

Psyc 328: Neurobiology of Sexual Behavior

Fall 2017

Th 1:30 - 4 PM, Link 105

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Office hours: Tuesdays 2 - 4 PM; or by appointment

Course Description: This seminar will explore the neurobiology of sexual behavior and will focus on systems-level understanding of the neural regulation of both pre-copulatory and copulatory behavior. Although this course will draw heavily from the large literature on rodent sexual behavior, data from other models, ranging from invertebrates to humans, will also be evaluated. Topics covered will include: central and peripheral nervous system control of sexual behavior, hormonal and neurochemical modulation of sex behavior, sensory modulation of sex behavior, sexual differentiation of the brain, puberty and the development of sexual behaviors, the neural regulation of sexual attraction/motivation, and brain plasticity associated with sexual experiences. Students are also able (and encouraged!) to choose papers to present that are related to their particular areas of interest within the broader topic.

Each week, the seminar will be divided into two components: The first half of the course will be lecture and activities covering assigned background readings. The second half will be presentations by students of primary literature readings related to the topic. To culminate the course, students will write a literature review on a topic related to the neurobiology of sexual behavior.

Textbook and Readings: There is no textbook for this course. Background readings (e.g., review articles and book chapters) and primary literature (journal articles) will be distributed electronically via the course Moodle site.

Pre-requisites: Prior completion of Psyc 100 and Psyc 217 or an equivalent course is required. Completion or concurrent enrollment in Psyc 200 is recommended. If you do not meet these requirements, pre-approval by the instructor is required.

Attendance: Students are expected to participate in the course by presenting and discussing papers. These presentations and involvement in discussion will contribute significantly to the final grade. Consequently, if you are absent from the class without an adequate explanation (see below), you will not get participation credit for that class.

Missed attendance and/or presentation:

- If you miss a class for any reason, you must contact me (in person, by phone, or by e-mail) within 24 hr of the missed class. In addition, there must be a legitimate reason (e.g., serious illness) for missing a class.
- In those cases for which a legitimate reason is established, the credit for that particular class will not be counted in the overall participation credit for the course. This means that the remaining course participation will count more to your final grade than it would have otherwise. That is, more depends on less.
- If you miss your presentation and have established a legitimate reason, I may move your presentation to another class period, if this is possible. If not, then the credit for that particular presentation will not be counted in the overall presentation credit for the course. This means that the other presentation will count more for your final grade than it would have otherwise.
- Missing class and/or presentation without a legitimate excuse will result in a mark of 0 points for participation and presentation (if applicable).

Grading: There are 100 possible points in this course:

Participation	10 points
Thought Papers / Exercises	10 points
Presentation 1	15 points
Presentation 2	20 points
Mid-Term	20 points
Final Paper	25 points
Total Possible Points	100 pts

Grading Scale:	94-100 pts = 4.0	77-79 pts = 2.3
	90-93 pts = 3.7	73-76 pts = 2.0
	87-89 pts = 3.3	70-72 pts = 1.7
	83-86 pts = 3.0	67-69 pts = 1.3
	80-82 pts = 2.7	63-66 pts = 1.0

Participation: Your active participation in the seminar is **essential** for success in this course. I expect all students to come to seminar having critically read the assigned review and primary literature papers that your fellow students will be presenting. Bring questions about the papers with you to class to assist in talking about the material. Most importantly, be prepared to answer both specific and general questions about these papers.

Thought Papers / Exercises: Each week, I will post a thought question or exercise for the following week's reading. You will write a short paper (no more than 2 pages double-spaced) or complete a short exercise in response to that question/prompt. These papers and exercises are designed to stimulate your thinking and processing of the course material and to help me focus seminar discussion on what resonated most with the class. **Your response is due no later than Wednesday 5 PM before Thursday's class.**

Presentations: On the second half of each meeting, two students will each present ***pre-approved*** empirical papers (journal articles, NOT review articles or book chapters) related to that week's topic. The presentation should be around 25 minutes with about 10 minutes for questions. In the presentation, I expect students to briefly and clearly summarize the problem that the paper addresses as well as describe and critically analyze the methods, results and interpretations. Prepared slides and/or handouts are encouraged. ***Additional background reading, over and above what is assigned, is assumed for presenters.*** Throughout the semester, each student will present a total of **two** primary papers on two separate occasions.

Midterm: The midterm exam is designed to test your comprehension of key course concepts *and* apply them to real-world problems in science. More information about the midterm exam will be given during class.

Final Paper: As a capstone to this course, you will use the knowledge and skills you have gained to write a literature review paper that critically evaluates a topic of choosing related to the neurobiology of sex. More information about the paper will be given during class.

Classroom policies: Please silence your phones and put them away during class. Students may use laptop computers or tablets to take notes, but please refrain from using your devices for non-class-related activities during class. I typically do not post my lecture slides before class, as I feel that it discourages active learning, but I may make some available after class if I feel they will be a useful study aid. Please do not audio-record any portion of my lectures without explicit permission to do so. Questions and discussions are welcome and encouraged. Please be respectful of your classmates at all times.

Academic Integrity: You are expected to abide by Haverford's Honor Code. Academic dishonesty of any kind will not be tolerated.

Disability Statement: Haverford College is committed to supporting the learning process for all students. Please contact me as soon as possible if you are having difficulties in the course. There are also many resources on campus available to you as a student, including the Office of Academic Resources (<https://www.haverford.edu/oar/>) and the Office of Access and Disability Services (<https://www.haverford.edu/access-and-disability-services/>). If you think you may need accommodations because of a disability, you should contact Access and Disability Services at hc-ads@haverford.edu. If you have already been approved to receive academic accommodations and would like to request accommodations in this course because of a disability, please meet with me privately at the beginning of the semester (ideally within the first two weeks) with your verification letter.

Date	Topic	Notes
9/7	Introduction and Overview	
9/14	Sexual behavior: Hormones	
9/21	Sexual behavior: Neurochemistry	
9/28	Sexual behavior: Sensory Cues	
10/5	Sexual differentiation of the brain: organization and activation	
10/12	Peripheral mechanisms of sex behavior (male and female)	
10/20	NO CLASS FALL BREAK	
10/26	Male copulation: Central mechanisms	<i>Midterm Exam Distributed after class on 11/2</i> <i>Midterm Exam due at beginning of class on 11/9</i>
11/2	Female copulation: Central mechanisms	
11/9	Neurobiology of sexual attraction and motivation	
11/16	Invertebrate models of sex behavior	
11/23	NO CLASS THANKSGIVING BREAK	
11/30	Comparative models of sex behavior	
12/7	Neurobiology of copulation in humans	
12/14	Neurobiology of copulation in humans	
FINAL PAPER DUE BY FRIDAY 12/22 AT NOON		

Examples of Appropriate Journal Articles:

Ball et al (2014) "Is it useful to view the brain as a secondary sex characteristic?"

Meisel and Mullins (2006) "Sexual Experience in female rodents: cellular mechanisms and functional consequences"

Laturney and Billeter (2014) "Neurogenetics of female reproductive behaviors in *Drosophila melanogaster*"

Komisaruk and Whipple (2005) "Functional MRI of the brain during orgasm in women"

Nugent et al (2015) "Brain feminization requires active repression of masculinization via DNA methylation"

Alekseyeno et al (2007) "Bilateral damage to the sexually dimorphic medial preoptic area/anterior hypothalamus of male ferrets causes a female-typical preference for and a hypothalamic Fos response to male body odors"

Wedekind et al (1995) "MHC-dependent mate preferences in humans"

Matsumoto et al (2012) "Effects of amygdala lesions on male mouse ultrasonic vocalizations and copulatory behavior"

Hamann et al (2014) "Brain responses to sexual images in women with complete androgen insensitivity syndrome are female-typical"

Yang et al (2013) "Sexually-dimorphic neurons in the ventromedial hypothalamus govern mating in both sexes and aggression in males"