesis: Light Reactions	Chapter 7
		Photosynthesis: Carbon Reactions (C ₃ , C ₄ , and CAM)	Chapter 8
5	Sep 26 – 30	Factors Affecting Photosynthesis	Chapter 9
6	Oct 03 – 07	Respiration – Glycolysis, Citric Acid Cycle	Chapter 12
		Respiration – Electron Transport / ATP Synthesis	Chapter 12
7	Oct 10 – 14	Factors Affecting Respiration	Chapter 12
		Phloem Transport – Source-Sink Relations	Chapters 11
8	Oct 17 – 21	Nitrogen Assimilation	Chapter 13
		Lipids Assimilation	Chapter 12
9	Oct 24 – 28	EXAM 2	Chapter 7-9, 11-13
UNIT III – Regulation of Growth and Development			
10	Oct 31 – Nov 04	Cellular Basis of Growth and Development	Chapter 14
11	Nov 07 – 11	Plant Hormones – Auxin, Gibberellins, Cytokinins, Abscisic Acid and Ethylene	Chapter 15, 10
12	Nov 14 – 18	Photomorphogenesis – Phytochrome	Chapters 16
13	Nov 21 – 25	No Class (Thanksgiving Break)	
14	Nov 28 – Dec 02	Regulation of Flowering in Crop Plants	Chapter 20
15	Dec 05 – 09	Plant response to environmental stresses	Chapter 24
16	Dec 12 – 16	FINAL EXAM	

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