Syllabus: PSYC406 NEUROETHOLOGY

COURSE DESCRIPTION:

Prerequisites: **PSYC 301 (or) NEUR200 (or) PSYC202**

This course will examine the neural basis of species-specific behavior. Neuroethology, a merger between the disciplines of Neuroscience and Ethology (Animal Behavior), studies the behavioral functions of nervous systems using a comparative and evolutionary approach. Topics will provide a general introduction to the subject as well as a detailed description of the role of the sensory and motor systems in the behaviors of some of its many model systems, ranging from insects to mammals.

The principle goal of this course is for you to understand how the nervous system controls behavioral patterns in a variety of different organisms.

General departmental learning outcomes are:

1) Research Methods: Students will understand and apply basic research methods in psychology, including research design, data analysis, and interpretation.
2) Critical Thinking: Students will use creative and critical thinking to solve problems related to behavior and mental processes.
3) Communication: Students will communicate effectively in a variety of formats.
4) Content: Students will demonstrate familiarity with the questions that gave rise to content knowledge, a sampling of major concepts, theoretical perspectives, empirical findings, and historical trends in psychology.

Standard Course Policies - It is my expectation that you take personal responsibility for making yourself aware of the relevant course and University policies. Take the time to read them carefully so that there are no surprises and follow up with me immediately if you have any questions. For more information on course related policies, please visit http://www.ugst.umd.edu/courserelatedpolicies.html.

SPECIAL INFORMATION FOR SPRING 2021:

This course will be conducted **online**. I will attempt to hold lectures synchronously at the regular class hours (see below), but it is possible that part of the course will be taught asynchronous with pre-recorded lectures replacing live, virtual meetings. If you experience any difficulties with the format, make sure to inform me as soon as possible. I will show as much flexibility for your needs and personal situation as possible. Meetings will be via Zoom and I will send you information on how to access Zoom before class. Make sure to log into each Zoom meeting using the provided link and begin this process a few minutes before class. All lectures will be recorded and posted in Canvas, but you will benefit from the experience of attending the live lectures. I encourage you to keep your camera on during class, but I understand if your personal situation may not allow this at all times.

Statements:

Names/Pronouns and Self Identifications
The University of Maryland recognizes the importance of a diverse student body, and we are committed to fostering equitable classroom environments. I invite you, if you wish, to tell me how you want to be referred to both in terms of your name and your pronouns (he/him, she/her, they/them, etc.). The pronouns someone indicates are not necessarily indicative of their gender identity. Visit trans.umd.edu to learn more.

Additionally, how you identify in terms of your gender, race, class, sexuality, religion, and dis/ability, among all aspects of your identity, is your choice whether to disclose (e.g., should it come up in classroom conversation about our experiences and perspectives) and should be self-identified, not presumed or imposed. I will do my best to address and refer to all students accordingly, and I ask you to do the same for all of your fellow Terps.

Inclusive Learning Environment
Students will be invited to share their thoughts in class and a diversity of opinions is welcome. Respectful communication is expected, even when expressing differing perspectives. Supporting one's statements with research findings is encouraged. In accordance with free speech statues, speech that contains threats of violence is prohibited.

Reporting Racism and Other Forms of Hate and Bias
If you experience racism or other form of bias or hate in this class or any other course, we encourage you to do at least one of the following: Please report the experience to the instructor or teaching assistant, and/or report the experience to the Department of Psychology's Diversity and Inclusion Committee using this link (reports can be made anonymously). Please also report all incidents of hate and bias to the Office of Diversity and Inclusion at https://www.diversity.umd.edu/hbrp/.

Statement of Basic Needs
Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in this course, is encouraged to use the resources listed below for support.
Fostering Terp Success: https://www.studentaffairs.umd.edu/fostering-terp-success
UMD Campus Pantry: http://campuspantry.umd.edu/
UMD Student Crisis Fund: http://www.crisisfund.umd.edu/
Counseling Center: http://www.counseling.umd.edu/CS/

COURSE STRUCTURE

LECTURES
Two online lectures per week on Tuesdays and Thursdays from 2:00 p.m. - 3:15 p.m. **I strongly encourage students to attend all online lectures.** Although attendance is not explicitly enforced through grading, it is much more beneficial to your learning to attend online lectures rather than viewing recorded lectures only. I will not place lecture slides

on Canvas or make it accessible in any other form. Lectures will not necessarily mirror the textbook or paper readings but complement them, and you should not assume that the content of the readings is covered in class or vice versa.

OFFICE HOURS

My **online** weekly office hours are Thursdays 3:15 p.m. - 4:00 p.m., or by appointment. You can schedule an appointment outside office hours, and you can always, and at all times, contact me by email (**jherberh@umd.edu**) with any concern, questions, or comments you may have.

READINGS

The textbook for the course is "*The Neuroethology of Predation and Escape"* (2016; Wiley & Sons) by Keith Sillar, Laurence Picton, and William Heitler. In addition, several scientific review articles will be used as supplementary material for the course. The schedule of classes (see below) lists the chapters or articles that relate most closely to the material covered in each lecture. I will upload the relevant review articles to Canvas, but not the lectures slides or textbook figures.

ASSIGNMENT:

A short term paper ("grant proposal") is due 2 ½ weeks before the semester ends (April 22, 2021). You must submit an electronic copy of the paper (i.e., Word or PDF file) by uploading it on Canvas. **No late papers will be accepted unless there are documented circumstances that justify an exception.**

The paper should describe a *proposed research activity* using one of the animal models and topics that have been discussed in the course prior to the submission date (e.g., snake infrared detection, bats and echolocation, crayfish and escape, etc.). The paper should be written for a scientific audience. It must be organized according to common scientific manuscript style and include the following three sections: *Introduction* (background information, i.e. previously published information on this topic; your hypothesis and rationale for the study), *Material & Methods* (your experimental design for testing your hypothesis), and *Expected Results* (discussion of possible outcomes and potential pitfalls). Papers must not be more than 4 pages long (typed double-spaced, 12 font, Times New Roman). The page limit does not include the required title page with your name and honors code, a reference list, and any optional figures. Citation should follow common journal style (e.g., APA). The exact format of the term paper ("dos and don'ts") will be explained in more detail during the course.

EXAMS

Knowledge of the lecture material, the textbook material, and the review articles is essential for successfully answering the exam questions. Questions will be a combination of true/false and short answer (essay), and some might be prepared in a thought-provoking manner. You will get to choose from a list of questions.

The exams will be online (at the regular class time for each midterm exam, and at the assigned day/time for the final exam). You are not permitted to communicate with other

students during the exam. The exams will be open book/notes, but you are not allowed to copy and paste complete sentences/phases from the textbook or articles. Instead, you must use your own words when answering the essay questions. **Make-up examinations will be given only under special circumstances, which you should be prepared to document. You must make every effort to contact me *before* an examination if you are unable to attend.**

GRADING PROCEDURE

Exams I & II	20% each
Final Exam (cumulative)	30%
Term Paper	30%

Grades will include +/- descriptors. The grading scale is as follows (and might differ from other classes you have taken):

0-59.99% = F; 60-63.32% = D-, 63.33-66.66% = D, 66.67-69.99% = D+; 70-73.32% = C-, 73.33-76.66% = C, 76.67-79.99% = C+; 80-83.32% = B-, 83.33-86.66% = B, 86.67-89.99% = B+; 90-93.32% = A-, 93.33-96.66% = A, 96.67-100% = A+.

I will not round up grades! Grades for midterms/final exam and the term paper will be posted online. Final semester grades will be submitted on UMEG.

CANVAS:

I will post announcements, syllabus, readings, and other course documents on Canvas. Make sure to check frequently for any updates.

ACADEMIC INTEGRITY:

The University of Maryland has a student-administered Honor Code and an Honor Pledge (https://studentconduct.umd.edu/). It prohibits students from cheating on exams, plagiarizing papers, forging signatures, and committing any other form of academic dishonesty. It also stipulates severe penalties for students who violate the Code. On the request of the University Senate I encourage each of you to sign the following statement on each exam: *"I pledge on my honor that I have not given or received any unauthorized assistance on this examination (or assignment)"*, and to write this statement on the front page of your term paper.

STUDENTS WITH DISABILITIES:

The University is legally obligated to provide appropriate accommodations for students with documented disabilities. In order to ascertain what accommodations may need to be provided, students with disabilities should inform me of their needs at the beginning of the semester. For further information, please visit the website of the Accessibility & Disability Service (ADS): https://www.counseling.umd.edu/ads/

RELIGIOUS OBSERVANCES:

The University System of Maryland policy "Assignments and Attendance on Dates of Religious Observance" provides that students should not be penalized because of observances of their religious beliefs; students shall be given an opportunity, whenever feasible, to make up within a reasonable time any academic assignment that is missed due to individual participation in religious observances. It is the student's responsibility to inform the instructor of any intended absences for religious observances in advance.

COURSE EVALUATIONS:

As a member of our academic community, you as a student have a number of important responsibilities. One of these responsibilities is to submit your course evaluations each term though CourseEvalUM in order to help faculty and administrators improve teaching and learning at Maryland. CourseEvalUM will open towards the end of the semester for students to complete their evaluations. For more information, visit the course evaluation website: https://courseevalum.umd.edu/

COURSE OUTLINE:

	Date	Material	Chapter/Pages in Textbook
1. L1	1/26/21	Introduction & Background	
2. L2	1/28/21	Neurons & Circuits	***https://nba.uth.tmc.edu/neuroscience/toc.htm***
3. L3	2/2/21	Vision I	Chapter 1
4. L4	2/4/21	Vision II	
5. L5	2/9/21	Olfaction I	Chapter 2
6. L6	2/11/21	Olfaction II	
7. L7	2/16/21	Hearing I	Chapters 3 & 4
8. L8	2/18/21	Hearing II	
9. **E1**	**2/23/21**	**Exam #1**	**Lectures 1-8 & Chapters 1-4**
10. L9	2/25/21	Echolocation I	Chapter 5
11. L10	3/2/21	Echolocation II	
12. L11	3/4/21	Electroreception I	Chapter 6
13. L12	3/9/21	Electroreception II	
14. R1	3/11/21	*Mid-semester review*	

15.	3/16/21	*No class – Spring Break*	
16.	3/18/21	*No class – Spring Break*	
17. L13	3/23/21	Escape Behavior – Crayfish I	Chapter 7
18. L14	3/25/21	Escape Behavior – Crayfish II	
19. L15	3/30/21	Escape Behavior – Fish I	Chapter 8
20. L16	4/1/21	Escape Behavior – Fish II	
21. L17	4/6/21	Escape Behavior – Mammals	Chapter 9
22. **E2**	**4/8/21**	**Exam #2**	**Lectures 9-17 & Chapters 5-9**
23. L18	4/13/21	Mechanics and Motor Control I	Chapter 11
24. L19	4/15/21	Mechanics and Motor Control II	
25. L20	4/20/21	Learning in Insects I	*Giurfa (2007)* *Honeybee review paper*
26. L21	4/22/21^{t}	Learning in Insects II	*McGuire et al. (2005)* *Drosophila review paper*
27. L22	4/27/21	Learning in Snails I	*Hawkins et al. (2006)* *Aplysia review paper*
28. L23	4/29/21	Learning in Snails II	
29. L24	5/4/21	Learning in Songbirds I^	*Guest lecture*
30. L25	5/6/21	Learning in Songbirds II^	*Guest lecture*
31. R2	5/11/21	*Final semester review*	
32. **E3**	**5/17/21***	**Final Exam**	**comprehensive**

^ *Guest lectures*

^{t} *Term paper due*

***** *Tentative: 10:30 AM – 12:30 PM*