# Cover Sheet: Request 14124

**Molecular Biology of Insects and Nematodes**

**Info**

| | |
|---|---|
| Process | Course\|New\|Ugrad/Pro |
| Status | Pending at PV - University Curriculum Committee (UCC) |
| Submitter | Chun Wong adamcnwong@ufl.edu |
| Created | 8/12/2019 9:21:19 AM |
| Updated | 12/9/2019 1:16:07 PM |
| Description of request | Currently there is no other Molecular course in the Entomology and Nematology Department. This course will fill this gap and serve the best interests of our students by equipping them with: 1) foundational knowledge of molecular biology, with emphasis on scientific discoveries from insects and nematodes, 2) information on the current innovations and trends of molecular technologies (e.g. high throughput sequencing, genome editing by CRISPR). |

**Actions**

| Step | Status | Group | User | Comment | Updated |
|---|---|---|---|---|---|
| Department | Approved | CALS - Entomology and Nematology 514914000 | Heather Mcauslane | | 8/13/2019 |
| No document changes | | | | | |
| College | Approved | CALS - College of Agricultural and Life Sciences | Joel H Brendemuhl | Edits requested by the CALS CC have been addressed. Graduate version of the course (14136) has been submitted and is pending at GCC. | 12/9/2019 |
| Syllabus_UnderGrad_Wong101619.doc<br>Syllabus_Grad_Wong101619.doc<br>consulting with biology.pdf | | | | | 11/13/2019<br>11/13/2019<br>11/13/2019 |
| University Curriculum Committee | Pending | PV - University Curriculum Committee (UCC) | | | 12/9/2019 |
| No document changes | | | | | |
| Statewide Course Numbering System | | | | | |
| No document changes | | | | | |
| Office of the Registrar | | | | | |
| No document changes | | | | | |
| Student Academic Support System | | | | | |
| No document changes | | | | | |
| Catalog | | | | | |
| No document changes | | | | | |
| College Notified | | | | | |
| No document changes | | | | | |

# Course|New for request 14124

## Info

**Request:** Molecular Biology of Insects and Nematodes
**Description of request:** Currently there is no other Molecular course in the Entomology and Nematology Department. This course will fill this gap and serve the best interests of our students by equipping them with: 1) foundational knowledge of molecular biology, with emphasis on scientific discoveries from insects and nematodes, 2) information on the current innovations and trends of molecular technologies (e.g. high throughput sequencing, genome editing by CRISPR).
**Submitter:** Chun Wong adamcnwong@ufl.edu
**Created:** 11/13/2019 6:29:08 PM
**Form version:** 3

## Responses

**Recommended Prefix** ENY
**Course Level** 4
**Course Number** XXX
**Category of Instruction** Joint (Ugrad/Grad)
**Lab Code** None
**Course Title** Molecular Biology of Insects and Nematodes
**Transcript Title** Mol Bio Inse Nema
**Degree Type** Graduate

**Delivery Method(s)** On-Campus, Online, Off-Campus
**Co-Listing** Yes
**Co-Listing Explanation** Dear curriculum committee,

This course "Molecular Biology of Insects and Nematodes" will be co-taught for graduate and undergraduate students. I am writing to elaborate on the differences between the graduate and undergraduate syllabus.

First, I emphasize an additional learning objective for the graduate students ("Critique molecular studies published in peer reviewed articles"), to equip them with stronger literature review and writing skills. I will accomplish this through two ways: 1) graduate students will lead a journal paper discussion in week 9. Research articles covering different topics of molecular entomology or nematology and guiding questions will be distributed to them two weeks before the exercise, and they will have to prepare some answers before class. They are expected to lead and take notes during the discussion. Answers to the guiding questions and a summary of the discussion will be submitted as a report, worth 50 points toward their grade. No submission is required for undergraduate students but they will also participate in the discussion. 2) Graduate students will write a rigorous literature review assignment of 1500 words, while undergrad students will write a short essay (500-word), both are worth 120 points. Grad students will have an opportunity to send me a first draft for comments before final submission in week 11. They will receive feedback on their final submission, to help them become better scientific writers.

Second, graduate students will have additional readings, listed in their syllabus. These readings cover some important aspects of omics, molecular biology, and data science. This is not required for the undergrads.

Lastly, undergrad students will have an easier exams. There are 3 exams in this course, each exam will consist of multiple-choice, short answer, and long answer questions. Graduate and undergraduate students will be given different long-answer questions, in which the graduate ones will be more difficult and synthesis-oriented.
**Effective Term** Earliest Available
**Effective Year** Earliest Available
**Rotating Topic?** No
**Repeatable Credit?** No

**Amount of Credit** 3

**S/U Only?** No
**Contact Type** Regularly Scheduled
**Weekly Contact Hours** 4
**Course Description** Through this course, students will acquire: 1) foundation knowledge of molecular biology, with emphasis on scientific discoveries from insects and nematodes, 2) information on the current innovations and trends of molecular technologies (e.g. high throughput sequencing, different types of omics, genome editing by CRISPR).
**Prerequisites** Students must complete a college-level biology course: BSC2005 Biological Sciences, BSC2010 Integrated Principles of Biology 1, or equivalent.
**Co-requisites** N/A
**Rationale and Placement in Curriculum** The UF Entomology and Nematology Department has historically been one of the finest departments in the country, particularly in the areas of applied entomology research, Integrated Pest Management (IPM), insect taxonomy, ecology and physiology. There is a growing demand to promote the molecular and sub-organismal expertise to complement our existing strengths, driven by recent revolution in next-generation sequencing and system biology. Also, the professor who was teaching the molecular course in the Dept retired this year.

My teaching thus serves to 1) promote the interests of students from my department and outside on molecular biology, and 2) equip students with the knowledge and skills that they can apply into their research and best prepare them for their future careers.
**Course Objectives** • List 5 breakthrough discoveries from research on Drosophila melanogaster and Caenorhabditis elegans.
- Explain the strengths and limitations of different model organisms in research.
- Describe the working principles of common molecular techniques to study DNA, RNA, and proteins.
- Explain the differences between genomics, proteomics and metabolomics.
- Summarize genetic techniques used in insect or nematode studies.
- Compare and contrast high throughput sequencing technologies.
- Evaluate omics data using basic multivariate statistics.
- Construct and execute nucleic acid sequence identification using a BLAST search.
- Propose solutions to common issues encountered in nuclei acid extraction, PCR, and Sanger sequencing.

**Course Textbook(s) and/or Other Assigned Reading** Required textbook
- Marjorie A. Hoy: Insect Molecular Genetics: An Introduction to Principles and Applications (4th Edition).

EBook is available from the UF library for students: Go to: https://guides.uflib.ufl.edu/ebooks and search the book under Library Catalog.

**Weekly Schedule of Topics** Week Topic Active learning exercises Online quiz (Y/-)?
Week 1
August 21 Share your favorite insect/nematode research news! Self intro and news sharing -

Week 2A
August 26 DNA, RNA, and protein
A genome size guessing game -

Week 2B
August 28 Mechanisms of gene regulation
A movie clip followed by discussions Y

Week 3A
Sept 2 Holiday

Week 3
Sept 4 Genotype and phenotype (Part 1)
- Sex determination
- Dosage compensation Pictionary game -

Week 4A
Sept 9 Genotype and phenotype (Part 2)
- Epigenetics -

Week 4B
Sept 11 Model insect in research - Drosophila melanogaster (Part 1)
- Introduction to fly genetics Journal paper discussion Y

Week 5A
Sept 16 Model insect in research – Drosophila melanogaster (Part 2)
- Host-microbiome interactions
- Translating to agricultural pests -

Week 5B
Sept 18 Guest seminar on Drosophila melanogaster research
- Diego Rincon-Limas (Department of Neurology) Research tool demo Y

Week 6A
Sep 23 Pre-exam discussions, Q&A

Week 6B
Sept 25 1st exam

Week 7A
Sept 30 Guest seminar on Small molecule discoveries using C. elegans
- Rebecca Butcher (Department of Chemistry) -

Week 7B
Oct 2 Guest seminar on Molecular Nematology
- Peter DiGennaro (Nematology) - Y

Week 8A
Oct 7 Molecular techniques (Part 1)
- PCR, qPCR, cloning, Sanger sequencing, Western blot. Case Studies -

Week 8B
Oct 9 Molecular techniques (Part 2)
- RNAi and CRISPR Tutorial videos Y

Week 9A
Oct 14 Guest seminar on CRISPR
- Dariane Souza (Entomology) -

Week 9B
Oct 16 Journal paper critique and discussion -

Week 10A
Oct 21 Introduction to high-throughput sequencing (Part 1)
- Sequencing technologies
- Experimental design and concept of multiplexing Case Studies, tutorial videos -

Week 10B
Oct 23 Introduction to high-throughput sequencing (Part 2)
- Multivariate statistics Case Studies, tutorial videos Y

Week 11A
Oct 28 Pre-exam discussions, Q&A

Week 11B
Oct 30 2nd exam

Week 12A
Nov 4 Mass spectrometry-based omics
• Metabolomics and Proteomics Tutorial videos, games -

Week 12B
Nov 6 Guest seminar an omics topics
• TBD - Y

Week 13A
Nov 11 Holiday

Week 13B
Nov 13 Navigating big data – class exercise 1
• Amplicons sequences
• Metabolomes
• Comparative genomics Group workshop -

Week 14A
Nov 18 Navigating big data – class exercise 2
• Comparative genomics Group workshop -

Week 14B
Nov 20 Applications of molecular biology in pest management Case Studies, tutorial videos Y

Week 15A
Nov 25 Group debate Debate -

Week 15B
Nov 25 Pre-exam discussions, Q&A

Week 16A
Dec 2 3rd exam

Week 16B
Dec 4 General feedback on the course

**Grading Scheme** This course will be graded on the following scale:
A 93-100% of total points
A- 90-92.9% of total points
B+ 87-89.9% of total points
B 83-86.9% of total points
B- 80-82.9% of total points
C+ 77-79.9% of total points
C 73-76.9% of total points
C- 70-72.9% of total points
D+ 67-69.9% of total points
D 63-66.9% of total points
D- 60-62.9% of total points
E <60% of total points

Point amount
Exams (3 in total) 300 in total (100 each)
Quizzes (8 in total) 80 in total (10 each)
Group Debate (1 in total) 100
Short essay (500 words) 120
Active participation in class 100
Total: 700

**Instructor(s)** Adam CN Wong
**Attendance & Make-up** Yes

**Accomodations** Yes
**UF Grading Policies for assigning Grade Points** Yes
**Course Evaluation Policy** Yes

# Fw: Syllabus attached: Outside consult for Molecular Biology of Insects and Nematodes

Wong,Chun Nin

Wed 11/13/2019 6:23 PM

To: Wong,Chun Nin <adamcnwong@ufl.edu>;

Adam C.N. Wong
Assistant Professor
Entomology and Nematology Department
Genetics Institute
University of Florida
1881 Natural Area Drive, Steinmetz Hall
Gainesville, FL 32611-0620
Phone: 352-273-3977 Email: adamcnwong@ufl.edu
Lab Website

---

From: Siegfried,Blair D
Sent: Wednesday, November 6, 2019 8:29 AM
To: Weeks,Jennifer Ashley; Wong,Chun Nin
Subject: FW: Syllabus attached: Outside consult for Molecular Biology of Insects and Nematodes

I hope this is all we need! About what I expected.

On 11/6/19, 7:57 AM, "Wayne,Marta L" <mlwayne@ufl.edu> wrote:

Dear Blair,

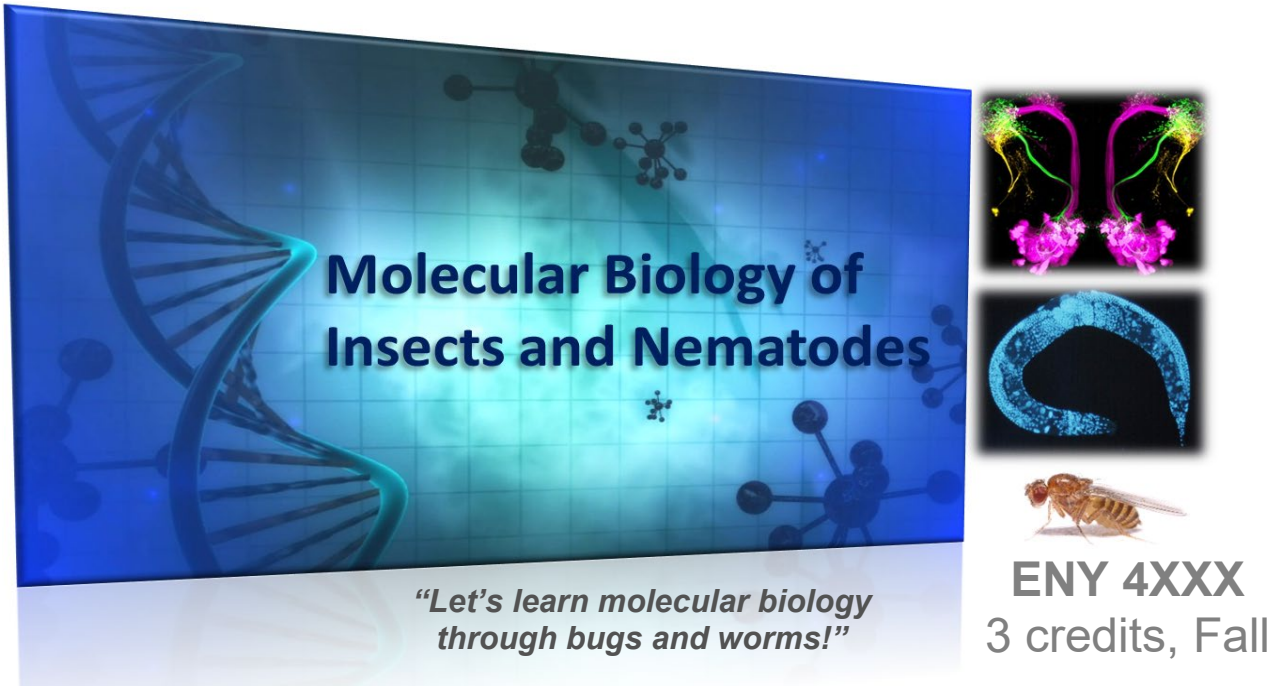
Biology is enthusiastic about your course. Thank you for the opportunity to look it over!!!

Yours,
Marta

Sent from my iPhone

> On Nov 5, 2019, at 3:12 PM, Siegfried,Blair D <bsiegfried1@ufl.edu> wrote:
>
> Marta, Sorry to bother you with his again but our CALS curriculum committee meets next week and we really need to get this course on the books so that a new faculty member get the credit for developing the course. His focus is on arthropods and nematodes and it shouldn't overlap with any of your courses. If you have any concerns, please let me know as soon as possible. Otherwise a simple email indicating that you don't have concerns will be sufficient.
>
> Thanks,
> Blair
>
> From: "Siegfried,Blair D" <bsiegfried1@ufl.edu>
> Date: Wednesday, October 30, 2019 at 9:25 AM
> To: "Wayne,Marta L" <mlwayne@ufl.edu>
> Subject: FW: Syllabus attached: Outside consult for Molecular Biology of Insects and Nematodes
>
> Hi Marta, Just checking in to see if you have any comments on this course. We hope to have it done before the next CALS curriculum committee which is coming up relatively soon. Let me know if you'd like to discuss.
>

> Thanks,
> Blair
>
> From: "Siegfried,Blair D" <bsiegfried1@ufl.edu>
> Date: Friday, October 25, 2019 at 9:54 AM
> To: "Wayne,Marta L" <mlwayne@ufl.edu>
> Subject: FW: Syllabus attached: Outside consult for Molecular Biology of Insects and Nematodes
>
> Good Morning Marta,
>
> We have a new faculty member that is proposing a course (syllabus attached) that has been conditionally approved by the CALS curriculum committee provided we conduct an outside consultant with your department. I guess they had some concern with possible overlap with Biology but the focus toward insects and nematodes should made it unique. I'd be glad to visit to provide additional detail if you have concern. Otherwise, I think they would be happy with a simple statement that Biology does not have concerns. Let me know what you think.
>
> Best,
> Blair
>
>
> From: "Wong,Chun Nin" <adamcnwong@ufl.edu>
> Date: Monday, October 21, 2019 at 3:37 PM
> Cc: "Siegfried,Blair D" <bsiegfried1@ufl.edu>
> Subject: Syllabus attached: Outside consult for Molecular Biology of Insects and Nematodes
>
>
>
>
>
> Adam C.N. Wong
> Assistant Professor
> Entomology and Nematology Department
> Genetics Institute
> University of Florida
> 1881 Natural Area Drive, Steinmetz Hall
> Gainesville, FL 32611-0620
> Phone: 352-273-3977 Email: adamcnwong@ufl.edu
> Lab Website<http://microbiota.wixsite.com/adam-wong>
> _____
> From: Wong,Chun Nin
> Sent: Monday, October 21, 2019 2:43 PM
> To: Weeks,Jennifer A
> Cc: Siegfried,Blair D
> Subject: Re: Outside consult for Molecular Biology of Insects and Nematodes
>
>
> Got it Jen. If both of you are ok with it, I will send an email to Marta.
>
>
> Adam C.N. Wong
> Assistant Professor
> Entomology and Nematology Department
> Genetics Institute
> University of Florida
> 1881 Natural Area Drive, Steinmetz Hall
> Gainesville, FL 32611-0620
> Phone: 352-273-3977 Email: adamcnwong@ufl.edu
> Lab Website<http://microbiota.wixsite.com/adam-wong>
> _____
> From: Weeks,Jennifer Ashley




**Instructor: Dr. Adam CN Wong**
Room 3105, Steinmetz Hall, Bldg. 970, Natural Area Drive
352-273-3977; adamcnwong@ufl.edu

**Class period:** Monday and Wednesday Period 6 - 7 (12:50 PM - 2:45 PM)
**Locations:** Monday: 3118 Steinmetz Hall; Wednesday: 1015 Steinmetz Hall.
**Office hours**: Immediately after class and by appointment.

## Overview

### Course Description

Through this course, students will acquire: 1) **foundational knowledge** of molecular biology, with emphasis on scientific discoveries from insects and nematodes, 2) information on the **current innovations and trends** of molecular technologies (e.g. high throughput sequencing, genome editing by CRISPR). Class lectures will be complemented by case studies, games, tutorial videos, interactive discussion, and group debates.

### What is special about this course?

Do you know that …

- An insect (*Drosophila melanogaster*) and a nematode (*Caenorhabditis elegans*) have contributed to numerous groundbreaking discoveries and generated 15 Nobel laureates in the past century?
- Our knowledge of how cells develop into tissues, how innate immune system works, and how genes may affect behaviors such as smell, taste, even sleep, were profoundly advanced by studies on insects or nematodes?
- Scientists are constantly leveraging molecular tools to study and to control pests and disease vectors?

If your answer is "no" to any of the questions, or, if you are simply intrigued by the idea of studying molecular biology from an entomo- or nemato- logical perspective, **this course may be ideal for you!**

### Learning Objectives

Upon completion of the course, students will be able to:

- List 5 breakthrough discoveries from research on *Drosophila melanogaster* and *Caenorhabditis elegans*.
- Explain the strengths and limitations of different model organisms in research.
- Describe the working principles of common molecular techniques to study DNA, RNA, and proteins.
- Explain the differences between genomics, proteomics and metabolomics.

- Summarize genetic techniques used in insect or nematode studies.
- Compare and contrast high throughput sequencing technologies.
- Evaluate omics data using basic multivariate statistics.
- Construct and execute nucleic acid sequence identification using a BLAST search.
- Propose solutions to common issues encountered in nuclei acid extraction, PCR, and Sanger sequencing.

**Prerequisite**

Students must complete a college-level biology course: BSC2005 Biological Sciences, BSC2010 Integrated Principles of Biology 1, or equivalent.

**Requirements**

This course is co-listed with ENY4XXX (graduate students). Students registered for ENY6XXX have requirements in excess of those for ENY4XXX students. These include: 1) graduate students will be expected to lead journal paper critique/discussion at week 9B and submit a summary report worth 50 points, 2) a more rigorous literature review assignment (1500-word) as compared to a short essay (500-word), 3) additional required readings, and 4) more difficult exams (different long answer questions).

**Readings:**

*Required textbook*

- Marjorie A. Hoy: Insect Molecular Genetics: An Introduction to Principles and Applications (4th Edition).
  *EBook is available from the UF library for students: Go to: https://guides.uflib.ufl.edu/ebooks and search the book under Library Catalog.*

## Fall Schedule (tentative)

| Week | Topic | Active learning exercises | Online quiz? |
|---|---|---|---|
| **Week 1** August 21 | **Share your favorite insect/nematode research news!** | Self intro and news sharing | - |
| **Week 2A** August 26 | **DNA, RNA, and protein** | A genome size guessing game | - |
| **Week 2B** August 28 | **Mechanisms of gene regulation** | A movie clip followed by discussions | Y |
| **Week 3A** Sept 2 | Holiday | | |
| **Week 3** Sept 4 | **Genotype and phenotype (Part 1)**<br>• Sex determination<br>• Dosage compensation | Pictionary game | - |
| **Week 4A** Sept 9 | **Genotype and phenotype (Part 2)**<br>• Epigenetics | - | - |
| **Week 4B** Sept 11 | **Model insect in research - Drosophila melanogaster (Part 1)**<br>• Introduction to fly genetics | Journal paper discussion | Y |
| **Week 5A** Sept 16 | **Model insect in research – Drosophila melanogaster (Part 2)**<br>• Host-microbiome interactions<br>• Translating to agricultural pests | - | - |
| **Week 5B** Sept 18 | **Guest seminar on *Drosophila* melanogaster research**<br>• Diego Rincon-Limas (Department of Neurology) | Research tool demo | Y |
| **Week 6A** Sep 23 | Pre-exam discussions, Q&A | | |
| **Week 6B** Sept 25 | 1st exam | | |
| **Week 7A** Sept 30 | **Guest seminar on Small molecule discoveries using C. elegans** | - | - |

| | | | |
|---|---|---|---|
| | • Rebecca Butcher (Department of Chemistry) | | |
| **Week 7B**<br>Oct 2 | **Guest seminar on Molecular Nematology**<br>• *Peter DiGennaro (Nematology)* | - | Y |
| **Week 8A**<br>Oct 7 | **Molecular techniques (Part 1)**<br>• PCR, qPCR, cloning, Sanger sequencing, Western blot. | Case Studies | - |
| **Week 8B**<br>Oct 9 | **Molecular techniques (Part 2)**<br>• RNAi and CRISPR | Tutorial videos | Y |
| **Week 9A**<br>Oct 14 | **Guest seminar on CRISPR**<br>• Dariane Souza (Entomology) | - | |
| **Week 9B**<br>Oct 16 | **Journal paper critique and discussion** | - | |
| **Week 10A**<br>Oct 21 | **Introduction to high-throughput sequencing (Part 1)**<br>• Sequencing technologies<br>• Experimental design and concept of multiplexing | Case Studies, tutorial videos | - |
| **Week 10B**<br>Oct 23 | **Introduction to high-throughput sequencing (Part 2)**<br>• Multivariate statistics | Case Studies, tutorial videos | Y |
| **Week 11A**<br>Oct 28 | Pre-exam discussions, Q&A | | |
| **Week 11B**<br>Oct 30 | 2nd exam | | |
| **Week 12A**<br>Nov 4 | **Mass spectrometry-based omics**<br>• Metabolomics and Proteomics | Tutorial videos, games | - |
| **Week 12B**<br>Nov 6 | **Guest seminar an omics topics**<br>• TBD | - | Y |
| **Week 13A**<br>Nov 11 | Holiday | | |
| **Week 13B**<br>Nov 13 | **Navigating big data – class exercise 1**<br>• Amplicons sequences<br>• Metabolomes<br>• Comparative genomics | Group workshop | - |
| **Week 14A**<br>Nov 18 | **Navigating big data – class exercise 2**<br>• Comparative genomics | Group workshop | - |
| **Week 14B**<br>Nov 20 | **Applications of molecular biology in pest management** | Case Studies, tutorial videos | Y |
| **Week 15A**<br>Nov 25 | **Group debate** | Debate | - |
| **Week 15B**<br>Nov 25 | Pre-exam discussions, Q&A | | |
| **Week 16A**<br>Dec 2 | 3rd exam | | |
| **Week 16B**<br>Dec 4 | General feedback on the course | | |

## Course Policies

**Grading**

This course will be graded on the following scale:

| | |
|---|---|
| A | 93-100% of total points |
| A- | 90-92.9% of total points |
| B+ | 87-89.9% of total points |
| B | 83-86.9% of total points |
| B- | 80-82.9% of total points |
| C+ | 77-79.9% of total points |
| C | 73-76.9% of total points |
| C- | 70-72.9% of total points |
| D+ | 67-69.9% of total points |
| D | 63-66.9% of total points |

D- 60-62.9% of total points
E <60% of total points

| | Point amount |
|---|---|
| Exams (3 in total) | 300 in total (100 each) |
| Quizzes (8 in total) | 80 in total (10 each) |
| Group Debate (1 in total) | 100 |
| Short essay (500 words) | 120 |
| Active participation in class | 100 |
| **Total** | 700 |

For information on current UF policies for assigning grades, please visit:
Current website: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

**General Class Rules**

- Keep electronic devices in silence mode during lectures and lab exercises.
- Discussions about grades or other personal matters should be addressed during office hours.

**Absences and Make-Up Work**

Attendance is required. If you miss class, you are responsible for getting notes from other classmates.
University policy for class attendance and make-up exams, assignments and other work can be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

**Class Attendance and Online quizzes**

Each lecture class will be 1 hour long, except for guest lectures that will be 45 mins long, followed by 15-min Q and A. There will be 8 quizzes posted on Canvas and available on Wednesdays of specific weeks (indicated in the fall schedule table) to help students reinforce course materials and learning. Quizzes will be open book, consisting of 10 multiple choices, true/false, and fill in the blank questions. Quizzes will be due by Friday 5pm EST of the same week the quiz is posted.

**Active Participation in Class**

Participation in class will be assessed through several in-class exercises: i) self-introduction and sharing of a molecular news, and completed a questionnaire (20 points) in week 1 class, ii) participate in week 9B journal discussion and raise at least 1 question (20 points). iii) Complete the questionnaires during the workshops at week 13B and 14A (20 points each, 40 points in total), and iv) attended the session at week 16B and give feedback to the course (20 points).

**Journal discussion**

Students will be divided into groups of three or four. Research articles covering different topics of molecular entomology or nematology and guiding questions will be distributed to the groups in week 7. Graduate students will bring their own answers, discuss and take notes during the week 9B class discussion. Answers to the guiding questions and notes will be submitted as a report at the end of class (No submission is required for undergraduate students).

**Short essay**

Students will generate a topic of interest in insect/nematode molecular biology and write 500-word essay, due on Friday 5pm EST of Week 11. A grading rubric is attached.

**Group debate**

There will be a group debate exercise toward the end of the course. An instruction and grading rubric will be posted in Canvas 2 weeks prior to the exercise. Students will be divided into 3 groups – two debating teams and a group of judges. Each debating team will have 10 minutes to present their arguments in support of their position statement. After both teams have presented, they will have 5 minutes to generate questions/criticisms to challenge the opposing debate team. Each team will take turns to raise questions/criticisms, followed by answers/rebuttal from the opposing team. At the conclusion of the debate, each judge will provide 5-minutes of feedback. Debating teams can decide whether they want to respond to judge comments before the judges cast their votes. A key component of this exercise is peer assessment. Debating teams will be graded by the judges and instructor. Judges will be graded by the students for their in-class feedback and will have to submit a 1-page summary of the debate (summarize key points raised by both teams, and critique their debating techniques) within 3 days by 5pm EST after the debate to be graded by the instructor.

**Exams**

There will be 3 exams delivered in weeks 6, 10 and 15. The exams will be in class, closed book and non-cumulative. Exam papers will consist of 20 multiple-choice questions, 5 short answer questions (7 to choose from), and 2 long answer questions (3 to choose from). Graduate and undergraduate students will be given different long-answer questions, in which the graduate ones will be more difficult and synthesis-oriented.

**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. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

## Academic Integrity and Class Rules

Each student in the course is expected to abide by the UF Code of Academic Integrity. For information, please visit: https://sccr.dso.ufl.edu/students/student-conduct-code/

**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.

## Additional Resources

**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, www.dso.ufl.edu/drc

**Campus Helping Resources**
Students experiencing crises or personal problems that interfere with their general wellbeing 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 Wellness Coaching
- U Matter We Care, www.umatter.ufl.edu/
- Career Connections Center, First Floor JWRU, 392-1601, https://career.ufl.edu/.

**Student Complaints**

- Residential Course: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf
- Online Course: http://www.distance.ufl.edu/student-complaint-process.

**Plagiarism**

Plagiarism is a serious dishonesty act in academia, especially with the ease of obtaining information from the internet. Students must not represent the words or ideas of another person as one's own without attribution to the source, unless they are considered common knowledge. Plagiarism includes but is not limited to:

- Quoting oral or written materials including but not limited to those found on the internet, whether published or unpublished, without proper attribution.
- Submitting a document or assignment which in whole or in part is identical or substantially identical to a document or assignment not authorized by the student.
- Unauthorized use of materials or resources.
- Prohibited collaboration or consultation.
- Submission of paper or academic work purchased or obtained for an outside source.

Plagiarism is unethical and unacceptable. UF Plagiarism Policy can be found: http://regulations.ufl.edu/chapter4/4041.pdf. The consequences for plagiarism while at the University of Florida range from receiving a zero grade for the plagiarized assignment, a fail grade for the course, to, expulsion from the university. Students who plagiarize will be caught and consequences will be applied. Written assignments will be checked using an anti-plagiarism software called Turnitin® (http://www.at.ufl.edu/~turnitin/about.html).

For further information and examples of plagiarism, please read the George Smathers' Library Guide to Plagiarism at http://www.uflib.ufl.edu/msl/services/tutorials/plagiarism/student_intro.html

**Short essay grading rubric**

**Student name:**
**Title of the review:**

| Category | Scoring Criteria | Total Points |
|---|---|---|
| **Content** (40%) | Topic/question of the assay is clearly defined. | /20 |
| | Conclusions are supported by evidence covered in the essay | /20 |
| **Organization** (20%) | Ideas are arranged logically and the reader can easily follow the essay. | /20 |
| **Delivery** (20%) | Writing is crisp, clear, and succinct. Meaning is explicit. | /20 |
| **Format and Style** (30%) | Correct grammar and no typos throughout the paper. | /10 |
| | Include headers (student name, title of the review), page numbers and follow the general rules stated in Canvas. | /10 |
| | Between 450-500 words. | /10 |
| **Citations/references** (10%) | References are primarily peer-reviewed professional journals or other legitimate sources. | /10 |
| | **Total Points (out of 120)** | |

# Debate exercise

**Team YES:**

**Team NO:**

**Student Judges:**

**Teacher Judges:**

**Instructions for the debate:**

| | | |
|---|---|---|
| **Round 1 - presentation** | Each team will have 10 minutes to present their position statements and elaborate their arguments. | 20 mins |
| **Round 2 - brainstorming** | After both teams have presented, they will have 5 minutes to come up with 2-3 questions/criticisms to challenge each other. | 5 mins |
| **Round 3 – questions and rebuttal** | Each team will take turns to raise questions/criticisms (1 min), followed by answers/rebuttal from the opposing team (1 min). | 15 mins |
| **Round 4 – judges feedback** | Each judge will provide a 5-minute feedback and cast their votes.<br><br>Debating teams can decide whether they want to respond to judge comments before the judges vote (2 mins) | 20 mins |
| **Round 5 – winning team announced** | - | 1 min |

**Grading**

A key component of this exercise is peer assessment.

- Debating teams will be graded by the student and teacher judges, as well as by each other.
- Judges will be graded by the students for their in-class feedback and will have to submit a summary report to be graded by the teachers.

## Grading for the debating teams

1. **By the judges (50 points):**

| | **Excellent (15)** | **Good (10)** | **Average (5)** | **Below standard (0)** |
|---|---|---|---|---|
| **Preparation** (15 points) | Organized, compelling evidence to support the position statement.<br><br>Demonstration of a good team effort. | Most, but not all, supporting evidence are relevant.<br><br>Demonstration of a good team effort. | Some reasonable evidence although a few are weak or irrelevant.<br><br>An impression that particular individuals doing most of the work. | Evidence is generally weak and irrelevant.<br><br>Individual(s) did not contribute to the group's preparation. |
| **Delivery** (15 points) | All arguments are strong and convincing, supported by facts and examples.<br><br>Speaking is clear and voice can always be heard. | Some arguments are supported by facts and examples.<br><br>Voice is generally clear although sometime ideas are not very clear | Arguments makes senses but can benefit with better factual support.<br><br>The speech is understandable but not very easy to follow. | Arguments are weak and lack factual support.<br><br>The speech is hard to follow. |
| **Questions and Rebuttal** (15 points) | Raise critical questions that are relevant and thoughtful.<br><br>Address the questions from opposing team professionally and rebut with clarity. | Raise questions that are relevant and thoughtful.<br><br>Made good attempts to address the questions from opposing team. Some answers can be better clarified. | Raise questions that are relevant but obvious.<br><br>Made good attempts to address the questions from opposing team but some answers are not convincing at all. | Unable to raise relevant questions or answer questions. |
| **Winner/loser** | +5 point for the winning team | | | |

2. **By other team members (50 points):**
   On a scale of 0 to 50, please give a score for each member in your team in their participation (50: fully participate and make great contribution; 0: do not participate at all and made no contributions)

## Grading for the judges

1. **In-class feedback (50 points)**

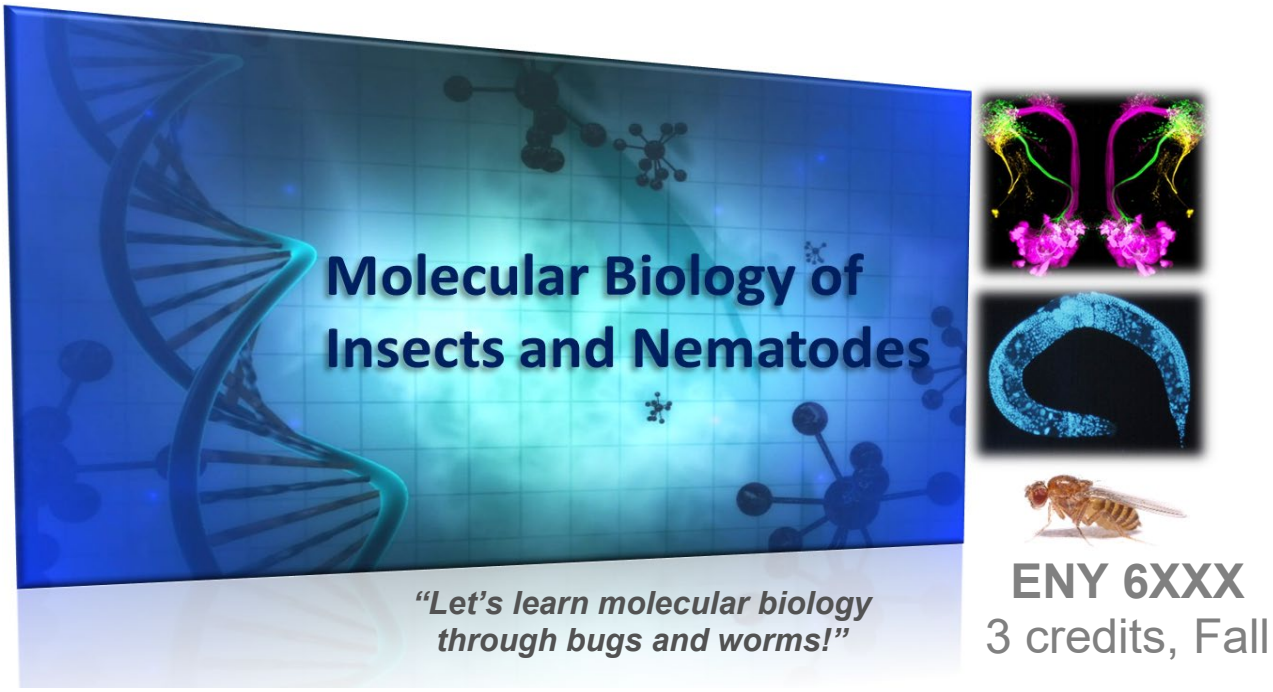
At the end of the debate, student judges will have to: 1) detail the key messages delivered by the teams, 2) Vote on the winning team, 3) explain why the winning team deserves it, 4) provide feedback for improvement on this class activity.

On a scale of 0-50, judges will be graded by both debating teams for their in-class feedback (50: excellent summary and constructive feedback, 0: unclear summary and unhelpful feedback).

2. **A summary report (50 points)**

After the debate, judges will submit a short report (up to 2 page, single space, 12pt font) by Friday 5pm EST of the week, to:

1) Summarize the position of each team (10 points).
2) Point out the strengths and weakness of each team, highlight evidence that they think are useful/convincing or not useful/unconvincing (20 points).
3) Suggest improvement for each team (10 points).
4) Provide feedback on this class activity to the instructors (10 points)




**Instructor: Dr. Adam CN Wong**
Room 3105, Steinmetz Hall, Bldg. 970, Natural Area Drive
352-273-3977; adamcnwong@ufl.edu

**Class period:** Monday and Wednesday Period 6 - 7 (12:50 PM - 2:45 PM)
**Locations:** Monday: 3118 Steinmetz Hall; Wednesday: 1015 Steinmetz Hall.
**Office hours**: Immediately after class and by appointment.

## Overview

### Course Description

Through this course, students will acquire: 1) **foundational knowledge** of molecular biology, with emphasis on scientific discoveries from insects and nematodes, 2) information on the **current innovations and trends** of molecular technologies (e.g. high throughput sequencing, genome editing by CRISPR). Class lectures will be complemented by case studies, games, tutorial videos, interactive discussion, and group debates. During the course, students will learn how to **effectively review scientific literature and lead journal discussion**.

### What is special about this course?

Do you know that …

- An insect (*Drosophila melanogaster*) and a nematode (*Caenorhabditis elegans*) have contributed to numerous groundbreaking discoveries and generated 15 Nobel laureates in the past century?
- Our knowledge of how cells develop into tissues, how innate immune system works, and how genes may affect behaviors such as smell, taste, even sleep, were profoundly advanced by studies on insects or nematodes?
- Scientists are constantly leveraging molecular tools to study and to control pests and disease vectors?

If your answer is "no" to any of the questions, or, if you are simply intrigued by the idea of studying molecular biology from an entomo- or nemato- logical perspective, **this course may be ideal for you!**

### Learning Objectives

Upon completion of the course, students will be able to:

- List 5 breakthrough discoveries from research on *Drosophila melanogaster* and *Caenorhabditis elegans*.
- Explain the strengths and limitations of different model organisms in research.
- Describe the working principles of common molecular techniques to study DNA, RNA, and proteins.

- Explain the differences between genomics, proteomics and metabolomics.
- Summarize genetic techniques used in insect or nematode studies.
- Compare and contrast high throughput sequencing technologies.
- Evaluate omics data using basic multivariate statistics.
- Construct and execute nucleic acid sequence identification using a BLAST search.
- Propose solutions to common issues encountered in nuclei acid extraction, PCR, and Sanger sequencing.
- Critique molecular studies published in peer reviewed articles.

**Prerequisite**
Students must complete a college-level biology course: BSC2005 Biological Sciences, BSC2010 Integrated Principles of Biology 1, or equivalent.

**Requirements in excess of ENY4XXX**
This course is co-listed with ENY4XXX (graduate students). Students registered for ENY6XXX have requirements in excess of those for ENY4XXX students. These include: 1) graduate students will be expected to lead journal paper critique/discussion at week 9B and submit a summary report worth 50 points, 2) a more rigorous literature review assignment (1500-word) as compared to a short essay (500-word), 3) additional required readings, and 4) more difficult exams (different long answer questions).

**Readings:**
*Required textbook*
- Marjorie A. Hoy: Insect Molecular Genetics: An Introduction to Principles and Applications (4th Edition).
  *EBook is available from the UF library for students: Go to: https://guides.uflib.ufl.edu/ebooks and search the book under Library Catalog.*

*Additional required readings*
- Ganai, R. A., & Johansson, E. (2016). DNA replication—a matter of fidelity. Molecular cell, 62(5), 745-755.
- Asgari, S. (2013). MicroRNA functions in insects. Insect biochemistry and molecular biology, 43(4), 388-397.
- Paliy, O., & Shankar, V. (2016). Application of multivariate statistical techniques in microbial ecology. *Molecular ecology*, 25(5), 1032-1057.
- Edwards, D. J., & Holt, K. E. (2013). Beginner's guide to comparative bacterial genome analysis using next-generation sequence data. Microbial informatics and experimentation, 3(1), 2.
- Taning et al., (2017). CRISPR/Cas9 in insects: Applications, best practices and biosafety concerns. Journal of Insect Physiology. 98. 245-257.
- ***Other readings will be posted in the course Canvas website.***

## Fall Schedule (tentative)

| Week | Topic | Active learning exercises | Online quiz? |
|---|---|---|---|
| **Week 1**<br>August 21 | **Share your favorite insect/nematode research news!** | Self intro and news sharing | - |
| **Week 2A**<br>August 26 | **DNA, RNA, and protein** | A genome size guessing game | - |
| **Week 2B**<br>August 28 | **Mechanisms of gene regulation** | A movie clip followed by discussions | Y |
| **Week 3A**<br>Sept 2 | Holiday | | |
| **Week 3**<br>Sept 4 | **Genotype and phenotype (Part 1)**<br>• Sex determination<br>• Dosage compensation | Pictionary game | - |
| **Week 4A**<br>Sept 9 | **Genotype and phenotype (Part 2)**<br>• Epigenetics | - | - |
| **Week 4B**<br>Sept 11 | **Model insect in research - Drosophila melanogaster (Part 1)**<br>• Introduction to fly genetics | Journal paper discussion | Y |

| | | | |
|---|---|---|---|
| **Week 5A**<br>Sept 16 | **Model insect in research – Drosophila melanogaster (Part 2)**<br>• Host-microbiome interactions<br>• Translating to agricultural pests | - | - |
| **Week 5B**<br>Sept 18 | **Guest seminar on *Drosophila* melanogaster research**<br>• Diego Rincon-Limas (Department of Neurology) | Research tool demo | Y |
| **Week 6A**<br>Sep 23 | Pre-exam discussions, Q&A | | |
| **Week 6B**<br>Sept 25 | 1st exam | | |
| **Week 7A**<br>Sept 30 | **Guest seminar on Small molecule discoveries using C. elegans**<br>• Rebecca Butcher (Department of Chemistry) | - | - |
| **Week 7B**<br>Oct 2 | **Guest seminar on Molecular Nematology**<br>• *Peter DiGennaro (Nematology)* | - | Y |
| **Week 8A**<br>Oct 7 | **Molecular techniques (Part 1)**<br>• PCR, qPCR, cloning, Sanger sequencing, Western blot. | Case Studies | - |
| **Week 8B**<br>Oct 9 | **Molecular techniques (Part 2)**<br>• RNAi and CRISPR | Tutorial videos | Y |
| **Week 9A**<br>Oct 14 | **Guest seminar on CRISPR**<br>• Dariane Souza (Entomology) | - | |
| **Week 9B**<br>Oct 16 | **Journal paper critique and discussion** | - | |
| **Week 10A**<br>Oct 21 | **Introduction to high-throughput sequencing (Part 1)**<br>• Sequencing technologies<br>• Experimental design and concept of multiplexing | Case Studies, tutorial videos | - |
| **Week 10B**<br>Oct 23 | **Introduction to high-throughput sequencing (Part 2)**<br>• Multivariate statistics | Case Studies, tutorial videos | Y |
| **Week 11A**<br>Oct 28 | Pre-exam discussions, Q&A | | |
| **Week 11B**<br>Oct 30 | 2nd exam | | |
| **Week 12A**<br>Nov 4 | **Mass spectrometry-based omics**<br>• Metabolomics and Proteomics | Tutorial videos, games | - |
| **Week 12B**<br>Nov 6 | **Guest seminar an omics topics**<br>• TBD | - | Y |
| **Week 13A**<br>Nov 11 | Holiday | | |
| **Week 13B**<br>Nov 13 | **Navigating big data – class exercise 1**<br>• Amplicons sequences<br>• Metabolomes<br>• Comparative genomics | Group workshop | - |
| **Week 14A**<br>Nov 18 | **Navigating big data – class exercise 2**<br>• Comparative genomics | Group workshop | - |
| **Week 14B**<br>Nov 20 | **Applications of molecular biology in pest management** | Case Studies, tutorial videos | Y |
| **Week 15A**<br>Nov 25 | **Group debate** | Debate | - |
| **Week 15B**<br>Nov 25 | Pre-exam discussions, Q&A | | |
| **Week 16A**<br>Dec 2 | 3rd exam | | |
| **Week 16B**<br>Dec 4 | General feedback on the course | | |

## Course Policies

**Grading**

This course will be graded on the following scale:

A 93-100% of total points
A- 90-92.9% of total points
B+ 87-89.9% of total points
B 83-86.9% of total points
B- 80-82.9% of total points
C+ 77-79.9% of total points
C 73-76.9% of total points
C- 70-72.9% of total points
D+ 67-69.9% of total points
D 63-66.9% of total points
D- 60-62.9% of total points
E <60% of total points

| | Point amount |
|---|---|
| Exams (3 in total) | 300 in total (100 each) |
| Quizzes (8 in total) | 80 in total (10 each) |
| Group Debate (1 in total) | 100 |
| Literature review (1500 words) | 120 |
| Active participation in class | 50 |
| Journal discussion report | 50 |
| **Total** | 700 |

For information on current UF policies for assigning grades, please visit:
Current website: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

**General Class Rules**

- Keep electronic devices in silence mode during lectures and lab exercises.
- Discussions about grades or other personal matters should be addressed during office hours.

**Absences and Make-Up Work**

Attendance is required. If you miss class, you are responsible for getting notes from other classmates.
University policy for class attendance and make-up exams, assignments and other work can be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

**Class Attendance and Online quizzes**

Each lecture class will be 1 hour long, except for guest lectures that will be 45 mins long, followed by 15-min Q and A. There will be 8 quizzes posted on Canvas and available on Wednesdays of specific weeks (indicated in the fall schedule table) to help students reinforce course materials and learning. Quizzes will be open book, consisting of 10 multiple choices, true/false, and fill in the blank questions. Quizzes will be due by Friday 5pm EST of the same week the quiz is posted.

**Active Participation in Class**

Participation in class will be assessed through several in-class exercises: i) self-introduction and sharing of a molecular news, and completed a questionnaire (10 points) in week 1 class, ii) participate in week 9B journal discussion and raise at least 1 question (10 points). iii) Complete the questionnaires during the workshops at week 13B and 14A (10 points each, 20 points in total), and iv) attended the session at week 16B and give feedback to the course (10 points).

**Journal discussion**

Students will be divided into groups of three or four. Research articles covering different topics of molecular entomology or nematology and guiding questions will be distributed to the groups in week 7. Graduate students will bring their own answers, discuss and take notes during the week 9B class discussion. Answers to the guiding questions and notes will be submitted as a report at the end of class (No submission is required for undergraduate students).

**Literature review**

A list of topics on Canvas in week 5. Students will choose their topics on a first-come-first-served basis through Canvas Discussion, and write a 1500-word literature review, due on Friday 5pm EST of week 11. A grading rubric is attached.

**Group debate**
There will be a group debate exercise toward the end of the course. An instruction and grading rubric will be posted in Canvas 2 weeks prior to the exercise. Students will be divided into 3 groups – two debating teams and a group of judges. Each debating team will have 10 minutes to present their arguments in support of their position statement. After both teams have presented, they will have 5 minutes to generate questions/criticisms to challenge the opposing debate team. Each team will take turns to raise questions/criticisms, followed by answers/rebuttal from the opposing team. At the conclusion of the debate, each judge will provide 5-minutes of feedback. Debating teams can decide whether they want to respond to judge comments before the judges cast their votes. A key component of this exercise is peer assessment. Debating teams will be graded by the judges and instructor. Judges will be graded by the students for their in-class feedback and will have to submit a 1-page summary of the debate (summarize key points raised by both teams, and critique their debating techniques) within 3 days by 5pm EST after the debate to be graded by the instructor.

**Exams**
There will be 3 exams delivered in weeks 6, 10 and 15. The exams will be in class, closed book and non-cumulative. Exam papers will consist of 20 multiple-choice questions, 5 short answer questions (7 to choose from), and 2 long answer questions (3 to choose from). Graduate and undergraduate students will be given different long-answer questions, in which the graduate ones will be more difficult and synthesis-oriented.

**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. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

## Academic Integrity and Class Rules

Each student in the course is expected to abide by the UF Code of Academic Integrity. For information, please visit: https://sccr.dso.ufl.edu/students/student-conduct-code/

**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.

## Additional Resources

**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, www.dso.ufl.edu/drc

**Campus Helping Resources**
Students experiencing crises or personal problems that interfere with their general wellbeing 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 Wellness Coaching
- U Matter We Care, www.umatter.ufl.edu/
- Career Connections Center, First Floor JWRU, 392-1601, https://career.ufl.edu/.

**Student Complaints**

- Residential Course: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf
- Online Course: http://www.distance.ufl.edu/student-complaint-process.

**Plagiarism**
Plagiarism is a serious dishonesty act in academia, especially with the ease of obtaining information from the internet. Students must not represent the words or ideas of another person as one's own without attribution to the source, unless they are considered common knowledge. Plagiarism includes but is not limited to:

- Quoting oral or written materials including but not limited to those found on the internet, whether published or unpublished, without proper attribution.
- Submitting a document or assignment which in whole or in part is identical or substantially identical to a document or assignment not authorized by the student.
- Unauthorized use of materials or resources.
- Prohibited collaboration or consultation.
- Submission of paper or academic work purchased or obtained for an outside source.

Plagiarism is unethical and unacceptable. UF Plagiarism Policy can be found: http://regulations.ufl.edu/chapter4/4041.pdf. The consequences for plagiarism while at the University of Florida range from receiving a zero grade for the plagiarized assignment, a fail grade for the course, to, expulsion from the university. Students who plagiarize will be caught and consequences will be applied. Written assignments will be checked using an anti-plagiarism software called Turnitin® (http://www.at.ufl.edu/~turnitin/about.html).

**Literature review grading rubric**

**Student name:**
**Title of the review:**

| Category | Scoring Criteria | Total Points |
|---|---|---|
| **Content** (40%) | Topic/question of the paper is clearly defined. Relevant papers are reviewed comprehensively without being redundant. | /20 |
| | Conclusions are strongly supported in the review. | /20 |
| **Organization** (20%) | Ideas are arranged logically to support the premise of the paper. The reader can easily follow the paper. | /20 |
| **Delivery** (20%) | Writing is crisp, clear, and succinct. Meaning is explicit. | /20 |
| **Format and Style** (30%) | Correct grammar and no typos throughout the paper. | /10 |
| | Include headers (student name, title of the review), page numbers and follow the general rules stated in Canvas | /10 |
| | Words limit: <1500 words but >1400 words. | /10 |
| **Citations/references** (10%) | References are primarily peer-reviewed professional journals or other legitimate sources. | /10 |
| | **Total Points (out of 120)** | |

## Debate exercise

**Team YES:**

**Team NO:**

**Student Judges:**

**Teacher Judges:**

**Instructions for the debate:**

| | | |
|---|---|---|
| **Round 1 - presentation** | Each team will have 10 minutes to present their position statements and elaborate their arguments. | 20 mins |
| **Round 2 - brainstorming** | After both teams have presented, they will have 5 minutes to come up with 2-3 questions/criticisms to challenge each other. | 5 mins |
| **Round 3 – questions and rebuttal** | Each team will take turns to raise questions/criticisms (1 min), followed by answers/rebuttal from the opposing team (1 min). | 15 mins |
| **Round 4 – judges feedback** | Each judge will provide a 5-minute feedback and cast their votes.<br><br>Debating teams can decide whether they want to respond to judge comments before the judges vote (2 mins) | 20 mins |
| **Round 5 – winning team announced** | - | 1 min |

**Grading**

A key component of this exercise is peer assessment.

- Debating teams will be graded by the student and teacher judges, as well as by each other.
- Judges will be graded by the students for their in-class feedback and will have to submit a summary report to be graded by the teachers.

## Grading for the debating teams

1. **By the judges (50 points):**

| | **Excellent (15)** | **Good (10)** | **Average (5)** | **Below standard (0)** |
|---|---|---|---|---|
| **Preparation** (15 points) | Organized, compelling evidence to support the position statement.<br><br>Demonstration of a good team effort. | Most, but not all, supporting evidence are relevant.<br><br>Demonstration of a good team effort. | Some reasonable evidence although a few are weak or irrelevant.<br><br>An impression that particular individuals doing most of the work. | Evidence is generally weak and irrelevant.<br><br>Individual(s) did not contribute to the group's preparation. |
| **Delivery** (15 points) | All arguments are strong and convincing, supported by facts and examples.<br><br>Speaking is clear and voice can always be heard. | Some arguments are supported by facts and examples.<br><br>Voice is generally clear although sometime ideas are not very clear | Arguments makes senses but can benefit with better factual support.<br><br>The speech is understandable but not very easy to follow. | Arguments are weak and lack factual support.<br><br>The speech is hard to follow. |
| **Questions and Rebuttal** (15 points) | Raise critical questions that are relevant and thoughtful.<br><br>Address the questions from opposing team professionally and rebut with clarity. | Raise questions that are relevant and thoughtful.<br><br>Made good attempts to address the questions from opposing team. Some answers can be better clarified. | Raise questions that are relevant but obvious.<br><br>Made good attempts to address the questions from opposing team but some answers are not convincing at all. | Unable to raise relevant questions or answer questions. |
| **Winner/loser** | +5 point for the winning team | | | |

2. **By other team members (50 points):**
   On a scale of 0 to 50, please give a score for each member in your team in their participation (50: fully participate and make great contribution; 0: do not participate at all and made no contributions)

## Grading for the judges

1. **In-class feedback (50 points)**

At the end of the debate, student judges will have to: 1) detail the key messages delivered by the teams, 2) Vote on the winning team, 3) explain why the winning team deserves it, 4) provide feedback for improvement on this class activity.

On a scale of 0-50, judges will be graded by both debating teams for their in-class feedback (50: excellent summary and constructive feedback, 0: unclear summary and unhelpful feedback).

2. **A summary report (50 points)**

After the debate, judges will submit a short report (up to 2 page, single space, 12pt font) by Friday 5pm EST of the week, to:

1) Summarize the position of each team (10 points).
2) Point out the strengths and weakness of each team, highlight evidence that they think are useful/convincing or not useful/unconvincing (20 points).
3) Suggest improvement for each team (10 points).
4) Provide feedback on this class activity to the instructors (10 points)