

The Molecular Biology of Plant Hormones



Course #:
HOS5306

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HOS 5306 Course Syllabus

Lecture Outline: (based on 3 class periods a week)

Lecture

- 1 Organization, Housekeeping items.
What is a plant hormone?
- 2 - 4 Introduction (defining the issues,
descriptions of techniques used)
- 5 - 7 Auxins
- 8-10 Cytokinins
- 11-16 Ethylene
- 17-20 Salicylic acid/Jasmonic acid
- 21-24 Abscisic acid and Gibberellins
- 25-27 Apocarotenoids
- 28-30 Integration of hormone signals
- 31-34 Practical aspects of hormones
- 35 Review
- 36 Final Exam

Course Objectives

An in-depth review of the current status of plant hormone research. All aspects of plant hormones including biochemistry, genetics, and molecular biology will be considered in the context of an overall scheme of how plants use the various hormones to integrate developmental and environmental signals. Practical aspects of plant hormones will be discussed to illustrate how basic research impacts modern agriculture. Also, key research papers will be discussed. The course is organized into modules. Each module will start with a lecture on the basic aspects of the topic. Subsequent class periods will then be focused on primary literature. Students will be assigned papers to be discussed in a "journal club" format. Upon completion of the course, the student should be familiar with the state of the art for all of the major plant growth regulators.

Course Prerequisites

Students must have completed undergraduate level courses in molecular biology/genetics and plant physiology and should be capable of reading and understanding research papers.

Grading

Grading will be accomplished by equally averaging the scores from the final exam and a grade assigned based on presentation and discussion of assigned papers.

100-92 A
92-89 B+
88-82 B
81-79 C+
78-72 C
71-62 D
below 62 F

The exam will consist of short essay questions designed to make the student integrate the lecture materials with the reading assignments and draw conclusions based on the materials. Class attendance is mandatory. Excessive absences will result in lower grades. Make-up exams will be administered only in the case of a justified absence.

Readings [Link to Course Papers](#)

There is currently not an up-to-date text appropriate for the course. However, "Biochemistry and Molecular Biology of Plants" by Buchanan, Gruissem, and Jones (ISBN -0-943088-39-9 is an excellent background book well worth the cost to anyone seeking a career in plant biology. There will also be 2-3 assigned articles from the primary literature for each module. These will be chosen prior to the start of the semester. Choices will vary with each year. The object will be to pick "hot" papers illustrating new concepts/discoveries to supplement the textbook. Students should come to class ready to discuss each paper. One student will be assigned as a discussion leader.

The fine print

University of Florida Counseling Services: On-campus resources are available for students having personal problems or lacking clear career and academic goals which interfere with their academic performance. These resources include:

- University Counseling Center, P301 Peabody Hall, 392-1575
- Student Mental Health, Student Health Care Center, 392-1171
- Center for Sexual Assault/Abuse Recovery and Education, Student Health Care Center, 392-1161, enter 6
- Career Resource Center, Reitz Union, 392-1601
- Campus Alcohol and Drug Resource Center, P202 Peabody Hall, 392-1261

Academic Honesty:

The University of Florida requires all members of its community to be honest in all endeavors. Cheating, plagiarism, and other acts diminish the process of learning. When students enroll at UF they commit themselves to honesty and integrity. Your instructor fully expects you to adhere to the academic honesty guidelines you signed when you were admitted to UF.

As a result of completing the registration form at the University of Florida, every student has signed the following statement: "I understand the University of Florida expects it students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University." Furthermore, on work submitted for credit by UF students, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." It is to be assumed all work will be completed independently unless the assignment is defined as group project, in writing by the professor. This policy will be vigorously upheld at all times in this course.

Software Use:

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.