

Introduction to Plant Microscopy Introduction to Molecular Techniques

These courses will be arranged in two “modules,” each worth 1 credit hour. Students may register for one or both modules (= one or two credit hours of PLP 6905, respectively). Please see Ms. Gail Harris in Fifield 1453 to register. Students must register at the beginning of the semester, even for the second module!

Instructor / facilitator: Dr. Carol Stiles, Rm. 2415 Fifield Hall, 392-3631, x. 382, cstiles@ufl.edu
Several guest speakers will be presenting various topics to introduce molecular techniques in the second module (2nd half of the semester).

Class Time: The modules will meet for one two-hour session per week, Monday, period 8 and 9 (3:00 – 4:55 p.m.) in Rm. 2306 Fifield Hall. The Plant Microscopy module will meet from Aug. 29 – Oct. 17, the Molecular Techniques module will meet from Oct. 24 – Dec. 5.

Grading - 100 points for each module (credit hour):

Quizzes and participation: 50 points
Assignments and projects: 50 points (See below for specific projects in each module)
A = 90 – 100%, B = 80 – 89.9%, C = 70 – 79.9%, D = 60 – 69.9%, Below 60% = E

UF COUNSELING SERVICES: Resources are available on campus for students having personal problems or lacking clear career and academic goals which interfere with their academic performance. These resources include: 1. University Counseling Center, 301 Peabody Hall, 392-1575, personal and career counseling; 2. Student Mental Health, Student Health Center, 392-1171, personal counseling; 3. Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161, sexual assault counseling; and 4) Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.

ACCOMMODATION: Students requesting classroom accommodation must first register with the Dean of Students Office (Students with Disabilities Office, Peabody 202 at 352-392-1261). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. Further information is available from the Disability Resource Center at <http://www.dso.ufl.edu/drp/>.

Attendance / Participation:

Attendance is required at all sessions; unexcused absences will be reflected in the “participation” grade for the course. If it is necessary for you to miss a class, please contact me as soon as possible – in advance for planned absences (i.e., university-related activities). Please note that it may not be possible to make up labs, if fresh material is used and due to the busy schedule of the teaching lab. It is the student’s responsibility to obtain notes and handouts, if class or lab is missed. Please follow guidelines for appropriate microscope use, be responsible for equipment that is checked out to you for use in the laboratory, treat books and references available during class with respect and care, and “clean up” after yourself. Failure to do so may result in the loss of use, and/or loss of points on the laboratory notebook portion of the class. Please do NOT remove reading materials or references from the teaching lab, the Plant Pathology library, or the Plant Medicine student office.

Plant Microscopy Module: Aug. 28 – Oct. 16, 2005

Each student will make a **collection** of microscopic slide specimens of a plant host of their choice and develop a **lab notebook** with observations of these tissue specimens. (Plant host must be readily available locally and obtained by student; some limited material will be provided for the class topics.) The slide collection should include good thin sections of leaf, stem, root tissue, and epidermal peel, and other slide preparations. Students can compare healthy and diseased tissues, but the course will primarily focus on the healthy plant to develop good microscopic and observational skills. Although brief introductions to various plant tissues (see schedule) will be provided, much of the focus of this course will be on individual and small group learning: thus, what each student gets out of the course will be proportional to what he / she puts into it. **Note:** Students who need extensive plant anatomy training for research projects should take BOT 5225C Plant Anatomy.

Text: student should obtain a good botany text or reference which covers basic plant anatomy. Suggestions will be made during the first class period, and some general texts and references will be available during the lab periods. Students may also need to use the botanical literature for specific plant hosts (individual projects).

Week		
Aug. 29	Introduction / orientation – topics: Student introductions; basic lab safety Pre-quiz: plant anatomy / microscopy Introduction to Microscopy (CD-ROM) Free-hand vs. prepared thin sections Intro to student projects	Assignment: CD-ROM!
Sep. 5	<i>Labor Day – holiday!</i>	
	<u>Plant Microscopy module</u>	
Sep 12	Plant organization and differentiation – cells, tissues, organs; Cytology – healthy vs. infected	
Sep 19	Root anatomy	
Sep 26	Stems and leaves	
Oct. 3	Modified structures – stolons, rhizomes, etc.	
Oct. 10	Woody tissue anatomy – roots and stems;	Projects due!
Oct. 17	Lab practical / post-quiz , course evaluation, wrap-up.	

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Molecular techniques module: Oct. 24 – Dec. 5, 2005

The objective of this module will be to provide background and theory of various molecular technologies currently in use in the field of plant pathology. The purpose of this course is to provide a basic understanding of these technologies, so that students will be able to better understand the plant pathological and other scientific literature used in plant pathology courses. **NOTE:** Students who will be using molecular techniques in their research programs should take more in-depth courses, such as PCB 6528 or workshops available from ICBR, www.biotech.ufl.edu.

A series of guest speakers will present the topics below. Each student will choose two papers from current issues of *Molecular-Plant Microbe Interactions* (or other journal which publishes molecular-based plant pathological research). Students will write a one to two page **summary / critique** of one of these papers, and will **present** a quick summary (5-8 minutes) of the other paper during the last class period. Some other reading / references may be provided.

Oct. 23	Pre-quiz; Review of basic genetics – C. Stiles Replication, transcription, translation Immunological techniques	
Oct. 30	Molecular technologies – H. Bowman Extraction and purification PCR Restriction Enzymes → molecular cloning Southern and Northern blots Gene libraries	
Nov. 6	PCR and other techniques – lab trip (TBA)	
Nov. 13	Applications of molecular technologies Transcript profiling - microarrays – J. Rollins Molecular markers – L. Smith - phylogeny, population genetics, breeding	
Nov. 20	Protein – protein interactions Yeast two-hybrid analysis – TBA	
Nov. 27	Gene functional analysis - J. Rollins, J. Jones Genomics – J. Rollins Web resources; bioinformatics	
Dec. 4	Post-quiz; Student “quick presentations” Course evaluation and wrap-up	Critique due!

Information for Students for Syllabi / Course Policy

ACADEMIC HONESTY: Please read through the following websites. *If you are not sure what constitutes plagiarism, please contact the instructor before starting your project.* Please note that quoting or paraphrasing extensively without citation, or excessive reliance on a single source (e.g., copying and pasting extensive information from internet sources, even with citation) can be considered types of plagiarism. If you are not sure how to extract information from scientific sources, interpret and summarize this information, and write professional scientific papers, etc., then please consult your instructor and/or professor(s) before beginning your work!

University policy regarding "Standard of Ethical Conduct" is available from the UF Student Guide at: <http://www.dso.ufl.edu/judicial/academic.php>

Further information on academic honesty and integrity is available from the Graduate Student Handbook, p. 48, available from a link online at: <http://gradschool.rgp.ufl.edu/students/introduction.html>

UF ACADEMIC HONESTY / Honor Code: As a result of completing the registration form at the University of Florida, every student has signed the following statement: "I understand that the University of Florida expects its 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." We agree to comply with the new Honor Code, which specifies that "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."

UF Policy On E-Mail: Official University business email will be communicated to students using the University GatorLink email account. That is, official email will be sent exclusively to GatorLinkUserName@ufl.edu. This is the email address displayed in the online phonebook. It is the student's responsibility to insure that the e-mail address is maintained so that they receive official communications from the University.

SOFTWARE USE / COPYRIGHT: 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.