

INSECT BEHAVIOR

Course Number: ENY 3451C

Credit Hours: 3

Asynchronous online

COURSE DESCRIPTION: Course provides a theoretical and empirical overview of insect behavior, ranging from physiology underlying behavior to the evolution of behavioral diversity. Focus will be on recent and current research on insect behavior, the diversity of approaches for studying it, and how this knowledge can be applied to solve human challenges.

INSTRUCTORS: Dr. Lisa Taylor (she/her)
(You can address her at Dr. Taylor or Lisa – either is fine)
2211 Steinmetz Hall (office)
2116 Steinmetz Hall (lab)
Department of Entomology and Nematology
Lisa.taylor@ufl.edu
Office phone: 352-273-3937

OFFICE HOURS:

I have set aside time to meet with students on **Tuesdays and Thursdays between 1 and 2pm by Zoom**. If you plan to attend these Zoom office hours, please send me an email at least 24 hours in advance and I will send you a Zoom link. I am quite flexible, so if the above hours don't work for you, just send me an email and we can schedule an individual meeting at another time.

COURSE WEBSITE: <http://lss.at.ufl.edu>

REQUIRED TEXT: You will **not** need to purchase a textbook for this course. Instead, you will be assigned papers from scientific literature that are either open-access or freely available within the UF library system. These readings will be posted within the weekly modules in Canvas. Some students enjoy having a physical textbook to supplement their learning – if you do, I recommend the following (optional) textbook, which provides excellent coverage of many of the general topics we will discuss in this course. **However, you do not need to purchase this book to succeed in the course.** Note that there are more recent editions of this textbook (led by new authors), and all of them are great. I am recommending the 2013 edition because I really enjoy John Alcock's clear writing and storytelling and the way he talks about the scientific process.

- Alcock, J. 2013. *Animal behavior: an evolutionary approach*, 10th edition.

PREREQUISITE KNOWLEDGE AND SKILLS: At least one semester of a college-level biology or entomology course is required (ENY 1001, ENY 2040, ENY 3005, BSC 2005, BSC 2010), or permission of the instructor. To succeed in this course, students will need a basic working knowledge of core biological concepts that are covered in such introductory courses (e.g., basic scientific reasoning skills as well as an understanding of basic concepts in genetics, physiology, evolution, and ecology).

COURSE LEARNING OBJECTIVES: By the end of this course, students will be able to:

1. **Explain** how insect behavior has evolved to make insects one of the most abundant and diverse taxonomic groups on the planet (e.g., **explain** the diversity of ways that they find food, reproduce, take care of their offspring, communicate with one another, protect themselves from predators, and interact with other organisms in their environment).
2. **Find, identify, observe, and document** insect behavior in nature, and use observations to **develop hypotheses** for the function of the behaviors observed
3. **Describe** methods that researchers use to study insect behavior in both the field and lab and **design** specific experiments using these methods
4. **Apply** insect husbandry techniques to keep arthropods in captivity, **report** on findings of behavioral observations, and use these observations to **design** feasible and sound experiments
5. **Critically assess** data collected in behavioral experiments and use data to **draw conclusions**
6. **Find** articles from the primary literature in the field of insect behavior and **evaluate** and **critically assess** them
7. **Describe** how scientists are using our modern understanding of insect behavior to solve human problems (e.g., pest management, design of cities) and be able to **think creatively to propose** new ideas

INSTRUCTIONAL METHODS: All course material will be available through Canvas, separated into weekly modules. **New modules will open up each week (by 8am Monday morning of each week), and you will have one week to work through them.** Within each weekly module, you will watch narrated PowerPoint presentations, read assigned articles, participate in lab/field activities, participate in online discussions, and complete quizzes. In addition, you will complete two assignments over the course of the semester that will encompass a combination of lecture and laboratory material. Finally, there will be two exam assignments where you will be asked to synthesize and apply concepts presented in the weekly modules (these written exam assignments will be 'open-book' and you will have at least one week to work on them at your own pace). The quizzes will be a combination of 'open-book' and 'closed-book' formats (i.e.,

there will be some of each format, but you will always have at least one week to prepare for them) and they are designed to assess your learning of the week's material as well as to prepare you for the exams. Note that as a combined lecture and lab course, you will be expected to engage in hands-on activities every week (including getting outdoors to observe and photograph insect behavior as well observing captive arthropods; see details below).

INSTRUCTOR COMMUNICATION/INTERACTION: If you have questions either before or during the course, feel free to email me directly at any time or send me a message via Canvas. I will reply within 24 hours during weekdays. Responses on weekends may take longer, but I will respond to all messages received over the weekend on Monday morning (by 10am at the latest). I love interacting with students, so please reach out to me at any point. You will usually hear from me on Monday mornings with any relevant announcements or feedback for the weekly module ahead. I will also actively participate in the weekly discussions. You can also expect regular and prompt feedback from me on assignments (see more on that in the section below on assessments, grades and instructor feedback). I will also seek feedback from you about the course (in both mid-term and end-of-term evaluations and surveys). Your feedback is valuable for making this course effective, so please reach out at any point if you want to chat.

TENTATIVE COURSE SCHEDULE (ONLINE):

Week	Topic	Graded discussions and activities this week	Quizzes and exams this week
1	introduction and framework for studying behavior	contribute to discussion 1	syllabus quiz, quiz 1
2	Insect diversity and behavior in the field	contribute to discussion 2	quiz 2
3	Defenses against enemies	contribute to discussion 3, captive arthropod brainstorming and planning	quiz 3
4	Insect communication	contribute to discussion 4	quiz 4
5	Insects as predators and parasites	contribute to discussion 5, captive arthropod show and tell (arthropod must be obtained and video shared)	quiz 5

6	Reproduction and mating systems	contribute to discussion 6, share captive arthropod observations	quiz 6
7	Experimental design for studying behavior	contribute to discussion 7, captive arthropod literature review and observations	quiz 7
8	Midterm assignment, scavenger hunt catch up	contribute to discussion 8	quiz 8, midterm exam assignment
9	Parental care	contribute to discussion 9, share captive arthropod observations	quiz 9, mid-semester reflection/survey
10	Spring break!		
11	Plant-insect interactions	contribute to discussion 11, 'draft' of arthropod behavior scavenger hunt assignment (5 categories) due	quiz 11
12	Social behavior and insect societies	contribute to discussion 12, share captive arthropod summary/how-to guide	quiz 12
13	using insect behavior to inspire human design	contribute to discussion 13, share captive arthropod experiment proposal	quiz 13
14	Becoming a lifelong student of insect behavior	contribute to discussion 14, share final plans for captive arthropod	quiz 14
15	course wrap up and review	final arthropod behavior scavenger hunt due	exam 2 assignment, end-of-semester reflection/survey, course evaluations

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. Announcements and updates will be posted regularly in Canvas. Please adjust your Canvas settings so that you will be notified of announcements.

COURSE POLICIES:

ASSESSMENTS, GRADES, AND INSTRUCTOR FEEDBACK: All assignments and exams will be graded and returned (with any relevant feedback) within one week, meaning that at any point in the semester, you should be able to calculate your current grade for the course. To be fair to all students, I follow the rules and point system laid out in this syllabus very closely. If you ever have a question about a score you earn, I would be more than happy to discuss it. I do ask that you address all questions about grading of particular assignments within two weeks of receiving a grade on that assignment. If you would like to discuss a grade, please reach out to me by email or Canvas message.

Your final grade for this course will be based on the percentage of points that you earn out of a possible total of **500** points. The point breakdown is the following:

- Exam assignment 1: 50 points
- Exam assignment 2 (cumulative): 50 points
- Weekly online quizzes (13 weekly quizzes at 7 pts each, plus a syllabus quiz for 4 pts): 95 points
- Weekly online discussions (13 discussions at 7 points each): 91 points
- Arthropod behavior Scavenger Hunt: 120 points (20 points for mid-semester draft, 100 points for final draft)
- Captive arthropod assignment: 90 points
- Mid-semester reflection/survey: 4 points

Grades will be calculated as follows:

A	93-100%
A-	90-92%
B+	87-89%
B	83-86%
B-	80-82%
C+	77-79%
C	73-76%
C-	70-72%
D	60-69%
E	less than 60%

****Final percentages are rounded to the nearest whole number to determine your final grade.***
This means that at any point in the semester, you can simply calculate the percentage of points that you have earned at that stage to estimate your current grade.

For information on current UF policies for assigning grade points, see:
<http://www.isis.ufl.edu/minusgrades.html>

ATTENDANCE AND MAKE-UP POLICY:

As an online course, there are no requirements for you to physically attend class at a specific time. However, participation in discussions and other activities *within particular timeframes* will be required.

Arrangements to make up missed work must be made by contacting the instructor at least one week BEFORE the due date. In cases of unforeseen emergencies (e.g., medical emergency documented with a doctor's note), contact the instructor as soon as possible. Such situations will be handled on a case-by-case basis.

All material must be completed within the timeframes outlined in the course schedule above. In case of personal emergency that results in a missed deadline, students must submit documentation to the Dean of Students office (dsocares@dso.ufl.edu, <https://care.dso.ufl.edu/instructor-notifications/>) and request that an instructor notification to be sent. This must be done within five business days after the deadline. In addition to contacting the Dean of Students office, please also send me an email to let me know that you plan to request an extension (and also to let me know that all is okay, as I worry when students miss these important dates!)

Requirements for make-up work are consistent with university policies that can be found at:
<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

QUIZ/EXAM POLICY:

Quizzes will be used to assess your mastery of material within each weekly module. They will be either 'open-book', meaning you can use whatever resources are available to you (including the internet, but see AI policy below), or 'closed-book' and proctored using the Honorlock proctoring service. The reason for these two different formats is that no one format is ideal for assessing your mastery of different learning goals. Regardless of the format of any particular quiz, work must always be done individually. **Please do not discuss the content of any quizzes (regardless of whether they are open-book or closed-book) with your classmates until all have been graded and grades have been returned.** If you use outside sources (including internet sources) for open-book quizzes, they must be cited appropriately.

Exam assignments will be ‘open-book’ and you will have one week to work on them at your own pace. As with quizzes, **do not discuss the content of any exam material with your classmates until all have been graded.** Please remember that you are bound by the UF honor code (see below under ‘UF policies’).

POLICY ON LATE ASSIGNMENTS AND MISSED QUIZZES AND EXAMS: All late assignments (including late participation in graded Canvas discussions, quizzes, and exam assignments) will be accepted with no penalty up to 24 hours past their due date (no questions asked). After this 24-hour grace period, late work will still be accepted with a late penalty of 20% off the total point value per day late. This means that assignments that are 5 (or more) days after the grace period has ended will earn no credit. Assignments turned in via Canvas are due at 11:59pm on their due date.

COURSE TECHNOLOGY: This course will be administered through Canvas (<http://ss.at.ufl.edu>). All students must have access to a computer with a reliable internet connection (a high speed connection is recommended). Please be sure to have a backup option in case your computer or internet connection fails. See the ‘Getting Help’ section below for technical assistance with Canvas.

Students will need access to a basic camera with video capability for Assignments 1 and 2 (the Arthropod Behavior Scavenger Hunt and Captive Arthropod Assignment); basic smartphone cameras are sufficient, as long as they can capture the behavior of arthropods. You will not need a macro lens or anything fancy, but if you have one, you are welcome to use it. If you will not have access to a camera (or are unsure if what you have is sufficient), please let the instructor know **during the first week of class** so that we can make arrangements.

iNaturalist. We will use the online *iNaturalist* platform throughout the semester and students will be required to sign up for a free account and contribute observations to our project page over the course the semester. The details of these required observations will be embedded in course Canvas discussions (as students will be asked to post to *iNaturalist* and then share and discuss their observations with their classmates). *iNaturalist* can be accessed for free using either a web browser (iNaturalist.org) or using the free smartphone app. During week 2 of the course, students will be given guidelines that describe best practices for using this platform and for contributing to the *iNaturalist* community.

Course policies on the use of Artificial Intelligence (AI). AI tools, including ChatGPT and other large language models, have become increasingly useful for a variety of tasks, including learning new things. These tools can either improve or impede your learning, depending on how you use them (and how much trust you place in them). In any course, it is up to the instructor to communicate how such tools can and should be used in their courses – these policies differ among courses because each course has different learning goals, and each instructor has carefully designed course assessments to specifically assess your progress towards meeting these goals. In **this** course, you are allowed to use AI tools on “open-book” assignments only (AI

tools or other resources are never allowed on closed-book assignments) and only in the ways specifically outlined below. All other uses other than the following are **NOT** permitted.

Permitted uses of AI in this course:

- To help you study, clarify concepts, or review class material. Just be aware that AI tools like ChatGPT do not always get things right (and often produce biased answers or those that are **completely wrong**) and should be used with caution and only when any output can be diligently fact-checked for accuracy.
- To brainstorm ideas before starting an assignment. In this case, **you must acknowledge in your submission how you used AI**, including the names of the specific AI tools and the exact prompts that you used. You must also confirm that your assignment is written entirely in your own words, i.e., without an AI-generated content (including paraphrased content). Please note that *you* are responsible for the accuracy of what you include in any assignment and so if you plan to use AI to brainstorm, you are fully responsible for fact-checking your work. You may **NOT** cite AI tools as a reliable source to back up any statements in your work.
- To proofread or provide feedback on your original work before submitting it. In this case, **you must acknowledge in your submission how you used AI**, including the names of the specific AI tools and the exact prompts that you used. You must also confirm that your assignment is written entirely in your own words, i.e., without an AI-generated content (including paraphrased content). Again, please note that *you* are responsible for the accuracy of what you include in any assignment and so if you plan to use AI to proofread or provide feedback, you are fully responsible for fact-checking any final work that you turn in. You may **NOT** cite AI tools as a reliable source to back up any statements in your work.
- Note that *iNaturalist* uses AI to suggest possible identifications for animals, and you will be encouraged to use this as a starting point for identifying arthropods (and their behaviors) in this class. As we will discuss, one should never rely solely on *iNaturalist's* AI features alone to identify an animal, but it is often a great place to start (followed by diligent fact-checking and collaboration with the *iNaturalist* community).

Navigating the best ways to use AI productively can be a challenge. If you have any questions about this policy or how to ethically and productively use AI tools, please reach out to your instructor and ask.

UF POLICIES:

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/>

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>.

NETIQUETTE: COMMUNICATION COURTESY: All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats. Take a moment to read this netiquette guide for online courses: <http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf>

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.bluer.com/ufl/>.

Summaries of course evaluation results are available to students at:

<https://gatorevals.aa.ufl.edu/public-results/>.

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.

RECORDING OF LECTURES. Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

GETTING HELP:

For issues with technical difficulties for E-learning in Canvas, please contact the UF Help Desk at:

- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- <https://lss.at.ufl.edu/help.shtml>

** Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Other resources are available at <http://www.distance.ufl.edu/getting-help>.

Canvas technology requirements. This course requires the use of a computer and a reliable internet connection. This course will be delivered through the Canvas learning management system – the current computer and browser requirements for Canvas can be found here:

<https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-the-browser-and-computer-requirements-for-Instructure/ta-p/66>. On this web page there is an area titled “Is My Browser up to Date?” Use it to check each computer and browser you may use in this course. There is another important area on “Browser Privacy Settings.” Read the section(s) for any browser intended for use. Return to the page to check for updates on technology issues in Canvas.

If you encounter technical difficulties in this course, contact the UF Computing Help Desk right away to troubleshoot. <https://helpdesk.ufl.edu/> or (352) 392-HELP. If the problem cannot be fixed immediately, notify your instructor, and provide them with the Help Desk ticket number.

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

UF Student Success: For improving study skills and connecting with a peer tutor, peer mentor, success coach, academic advisor, and wellness resources, go to <http://studentsuccess.ufl.edu>.

PRIVACY AND ACCESSIBILITY POLICIES FOR TECHNOLOGY THAT WE WILL USE IN THIS COURSE. For information about the privacy policies of the tools used in this course, see the links below.

- Adobe
 - [Adobe Privacy Policy](#)
 - [Adobe Accessibility](#)
- Honorlock
 - [Honorlock Privacy Policy](#)
 - [Honorlock Accessibility](#)
- iNaturalist
 - [iNaturalist privacy policy](#)
 - [iNaturalist accessibility policy and terms of use](#)
- Instructure (Canvas)

- [Instructure Privacy Policy](#)
 - [Instructure Accessibility](#)
- Microsoft
 - [Microsoft Privacy Policy](#)
 - [Microsoft Accessibility](#)
- Vimeo
 - [Vimeo Privacy Policy](#)
 - [Vimeo Accessibility](#)
- VoiceThread
 - [VoiceThread Privacy Policy](#)
 - [VoiceThread Accessibility](#)
- YouTube (Google)
 - [YouTube \(Google\) Privacy Policy](#)
 - [YouTube \(Google\) Accessibility](#)
- Zoom
 - [Zoom Privacy Policy](#)
 - [Zoom Accessibility](#)