

PLANT NEMATOLOGY (NEM 5707)

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<http://nematology.ifas.ufl.edu/assaylab/>

Credit Hours: 3 credits

Prerequisite: There are no formal prerequisites for this class.

Office hours: This course is a web-based course and students should use email for questions (tmekete@ufl.edu). If you need to reach me other than by e-mail, my office phone is 352-273-3936.

Course format: Students will be expected to complete two narrated lectures during each week of the course. All lectures for this course are narrated presentations and may include some practical videos. Additional reading assignments and references will be posted for further study. At the end of each module students will be given a quiz or short written assignment to submit via canvas. They will also be expected to contribute to the class discussion board. Lectures can be accessed in Canvas, by going to the Canvas login to the UF e-learning website (<https://lss.at.ufl.edu>). The student's UF Gatorlink username and password are necessary to log into the system.

Course Description and Goals: NEM 5707 is a 3- credit course that is offered as a distance education course during the spring semester. This syllabus provides specific information about the web based version of the course. This course will provide students with the basic understanding of the biology, ecology, and pathogenesis of nematodes that cause plant diseases. Students will learn the morphology, classification, and life histories of plant parasitic nematodes. The effect of nematodes on their host plants, different nematode sampling strategies, sample processing techniques, management tactics and integrated pest management principles will be studied.

Expectations: upon completion of this course, student should be able to:

- Understand the fundamental importance of plant-parasitic nematodes associated with plants
- Identify common plant-parasitic nematodes on the basis of symptoms and morphology
- Understand how plant-parasitic nematode populations develop in field crop situations and the effects that the environment has on this process
- Demonstrate an understanding of nematode threshold levels to different crop species.
- Understand different plant parasitic nematode management strategies

Textbook:

Required: There is no required textbook for this course but relevant articles and links to websites will be posted on the canvas. Students are responsible for reading relevant materials and articles. Each week, students will have assigned readings, usually from current literature. Reading and discussion are an important component of the class. Questions from required readings may be on the weekly quizzes and assignments.

Recommended books (not required):

1. R. N Perry and M Moens. Plant Nematology. 2006. CABI Publishing: Wallingford, UK. 447pages. ISBN-10: 1-84593-056-8
2. Donald L Lee. 2002. The biology of nematodes. 635 pages. CRC press. ISBN-10: 0415272114
3. Z. Chen, S. Chen, and D. Dickson. Nematology: Advances and Perspectives: Vol II: Nematode Management and Utilization. 608 pages. CABI publishing.
4. R. H. Manzanilla Lopez, and N. Marban-Mendoza. 2012. Practical plant nematology. BBA publishing. ISBN: 978-84-8476-567-7

Grading

The information on UF's grading policies can be found at: <http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>

Your grade for this course will be based on a possible 500 points and determined by the percentage breakdown presented below. Two examinations will be administered. One is scheduled at approximately midterm and the other at the end of the semester. Throughout the semester, students will be given several timed quizzes and homework assignments based on the online lectures and readings. These assignments will be submitted to the discussion board for comment, critique, and questioning. Term paper is required on a topic chosen by the student and approved by the instructor.

<u>NEM 6102C</u>	<u>Point Value</u>	<u>Total</u>
Quizzes and Discussions (10)	10 each	100
Term paper (1)	50 each	50
Assignments (10)	5 each	50
Midterm exam (1)	100	100
Final exam (1)	200	200
Total		500

Grading scale (%) and points needed to achieve a grade for this course is as follows:

Grade	Percentage	Points
A	90 - 100	450 - 500
B+	88 - 89	449 - 450
B	80 - 87	400 - 448
C+	78 - 79	390 - 399
C	70 - 77	350 - 389
D	60 - 69	300 - 349
E	<60	0 - 299

Policy on make-up exams and other work:

A student is permitted to make up a missed exam without penalty if he/she has a conflict between an exam/quiz and a scheduled University-approved activity or if he/she has more than one exam/quiz scheduled at the same time, provided advanced notification is given to the instructor. Students not notifying the instructor and making such arrangements in advance will not be permitted to take the exam and will receive a zero.

Course outline

Week	Class Date	Topic	Assignment/ Quiz/Term paper
1	Jan 6, 2015	1. General introduction ➤ Why we study nematodes ➤ Nematodes (definition) ➤ Historical highlights of nematology ➤ Nematode habitat	Assignment 1 (Due 01/15/2015)
	Jan 8, 2015	2. General introduction ➤ Common human parasitic nematodes ➤ Biological classifications of nematodes ➤ General characteristics (summary)	
2	Jan 13, 2015	3. General morphology and Anatomy ➤ Basic morphological principles ➤ Nematode body part terminologies ➤ General anatomy ➤ Body size	Quiz 1
	Jan 15, 2015	4. General morphology and Anatomy ➤ Body shape ➤ Body habitus ➤ Segmentations in nematodes ➤ External morphology ➤ Coloration	Assignment 2 (Due 01/22/2015)
3	Jan 20, 2015	5. Basic nematode body pattern ➤ The exoskeleton ➤ Internal structures ➤ The cuticle	Quiz 2
	Jan 22, 2015	6. Basic nematode body pattern ➤ Hypodermis ➤ Somatic muscles ➤ Cephalic structures ➤ Amphids, phasmids, cephalids, Deirids, hemizoid, and scutella	Assignment 3 (Due 29/15/2015)
4	Jan 27, 2015	7. Digestive system ➤ General introduction and functions of digestive system	Quiz 3
	Jan 29, 2015	8. Digestive system ➤ Details about digestive system and structures involved in the system ➤ Oral opening, esophagus, and intestine	Assignment 4 (Due 02/5/2015)

5	Feb 3, 2015	9. Reproductive system ➤ General introduction and functions of reproductive system ➤ Reproductive system terminologies and their importance in classification ➤ Reproductive structures ➤ The female reproductive system	Quiz 4
	Feb 5, 2015	10. Reproductive system ➤ The egg, oviposition, embryology, and hatching ➤ The male reproductive system ➤ Spermatogenesis, ➤ Types of reproduction in nematodes	Assignment 5 (Due 12/5/2015)
6	Feb 10, 2015	11. Nervous system and Secretary-excretory system	Quiz 5
	Feb 12, 2015	12. Economic importance and crop losses due to nematodes ➤ Biology and host parasite interaction	Quiz 6
7	Feb 17, 2015	13. Economic importance and crop losses due to nematodes ➤ Ectoparasites, migratory endoparasites, sedentary semi-endoparasites, sedentary endoparasites	Quiz 7
	Feb 19, 2015	14. General nematode damage symptoms	Assignment 6 (Due 02/10/2015)
8	Feb 24, 2015	15. Belowground symptoms caused by nematodes	
	Feb 26, 2015	Midterm Exam	
9	March 3, 2015	Spring break	
	March 5, 2015	Spring break	
10	March 10, 2015	16. Techniques in Nematology: ➤ Soil and root sampling ➤ Extraction of nematodes from soil and root-samples ➤ Nematode damage threshold functions	Quiz 8
	March 12, 2015	17. Higher level of nematode classification	Assignment 7 (Due 03/19/2015)
11	March 17, 2015	18. Root-knot nematodes	
	March 19, 2015	19. Cyst forming nematodes Cyst nematodes damage symptoms Round and lemon shaped cyst nematodes	
12	March 24, 2015	20. Lesion nematodes	Quiz 9
	March 26, 2015	21. Burrowing nematode	
13	March 31, 2015	22. The semi-endoparasitic nematodes	
	April 2, 2015	23. Dorylaimida and pine wilt nematodes	Assignment 8 and 9 (Due

			04/16/2015)
14	April 7, 2015	24. Red ring, bud and leaf nematodes	Term paper, on a topic chosen by the student and approved by the instructor.
	April 9, 2015	25. Entomopathogenic nematodes	
15	April 14, 2015	26. Nematode management and control	Quiz 10
	April 16, 2015	27. Components of nematode management	Assignment 10 (Due 04/21/2015)
16	April 21, 2015	28. Review	
	April 23 - 24, 2015	Reading days	
17	April 27-30, 2014	Final Exam	

Grades and Grade Points

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Academic Honesty, Software Use, Campus Helping Resources, Services for Students with Disabilities

Academic Honesty

In 1995 the UF student body enacted an [honor code](#) and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

The Honor Pledge: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

On all work submitted for credit by students at the university, the following pledge is either required or implied: **"On my honor, I have neither given nor received unauthorized aid in doing this assignment."**

Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean, Student Honor Council, or Student Conduct and Conflict Resolution in the Dean of Students Office.

(Source: 2012-2013 Undergraduate Catalog)

It is assumed all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor.

This policy will be vigorously upheld at all times in this course.

Software Use:

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/ Counseling Services*

Groups and Workshops

Outreach and Consultation

Self-Help Library

Training Programs

Community Provider Database

- *Career Resource Center*, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues.

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/