

## **PSS 4553/6553 PLANT GROWTH AND DEVELOPMENT SYLLABUS Fall Semester 2018**

An ACCEPtS class available to students at the University of Arkansas, Louisiana State University, Mississippi State University and Oklahoma State University.

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**Office Hours:** I check e-mail and class information often when I am in the office (8 a.m. to 5 p.m., Monday-Friday). I infrequently check e-mail on weekends. If you want to reach me at a specific time, it is best to set up an appointment via e-mail prior to the time you would like to have the virtual meeting. Students may make an appointment for meeting via phone or SKYPE™. Please feel free to email questions to me at any time.

**Credits:** You will receive 3 semester credits for this course.

**Required Text:** Srivastava, L.M. 2001. Plant Growth and Development Hormones and Environment. Academic Press, San Diego, Calif.

**Required Text:** Steeves, T.A. and I.M. Sussex. 1990. Patterns in Plant Development. Cambridge University Press, New York.

The text book is difficult to find as a printed copy. You can access the textbook FREE electronically from the MSU Library by logging into the book using your MSU NetID and MSU Password if you are off the MSU campus. If you are on campus, you may not need to log in. You can get to the book using the URL below or from the Canvas course homepage. The eBook Plant Growth and Development is available at:  
<https://login.proxy.library.msstate.edu/login?url=http://www.sciencedirect.com/science/book/9780126605709>.

This syllabus, related course information, and announcements can be also be found on the internet at the following location: <https://canvas.msstate.edu> or <https://my.msstate.edu/>

There will be no formal scheduled classroom meeting time for this class.

### **Course Description and Objectives:**

This is an online course offering and is part of the Alliance for Cooperative Course Exchange in the Plant Sciences (ACCEPtS). This course will focus on environmental and developmental processes of plant growth and development. A student completing this course should have an understanding of the developmental processes of plant growth and how environmental factors interact to affect and control plant growth and development.

**Expected Learning Outcomes:**

The successful student will be able to:

1. explain how specific plant organs develop as the plant grows from an embryo to a flowering plant.
2. interpret how photoperiod, temperature, light, wind, and other environmental factors affect plant growth and development.
3. In addition, graduate students completing this course will be able to construct a literature review on a current problem in plant growth and development.

**Grading Policy:**Component & Point Value

Section Quizzes - 120

Assignments/Discussion - 100

Pre-Test - 10

Exam I - 100

Exam II - 100

Final Exam - 150

Literature Review Paper (graduate students) – 200 total points

    Abstract - 50

    Introduction - 50

    Review of lit - 100

**Total points = 580/780** (undergrad/graduate students)

**Grading scales**

<u>Grade</u>	<u>MSU, OSU, UArk</u> <u>Undergraduate</u>	<u>MSU, OSU, UArk</u> <u>Graduate</u>	<u>LSU</u> <u>Undergraduate and Graduate</u>
A+			97.0 – 100%
A	90.0 – 100%	92.0 – 100%	94.0 – 96.9%
A-			90.0 – 93.9%
B+			87.0 – 89.9%
B	80.0 – 89.9%	82.0 – 91.9%	84.0 – 86.9%
B-			80.0 – 83.9%
C+			77.0 – 79.9%
C	70.0 – 79.9%	72.0 – 81.9%	74.0 – 76.9%
C-			70.0 – 73.9%
D+			67.0 – 69.9%
D	60.0 – 69.9%	62.0 – 71.9%	64.0 – 66.9%
D-			60.0 – 63.9%
F	Below 59.9%	Below 62%	Below 59.9%

All exams will be comprehensive!

**Major Exam Schedule and Assignment Due dates:**

Exam 1: Week of September 24

Exam 2: Week of October 29

Final Exam: Week of December 3

Literature Review Paper: November 2 (graduate students)

**Class time/organization:** This class is administered online. Mississippi State University's Canvas will be used as the course management system and those students at other ACCEPtS Universities will be provided a MSU NetID to access Canvas system. All course materials necessary for this class will be posted on Canvas. Lectures are recorded and stored on Canvas; lecture topics are provided on a weekly basis. Students are responsible for following posted lectures, quizzes and assignments each week. All quizzes and exams will also be administered through Canvas unless otherwise specified. You will need your MSU NetID to access Canvas. If you have difficulties logging in, you can get help through the IT Help Desk <http://www.its.msstate.edu/Services/report-problem.php> or (662) 325-0631.

### **Quizzes and Exams:**

Please complete the pre-test for the class prior to completing the first quiz or by the deadline posted on Canvas. You will receive 10 points for completing this assignment.

There will be online quizzes for each topic which every student must complete. This is designed to help students keep up with lecture topics. Quizzes are administered online through Canvas and can be taken at any time during the week within the given time slot (quizzes will be open for a 7 day period unless specified otherwise). Students will have only one attempt per quiz.

In addition, there will be 3 online proctored exams for the course. The exams will be time limited and available for a specific period of time. The exams will include multiple choice, true/false, matching, and short answer essay questions. All exams will be comprehensive. Failure to complete exams during the scheduled time period will result in 0 points unless previously discussed with the instructor. See course schedule for quiz and exam dates.

### **Assignments/Discussion:**

Each topic covered will have short assignments to assist the learning process. Many of these assignments will involve posted discussion questions using the discussion board.

**Discussions:** Discussions will cover specific questions, ideas or concepts that relate to the lecture topic of that week. Each specific discussion is designed to enhance learning. Each discussion will be open for the period of time we are on that topic, usually for that lecture week. Students **MUST** participate in online discussions. Students are required to post a response to the discussion question AND review and discuss another classmates' response as well (2 posts). You will be graded for your initial response and your discussion of your peers' responses. You are expected to address the topic in a meaningful way. An example of input that is NOT meaningful is "I agree with John's comments". Your comments should expand our way of thinking or knowledge of the topic.

**Discussion Board and Email netiquette:** Please be courteous in your correspondence for this course. Note that USING ALL CAPITAL letters is the net equivalent to shouting and should not be used. The use of profanity or inappropriate language will not be tolerated. Always include a subject in the subject line to identify the purpose of your message. The lack of a subject may result in deletion of the message as possible spam. Keep in mind we are all busy people and I may not be online at the same time you are. I will make a reasonable effort to respond to your messages within one working day of your posting /emailing.

**Course Progress and Participation:** It is especially important students treat this course as a regular course by setting aside a regular time to study the course content and complete weekly quizzes as well as participate in the discussion questions. Students who do so learn more and perform better on exams than students who fail to regularly read and work on the course content. Be sure to pay attention to weekly quiz deadlines and exam dates as well as deadlines for assignments and discussion questions. These will help to keep you moving through the course material and up to date.

**Failure to complete assignments on time** will result in a 0% grade for those activities. Unless an advisor's (in the case of a conflicting university-sponsored activity) or physician's statement (in the case of illness) is provided regarding such failures. NO late work will be accepted.

**Cheating and Plagiarism (Honor Code):**

There will be zero tolerance for cheating, plagiarism, or other academic misconduct according to the Mississippi State University Academic Honor Code <http://www.honorcode.msstate.edu/>. This honor code will pertain to **all** students enrolled in Plant Growth and Development.

*“As a Mississippi State University student I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do.”*

– Mississippi State University Honor Code

**Title IX**

MSU is committed to complying with Title IX, a federal law that prohibits discrimination, including violence and harassment, based on sex. This means that MSU's educational programs and activities must be free from sex discrimination, sexual harassment, and other forms of sexual misconduct. If you or someone you know has experienced sex discrimination, sexual violence and/or harassment by any member of the University community, you are encouraged to report the conduct to MSU's Director of Title IX/EEO Programs at 325-8124 or by e-mail to [titleix@msstate.edu](mailto:titleix@msstate.edu). Additional resources are available at <http://www.msstate.edu/web/security/title9-12.pdf>, or at <http://students.msstate.edu/sexualmisconduct/>.

**Student Support Services**

Students who need academic accommodations based on a disability should visit the Office of Student Support Services, 01 Montgomery Hall, call 662-325-3335, or visit the website at [www.sss.msstate.edu](http://www.sss.msstate.edu). If you have a documented disability requiring academic accommodations, please notify the instructor as soon as possible. In order to receive accommodations in this course, you must provide a Letter of Accommodation from Student Support Services or have them notify the instructor for coordination of campus disability services available to students with disabilities.

**Other Important Notes:**

Students should plan to set aside specific study times for this class. Students who are most successful with this type of class typically have established times that they devote to the class. Don't wait until the day before assignments and quizzes are due to study the content. Students should be sure to stay on schedule.

Examinations will be proctored by the student's home institution or as arranged with the instructor prior to exams. Students will be notified as to the date, time and location of the examinations.

Any student found to be using unauthorized materials during an examination (e.g. notes, text, cell phones, etc.) not specifically permitted by the instructor or found assisting other students during examinations will receive a grade of "0" for that examination and may be subject to further disciplinary actions by the University.

If you need an accommodation due to a disability, please make arrangements to discuss this with me during the first two weeks of class.

We will follow each University's inclement weather policy in regard to the written examinations. However, weather will not affect the schedule for learning units and self-exams. Students know the schedule in advance and should plan accordingly.

### **GRADUATE STUDENTS:**

You will be responsible for collecting information and organizing that information into a composed Literature Review. **The writing assignment must be turned in via the assignment link in Canvas.** Due dates are posted on the course calendar. A grading rubric for the assignment will be posted to the Canvas website.

### **Writing Assignment:**

The writing assignment for this class is a Literature Review on a topic related to Plant Growth and Development. The Literature Review will be composed of 1) Abstract, 2) Introduction and 3) Review of Literature.

### **Research Paper:**

#### **Abstract**

*Objective:* To summarize your review of literature in a concise paragraph and compose the abstract, introduction and review of literature into one complete Literature Review paper.

*Assignment:* Each graduate student will write an abstract to accompany the research paper introduction and literature review. The abstract should include the following:

Introduction: about 1 sentence

Body of Evidence: (summarize the literature review)

Conclusions: 1 to 2 sentences

The entire abstract for this assignment should be no longer than 350 words (½ to 1 page).

#### **Introduction**

*Objective:* To prepare a well composed introduction to the literature on a given plant growth and development problem.

*Assignment:* Each graduate student is expected to compose a 1 to 2 page introduction to the literature on a topic related to plant growth and development. The introduction should contain the following:

Statement of the problem: 1 paragraph

Purpose/Justification of the study (why is it a problem?): 2 paragraphs

Study hypothesis: 1 to 3 sentences

Objectives: 1 paragraph with listed objectives and goals for the review of literature section

The introduction should be short, no longer than 1 to 2 double-spaced, typewritten pages.

### **Review of Literature**

*Objective:* To assimilate the research literature on a specific plant growth and development problem into a single paper summarizing what is known or has been researched one “story”.

*Assignment:* Each graduate student will be expected to write a review of literature examining a specific growth and development problem. The review of literature should use a minimum of 6 to 10 refereed, scientific research papers.

The majority of the articles reviewed should be from within the last 10 years if possible. It is expected you will go beyond writing a simple summary for each of the papers you review. You should critically read the respective papers on your topic and write a review of the topic. The purpose of the review paper is for you to demonstrate you can gather the significant scientific research papers on a given topic and to present and discuss the important points of the papers reviewed. The literature reviewed should be from scientific journals. Be sure to correctly cite all literature used in writing the review paper and properly cite all author(s) for each fact reported. The length of the Review of Literature should be between six (6) and twelve (12) double-spaced pages maximum.

### **Paper format information:**

All papers should be typed double-spaced with 1 inch margins on all sides in a 12pt or equivalent font. You are expected to carefully proof your papers for grammar and spelling. A copy of the paper you turn in will be retained for my records.

Due date for the paper is posted on Canvas and must be turned in by 11:59 pm on the day it is due. Papers not turned in by the due date will lose 5% of their respective possible grade unless arrangements have been made with the instructor before the due date. Any paper not turned in within one week of the due date will lose 10% of the possible grade. Papers not turned in within two weeks of the due date will not be accepted for credit, but must still be completed and turned in to the instructor in order to pass the course.

**Learning Units will include but are not limited to the following:**

Course Introduction

Embryogenesis

    Dicots

    Monocots

Gymnosperms

Seed Germination

    Stages of germination

The Shoot Apex

    Functional organization

    Annual, Biennial, Perennial growth

Organogenesis of the Leaf

    Initiation

Development of the Shoot System

    Shoot expansion

    Regulation of elongation

    Light quality on elongation

    Dormancy - daylength effects

Dormancy

    Seed dormancy

    Bud dormancy

    Control of dormancy

Reproductive Development

    Morphology

    Development of the floral apex

    Stages of reproductive development

        Induction

        Initiation

        Development

Juvenility

Photoperiodicity

Fruit growth

Light influence on growth

    Morphology

    Physiology

Tropisms

    Phototropism

    Thigmotropism

    Gravitropism

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