

PLPA 2001 - INTRODUCTORY PLANT PATHOLOGY

Spring Semester 2015

3 credits

Spring Semester

Department of Plant Pathology

College of Food, Agricultural and Natural Resource Sciences

University of Minnesota

Course Prerequisites: General Biology (BIOL 1009) or equivalent

Instructor: Ruth Dill-Macky

Laboratory Coordinator: Todd Burnes

Teaching Assistant: Joshua Havill

Lectures

Time: 10:40 am - 11:30 am, Mondays and Wednesdays

Location: Room 365, Borlaug Hall

Laboratories

LAB 002

- Time: 11:45 am - 1:40 pm, Wednesdays
- Location: Room 136, Plant Growth Facility

LAB 003

- Time: 3:00 - 4:55 pm, Wednesdays
- Location: Room 136, Plant Growth Facility

Email addresses for PLPA 2001 laboratory class instructors:

Todd Burnes: burne002@umn.edu

Joshua Havill: havil008@umn.edu

Class Website: The class website (a Moodle Site) can be accessed through myU.

Office Hours: by appointment

You are welcome to see me immediately after class to ask questions or to make an appointment to meet with me at another time. You can also schedule meetings with me outside office hours by exchange of e-mail.

**** NOTE **** Please do not see office hours exclusively as a time to address problems in the course. You can meet with me to clarify points you do not understand, to get additional readings, to talk about the subject matter in relation to your special interests, or to go over work in progress. *You do not need a crisis to meet with me.*

Contacting Dr Dill-Macky: I prefer 'Dr Dill-Macky' and will address you by your first name unless you prefer some other form of address.

- E-mail: ruthdm@umn.edu - this is generally the fastest way to contact me
- Office: 210 Stakman Hall

Wheelchair access to Stakman Hall is gained via Borlaug Hall on Buford Circle

- Phone: 612-625-2227

I am often out of my office but have voice mail and check it regularly. Leave me a message with your name, phone number and a good time to try to reach you if you would like me to return your call.

- Mail Box: located in Plant Pathology main office - 495 Borlaug Hall

Course Description: The purpose of this course is to provide undergraduate students with a foundation in applied plant pathology.

In the lectures students will be introduced to the concepts that form the basis for our understanding of the causes and control of plant diseases. The course emphasizes the biological and ecological aspects of plant disease and the role of plant diseases in plant production. Students are not expected to have a prior knowledge of plant pathology.

The lectures are complemented by weekly laboratory sessions that provide students with practical experience in the recognition of disease in plants, disease diagnosis and in the identification of plant pathogens. Students will also conduct some practical exercises in disease control.

The course is intended to appeal to students with an interest in biology, and will increase their awareness and knowledge of the microorganisms that cause disease in plants, plant disease development and the principles used in the management of plant disease. Most students that take this course are undergraduates in CFANS (esp. agricultural education, animal science, food systems, forest and natural resource management, and plant sciences majors) or CBS (esp. plant biology or microbiology majors).

Student Learning Outcomes: In taking PLPA2001 students will:

- 1) learn to understand the importance of plant diseases in plant production systems
- 2) learn to recognize the various signs and symptoms of diseases in plants
- 3) understand the principals of disease diagnosis and be able to apply this knowledge to practical situations
- 4) gain a knowledge of the biology of fungi, bacteria, nematodes, viruses and other microorganisms that are pathogens of plants
- 5) be able to explain how fungi, bacteria, nematodes, viruses and other microorganisms cause diseases in plants
- 6) appreciate that plant diseases impact horticultural, agricultural and forestry production systems
- 7) understand the principals of diseases management in plant production systems
- 8) improve their critical thinking, written communication and oral communication skills

Textbook:

The textbook (optional but recommended) for this course is:

Gail L. Schumann and Cleora J. D'Arcy. 2009. *Essential Plant Pathology*, Second Edition. APS Press, St Paul MN. (ISBN: 978-089054-381-8)

(\$87.45 new; \$71.00 used; rental \$29.52).

****NOTE**** If you rent or buy a used copy of the text, be sure to check that you have the DVD that comes with the text.

There is an older edition of the text that would also be acceptable - and may be a little cheaper if you can find it.

*Gail L. Schumann and Cleora J. D'Arcy. 2006. *Essential Plant Pathology*. APS Press, St Paul MN. (ISBN: 978-089054-342-9)*

Laboratory Manual

The laboratory manual is essential for students taking PLPA 2001.

Available as a course packet at the University of Minnesota Bookstores (\$13.60)

Student Workload Expectations for PLPA2001. One credit represents, for the average undergraduate student, three hours of academic work per week (including lectures, laboratories, recitations, discussion groups, field work, study, and so on), averaged over the semester, in order to complete the work of the course to achieve an average grade. Thus, enrollment for this 3 credit class represents approximately 9 hours of work per week, on average, over the course of the semester or 135 hours total academic work (3 credits x 3 hours of work per week for each credit x 15 weeks in the semester).

Auditing PLPA2001. Students auditing PLPA2001 are required to pay full tuition but do not take exams and are not required to do homework. University policy stipulates that students may not sit in on a class without registering for it. A student will be allowed to take a previously audited class for a grade.

Course Expectations: You are expected to attend all lectures and laboratory sessions, be attentive during class, ask questions if you do not understand something, and participate in class activities and discussions.

If you have questions or problems with the course please talk to one of your instructors as soon as possible. If at any time during the course you feel we are not covering information you would like to cover or if we are going too fast over material please let your instructor know. This will not affect your grade.

Policy Statements

Student Conduct Code:

The University seeks an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves the educational mission of the University. Similarly, the University seeks a community that is free from violence, threats, and intimidation; that is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and that does not threaten the physical or mental health or safety of members of the University community.

As a student at the University, you are expected adhere to Board of Regents Policy: *Student Conduct Code*. To review the Student Conduct Code, please see:

http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf.

Note that the conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."

Students are reminded that disrupting a class can lead to dismissal from that class period. Students who engage in behavior that disrupts the learning environment for others may also receive a reduced final grade and are potentially subject to disciplinary action.

Use of Personal Electronic Devices in the Classroom:

Using personal electronic devices in the classroom setting can hinder instruction and learning, not only for the student using the device but also for other students in the class. To this end, the University establishes the right of each faculty member to determine if and how personal electronic devices are allowed to be used in the classroom.

The use of cell phones in PLPA 2001 is not permitted. Laptops are allowed in the classroom for certain uses, though students may be directed to turn off any personal electronic devices if the device is not being used for class purposes. Students are not permitted to record any part of a class/lab/other session unless explicitly granted permission by the instructor. If the student does not comply, the student may be asked to leave the classroom.

For complete information, please reference:

<http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Scholastic Dishonesty:

You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures,

or data analysis. (Student Conduct Code:
http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf)

If it is determined that a student has cheated, he or she may be given an "F" or an "N" for the course, and may face additional sanctions from the University. For additional information, please see: <http://policy.umn.edu/Policies/Education/Education/INSTRUCTORRESP.html>.

The Office for Student Conduct and Academic Integrity has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty:
<http://www1.umn.edu/oscai/integrity/student/index.html>.

If you have additional questions, please clarify with your instructor. Your instructor can respond to your specific questions regarding what would constitute scholastic dishonesty in the context of a particular class e.g., whether collaboration on assignments is permitted, requirements and methods for citing sources, if electronic aids are permitted or prohibited during an exam.

Students in PLPA 2001 are expected to do their own work, even though group activities and discussion among students is strongly encouraged.

Scholastic dishonesty, including plagiarism, will not be tolerated in PLPA 2001.

Plagiarism means representing the words, creative work, or ideas of another person as one's own without providing proper documentation of source. Examples include, but are not limited to:

- Copying information word for word from a source without using quotation marks and giving proper acknowledgement by way of footnote, endnote, or in-text citation;
- Representing the words, ideas, or data of another person as one's own without providing proper attribution to the author through quotation, reference, in-text citation, or footnote;
- producing, without proper attribution, any form of work originated by another person such as a musical phrase, a proof, a speech, an image, experimental data, laboratory report, graphic design, or computer code;
- paraphrasing, without sufficient acknowledgment, ideas taken from another person that the reader might reasonably mistake as the author's; and
- borrowing various words, ideas, phrases, or data from original sources and blending them with one's own without acknowledging the sources.

Makeup Work for Legitimate Absences:

Students will not be penalized for absence during the semester due to unavoidable or legitimate circumstances. Such circumstances include verified illness, participation in intercollegiate athletic events, subpoenas, jury duty, military service, bereavement, and religious observances. Such circumstances do not include voting in local, state, or national elections. For complete information, please see:

<http://policy.umn.edu/Policies/Education/Education/MAKEUPWORK.html>.

Appropriate Student Use of Class Notes and Course Materials:

Taking notes is a means of recording information but more importantly of personally absorbing and integrating the educational experience. However, broadly disseminating class

notes beyond the classroom community or accepting compensation for taking and distributing classroom notes undermines instructor interests in their intellectual work product while not substantially furthering instructor and student interests in effective learning. Such actions violate shared norms and standards of the academic community. For additional information, please see: <http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

Sexual Harassment

"Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. Such behavior is not acceptable in the University setting. For additional information, please consult Board of Regents Policy:

<http://regents.umn.edu/sites/default/files/policies/SexHarassment.pdf>

Equity, Diversity, Equal Opportunity, and Affirmative Action:

The University provides equal access to and opportunity in its programs and facilities, without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression. For more information, please consult Board of Regents Policy:

http://regents.umn.edu/sites/default/files/policies/Equity_Diversity_EO_AA.pdf.

Disability Accommodations:

The University of Minnesota is committed to providing equitable access to learning opportunities for all students. Disability Services (DS) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations. If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact DS at 612-626-1333 to arrange a confidential discussion regarding equitable access and reasonable accommodations.

If you are registered with DS and have a current letter requesting reasonable accommodations, please contact your instructor, as early in the semester as possible, to discuss how the accommodations will be applied in the course.

For more information, please see the Disability Services website,

<https://diversity.umn.edu/disability/>.

Further information is available from Disabilities Services (McNamara Alumni Center, 200 Oak Street SE, Suite 180, Minneapolis Campus. Phone: 612-626-1333 (V/TTY).

If you have a disability that requires accommodation in this course, please see me as soon as possible. I am happy to make appropriate accommodations, provided timely notice is received.

Mental Health and Stress Management:

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in

daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: <http://www.mentalhealth.umn.edu>.

Academic Freedom and Responsibility:

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.*

Reports of concerns about academic freedom are taken seriously, and there are individuals and offices available for help. Contact the instructor, the Department Chair, your adviser, the associate dean of the college, or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost. *[Customize with names and contact information as appropriate for the course/college/campus.]*

** Language adapted from the American Association of University Professors "Joint Statement on Rights and Freedoms of Students".*

Assessment:

Student assessment will be determined as follows:

Mid-Semester Exams (2) - 24% (12% + 12%)

Final Exam (cumulative - including materials covered in lab) - 25%

Laboratory worksheets - 26% (each lab worksheet is scored out of 10 points)

Laboratory Exam - 8%

Homework assignment and pop quizzes - 13%

Class attendance - 4%

TOTAL - 100%

Please be sure to bring a pad of 8.5 x 11 inch lined paper with you to class for quizzes and other in-class writing activities.

Grades:

Letter grades will be calculated by the following formula:

A - represents achievement that is outstanding relative to the level necessary to meet course requirements.

A 95.00 and above

A- 90.00 - 94.99

B - represents achievement that is significantly above the level necessary to meet course requirements.

B+ 87.00 - 89.99

B 83.00 - 86.99

B- 80.00 - 82.99

C - represents achievement that meets the course requirements in every respect.

C+ 77.00 - 79.99

C 73.00 - 76.99

C- 70.00 - 72.99

D - represents achievement that is worthy of credit even though it fails to meet fully the course requirements.

D+ 65.00 - 69.99

D 60.00 - 64.99

F - represents failure (or no credit) and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an "I" (see also I).

F 59.99 and below

I - Assigned at the discretion of the instructor. This grade can only be given when, due to extraordinary circumstances (e.g., hospitalization) a student who has successfully completed a substantial portion of the course's work with a passing grade was prevented from completing the work of the course on time. This grade requires a written agreement between instructor and student specifying the time and manner in which the student will complete the course requirements. In no event may any such written agreement allow a period of longer than one year to complete the course requirements.

V (visitor) - Indicating registration as an auditor or visitor, which will carry no credit and no grade.

For additional information, please refer to:

<http://policy.umn.edu/Policies/Education/Education/GRADINGTRANSCRIPTS.html>.

Exams:

The mid-semester and final exams will be held in 365 Borlaug Hall.

The laboratory exam will be held in 136 Plant Growth Facility.

Exams from previous years classes are made available on the class website.

Essay questions given in written assignments and exams will be graded by the following formula:

- Scientific Accuracy - 50%
- Depth - 25%
- Writing Quality - 25%

Exam Policy:

You are required to take the final exam at the time shown in the University of Minnesota calendar. If you have an exam conflicting with the final exam or three final exams within a 16-hour period, you may request a time adjustment by contacting your college office and your instructor. Such a request must be presented at least two weeks before the examination period begins.

If you are unable to take an exam:

If a student is unable to take a scheduled examination for medical or other adverse reasons, she/he can and should apply for a special examination. Applications made on medical grounds should be accompanied by a medical certificate; those on other grounds must be supported by a personal declaration stating the facts on which the application relies. Students should contact their instructor at least 1 week prior to the scheduled exam time to request consideration for a special examination.

The following would generally be considered acceptable grounds to approve a special examination:

- (a) illness or a serious health problem;
- (b) serious personal or emotional trauma;

In cases of chronic illness and/or disability likely to affect study and examination performance, the student should, as soon as possible, make contact with the Disability Services who can assist in various aspects of the student's academic work, including assessment where appropriate.

If you miss an exam:

Contact your instructor (preferably by email) immediately, or as soon as the situation allows, if you miss an exam for any reason. Students missing exams for valid (e.g., medical, bereavement) reasons must notify the instructor in advance, where possible, and provide documentation if requested. If a student is able to sit the exam within 48 hours of the original exam time they may arrange to do so without penalty. If a student is unable to sit an exam within 48 hours of the original exam time they will have their final exam weighted proportionally more. Students who miss an exam for a non-valid reason may request to take the exam within 48 hours of the original exam time, although they will have a 20% penalty deducted for their exam score. If a student is unable to sit an exam within 48 hours of the original exam time they will be assigned a score of zero for the exam.

Attendance in Lecture and Laboratory Classes and Laboratory Worksheets:

Your attendance in lectures will count toward your grade. Students missing more than 10% of classes (i.e. three lectures in the semester) will lose points awarded for student attendance.

If you miss more than three classes, your attendance grade will be penalized by one percent point for each class you miss, with a maximum penalty of 4%.

Because of the sequential nature of the laboratory exercises there will be no way to make-up missed laboratories. Laboratory worksheets are to be completed for each laboratory session and are to be handed in at the end of the laboratory period. The worksheet will be evaluated, graded and handed back to you in the next laboratory period. If you miss a laboratory period you will not get credit for that laboratory. Missing three or more laboratory sessions will result in a failing grade for the course.

Grade Disputes:

Students who feel an assignment or exam questions has been graded incorrectly should submit a written explanation within one week of having the assignment or exam returned. If the disputed grade is a matter of opinion, the work will be given to two others (instructor, laboratory coordinator or TA's) for re-grading. Their decision will be final. Errors due to a simple miscalculation will be corrected immediately. The Student Dispute Resolution Center is also available to help resolve grade conflicts.

The Student Conflict Resolution Center in 254 Appleby Hall, 128 Pleasant Street SE, U of MN, East Bank Campus (612-624-7272) provides assistance for students with campus-based concerns. In addition to handling individual cases, the majority of which are grading and instructional complaints, the office also functions in a proactive way to prevent problems in this area.

INTRODUCTORY PLANT PATHOLOGY
Plant Pathology 2001

Schedule of Lectures and Recommended Text Reading

Date of Classes	Lecture Number	Class Topic	"Essential Plant Pathology"	Number of Pages
Jan 21	1	An Introduction to Plant Pathology	Chapter 1	19
Jan 26 Jan 28	2 3	Symptoms and Signs -	Chapter 8	35
Feb 2 Feb 4	4 5	Fungi, biology Fungi, biology	Chapter 2	28
Feb 9 Feb 11	6 7	Fungi, classification Fungi, classification	"	-
Feb 16 Feb 18	8 9	Fungi, diseases - ascomycetes Fungi, diseases - acsomyces cont'd & basidiomycetes	"	-
Feb 23 Feb 25	10 11	Fungi, diseases - basidiomycetes Fungi, diseases - oomycetes	"	-
March 2 March 4	12 13	Exam I Bacteria, biology	- Chapter 3	- 18
March 9 March 11	14 15	Bacteria, diseases Bacteria, diseases	"	-
SPRING BREAK (March 16-20)				
March 23 March 25	16 17	Nematodes, biology Nematodes, diseases	Chapter 4	22
March 30 April 1	18 19	Viruses, biology Virus diseases	Chapter 5	11 21
April 6 April 8	20 21	Parasitic Plants Abiotic Diseases and Beneficial Microbes	Chapter 6 Chapter 7	- 49
April 13 April 15	22 23	Exam II Plant Disease Epidemiology	- Chapter 10	- 28
April 20 April 22	24 25	Disease Forecasting Disease Control, chemical	" Chapter 11	- 43
April 27 April 29	26 27	Disease Control, chemical cont'd Disease Control, biological	"	-
May 4 May 6	28 29	Disease Control, host resistance Disease Control, cultural	"	-
FINAL EXAM: Friday, May 15 1:30-3:30 pm				

Note: The schedule may be modified during the semester. You will be notified in lectures and/or by email of any substantial changes to the schedule above.