Hormones coordinate the anatomical, physiological, and behavioral changes necessary for developmental, seasonal, and diurnal transition in animals. These molecules have profound effects on the development of the brain and on adult brain function. How do hormones orchestrate brain assembly and the expression of specific behaviors? How do behavior, social context, and the environment influence hormone secretion? This course will provide a critical survey of our understanding of the relationship between endocrinology, the brain, and behavior in a variety of animal systems. The exploration of a variety of systems will give students an appreciation of the ways in which the relationships between hormones and behavior vary across species, as well as the extent to which these relationships are conserved.

Instructor: John Kirn
Office hours: M 4:00-5:00; T 11:00-noon in Shanklin 409
phone: ext. 3494

Shannon Liu
Class room: SCIE 139
Class times: M, W 2:40-4:00 PM

Required texts: Nelson, R.J., An Introduction to Behavioral Endocrinology (2000) All other readings are from Becker, Breedlove and Crews (Eds.), Behavioral Endocrinology and will be on reserve in Science Library in a notebook labelled with the course title. Assigned readings for a given class meeting are listed as from RN (Nelson) or B,B & C for Becker, Breedlove & Crews. I expect you to do the assigned readings in advance of the lectures. This will not only help you digest the material more easily but will also enhance your ability to participate in class discussion.

Exams: All exams will be held in the regular classroom and at the regular time with the exception of the final. All exams will consist of multiple choice and short answer/essay questions. The final exam will be similar except that there will also be a major essay. For the latter, I will provide you with a recently published research paper except the "Discussion" section will have been omitted. Your job will be to write the Discussion section as if it were your own work, incorporating as many themes from readings/lectures that you think are relevant.

Exam 1 – Sept. 30
Exam 2 – Oct. 21
Exam 3 – Nov. 16
Final exam – To be announced

Presentations: You will be asked to form groups of 2-3 (maximum = 3) to prepare a 15 minute oral presentation related to any one of the lecture topics scheduled after Fall Break. My lectures throughout the semester will typically deal with general concepts and findings and so your job will be to focus on some aspect of the
material that really interests you and research it more fully. After exploring your
topic, pick one research paper to present to the class. Your presentation will occur
during class time on the same day as the related lecture. Presentations will be
followed by 5-10 minutes of class discussion. You will need to clear the paper
with me at least 2 weeks prior to your presentation date and I will put a copy on
reserve in the course Blackboard for all students to read. It is expected that all
group members will contribute to the presentation and discussion that follows. I
strongly urge you to begin thinking about this assignment soon. Only one group
will be able to present on a given day so the sooner you choose a general topic
and sign up for it, the better. You can begin by leafing through the various text
chapters, reading what Nelson has to say, and then using his reference list to delve
more deeply into a subject. I will be available to help you understand any
experimental methods or other potential roadblocks you might encounter.

Grading:
- Exam 1 - 15%
- Exam 2 - 15%
- Exam 3 - 15%
- Presentation - 25%
- Final exam - 30%

Class Schedule

Sept. 9  Orientation
Sept. 14 Introduction to the Endocrine System and Behavioral Endocrinology
  RN, Chapt. 1
Sept 16-21 Brain-Pituitary Interactions
  RN, Chapt. 2
Sept. 23-28 Hormonal Regulation of the Timing and Order of Metamorphic Change
  B, B & C; Chapt. 14: "Hormonal regulation of behavior: Insights from
  invertebrate systems" by J. Truman
Sept. 30  Exam 1
Oct. 5-7  Sexual Differentiation of the Brain, Body Plan and Behavior
  RN, Chapt. 3, except pg. 132-140; also read pg. 169-200 of Chapt. 4
Oct. 12  Neuroendocrinology of Male Sexual Behavior
  RN, pg 235-285 of Chapt. 5
Oct. 14  Neuroendocrinology of Female Sexual Behavior
  RN, Chapt. 6
Oct. 19  No class
Oct. 21  Exam 2
Oct. 26  No class, Fall Break
Oct. 28- Nov. 2  Sex Differences and Hormonal Influences on Human Behavior and Cognitive Functions RN, pg. 200-230; 285-302; Reserve reading: Colapinto, John; "The true story of John/Joan"

Nov. 4-9  Different Reproductive Strategies and their Neuroendocrine Correlates
R N pg. 132-140; 309-314

Nov. 11  Aggressive Behavior RN, Chapt. 8

Nov. 16  Exam 3

Nov. 18-23  Hormones and Biological Rhythms RN, Chapt 10

Nov. 30-Dec. 2  Stress RN, Chapt 11

Dec. 7-9  Hormones, Learning and Memory RN, Chapt 12

Dec. 14  Course Overview

Final Exam-TBA