

## General Plant Pathology Laboratory

11:776:311 (1 credit)  
Fall Semester (yearly)

### CONTACT INFORMATION

Instructor: Dr. Nrupali Patel  
Office Location: 337 Foran Hall, 59 Dudley Rd., New Brunswick, NJ 08901  
E-mail: npatel@aesop.rutgers.edu  
Office Hours: by arrangement

### COURSE DESCRIPTION

As a companion course to 11:776:302 General Plant Pathology, this laboratory course increases student knowledge about plant diseases caused by environmental factors and microorganisms. The course focuses on fundamental and applied aspects of plant pathology including disease development, environmental interactions, microbial biology, disease cycles, and disease control strategies. This laboratory course provides hands-on training in the identification and classification of representative plant diseases, including isolation and culturing techniques for plant pathogenic fungi, bacteria, nematodes and viruses.

### COURSE WEBSITE, RESOURCES AND MATERIALS

- Course website: Canvas
- Recommended textbooks (some available during the laboratory period):
  - Agrios, GN. 2005. Plant Pathology, 5<sup>th</sup>. Elsevier Academic Press
  - Schumann GL, D'Arcy CJ. 2006 or 2009. Essential Plant Pathology. APS Press, St. Paul, MN
  - Trigiano RN, Windham MT, Windham AS. 2004. Plant Pathology, Concepts and Laboratory Exercises. CRC Press
  - Webster J, RWS Weber. 2007. Introduction to Fungi, 3<sup>rd</sup>. Cambridge University Press
- Handouts are available on Sakai. Print the handouts and bring them to lab.

### PRE- or COREQUISITE

11:776:302 General Plant Pathology

### COURSE LEARNING GOALS ([link to Plant Biology Undergraduate Program Goals:](http://plantbiology.rutgers.edu/undergrad/plantbiology/) <http://plantbiology.rutgers.edu/undergrad/plantbiology/>)

By the end of this course, the student will be able to:

1. Recognize the major groups of organisms that cause diseases in plants (addresses program goal 1)
2. Use appropriate scientific terminology in describing plant pathogens and diseases (addresses program goal 1)
3. Use appropriate methods to identify plant pathogens for plant disease diagnosis (addresses program goals 1 and 4)
4. Use proper approaches to search literature resources to obtain correct background information on plant diseases (addresses program goal 3)

## ASSIGNMENTS/RESPONSIBILITIES AND ASSESSMENT

**Grading:** Grades will be determined based on examinations (two in-class exams and one final), weekly quizzes (on-line), homework (on-line), attendance, and one written assignment (term paper).

- Mid-term: 25%
- Final Exam: 25%
- Lab notebooks (four gradings): 30%
- Homework: 15%
- Participation and attendance: 5%
- Scale: 90-100% = A; 80-89 = B; 70-79 = C; 60-69 = D

**Homework:** Describe the infection process, prevention, and treatment of eight disease samples collected on field trips or on your own. Homework is due 1 week after the disease symptoms observation lab. Each student must bring a bound notebook to the lab to record observations.

**Learning goals assessment:** Measures of assessment include:

- Lab notebook reports and answering pathogen group questions on exams (learning goal 1)
- Homework assignments on disease samples by describing infection processes, lab notebook reports, answering questions on plant pathogenic terminologies (learning goal 2)
- Lab notebook reports and exams on questions describing techniques to identify plant pathogens (learning goal 3)
- Homework assignments on disease samples by searching available literature resources to describe the pathogen infection process and disease prevention and treatment

The percentage score on these assessments will determine the level of mastery: >90% outstanding; 80-89% good; 70-79% satisfactory; <69% unsatisfactory.

## PARTICIPATION GRADE AND ABSENCE POLICY

Attendance is mandatory. Participation points will be deducted for each unexcused absence. Courtesy demands that students unable to attend may contact the instructor via e-mail prior to the missed class or may use the University absence reporting website (<https:sims.rutgers.edu/ssra/>) to indicate the date and reason for the absence. An e-mail is automatically sent to the instructor.

## COURSE SCHEDULE

| Week | Topics  |
|------|---|
| 1    | Introduction (bring bound notebook)   |
| 2    | Use of microscope   |
| 3    | Recognition of disease symptoms and keys for pathogen identification<br><b>Hand in lab notebook (1)</b> |
| 4    | Isolation of pathogens  |
| 5    | Koch's postulates   |
| 6    | Characteristics of plant pathogenic fungi (part 1)  |
| 7    | <b>Midterm exam</b><br><b>Hand in lab notebook (2)</b>  |
| 8    | Diseases caused by plant pathogenic bacteria  |

| <b>Week</b>                                      | <b>Topics</b>  |
|--|--|
| 9  | Characteristics of plant pathogenic fungi (part 2)   |
| 10   | Field trip to the Rutgers Plant Diagnostic Laboratory: diseases caused by nematodes<br><b>Hand in lab notebook (3)</b> |
| 11   | Methodology in plant virology and molecular detection: inoculation of tobacco plants with <i>Tobacco mosaic virus</i>  |
| 12   | <b>Thanksgiving recess</b>   |
| 13   | Review<br><b>Hand in lab notebook (4)</b>  |
| <b>Final Exam (cumulative): To be determined</b> |  |

### **FINAL EXAM/PAPER DATE AND TIME**

The Online Final exam Schedule: <http://finalexams.rutgers.edu/>

### **ACCOMODATIONS FOR STUDENTS WITH DISABILITIES**

Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

### **ACADEMIC INTEGRITY**

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/>

The principles of academic integrity require that a student:

- Properly acknowledge and cite all use of the ideas, results, or words of others.
- Properly acknowledge all contributors to a given piece of work.
- Make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- Obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- Treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- Uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that:

- Everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- All student work is fairly evaluated and no student has an inappropriate advantage over others.
- The academic and ethical development of all students is fostered.
- The reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

## STUDENT WELLNESS SERVICES

### **Just In Case Web App** <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

### **Counseling, ADAP & Psychiatric Services (CAPS)**

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901 / [www.rhscaps.rutgers.edu/](http://www.rhscaps.rutgers.edu/)

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

### **Violence Prevention & Victim Assistance (VPVA)**

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / [www.vpva.rutgers.edu/](http://www.vpva.rutgers.edu/)

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

### **Disability Services**

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

### **Scarlet Listeners**

(732) 247-5555 / <http://www.scarletlisteners.com/>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.