IB 499: Discussions in Integrative Biology: *Animal Recognition Systems*

Lecture Information

Instructor:
Dr Mark Hauber
Office: 469 Morrill Hall
Email: mhauber@illinois.edu
Office Hours: 11-11:50 AM Fridays or by appointment

S/U only (no letter grade).

1 credit hr.

Catalogue Description:
Seminars, discussions, research project presentations, readings, and reviews of special topics in integrative biology.

Expanded Description:
This course addresses the integrative biology of animal recognition systems: from self to societies, and kin, mates, and predators in between, recognition systems play pivotal roles in social and self-maintenance behaviors. Here we will review through critical presentations and discussions in a seminar-setting, the development, physiology, adaptive benefits, and the evolutionary paths to diverse recognition systems by focusing mostly on primary readings of data-driven published papers and meta-analyses, whether from the peer-reviewed literature or from the presenting students' own research projects. The requirements include weekly class attendance and discussion, a powerpoint presentation delivered in class, and written peer-review of a fellow presenter.

This course is not required for the IB major.

Course Type: Online course, semester long.

Course Structure: Once weekly, 3:00 – 3:50 PM, Wednesdays, on ZOOM

Text: No textbook. Primary data paper readings are assigned weekly.

Course Web Site: Materials for the course will be posted on the course Moodle site: https://learn.illinois.edu

Prerequisite: Consent of instructor.

Student Learning Outcomes:
1. Students will be able to present and explain the content a primary scientific data paper on the integrative biology of animal recognition systems.
2. Students will be able to assess and evaluate the content and structure of a peer's presentation of scientific data.
3. Students will learn to successfully manage their time, read and write critically, and follow instructions.

4. Student will be able to participate reliably, responsibly, respectfully, productively, and effectively in a collaborative in-person and/or online scientific discussion.

Assignments, Course Attendance, and Grading
Course Grading Assignments and Philosophy

1) You are required to attend all class meetings; occasional medical and instructor pre-approved absences are accepted.
2) We do not 'curve' individual assignments. Instead, we will mark both your powerpoint presentation (50%), a written peer-review of a fellow participant's presentation (25%) and your participation (25%), and assign you a passing grade (S) if you receive total of 70% or more on these.

     For the powerpoint assignment, please generate a 20-slide long presentation from synthesizing and analyzing primary, hypothesis-and-prediction driven data papers selected by you in consultation with the instructor. Each student will present their respective slides for 20 min in the classroom for their assigned week (once per semester), then everyone will discuss the paper for 30 min. You will be provided a detailed grading rubric on what to include and how the presentation assignment will be graded.

     For the written peer-review assignment, you will be asked to complete an online survey of 10 questions and criteria with your short-answers to evaluate one fellow student's in-class presentation. The presenting student will be provided by your evaluation anonymously so make sure your answers are constructive, supportive, and respectful.

     Finally, each student will be expected to participate actively (asking questions from the presenter, providing their personal opinion on the presented data, engaging in dialogue, briefly describing other, relevant papers from their personal knowledge, etc.) in each class, unless excused by a medical or an instructor-preapproved absence.
     Reading assignments for each class meeting will be provided on the course Moodle site. **Our expectation is that you will read this material before coming to class.**
3) Participation is critical and will be graded, as it will help you learn the material and help us gauge understanding.

Contesting Grades
Students who believe that their grade awarded is demonstrably improper by reason of capricious or arbitrary grading should confer with the Associate Director of Academic Affairs in the School of Integrative Biology. Students who are unable through such discussion to arrive at a mutually agreeable solution may file a written appeal with the Capricious Grading Committee of the School of Integrative Biology. Prompt attention to these concerns is important. The appeal must be filed within six working weeks after the start of the next semester.

For further information, refer to §3-107 of the Student Code:
https://studentcode.illinois.edu/article3/part1/3-107/

Disabilities Statement
If you require special accommodations, please contact Dr. Hauber via email as soon as possible. All accommodations will follow the procedures as stated in Article 1-110 of the Student Code (http://studentcode.illinois.edu/article1_part1_1-110.html). To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES

you may visit 1207 S. Oak St., Champaign, call 333-4603 (V/TTY), or e-mail a message to disability@illinois.edu.

Code of Civil Class Conduct:
Students are expected to conduct themselves in accordance with the campus Student Code: https://studentcode.illinois.edu. As a reminder, the Campus Integrity Statement states: "The University of Illinois at Urbana-Champaign expects its faculty, staff, students and guests to conduct themselves in accordance with the community values of civility, respect, and honesty; to maintain the highest level of integrity and exercise critical judgment in all dealings, decisions and encounters; and to maintain and strengthen the public's trust and confidence in our institution." You will receive three written warnings if your language and comments are divisive or offensive. After these warnings you will receive a 0 on the participation grade for the session in which your comments are deemed inappropriate for the third time (warning). A fourth written warning will result in your dismissal from the course. What does it mean to be divisive or offensive? The list includes but is not limited to: personal attacks, false statements with no basis in fact, demeaning someone's experience, belittling language, broad generalizations and stereotyping, amongst others. If you cannot find a credible source to support something you are trying to state as a scientific finding, it is likely in this category.

Academic Integrity is essential to maintaining a learning environment that promotes excellence. We expect that all students will complete all academic and scholarly assignments with fairness and honesty. We adhere to the academic misconduct guidelines outlined by the Student Code of Conduct and will report any suspected academic misconduct using the FAIR system. Please see http://studentcode.illinois.edu/article1_part4_1-402.html for additional details. If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact Dr. Hauber.

Course schedule—next page. *Please note that the assigned reading for each session can be replaced by a student-choice paper following prior consultation with the instructor.*

Week		Topic	Reading assigned and presented by a student (can be replaced by student choice of paper in consultation with instruction)
1		How to write a scientific paper and how peer review others' works (instructor presentation)	Turbek et al: Scientific writing made easy https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/bes2.1258
2		Recognition systems: classic definitions	Sherman, PW, Reeve HK, & Pfennig DW (1997) Recognition systems. In: Krebs J, Davies N (eds) Behavioural Ecology Blackwell, Oxford.
3		Recognition systems: a 21st century view	Mendelson et al. 2015: Cognitive phenotypes https://www.cell.com/trends/ecology-evolution/comments/S0169-5347(16)30135-5
4		Self-referent phenotype matching	Mateo and Johnston 2000: Kin recognition and the 'armpit effect' https://royalsocietypublishing.org/doi/10.1098/rspb.2000.1058
5		Kin recognition	Lattore et al. 2019: No evidence for kin recognition in a passerine bird https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0213486
6		Dominance recognition	Cervo et al. 2008: On status badges and quality signals https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2602695/
7		Familiarity recognition	Pardo et al. 2018: Wild acorn woodpeckers recognize associations between individuals in other groups https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6053930/
8		Mate choice and recognition	Rafferty and Boughman 2006: Olfactory mate recognition https://academic.oup.com/beheco/article/17/6/965/317432
9		Species recognition	Louder et al. 2019: An Acoustic Password Enhances Auditory Learning in Juvenile Brood Parasitic Cowbirds https://www.cell.com/current-biology/pdf/S0960-9822(19)31237-0.pdf
10		Face recognition	Towler et al 2019: Are face recognition abilities in humans and sheep really 'comparable'? https://royalsocietypublishing.org/doi/10.1098/rsos.180772
11		Nestmate recognition	Shpigler et al. 2017: Deep evolutionary conservation of autism-related genes https://www.pnas.org/content/114/36/9653
12		Individual recognition	Sheehan and Tibbetts 2011: Specialized face learning is associated with individual recognition in paper wasps https://pubmed.ncbi.nlm.nih.gov/22144625/
13		Habitat recognition	Teuschl et al. 1998: How do cuckoos find their hosts? The role of habitat imprinting https://pubmed.ncbi.nlm.nih.gov/9933539/
14		Predator-prey recognition	Thery and Casas 2009: The multiple disguises of spiders: web colour and decorations, body colour and movement https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2674075/
15		Host-parasite recognition	Lawson et al. 2020: Heterospecific eavesdropping on an anti-parasitic referential alarm call https://www.nature.com/articles/s42003-020-0875-7