Plant Pathology  
BIO 424  
Fall 2018

Instructor: Dr. Josephine Taylor  
Department: Biology  
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Phone: 468-2268; Please provide a local telephone number when requesting a return call.  
Office: S106  
Office Hours: 1:00 - 4:00 MW, 2:30 – 4:00 TR or by appointment 
Class meeting time and place: Lecture 12:00 – 12:50 MW Math 213  
Lab 1:00 – 3:50 F Science 216 
Text and Materials: Essential Plant Pathology, 2nd edition, Schumann and D’Arcy

Course Description: This course is designed to introduce students to the general principles of plant pathology, including a survey of fungal, bacterial, nematode, and viral diseases, as well as a discussion of practical control methods.

Number of Credit Hours: 3

Course Prerequisites and Co-requisites: Prerequisites BIO 131 and Junior or Senior standing (60 or more credit hours completed); Co-requisite BIO 424L.

Program Learning Outcomes:  
Program Learning Outcome #1: The student will demonstrate a good knowledge base in biological concepts and be able to integrate knowledge with critical thinking skills to become problem solvers. Knowledge base will include: levels of complexity (molecular/cellular through population/communities/ecosystems), biological principles and processes.

Program Learning Outcome #2: The student will clearly communicate scientific information; provide clear structure and transitions; demonstrate scientific tone, language, and form.

Program Learning Outcome #4: The student will be able to design, carry out, and analyze experiments to answer biological questions using scientific methods and instrumentation; safe and appropriate use of laboratory equipment; experimental design; data analysis; and familiarity with professional standards in science.

Program Learning Outcome #5: The student will demonstrate preparation for future career and educational goals utilizing the knowledge and training during their academic program.

General Education Core Curriculum Objectives/Outcomes:  
This course is not included in the general education core curriculum.

Student Learning Outcomes:  
Students who complete Plant Pathology will be able to:  
1. Describe the concepts of what constitutes disease in plants (PLO 1, 2, 5).  
2. Recognize common plant disease symptoms and signs (PLO 1, 2, 5).
3. Explain the impact of plant disease on human affairs (PLO 1, 2, 5).
4. Delineate the characteristics of the major groups of causal agents of plant diseases including fungi, bacteria, viruses, and nematodes (PLO 1, 2, 5).
5. Outline the disease cycle of representative plant pathogens from each major group of causal agents (PLO 1, 2, 5).
6. Identify methods to diagnose and control select plant diseases (PLO 1, 2, 4, 5).
7. Demonstrate methods of working with plant pathogens, including isolation, culture, preparation for microscopy, and artificial inoculation techniques (PLO 1, 2, 4, 5).

Course Requirements:
Four major tests will be given in lecture, each worth 100 points. The fourth test is the final exam, which will be non-comprehensive. An additional 30 points will be earned via lecture attendance.

Laboratory points will be earned by completing weekly quizzes, laboratory exercises (generated and distributed by the instructor), and other assignments. The lab grade contributes 220 points to the overall course grade (650 possible points). A separate grade is not assigned for lab.

Participation in the on-line student evaluations for both BIO 424 lecture and BIO 424L is a mandatory course requirement. Failure to participate will result in a 1% reduction in lecture and laboratory grades.

Course Calendar:
8-27 M Course policies, introduction to plant pathology, impact of plant disease, disease triangle (pp. 1-4, 250-253)
8-29 W Symptoms and signs (pp. 4-8)
8-31 F LAB - Terminology, symptoms & signs, diagnosis
Disease Classic - Apple Scab (p. 2)
9-3M Koch's Postulates, Disease cycles (pp. 9-17)
9-5 W Epidemics/human influences (pp. 229-49); Disease management (257-263)
9-7 F LAB – Disease control chemicals, Characteristics of fungi, Direct plating
Disease Classics - Ergot (p. 26); Anthracnose (p. 147)
9-10 M Disease management (264-290); Intro to fungi (pp. 21-24)
9-12 W Characteristics and groups of fungi (pp. 25-33)
9-14 F LAB – Groups of fungi, examine direct plating
Disease Classics - Late Blight (p. 3)
9-17 M Characteristics and groups of fungi (pp. 34-45)
9-19 W Review Disease Classics for Exam I
9-21 F Lecture Exam I
9-24 M Powdery mildews (pp. 39 - 40, 150), Downy mildews (pp. 31-32, 44-45, 151)
Disease Classics - Powdery Mildew of Grasses (p. 30), Downy Mildew of Grape (p. 38)
9-26 W Rusts (pp. 42-44, 152-155)
9-28 F LAB - Rusts and Smuts, Soil-borne diseases
Disease Classics - Stem Rust of Wheat (p. 155) and Cedar Apple Rust (p. 164)
Smuts (pp. 44, 155-156), Disease Classic - Corn Smut (p. 165)
Disease Classic - Chestnut Blight (p. 162)
LAB – Soil-borne diseases con’t., cankers, vascular wilts
Disease Classics - Southern Blight (p. 183), Clubroot (p. 33), Dutch Elm Disease (p. 159)
Soil-borne disease (pp. 144-145, 166-169), cankers (pp. 161-163)
Disease Classics - Smuts (pp. 44, 155-156), Disease Classic - Corn Smut (p. 165)
Disease Classic - Chestnut Blight (p. 162)
Canker, con’t., vascular wilts (pp. 156-159)
Disease Classics – Brown rot of stone fruits (p. 170), Dutch Elm Disease (p. 159)
Vascular wilts, con’t., wood decay
Disease Classic - Armillaria Root Disease (p. 28)
LAB – Wood decay and post-harvest disease
Post-harvest diseases (pp. 170-171)
Disease Classic - Gray Mold (p. 244)
Review Disease Classics for Exam II
Lecture Exam II
Bacteria as the causes of plant disease (pp. 51-56)
Bacteria as the causes of plant disease (pp. 146-147, 156-157, 159-161)
LAB – Characteristics, dispersal, and isolation of bacteria
Bacterial transmission and disease management (pp. 57-64)
Disease Classics- Soft Rot (p. 61), Bacterial Spots (p. 145), Stewart's Wilt (p. 185), Fire Blight (p. 62)
LAB – Types of bacterial diseases
Disease Classics - Citrus Canker (p. 234), Crown Gall (p. 64)
Nematodes as the Causes of Plant Diseases (pp. 69-83)
Disease Classic - Root Knot (p. 75)
LAB – Nematodes as the causes of plant disease
Nematodes as the Causes of Plant Diseases (pp. 69-83)
Disease Classics - Lesion (p. 76) and Soybean cyst (p. 78) nematodes
Parasitic Plants as the Causes of Plant Disease (pp. 109-117)
Disease Classic - Dodder (p. 114)
Lecture Exam III
Abiotic Factors as the Causes of Plant Disease (pp. 121-138)
Viruses as the Causes of Plant Disease (pp. 87-104, 149)
Lab – Viruses as the causes of plant disease
Disease Classics - Tobacco Mosaic (p. 92), Barley Yellow Dwarf (p. 98)
Plant-pathogen interactions (pp. 179-195)
Plant-pathogen interactions (pp. 197-225)
LAB – Plant pathogen interactions
12-12 W Final Exam 1:00 – 3:00 pm

Grading Policy:
Course grades will be assigned as follows (650 possible points):
- 90+% of total points = A
- 80 - 89% = B
- 70 - 79% = C
- 60 - 69% = D
- Below 60% = F
There are no extra credit assignments in this course.

Attendance Policy
The teacher strongly encourages students to attend class. Absences and tardiness will be recorded at each class meeting. Lecture attendance contributes approximately 5% of the course grade.

Only students with an excused absence will be allowed to make up an exam, lab quiz or a laboratory exercise. Excused absences will be granted for: students participating in university sponsored events, serious illness, or a family emergency. A list of students to be absent from campus to attend various events is published and distributed to the faculty. Otherwise, you will need to bring written confirmation of illness or emergency from a doctor or family member to be granted an excused absence. University policy states that students with acceptable excuses will be permitted to make up work for absences to a maximum of 3 weeks of a semester (p. 43, General Bulletin). ONCE YOU HAVE MISSED MORE THAN 6 LECTURE DAYS OR 3 LABS DO NOT EXPECT ANY MAKEUP WORK FROM THE INSTRUCTOR. Students with unexcused absences will receive a 0 for missed exams, quizzes and lab exercises.

Academic Integrity (A-9.1)
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Withheld Grades Semester Grades Policy (A-54)
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work
because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

**Students with Disabilities**
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [http://www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/).

**Acceptable Student Behavior**
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.