

Biology 382: Animal Behavior, SPRING 2024, Section 002

Lectures: Monday & Thursday – 4:00pm – 5:20pm; CKB G-08

Pre-requisite: Foundations of Ecology and Evolution (BIOLOGY 205 & 206)

Instructor: Dr. Caroline DeVan (Preferred pronouns: She/Her/Hers)

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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

Office Hours: Wednesday 10:00am – 1:00pm; and by appointment - in office or online via zoom (link posted to canvas)

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

NJIT Campus Map: www.njit.edu/about/visit/njit-maps.php

Course Description: The objective of this course is to expose students to the broad field of animal behavior. The course will include the historical underpinnings of the field as well as the contemporary theories for a wide variety of behaviors. Behavioral ecology and the evolution of animal behaviors as adaptations will be intertwined throughout the course, as well potential applications of knowledge about animal behavior. Students will be able to analyze evidence and investigate modern practices in order to evaluate existing theories and consider potential future directions of animal behavior. Using current scientific literature, as well as case-studies, students will be able to come up with their own hypotheses and determine how different hypotheses related to animal behavior can be tested experimentally.

Course-Level Learning Outcomes:

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

1. Distinguish between the four major categories (mechanism, ontogeny, adaptive value, and phylogeny) of explanations for animal behavior
2. Explain how behavioral hypotheses are created and formulate hypotheses that explain a given behavior
3. Explain the procedures used to test these hypotheses and the types of data that can be used when testing hypotheses
4. Understand the role of natural and sexual selection in the evolution of behavior
5. Understand the ecological context of an animal's behavioral sequence
6. Understand some of the mechanisms involved in the production of a behavioral sequence by an animal
7. Explain how animal behavior can be used to understand human behavior.

Required Course Materials:

- **Textbook:** *Principles of Animal Behavior (4th edition)* by Lee Alan Dugatkin (ISBN-13: 978-0-226-44838-1). This textbook will be the starting point for all class materials and I will add additional materials to the course website. It can be purchased at the NJIT bookstore (<https://www.bkstr.com/njitstore/home>) or online (<https://press.uchicago.edu/ucp/books/book/chicago/P/bo34250496.html>). You can use a hardback, a paperback or eBook. You can also use an earlier edition of the textbook, just be aware that some of the information may have changed and you should consult with me as needed. I will also place a copy of 3rd edition of the book on reserve at NJIT Library: <https://library.njit.edu>.
- **Website:** <http://canvas.njit.edu/>, login with your NJIT UCID. **Canvas will automatically assign your email as your NJIT e-mail address and this will be where all messages sent through Canvas will go.** You can try to change your contact information on Canvas, but you should also make sure you forward your NJIT email to your preferred email (directions on Canvas).
- **Technology Requirements:** You may sometimes need a laptop or tablet for class work. You will also need access to Microsoft Office Suite (or similar) for data analysis. NJIT provides free access to students - <http://ist.njit.edu/software-available-download/>.
- **Note-taking Materials:** You should bring materials to take notes to every class meeting. Handwriting notes is recommended.

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 links 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. You should also make sure when you sign in that it displays your full name so I know who I meeting with.
- **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. Appointments can be in person or via Zoom – please indicate your preference.

Grades and Assessments:

Course Grade: Grades will be determined by the percentage of the total possible points earned, following the standard grade scale to the right. Grades are not curved. No individual extra credit opportunities will be available, but an extra credit assignment may be available for the whole class.

Letter Grade	Percentage
A	90 – 100
B+	85 – 90
B	80 – 85
C+	75 – 80
C	70 – 75
D	55 – 70
F	0 – 55

Your grade for this course will be based on the components in the table below. You can choose some aspects of how your grade is calculated by determining the weight of each component as a percentage of your total semester grade, within the given ranges. Your final grade will be the highest of the two possible grades: the grade that results from your selected weight (your %) or the one resulting from the standard weight (standard %). You will select your % in the middle of the semester. This process should help you assess your strengths and weaknesses in the course and determine a strong course of action for the remainder of the semester. Standard calculations for each assessment are described below and will be posted to Canvas so you can keep track of your progress in the course.

Grades	% Range	Standard %	Your %
Participation & Class Work (15 pts)	5-7%	6%	
Discussions (25 pts)	8-12%	10%	
Research Project (25 pts)	8-12%	10%	
Group Presentations (35 pts)	11-17%	14%	
Exams (3 exams, 50 pts each = 150 pts)	52-68%	60%	
Total = 250 points	100%	100%	

Modes of Assessment:

- **Participation.** Participation points are earned during class by answering Poll Everywhere questions, completing in-class assignments, and participation in class discussions. There will be approximately 3-7 questions per lecture. If you gain 80% of the available participation points you will receive full credit (10 points). This cut-off will compensate for ~3 missed classes or should you experience technological issues.
- **Discussions (25 pts)** For each of the two units in the course there will be 2 discussion papers - a total of 4 papers. For each paper you will complete a Hypothesis (a social annotation tool) assignment on canvas. Then once a semester you will be the discussion leader or note-taker for your group which will require you to review the paper with your classmates and then facilitate a discussion of the paper using questions that you came up with. As note-taker you will aid the discussion leader by recording the results of the discussion while also

contributing discussion questions. These discussion papers will also be used as the basis of each exam.

- *Research Project. (25 pts)* You will work individually to complete a small research project based on observing animal behavior. This will include assignments that guide you through the process and class time to complete the project.
- *Group Presentations.* The aim of this assignment is to: 1) have you learn about a particular behavior of interest to you in detail, 2) gain experience reading (and deciphering) the scientific literature, and 3) pass what you have learned on to fellow students through a presentation. In general, the idea is to find a behavior exhibited by 3-4 different, unrelated species, identify the purpose of the behavior and how it might have evolved, and finally think about how unrelated organisms could have evolved to exhibit the same behavior. Students will work in groups of 3-4 to create a PowerPoint presentation and give a ~15 minute presentation in front of the class. Groups can divide the presentation up in any way, as long as the work is divided evenly. Groups will be assigned and there will be some class time devoted to group meetings. Presentations will be spread throughout the semester. Detailed instructions will be posted on Canvas. A portion of your grade will be determined by a peer and self-assessment. All components together will be worth 35 pts.
- *Exams.* There will be 3 exams during the semester – each worth 50 points. Two exams will focus on discrete units of material (although Exams 2 will build on knowledge from the previous unit) – and then there will be one cumulative final exam. Exam 1 will be during the semester (midterm exam) and Exam 2 will be taken during the final exam period with the final exam. The final exam will be cumulative – based on material from the entire semester. Your final exam score will also replace your Exam 1 grade if it is higher. All exams are required, therefore ***the final exam will not replace a missed exam grade.*** Further details about exams will be communicated with you in advance in class and through emails. Details will also be posted to Canvas.
- ***Make Up Exams:*** Exams can only be made up with documentation of an excusable absence from the NJIT [Office of the Dean of Students \(DOS\)](#). Notification of the NJIT Dean of Students is the responsibility of the student and must be initiated within a week of the absence. In addition, to facilitate the timely return of exams to the rest of the class, the make-up exam should be scheduled ASAP and take place no more than 10 days after the missed exam. Notification delays or scheduling issues beyond these timelines will result in make-ups occurring during the reading days at the end of the semester.
- ***Make Up Presentation:*** Presentations cannot be made up without documentation of an excusable absence from the [NJIT Office of the Dean of Students](#).
- ***Late Work:*** Late work is accepted with a 10% deduction per day. Discussion Leader/Note Taker assignments cannot be completed late, but can be excused with documentation from the [Office of the Dean of Students \(DOS\)](#).

Course Policies:

This course is offered in the Face-to-Face Instructional Delivery Mode. All students are expected to follow NJIT's COVID-19 guidelines: please see NJIT's Pandemic Recovery Plan for more information and updates: <https://www.njit.edu/pandemicrecovery/>.

- **Sharing Materials:** All course materials (including recordings of lectures) are for students' own use only (no sharing or posting anywhere). See the NJIT Policy for Recording Classes (<https://www.njit.edu/provost/policies-procedures>).
- **Technology policy:** Cell phones and computers are allowed in the classroom to facilitate note-taking and for use with clickers but all 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 or mute yourself *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.

Student Services and Inclusion Statement

Accessibility Statement: Please let me know if you need accommodations for a disability. If you are an NJIT student in need of accommodations due to a disability please contact the Office of Accessibility Resources & Services (OARS), to discuss your specific needs:

<https://www.njit.edu/studentssuccess/accessibility>. Rutgers students should coordinate accommodations through their Disability Services department:

<https://studentaffairs.newark.rutgers.edu/health-wellness/disability-services>.

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 class 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. Similar resources are available at Rutgers-Newark. I can help you find them if needed.

For more advice and information on how to best succeed in this course, please see the Canvas section titled "Study Support" where more advice is posted and there are many different resources and tips to increase your learning! You can also talk with me directly. **I am here to help and I am looking forward to working with you**

The below schedule is tentative and may change, changes will be posted to Canvas.

WEEK #	DATE	MEETING TOPIC	READINGS* & ASSIGNMENTS**
1	R – 1/18	Course & Content Introduction	
2	M – 1/22	Introduction to Animal Behavior	Chapters 1 & 2
	R – 1/25	Evolution of Animal Behavior; Workshop: Reading Scientific Papers	
3	M – 1/29	Evolution & Phylogeny	Chapters 2 & 3
	R – 2/1	Hormones & Neurobiology	
4	M – 2/5	Molecular Genetics & Development	Chapter 4, Discussion Paper #1
	R – 2/8	DISCUSSION 1	
5	M – 2/12	Cognition & Learning	Chapters 5 & 6
	R – 2/15	Learning & Cultural Transmission	
6	M – 2/19	Group Presentation Workshop: Picking Topics Mandatory Attendance	Chapter 11
	R – 2/22	Optimality & Foraging Behavior	
7	M – 2/26	Predators & Prey	Chapter 12, Discussion Paper #2
	R – 2/29	DISCUSSION 2 Group Presentation Workshop: Work Day	
8	M – 3/4	Presentation Groups 1 & 2 Habitat Selection I: Where to live	Chapter 14
	R – 3/7	Exam 1 (Covers Material from Weeks 1-7)	

9	3/11 – 3/15	Spring break	
10	M – 3/18	Presentation Groups 3 & 4 Habitat Selection: Dispersal & Migration	Chapters 14 & 7
	R – 3/21	Presentation Groups 5 Reproductive Behavior I: Sex Differences & Sexual Selection	
11	M – 3/25	Presentation Group 6 Reproductive Behavior II: Competition & Mate Choice	Chapters 7 & 8
	R – 3/28	Presentation Group 7 Reproductive Behavior III: Mating Systems & Sexual Conflict	
12	M – 4/1	Presentation Groups 8 Parental Care	Chapter 9, Discussion Paper #3
	R – 4/4	DISCUSSION 3 , Workshop: Methods of the Study of Behavior – Introduction to Research Project	
13	M – 4/8	Research Project Work Day	Chapters 9 & 10
	R – 4/11	Presentation Groups 9 & 10 Kinship & Social Behavior	
14	M – 4/15	Presentation Groups 11 Cooperation	Chapter 13
	R – 4/18	Presentation Groups 12 & 13 Communication I	
15	M – 4/22	DISCUSSION 4 Presentation Groups 14 & 15	Chapter 13, Discussion Paper #2
	R – 4/25	Presentation Groups 16 & 17 Communication II	
16	M – 4/29	Presentation Group 18 Aggression & Play	Chapters 15 & 16
	W, R – 5/1-2	Reading Days – no classes	
18	5/3 – 5/9	Exam 2 (Covers Material from Weeks 8-16), Cumulative Final Exam ***	

The above schedule is tentative and may change, changes will be posted to Canvas.

* Chapters refer to Principles of Animal Behavior, 4th edition by Lee Alan Dugatkin (3rd edition topics are in the same order)

** All weekly assignments will be due by 11:59pm Sundays.

*** Final Exam will be during the final exam period which is May 5-11. Do not make travel plans until the final exam schedule is posted. The final exam schedule will be posted here:

<http://www.njit.edu/registrar/exams/>

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>Basic Needs</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 foodpantry@njit.edu See website for updated hours: https://www.njit.edu/foodpantry/hours-and-general-information</p>	<p>Emergency Support</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 (https://www.njit.edu/care/) or the Dean of Students Office.</p>	<p>Mental Health and Stress Management</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. https://www.njit.edu/counseling/gethelp</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>Student Parents</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>Consensual, Healthy Personal & Professional Relationships</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>Confidential Resource:</p> <ul style="list-style-type: none"> • <u>Center for Counseling and Psychological Services (C-CAPS)</u> Campbell Hall, Room 205 (Main Level) 973.596.3414 <p>Non-Confidential Resources:</p> <ul style="list-style-type: none"> • <u>NJIT Public Safety</u> 973.596.3111 • <u>Dean of Students Office</u>, 255 Campus Center 973.596.3466 	<p>Special Accommodations</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): https://www.njit.edu/studentssuccess/accessibility</p> <p>Kupfrian Hall, Room 201973.596.5417 oars@njit.edu</p> <p>Religious/Cultural Observance 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>Supporting Academic Integrity 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>Issues of Concern (Non-Emergency)</p> <p>Alert the Dean of Students Office (dos@njit.edu) about issues of concern, including academic and non-academic violations (https://www5.njit.edu/doss/reporting/).</p>