NJIT BIOLOGY

Course Syllabus

FALL 2019

BIOLOGY 385-H01: EVOLUTIONARY ANIMAL BEHAVIOR LAB - HONORS

INSTRUCTOR:	Dr. Caroline DeVan	**EMAIL:**	caroline.m.devan@njit.edu
OFFICE:	Central King Building 340F	**COURSE WEBSITE:**	Canvas
OFFICE HOURS:	R: 1:00pm - 4:00pm; OR By Appointment	**COURSE SCHEDULE:**	T: 1:00pm–5:20pm [CKB 326]

COURSE DESCRIPTION: This is a laboratory and field 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, territoriality, and mate choice.

COURSE OUTCOMES:

By the end of the course students will be 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

PREREQUISITES: Foundations of Biology: Ecology and Evolution (BIOL 205/206)

REQUIRED MATERIALS: Research notebook (3-ring binder is fine); reading materials for the course will be posted to Canvas. You must also always wear closed-toed shoes in the lab.

FIELD TRIPS: For several classes, we will be traveling to sites within an hour of NJIT to conduct our experiments. For these trips, you must dress appropriately. For all trips, you should wear closed-toed shoes. I would suggest either wearing sneakers or hiking books. I would also suggest that you wear layers, perhaps a t-shirt and a jacket. Lastly, please make sure that you wear clothes that can get dirty. You will also want to bring water and possibly a snack.

BIOLOGY 385-H01: EVOLUTIONARY ANIMAL BEHAVIOR LAB - HONORS

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. As this course is Honors/Writing Intensive, there will be two major writing assignments. These two assignments are the formal lab report and the project proposal. Each of these will be submitted twice, once as an ungraded draft, and then as a final version. Deadlines for both draft and final versions of these writing assignments are listed on the course schedule. You will also present these major assignments in class through either poster presentations, lightening talks, or final presentations. Your final grade will be determined by dividing the points you have earned by the total points shown in the table below 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.

GRADING POINTS BY ASSESSMENT TYPE:

Assignments	Points
Daily mini-quiz (13 total quizzes)	65 points
9 Post Lab Assignments (15-20 points each)	175 points
Paper Discussions & Reading Reports (5 total)	45 points
Project Proposal: Written Proposal	65 points
Project Proposal: Presentations	30 points
Independent Research Project	20 points
Formal Lab Report (Independent Research Project)	60 points
Final Exam	40 points
Total	**500 points**

GRADING SCALE:

Letter Grade	Percentage
A	90 – 100
B+	85 – 90
B	80 – 85
C+	75 – 80
C	65 – 75
D	50 – 65
F	0 – 50

BIOLOGY 385-H01: EVOLUTIONARY ANIMAL BEHAVIOR LAB - HONORS

MAKE-UP QUIZZES AND MAKE-UP/LATE MATERIALS:

Quizzes and assignments in the course can be made up with appropriate documentation (i.e. a doctor's note). If you miss a quiz or assignment, please notify Dr. DeVan as soon as possible. Late materials will be accepted, however you will lose 10% points for each day that the assignment is late. **Please let me know if you require accommodations for a disability or if you have any concerns about the course as soon as possible so that I can work with you to resolve them. I am here to help!**

ASSESSMENT DESCRIPTIONS:

Daily Mini-Quiz: Starting the second week of class there will be daily mini-quizzes each worth 5 points given at the beginning of each class. These quizzes will cover the material from the previous class and any material assigned for pre-class reading or viewing.

Lab Assignments: There are 9 labs that will be performed in class. You will complete the labs and their associated post-labs in groups. Each post-lab is worth 15-20 points.

Paper Discussions & Reading Reports: There will be 5 paper discussions throughout the semester. Each group will be responsible for selecting a paper on an assigned topic and then leading a discussion on that topic (10 total points: 5 points for coming up with discussion questions in advance of the discussion and 5 points for leading the discussion). For all other discussions, participation in the discussion is worth 2 points per discussion, (10 total points). For *ALL* discussion papers, a reading report will be due before class (5 points each). Selected papers will be posted by the second week of class on the course website.

Project Proposal: Students will write a research proposal on a topic of their choice related to animal behavior. First students will come up with 2-3 ideas that they will write up and discuss with the instructor (worth 5 points). After consultation with the instructor, students will focus on one of their ideas for writing the proposal. The draft proposal will be worth 10 points and the final proposal will be worth 50 points. Students will also share their proposals with their peers in practice lightening talks (5 points) and then a final presentation (25 points).

Independent Research Project & Formal Lab Report: Students will design and implement an independent research project. This project will take place at Turtle Back Zoo and will require some preliminary research. The research plan will be worth 10 points and it will be shared in class with peers and the instructor. After implementation of the research project, students will create a poster presentation of their preliminary results that they will share in class (worth 10 points). Then students will write up a formal lab report of their project. The draft proposal will be worth 10 points and the final proposal will be worth 50 points.

Final Exam: There will be one comprehensive final exam worth 40 points at the end of the semester. This final exam will primarily focus on the content of the course.

BIOLOGY 385-H01: EVOLUTIONARY ANIMAL BEHAVIOR LAB - HONORS

ACADEMIC INTEGRITY:

There is ZERO tolerance for academic dishonesty in this course which includes both cheating and plagiarism. The punishment for dishonesty in this course will be a zero on the assignment and a consultation with the Dean of Students after which further action may be required. The university's academic integrity policy can be found here: https://www.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf. If you have any questions about this policy, please come and talk to me about it.

COURSE OUTLINE: ***Tentative Schedule of tropics*** *Field trip

DATE	TOPICS	READING AND/OR ASSIGNMENT
Sept 3	Introduction to Animal Behavior **Lab 1:** Observations & Hypothesis Development	Syllabus Bibliographic Scavenger Hunt
Sept 10*	**Lab 2:** Describing and Quantifying Behavior (Meadowlands Field Trip)	→ Lab 1 Assignment due
Sept 17	Data Analysis for Lab 2 (mini presentations of results) ***Paper Discussion #1 – Foraging Behavior*** **Lab 3:** Foraging Decisions in Squirrels	→ Lab 2 Part 1-4 Assignment due → Lab 2 Part 5 Assignment due by end of class ***Read paper for discussion #1***
Sept 24*	**Lab 4:** Alternative Anti-Predator Responses (Mahlon Dickerson State Park Field Trip)	→ Lab 3 Assignment due
Oct 1	Data Analysis for Lab 4 Discussion of Project Proposal Assignment Brainstorm Session for Proposal Ideas ***Paper Discussion #2 – Vigilance Behavior***	***Read paper for Discussion #2*** → Lab 4 Assignment by end of class
Oct 8*	**Lab 5:** Vigilance in Shore Birds (Sandy Hook Field Trip)	*Topics for Project Proposal Due*
Oct 15	Data Analysis for Lab 5 Individual Meetings about Project Proposals Independent Research Project Seminar	→ Lab 5 Assignment by end of class
Oct 22	Mini-presentations of independent research plans ***Paper Discussion #3 – Mating Behavior*** **Lab 6:** Human Behavioral Ecology (Mate Choice)	Independent Project Plan due ***Paper Discussion #3*** → Lab 6 results due end of class
Oct 29*	Independent Research Projects (Turtle Back Zoo field trip)	Draft 1 of Project Proposal Due
Nov 5	Data Analysis for Independent Research Projects Formal Lab Report Writing Seminar ***Paper Discussion #4 – Agonistic Behavior*** Mini-Lecture: Introduction to Aggression & Agonistic Behavior	→ Lab 6 Assignment ***Read Paper for Discussion #4*** Preliminary Results of Independent Research Project Due by end of class
Nov 12	**Lab 7:** Aggression in crayfish	***Draft 1 of Formal Lab Report Due***
Nov 19	Project Proposal Lightening Talks ***Paper Discussion #5 – Altruistic Behavior*** **Lab 8:** Altruism and the Prisoner's Dilemma	→ Lab 7 Assignment due Project Proposal lightening talks ***Read Paper for Discussion #5***
Nov 26	**Thursday Schedule – No Class! Happy Thanksgiving!**	

Dec 3	**Lab 9:** Evolution of Animal Behavior	➔ Lab 8 Assignment due **Final Project Proposal due**
Dec 10	**STUDENT PRESENTATIONS**	➔ Lab 9 Assignment due **IN-CLASS RESENTATIONS** ***Final Formal Lab Report Due 12/11***
FINALS	**FINAL EXAM WEEK: DECEMBER 14-20, 2019**	

*Field Trip All assignments are due at the beginning of class unless otherwise noted.