

BIOL 345.3
INTRODUCTORY PLANT PATHOLOGY
Course Outline (2013-2014)

Course number: Biology 345

Course Title: Introductory Plant Pathology

Credit hours: 3 c.u.

Hours per week: Total: 7 (Lecture: 3; Lab/Practicum: 4)

Lecture: Dr. Yangdou Wei (Biology building, RM. 228)

Tel: 966-4447

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Laboratory: Demonstrator - Dr. Jill Thomson (Tel: 966-5862)

Prerequisites: Students are expected to be familiar with the principles and terminology of biology and with the morphology, anatomy, and physiology of plants. Prerequisite includes BIOL 222.3.

Course objective: Introduction to plant diseases caused by fungi, bacteria, viruses, nematodes and higher parasitic plants.

Recommended texts and/or major references:

Diseases of Field Crops in Canada (Bailey *et al.*, 2003)

Plant Pathology, 5th edition (Agrios, 2005)

Evaluation:

Midterm exam (20 %)

Final exam (40 %)

Lab reports/presentation (20 %)

Clinical practice (5 %)

Lab exam (15 %)

Completion of the final lecture exam is required in order to pass this course.

Lecture topic outline: Lectures deal primarily with broad concepts and principles of plant pathology, pathogen biology and diversity, contemporary topics related to plant-pathogen interactions, and plant disease management.

Laboratory/Practicum outline: Diagnosis of major crop diseases; identification of plant pathogens; isolation of pathogenic fungi and bacteria from infected tissues; inoculation of plants with pathogens; pathogenesis and host resistance.

Biology 345.3 Schedule: 2013-2014

Lectures: Tuesday and Thursday, 10:00-11:20am. Biology 124

Labs: Tuesdays 1:30-5:30pm Biology 218

Lecture topics:

- Chapter 1 Introduction
- Chapter 2 Agents causing plant diseases
- Chapter 3 Parasitism and disease development
- Chapter 4 Pathogenesis
- Chapter 5 Host defence responses
- Chapter 6 Genetics of plant disease
- Chapter 7 Environmental effects and disease epidemics
- Chapter 8 Control of plant diseases
 - Plant quarantine
 - Cultural control
 - Chemical control
 - Biological control
 - Resistance breeding
 - Integrated pest management

Lab topics:

- Lab 1 Introduction & survey of diseases/symptoms/terminology
- Lab 2 Media preparation and pathogen isolation
- Lab 3 Preparation of pure culture and inoculation
Clinical practice on molecular identification of pathogens
- Lab 4 Types of pathogens and their infection processes
Clinical practice: isolation of pathogen genomic DNA
- Lab 5 Diseases of cereals
Clinical practice: PCR amplification and DNA purification
- Lab 6 Diseases of oilseeds
- Lab 7 Diseases of pulses
- Lab 8 Diseases of trees and fruits
- Lab 9 Diseases of vegetables
Clinical practice: sequence analysis and Database search
- Lab 10 Miscellaneous/student presentation
- Lab 11 Student presentation/lab review

Please note:

1. Students with a disability requiring special accommodation should immediately contact the Head of the Department of Biology, Room 151, W.P. Thompson Building.
2. Students with a physical disability should note that access to the second and third floors of the W.P. Thompson Building may be obtained using the elevator at the north end of the research wing, opposite Room 130.
3. A student missing a mid-term exam must contact the instructor, in person or by telephone, within 3 working days of the scheduled exam, in order to present the

necessary documentation explaining one's absence at the exam and to initiate discussions concerning a possible deferred exam. Otherwise, a grade of zero may be assigned for the missed exam.

4. Students enrolled in this course must familiarize themselves with the University's Guidelines for Academic Honesty (http://www.usask.ca/university_secretary/honesty/StudentAcademicMisconduct.pdf).