



50.2. Issues in Neuroscience: Neuroethology

When & Where: Days & Time: M, W, F, 11:15 pm – 12:20 pm
X-hour: Tu, 12:00 pm – 12:50 pm
Location: Moore 110

Instructor: Professor Jay Kralik

How to find me: E-mail: Jerald.Kralik@Dartmouth.edu
Office: Moore 259
Phone: 6-0610
Office Hour: Thursdays, 4-5 pm

Course Description: A rose smells sweet, and rotting food smells bad—to you, but not to a fly. The neural mechanisms that cause such differences reflect the conditions under which each species evolved. By comparing the nervous systems of many animal species we will discover the conditions and constraints that led to the neural mechanisms of species typical behaviors, including our own. Prerequisite: Psych 1 or 6.

Grading: 10% Participation
20% 2 Quizzes (10% each)
20% Midterm Exam
20% Presentation
30% Take-home Final Exam

Participation: This includes attendance, involvement in class discussion, and questions asked after student presentations.

Quizzes: Scheduled for Wednesday, Oct 2th and Wednesday, Oct 30th. They will be held during the first 30 minutes of class. The first quiz will cover *all* lectures and assigned readings up to the quiz date; the second quiz will cover all new material after the midterm. Questions are typically short answer and longer essays.

Midterm Exam: Scheduled for Wednesday, Oct 16st. The midterm will cover *all* lectures and assigned readings up to the midterm exam date. Questions are typically short answer and longer essays.

Presentation: Each student will give one Powerpoint presentation on any topic relevant to the class. Presentations are a great way to learn new material and to mold the course based on student interests, so pick a topic you are particularly interested in. I also expect everyone to do their own literature review on the topic. I can help you with some material, but your grade will also be based on independent work. I will say more about presentations in class.

Final Exam: The final exam will be take-home and will cover *all* lectures and readings in the course, although it will be weighted toward topics after the midterm. Questions are typically short answer and longer essays. I will pass it out on the last day of class and it will be due at 5pm on the day the final exam is scheduled by the Registrar. **Once the exam is passed out, you CANNOT discuss it with anyone.**

Readings:

1. *Principles of Brain Evolution* (PBE) by Georg Striedter
2. TBA

Internet policy during class: You can use electronic devices only for taking notes or looking up something directly relevant to the current lecture. I will talk about this more in class.

Honor Principle: Although this should go without saying, activities in this class, as throughout Dartmouth (and life), are governed by the honor principle. No notes are allowed for the in-class quizzes and midterm, and you cannot obtain help from or provide it to another student during exams. Your oral presentation and answers to exam questions must be in your own words.

Absences due to Religious Observances or Athletic Events: Please let me know during the first week of the term if you will be unable to attend any class meetings as a consequence of religious observances or athletic events.

Accommodations for Disabilities: Any student with a documented disability needing accommodations or academic adjustments is requested to speak to me and give me a copy of your accommodations form by the end of the second week of the term. All discussions will remain confidential, although the Director of Student Disabilities may be consulted if necessary.

See Below for Lecture Dates, Topics & Reading Assignments:

Dates	Topics	Readings
	<i>I. Warming up</i>	
1. M—Sept 16	Introduction & Course Overview	
2. W—Sept 18	Background material	PBE 1
3. F—Sept 20	Background material	PBE 2
	<i>II. Principles of Brain Evolution</i>	
4. M—Sept 23	Conservation in Vertebrate Brains I	PBE 3
5. W—Sept 25	Conservation in Vertebrate Brains II	PBE 3
6. F—Sept 27	Evolutionary Changes in Overall Brain Size I	PBE 4
7. M—Sept 30	Evolutionary Changes in Overall Brain Size II	PBE 4
8. W—Oct 2	Quiz #1	
	Evolutionary Changes in Brain Region Size I	PBE 5
9. F—Oct 4	Evolutionary Changes in Brain Region Size II	PBE 5
10. M—Oct 7	Evolutionary Changes in Brain Region Structure I	PBE 6
11. W—Oct 9	Evolutionary Changes in Brain Region Structure II	PBE 6
12. F—Oct 11	Evolution of Neuronal Connectivity I	PBE 7
13. M—Oct 14	Evolution of Neuronal Connectivity II	PBE 7
14. W—Oct 16	Midterm Exam	
15. F—Oct 18	What's Special about Mammal Brains?	PBE 8
16. M—Oct 21	What's Special about Mammal Brains?	PBE 8
17. W—Oct 23	What's Special about Primate Brains?	PBE 9
18. F—Oct 25	What's Special about the Human Brain?	PBE 9
19. M—Oct 28	Reflections (What We've Learned So Far)	PBE 10
	<i>III. Celebrating Differences, Insights about Ourselves</i>	
20. W—Oct 30	Quiz #2	
	TBA	TBA
21. F—Nov 1	TBA	TBA
22. M—Nov 4	TBA	TBA
23. *Tu—Nov 5*	TBA	TBA
24. W—Nov 6	TBA	TBA
25. F—Nov 8	TBA	TBA
26. F—Nov 15	TBA	TBA
27. M—Nov 18	TBA	TBA
28. *Tu—Nov 19*	What It All Means	TBA
29. TBA	Take-home Final Exam due	

X-hour