Plant Nematology (Pl P 513)  
Spring 2017 (3 credits)  
M, W Johnson Hall 346; 1:10 pm – 2:25 pm  
Instructor  
Cynthia Gleason, office: 335 Johnson Hall, office hours by appointment.  
Course Materials  
Materials will be provided by the instructor.  
Course Objectives  
1. Provide an understanding of nematode biology and plant parasitism.  
2. Provide knowledge about classical and modern techniques and resources to conduct research in nematology.  
3. Provide experience in evaluating and presenting current scientific nematology literature.  
General Format  
Plant Nematology will be taught through two 75-minute lectures per week. Students will be expected to actively participate in discussions during class, write an essay and present it to the class. As part of the discussion, students will be reading and evaluating current literature using a literature study method introduced in the class. Students are expected to read the assigned paper and come to class prepared for a discussion. Discussion days are listed with an *.  

Student Learning Objectives and Evaluation  
1. Have a general understanding of the morphology and taxonomy of nematodes  
   First five sessions  
   Midterm 1 and final  
   Three exams, one essay paper and participation in paper discussions  
2. Be able to understand and interpret scientific literature pertaining to nematology  
   All sessions  
3. Have an understanding of the mechanisms of nematode pathogenicity and plant defenses against nematode pathogens  
   All sessions  
   Midterm 2 and final  
   Three exams, one essay paper and participation in paper discussions  
4. Be able to formulate hypotheses and develop these hypotheses  
   All sessions
Policy on Participation, Late Assignments and Exams
Active participation in class discussions is expected. Assignments must be turned in during class on the due date. Credit will not be given for late assignments except by prior consent of the instructor. Make-up exams and quizzes will only be provided under special circumstances and by prior consent of the instructor.

Grading
Two midterm exams (100 points each) and one final exam (100 points) will be given during the semester according to the schedule below. The exams will cover material from lectures, discussions and reading assignments. The midterm exams are designed to test your in-depth understanding of nematology. The final exam is cumulative and will test your understanding of concepts and material not covered in the midterm exams. You will be expected to write an essay paper (75 points), in which you will summarize, discuss and critically evaluate an experimental area of nematode research. Essays will be graded on accuracy and depth of coverage of the topic as well as interpretation of the quality of the work and future research needed. You are also expected to present your topic in class (75 points). Your presentation will be graded on clarity as well as knowledge of the subject including your ability to answer questions. Presentations will be 15 minutes in length and will be presented at the end of class periods in the second half of the semester. Points are awarded for class participation in paper discussions. There are four “discussion” days, which will require reading the assigned paper and preparing notes. Points will be received for attendance and participation for each discussion day.

Point Summary:
Number Points
Midterms 2 (2x100) 200
Final 100
Essay 75
Class Presentation 75
Class Participation (4x5) 20
Total 370

Grade Assignment
94.0 – 100% A
90.0 – 93.9 A-
87.0 – 89.9 B+
83.0 – 86.9 B
80.0 – 82.9 B-
77.0 – 79.9 C+
73.0 – 76.9 C
70.0 – 72.9 C-
60.0 – 69.9 D
< 59.9 F
M, W 1:10-2:25 pm

Course Outline
January 9 Introduction and overview
January 11 Morphology
January 16 No class
January 18 Morphology
January 23 Classification and taxonomy
January 25 Root-knot nematodes
January 30 Root-knot nematodes
February 1 Cyst nematodes
February 6 Cyst nematodes
February 8 Migratory endoparasites
February 13 Migratory endoparasites
February 15 MIDTERM 1
February 20 No class
February 22 Ectoparasites
February 27 *Ectoparasites -discussion
March 1 Reproduction and development
March 6 Sensory perception, survival strategies, hatching
March 8 * Sensory perception and movement -discussion
March 13 No class - Spring Break
March 15 No class - Spring Break
March 20 Molecular plant-nematode interactions
March 22 *Molecular plant-nematode interactions- discussion
March 27 Molecular plant-nematode interactions
March 29 Molecular plant-nematode interactions
April 3 Resistance genes
April 5 MIDTERM 2
April 10 Resistance and genetic engineering
April 12 * Resistance and genetic engineering-discussion
April 17 Genomics
April 18 Population dynamics, sampling
April 24 Biological and cultural management
April 26 Chemical management
May 3 3:10- 5:10 pm Comprehensive exam

WSU Academic Honesty
Academic integrity will be strongly enforced in this course. Any student caught cheating on the exam will be given an F grade for the course and will be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions.

WSU Disability Statement
Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved
through the Access Center. For more information, contact a Disability Specialist: 509-335-3417 http://accesscenter.wsu.edu, Access.Center@wsu.edu

**WSU Safety and Emergency Notification:**
Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (http://safetyplan.wsu.edu/) and visit the Office of Emergency Management web site (http://oem.wsu.edu/) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community.
Discussion days

Practice paper (I will hand out notes, we will not discuss in class): The Infection of Cucumber (Cucumis sativus L.) Roots by Meloidogyne incognita Alters the Expression of Actin-Depolymerizing Factor (ADF) Genes, Particularly in Association with Giant Cell Formation, Front Plant Sci. 2016; 7: 1393.

1. February 27
Characterisation and functional importance of β-1,4-endoglucanases from the potato rot nematode, Ditylenchus destructor, Nematology 16 (2014) 505-517

2. March 8

3. March 22

4. April 12
Transgenic soybean overexpressing GmSAMT1 exhibits resistance to multiple-HG types of soybean cyst nematode Heterodera glycines, Plant Biotechnology Journal (2016) 14, pp. 2100–2109