Neuroethology

BCS/NSC 244 | Spring 2026

Dr. Takao Sasaki
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TAs: Lyza Marino (lmarino6@u.rochester.edu; office hours: Wed 2:00 - 3:00)
August Vaznaugh-Sanchez (avaznaug@u.rochester.edu; office hours: Mon 5:00 - 6:00)
Adam Kissai (akissai@UR.Rochester.edu; office hours: Mon 10:00 - 11:00)

Time: Tu/Th 11:05 - 12:20
Location: Gavett 206

Course Description: Neuroethology is the study of animal behavior in terms of its causes and adaptive value. We will consider a variety of animal behaviors in terms of their ultimate evolutionary origins and proximate mechanistic determinants. The course will cover the full range of animal behaviors using empirical data from observational and experimental studies, and exploring the diverse theoretical perspectives that characterize this dynamic field. Students will receive exposure to core concepts, including learning, decision making, social learning and collective learning, and also novel recent findings in the field.

Readings: Required readings from the primary literature will be posted on Blackboard. These readings will provide background and context for in-class lectures and discussions. No textbooks are required for this course.

Course Evaluation

Expectations: Attendance and class participation are highly encouraged. Readings should be completed, and questions/opinions should be submitted via Blackboard before each class to maximize in-class discussion. For unexcused absences, no credit will be received for missed in-class exercises/assignments. Excused absences and make-up assignments will only be granted if proper written documentation (e.g. letter from the doctor) is provided to the instructor.

1. ***In-class discussions:*** At the end of each lecture, we will have discussions (~25 min) based on assigned readings. Questions and opinions (one paragraph) about readings should be submitted via Blackboard by a night (9pm) before each lecture.

2. ***Exams:*** There will be one mid-term exam and one final exam. Both will be essay exams and test "the big pictures", the relationship between major concepts and themes covered in the course. Make-up exams will only be available prior to the exam date, so if you will have a conflict please see the instructor well in advance to organize an alternative testing date/time.

3. ***Research Paper*:** Students will pick a topic related to animal behaviors and write a short (3–5 pages, double spaced) review paper or research paper. Specific details will be covered in class and also posted on Blackboard.

4. ***Class presentation:*** Each student will give a short presentation (5-10 min) about his/her research paper. Specific details will be covered in class and also posted on Blackboard. Details will be covered in class.

Special Accommodations: If you require special accommodations due to a learning disability,

physical or medical needs, or for any other reason please contact the instructor.

Grading:

Item	Points
Mid-term exam	25
Final exam	25
Research paper	15
Class presentation	10
Questions/opinions/ In-class discussion	25
***Total**	**100**

***Extra credit:** Students can earn up to 4 additional points (2 points x 2) towards extra credit over the course of the semester. Extra credit opportunities will be announced in class over the course of the semester.

Grade Scale:

A	93.4 - 100%
A-	90 - 93.3%
B+	86.7 - 89.9%
B	83.4 - 86.6%
B-	80 - 83.3%
C+	76.7 - 79.9%
C	73.4 - 76.6%
C-	70 - 73.3%
D	60 - 69.9%
F	<60%

Academic Honesty: You will adhere to the University's Academic Honesty Policy. Rigorous citing of primary sources is expected in the writing of the final paper. For study group assignments, each member of the group is expected to pull their weight and groups are expected to meet in person for each assignment. Failure to adhere to this policy will result in grade reductions on an individual, rather than group, basis.

AI use: Although the use of generative AI is not entirely prohibited in this course, all written work submitted must be an independent effort and reflect your own thoughts. The use of generative AI should therefore be limited to serving as a study aid—for example, to help clarify a difficult concept or technique from a paper you are reading. It is important to independently verify any AI-generated output, as these technologies, while impressive, are still new and may produce incorrect information. Please also note that 50% of your grade is based on closed-book exams, during which the use of any external resources (including AI tools) is strictly prohibited. If you have any concerns or questions, feel free to consult one of the instructors for guidance.

Course outline

**This is a general outline for the course. Deviations from this plan may be necessary and will be announced in class.*

Date	Topic	Readings
20 Jan	Course overview & introduction to Neuroethology	
22 Jan	Comparative cognition/assessing emotional state in animals	Chittka et al. 2012
27 Jan	Perception and attention	Suzuki 2018
29 Jan	Learning I	Martinho and Kacelnik 2016
3 Feb	Learning II	Bey et al 2025
5 Feb	Memory and planning	Raby et al 2007
10 Feb	Time and number	Agrillo et al 2008
12 Feb	Decision making I	Brosnan 2013
17 Feb	Decision making II (taught by Lyza Marino)	TBD
19 Feb	Spatial cognition I	Watts et al 2016
24 Feb	Spatial cognition II	Collett 2013 et al
26 Feb	Communication and language I	Seyfarth 1980
3 Mar	Exam review	
5 Mar	**Midterm exam**	
17 Mar	Communication and language II (taught by August Vaznaugh-Sanchez)	TBD
19 Mar	Tool use (taught by Adam Kissai)	TBD
24 Mar	Prep. for presentation/research paper/ Culture I	Laland and Janik 2006
26 Mar	Culture II	Hunt and Gray 2002
31 Mar	Social learning I	Yamamoto et al 2013
2 Apr	Social learning II	Laland and Willams 1998
7 Apr	Collective cognition	Sasaki and Biro 2017
9 Apr	Class presentation	
14 Apr	Class presentation	
16 Apr	Cognition in non-neural/plant organisms	Boisseau et al 2016
21 Apr	Class presentation	
23 Apr	Class presentation	
28 Apr	Exam review	
30 Apr	**Final exam**	