

# NEMATODE SYSTEMATICS AND PHYLOGENY

NEM 6102L (LAB) 2 CREDIT HOURS

LOCATION: ROOM 2218, BLDG. 970. PLEASE NOTE THAT CLASS RESOURCES, ANNOUNCEMENTS, AND ASSIGNMENTS WILL BE MADE AVAILABLE THROUGH **CANVAS**.

SPRING

**INSTRUCTOR:** Dorota Porazinska

Room 2210, Department of Entomology and Nematology, Bldg. 970  
email: [dorotalp@ufl.edu](mailto:dorotalp@ufl.edu) (but please communicate via Canvas email)

**OFFICE HOURS:** Please send an me a Canvas email anytime to schedule a zoom meeting.

**COURSE TA OR COORDINATOR:** Parr McQueen  
email: [jparr.mcquuen@ufl.edu](mailto:jparr.mcquuen@ufl.edu) (but please communicate via Canvas email)

“Consider the nematode roundworm, the most abundant of all animals. Four out of five animals on Earth are nematode worms – if all solid materials except nematode worms were to be eliminated you could still see the ghostly outline of the most of it in nematode worms.” E. O. Wilson (*paraphrasing N. A. Cobb*)

**COURSE DESCRIPTION:** The course provides advanced knowledge on taxonomy and systematics of free-living, plant-parasitic, and animal-parasitic nematodes. It covers in depth morphological and molecular characterization of nematode taxa that provide basis for understanding nematode evolutionary relationships and their classification and identification. In addition, taxa are discussed in the context of their physiology, behavior, and ecological functions.

**COURSE GOALS AND/OR OBJECTIVES:** By the end of this course, students will:

1. Become comfortable with the use of vocabulary and principles used in the science of taxonomy and systematics.
2. Prepare temporary and permanent slides of representative nematode orders.
3. Practice light microscopy to develop skills relevant to nematode systematics and diagnostics.
4. Observe, take images, and record characteristic morphological and anatomical features used in nematode classification.

5. Recognize characteristic morphological features of nematode taxa representative of orders, families, and genera.
6. Identify features that infer about nematode evolutionary placement.

**REQUIRED TEXT:** None

**ADDITIONAL RESOURCES:** Handbook of Zoology, Vol 2: Nematoda. 2014. A. Schmidt-Rhaesa, Editor. Walter de Gruyter GmbH, Berlin. It is available for purchase [here](#). Soil and Freshwater Nematodes. 1951. T. Goodey. John Wiley & Sons, Inc. New York. Klasse Nematoda. 1984. I. Andr ssy, *Bestimmungsbucher zur Bodenfauna Europas*.

**REQUIRED PAPER READINGS:** (see schedule for dates):

De Ley, P. 1995. A resource for nematode phylogeny.

**PREREQUISITE KNOWLEDGE AND SKILLS:** NEM 6101 or equivalent. Your curiosity, excitement about nematodes, and appreciation for biodiversity!

**PURPOSE OF COURSE:** To establish a strong foundation of basic knowledge of nematode taxonomy and phylogenetic relationships.

**INSTRUCTIONAL METHODS:** This course will consist of labs and hands-on activities.

Labs will involve work with microscopes and actual observations of the features on living specimens (or sometimes fixed specimens) on slides. As part of the lab requirement, students will routinely prepare temporary slides during ongoing lab sessions and record observations from them in the form of drawings/images and detailed notes. In addition, students will prepare a slide collection consisting of 10 permanent slides that demonstrate at least 10 representative taxa of at least 8 orders. Occasionally, students will be required to watch instructional videos, and participate in discussion. For details see below.

#### GRADING POLICIES:

Assignment	% of Final Grade
10 Lab Assignments (100 pts)	40%
10 Permanent slides for Slide Collection (100 pts)	40%
10 Discussions/participation (100 pts)	20%

**Lab assignments:** Labs rely primarily on temporary, made in-class from living specimens slides and sometimes on permanent slides provided by the instructor. Lab assignments generally include: 1. making temporary slides, 2. observing nematode features under a microscope, 3. drawing/taking images, and 4. annotating drawings/images for morphological features. Students are required to make on average 3 temporary slides for each of the lab activities. To make temporary slides, students use dissecting scopes and living material to demonstrate their ability to pick and mount nematodes for compound microscope observations and drawings/images. Assignments are due a week later (Wednesday at 9:00 AM) prior to the following lab activity. Students are encouraged to use provided rubrics to ensure they receive maximum scores.

**Permanent slides (Slide Collection):** Students must demonstrate with permanent slides at least 10 taxa representative of at least 8 orders. Specimens may come from any unmounted source, but there plenty of fresh materials provided. Grading rubrics are provided ahead of time. All aspects of permanent slide making can be accomplished in Room 2220, but students can make their own arrangements. Instructions and materials to make permanent slides will be provided.

**Discussion/participation:** Student are required to accomplish all assignments of NEM6102 Modules prior to specific lab activities. All modules are aligned with lab activities to facilitate and reinforce learning. Students will be expected to communicate and share their knowledge as well as help other students.

**GRADING SCALE (%):**

100 – 94	A
<94 – 90	A-
<90 – 87	B+
<87 – 84	B
<84 – 80	B-
<80 – 77	C+
<77 – 74	C
<74 – 70	C-
<70 – 67	D+
<67 – 64	D
<64 – 60	D-
<60	E

**COURSE SCHEDULE:**

Module	Week	Topic	Assignment
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1.1	01 11 2023	Microscopy and morphology	<ol style="list-style-type: none"> <li>1. Use microscopes</li> <li>2. Make temporary slides</li> <li>3. Identify morphological features</li> </ol>
1.2	01 18 2023	Permanent slides	<ol style="list-style-type: none"> <li>1. Observe permanent slides</li> <li>2. Pick and fix nematodes</li> </ol>
1.3	01 25 2023	Morphology, phylogeny, ID keys	<ol style="list-style-type: none"> <li>1. Examine morphology in context of trees and identification keys</li> <li>2. Observe, categorize, and ID fresh specimens</li> </ol>
1.4	02 01 2023	Slide collection	<ol style="list-style-type: none"> <li>1. Mount fixed enoplids</li> </ol>
1.5	02 08 2023	Slide collection	<ol style="list-style-type: none"> <li>1. Mount fixed chromadorids</li> </ol>
2.1	02 15 2023	Enoplida	<ol style="list-style-type: none"> <li>1. Make temporary slides</li> <li>2. Identify genera</li> </ol>
2.2	02 22 2023	Triplonchida	<ol style="list-style-type: none"> <li>1. Make temporary slides</li> <li>2. Identify genera</li> </ol>
3.1	03 01 2023	Dorylaimida	<ol style="list-style-type: none"> <li>1. Make temporary slides</li> <li>2. Identify genera</li> </ol>
3.2	03 08 2023	Mononchida	<ol style="list-style-type: none"> <li>1. Make temporary slides</li> <li>2. Identify genera</li> </ol>
3.3	03 22 2023	Slide collection	<ol style="list-style-type: none"> <li>1. Identify mounted enoplids</li> </ol>
4.1	03 29 2023	Chromadorida, Monhysterida, Plectida	<ol style="list-style-type: none"> <li>1. Make temporary slides</li> <li>2. Identify genera</li> </ol>

4.2	04 05 2023	Slide collection	1. Identify mounted chromadorids
4.3	04 12 2023	Rhabditina	1. Make temporary slides 2. Identify genera
4.4	04 19 2023	Tylenchina	1. Make temporary slides 2. Identify genera
4.4	04 26 2023	Slide collection	1. Identify mounted rhabditids
4.5	05 02 2023	Slide collection	1. Finalize slide collection

**Disclaimer:** This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.

## COURSE POLICIES:

**ASSIGNMENT POLICY:** All lab assignments submitted on time have a potential to receive full credit, 1-day late to receive 80% of the full credit, 2-days late to receive 60% of the full credit, and assignments that are more than 2 days late receive 0. All assignments have a rubric to guide you through the assignment.

**GRADES AND GRADE POINTS:** For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>.

**ATTENDANCE AND MAKE-UP WORK:** Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>.

**ONLINE COURSE EVALUATION PROCESS:** Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at: <https://gatorevals.ua.ufl.edu/students/>. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or

via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at: <https://gatorevals.aa.ufl.edu/public-results/>.

**ACADEMIC HONESTY:** As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following 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.”* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *“on my honor, I have neither given nor received unauthorized aid in doing this assignment.”*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

**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.

**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. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation

0001 Reid Hall, 352-392-8565, <https://disability.ufl.edu/>

**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](http://www.counseling.ufl.edu)
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Wellness Coaching
- U Matter We Care, [www.umatter.ufl.edu/](http://www.umatter.ufl.edu/)
- *Career Connections Center, First Floor JWRU, 32-392-1601, <https://career.ufl.edu/>*

Student Complaints:

- Residential Course: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>
- Online Course: <http://www.distance.ufl.edu/student-complaint-process>