

**Evolutionary Animal Behavior Laboratory: BIOLOGY 484, FALL 2023**

**Class Meeting Time:** Tuesday: 1:00pm – 5:20pm; Central King Building 328

**Prerequisites:** Foundations of Ecology and Evolution Lecture and Lab (BIOL 205 & 206)

**Instructor: Dr. Caroline DeVan**

**Email:** [caroline.m.devan@njit.edu](mailto:caroline.m.devan@njit.edu),

**Office phone:** 973-596-5404 (if Bio Office is closed, dial 5404 from courtesy phone by elevator)

**Office:** NJIT CKB 340F - in the NJIT Biology Office suite (or can meet online via Webex)

**Office Hours:** Mon 3:00pm - 4:30pm & Tues 10:00am – 11:30am; OR by appointment

**Emergency Phone:** 973-596-3111 – Public Safety (Non-emergency: 973-596-3120)

**Course Description:** This is a research based course focused on designing and conducting experiments in animal behavior. Students will gain experience with experimental design, and all labs will be inquiry based with students designing experiments to test hypotheses. Topics in animal behavior that will be explored include: foraging, predator avoidance, reproduction, agonistic behaviors and altruism.

**Mode of Instruction:** This course is offered in the Face-to-Face Instructional Delivery Mode.

**Website:** <http://canvas.njit.edu/>, login with your NJIT UCID.

**Course-Level Learning Outcomes:**

By the end of this course, students are able to:

1. Describe and analyze animal behavior using principles of evolutionary biology
2. Use observation and experiments to investigate animal behavior
3. Use quantitative methods to describe and analyze data
4. Locate and evaluate scientific literature
5. Communicate science in both written and oral formats
6. Work in groups to design, conduct and interpret scientific studies

**Required Course Materials:**

- **Pencil & eraser** - you will sometimes be taking notes or collecting data on paper
- **Research notebook** (physical or digital)– something to take notes with whether you are in the field or the lab
- **Laptop or tablet.** Some classes will require the use of a laptop or tablet. There are classroom computers for use as well.

**Attendance & Field Trips:**

Classes will take place on NJIT campus unless otherwise indicated - meet in CKB 328.

Transportation for field trips is provided. We will meet at the Science and Technology Garage (STG) at 1pm on days with field trips - due to time limitations, punctuality is essential.

## Grades and Assessments:

**Grading Policy:** Grades will be determined by performance on the assessments found in the table below. More detailed descriptions of each assessment follow the table.

Assessments & Point Values	% Grade
Preparation and Participation (40 pts)	13.3%
Post Lab Assignments (90 points) + Group Evaluation (10 points)	33.3%
Independent Research Project (100 pts)	33.3%
Final Exam (60 pts)	20%
<b>Total (300 pts)</b>	<b>100%</b>

### *Assessment Descriptions:*

*Preparation and Participation:* For each day of class, you will need to come to the lab prepared, having gone over the required materials BEFORE class. This will be assessed at the beginning of each class. In addition you are expected to arrive on time and participate fully in class activities. You will submit in-class work to the course google folder (link posted to the course canvas page). Failure to do these things will result in a loss of points for that day. Your lowest grade per class will be dropped.

*Post-Lab Assignments:* For each of the labs you will complete a post-lab assignment which will require additional analysis and discussion of results. Together the post-lab points will scale to 90 points. Many labs will have components to be completed in groups and at the end of the semester you will complete an evaluation of your group-mates. This evaluation will be worth 10 additional points and your score will be an average of your self-evaluation and your group-mates evaluation of you.

*Independent Research Project & Formal Lab Report:* Each student will design and implement an independent research project on animal behavior. This project will require the development of a research question and project. You will first write up and present a project proposal in order to gain instructor approval. Upon receiving approval, you will be provided with class time to complete your research. Completing the project without approval by the instructor will result in a 10% deduction to your total Independent Project score. After implementation of the research project, you will analyze your data and write up a formal lab report describing the project and its results. The formal lab report will require a draft to be submitted (worth 10% of grade) and you will receive feedback on this draft before submitting the final document. You will also share your results with your peers in a poster presentation session. The entire project will be completed in collaboration with the instructor with guidance and feedback available at all stages.

*Final Exam:* Students will complete a final exam that will focus primarily on the content and skills practiced throughout the semester. Further details about the exam will be communicated with you in advance in class and through emails. Details will also be posted to Canvas.

Your final grade will be determined by dividing the points you have earned by the total points shown in the table to the right and applying it to the grading scale found in the table above. Your grades will be posted to the course website so you can keep track of your progress in the course.

Letter Grade	Percentage
A	90 – 100
B+	85 – 90
B	80 – 85
C+	75 – 80
C	70– 75
D	60-70
F	0 – 60

**Attendance, Late Work & Make Up Exam:** Attendance is mandatory. Labs missed cannot be made-up but can be excused with documentation. The final exam cannot be completed late without documentation of an excusable absence. Please submit documentation for excused absences of any kind to the [Office of the Dean of Students](#). Late work is accepted with a 10% deduction per day.

### Course Policies:

- **Safety Requirements:** Compliance with current [NJIT COVID-19 policies](#) and other lab and field trip safety policies is required. For field trips, wear clothes that are comfortable and that can potentially get dirty. You will want to dress appropriately for the weather, a sunhat and sunscreen are recommended. You will also need to bring your own water and snacks as not all locations will have these available. Avoid touching or getting too close to wild animals.
- **Sharing Materials:** All course materials (including recordings of lectures) are for students' own use only (no sharing or posting anywhere).
- **Technology policy:** Cell phones and computers are allowed in the classroom to facilitate note-taking and to complete labs - but all alerts/ringtones should be silenced. Everyone should refrain from using your devices for non-class related purposes. If they become a distraction you will be asked to put them away. To minimize distractions, I recommend turning off all notifications or using airplane mode while in class. If you must answer a phone call, step outside the classroom *before* answering.
- **Academic Dishonesty:** Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: <http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>. Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at [dos@njit.edu](mailto:dos@njit.edu).

### **Communication with instructor**

- **In-person communication during class and office hours and Canvas message app are the preferred forms of communication.** If you do talk to me before/during/after class asking me to do a task, please send a follow-up email through the Canvas message app. You can email me directly as well, but I may respond more slowly. When emailing me through the Canvas app or directly please indicate your full name and the course you are in as part of the email subject line. I will be checking the Canvas messaging app and my email regularly throughout the work week during normal business hours. Outside of these times I will respond to messages and emails as soon as possible, but do not expect an immediate reply.
- **Office hours:** Office hours are open times when you can come discuss with me any questions or concerns you have about the course or course material. Office hours will be held each week at the regularly scheduled times. You can visit my office or attend via zoom – use the Office Hours zoom link posted to canvas. You DO NOT need an appointment to attend office hours. If you are attending online you may need to get my attention when you show up so I know you are there.
- **Appointments:** I am always happy to make an appointment with a student. Ideally appointments should be made in advance. To schedule an appointment, you should message me through the Canvas app – be sure to include your name, the class you are in, and the times you are available to meet in your message.

### **Student Services and Inclusion Statement**

**NJIT Non-discrimination Policy** New Jersey Institute of Technology reaffirms its commitment to a policy of non-discrimination on the basis of race, sex, sexual orientation, age, religion, ethnic origin, handicap or veterans' status in its employment policies, educational programs and activities under university control.

*In this course, each person in the class is an integral part of the course and has something of value to contribute. I strive to promote an inclusive environment in my classes and I expect all participants in the class to be respectful of others' perspectives and opinions whenever engaging in the course.*

*Mental, emotional and physical health can have a large impact on learning and so I also strongly encourage students to utilize all campus resources as needed. I am here to help facilitate your learning and so please let me know about course concerns as soon as possible so I can help resolve them.*

Please see the last page of this syllabus for student support services available at NJIT.

*Note: this is a tentative schedule, any changes will be posted to the course website. **Red indicates an assignment that is part of your Independent Project.** All assignments are due by Monday night at 11:59pm unless otherwise noted.*

DATE	TOPICS	READINGS AND/OR ASSIGNMENTS
Sept 5	Introduction to Animal Behavior Lab 1: Making Scientific Observations Workshop: Finding, Reading & Citing Primary Literature	Syllabus
Sept 12	Lab 2: Behavior of Animals in Captivity ( <b>Field Trip: Turtle Back Zoo</b> )	Post Lab 1
Sept 19	Lab 3: Describing & Analyzing Behavior ( <b>Field Trip: Sandy Hook</b> )	Post Lab 2 Primary Literature Assignment
Sept 26	Analysis for Lab 3 Workshop: Hypothesis Development & Writing Scientific Proposals	Post Lab 3
Oct 3	Lab 4: Squirrel Behavior Part 1 ( <b>Field Trip: Branch Brook Park</b> ) Independent Project Development	<b>Independent Project Research Ideas due Sun Oct 1 @ 11:59pm</b>
Oct 10	Lab 4: Squirrel Behavior Part 2 ( <b>Field Trip: South Mountain Reservation</b> )	<b>Project Proposal Form due by 11:59pm Sun Oct 22</b>
Oct 17	Analysis for Lab 4 Lab 5: Testing Anti-Predation Behavior of Caterpillars Workshop: Experimental Design & Statistics	
Oct 24	<b>Independent Project Proposal Presentations</b> <b>Individual Meetings @ Proposed Projects</b>	Post Lab 4 <b>Visuals for Independent Project Proposal Presentations due by noon (12pm) Oct 24</b>
Oct 31	Independent Project ( <b>Field Trip: TBD</b> ) <b>Independent Project Data Collection*</b>	Post Lab 5 <b>*Project Proposal Form must be approved BEFORE Independent Project Data Collection can proceed</b>
Nov 7	<b>Independent Project Data Analysis</b> Workshop: Formal Lab Report Writing Seminar	<b>Project Results Summary Due in Class</b>
Nov 14	Lab 6: Evolution/Phylogeny of Animal Behavior Prepare for Lab 7	
Nov 21	<b>Thursday schedule – No Class! Happy Thanksgiving!</b>	
Nov 28	Lab 7: Vigilance & Group Size <b>Individual Meetings @ Lab Report</b>	Post Lab 6 <b>Draft of Formal Lab Report (on Independent Project) due Sunday Nov 26 @ 11:59pm</b>
Dec 5	Analysis of Lab 7 Lab 8: Altruism	Post Lab 7
Dec 12	<b>Independent Project Poster Session</b>	Post Lab 8 <b>Posters for Independent Project Presentations due by noon (12pm) Dec 12</b>

Dec 17-23*	<b>Final Exams – TBD</b> – find schedule: <a href="https://www5.njit.edu/registrar/exams/finalexams.php">https://www5.njit.edu/registrar/exams/finalexams.php</a>	<b>Final Formal Lab Report due Wed Dec 13 @ 11:59pm</b>
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\*Avoid scheduling any travel or other events during this time period. The exact dates will be announced during the semester. Final exams can ONLY be rescheduled for other exam conflicts.

Your classroom as well as your college experience is meant to be a place where the free flow of ideas is encouraged and nurtured. It is not acceptable for any community member to make hurtful and demeaning remarks, or otherwise disrupt your learning experiences or your safety. As such, there are many NJIT support systems and policies of which you should be aware.

<p><b>Basic Needs</b></p> <p>Students who face challenges securing their food or a safe and stable place to stay are urged to contact the Dean of Students (dos@njit.edu). If you are comfortable doing so, please notify me as well.</p> <p><u>Food Insecurity</u>: If you are experiencing food insecurity, there is a food pantry on campus for your convenience (You must bring your UCID). Campus Center, Room 478 <a href="mailto:foodpantry@njit.edu">foodpantry@njit.edu</a> See website for updated hours: <a href="https://www.njit.edu/foodpantry/hours-and-general-information">https://www.njit.edu/foodpantry/hours-and-general-information</a></p>	<p><b>Emergency Support</b></p> <p><u>Crises Happen</u>: If you experience a life emergency and are unsure which support services to turn to, NJIT Public Safety can connect you to emergency support systems - call 973.596.3111.</p> <p>For medical, psychological or psychiatric emergencies you can also call: University Hospital Crisis 973.623.2323</p> <p>If you want to report a concern about another students' well-being you can also reach out to the NJIT CARE Team (<a href="https://www.njit.edu/care/">https://www.njit.edu/care/</a>) or the Dean of Students Office.</p>	<p><b>Mental Health and Stress Management</b></p> <p>Center for Counseling and Psychological Services (C-CAPS) is committed to advancing the mental health and wellbeing of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. <a href="https://www.njit.edu/counseling/gethelp">https://www.njit.edu/counseling/gethelp</a></p> <p>Diminished mental health, including significant stress, mood changes, excessive worry, or problems with eating and/or sleeping can interfere with optimal academic performance. The source of symptoms might be related to your course work; if so, please speak with me. However, problems with relationships, family worries, loss, or a personal struggle or crisis can also contribute to decreased academic performance. Please seek out help as needed.</p> <p>Campbell Hall, Room 205 (Main Level)   973.596.3414</p>
<p><b>Student Parents</b></p> <p>If circumstances arise that necessitate your absence from class - such as the illness of a child, closing of day care for inclement weather, etc. - please contact me as soon as possible so we may make arrangements to keep you up-to-date with course material and activities. If you should need any other kind of assistance for circumstances relating to your status as a student and parent, please consider contacting the Dean of Students and Campus Life at 973.596.3466 for a referral to appropriate services including on and off campus support.</p>	<p><b>Consensual, Healthy Personal &amp; Professional Relationships</b></p> <p>Your body is your own and NJIT strives to protect its community members from any unwanted advances. Title IX prohibits discrimination based on sex, including harassment, domestic and dating violence, sexual assault, and stalking. Sexual violence undermines students' academic success. Anyone dealing with sexual misconduct should consider talking to someone about their experience, so he/she/they can get the support needed.</p> <p><b>Confidential Resource:</b></p> <ul style="list-style-type: none"> <li>Center for Counseling and Psychological Services (C-CAPS) Campbell Hall, Room 205 (Main Level)   973.596.3414</li> </ul> <p><b>Non-Confidential Resources:</b></p> <ul style="list-style-type: none"> <li>NJIT Public Safety 973.596.3111</li> <li>Dean of Students Office, 255 Campus Center   973.596.3466</li> </ul>	<p><b>Special Accommodations</b></p> <p>If you have a disability or a personal circumstance that will affect your learning in this course, please let me know as soon as possible so that we can discuss the best ways to meet your needs. Any student who needs accommodation for disabilities should also contact the Office of Accessibility Resources and Services (OARS): <a href="https://www.njit.edu/accessibility/">https://www.njit.edu/accessibility/</a></p> <p>Kupfrian Hall, Room 201973.596.5417   <a href="mailto:oars@njit.edu">oars@njit.edu</a></p> <p><b>Religious/Cultural Observance</b> Students who have religious or cultural observances that coincide with this class should let me know by email within the first two weeks of class. I strongly encourage you to honor your cultural and religious holidays! However, if I do not hear from you within the first two weeks, I will assume that you plan to attend all class meetings.</p> <p><b>Supporting Academic Integrity</b> Our community functions best when its members treat one another with honesty, fairness, respect, and trust. The college promotes the assumption of personal responsibility and integrity, and prohibits all forms of academic dishonesty and misconduct.</p> <p><b>Issues of Concern (Non-Emergency)</b></p> <p>Alert the Dean of Students Office (dos@njit.edu) about issues of concern, including academic and non-academic violations (<a href="https://www5.njit.edu/doss/reporting/">https://www5.njit.edu/doss/reporting/</a>).</p>