Hormones and Behavior

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By appointment

Course Information:

PSYC 224 Z1
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Please note: This syllabus is subject to change at the discretion of the instructor. I plan to keep these changes, if any, to a minimum; but occasionally adjustments are required.

Course Description

Objective: In this course we will study a broad range of topics in behavioral neuroendocrinology which will allow us to develop a sufficient background to be able to understand the all the basic literature on the subject. We will talk about hormonal involvement in cognition, emotion, the stress response, circadian and homeostatic mechanisms, psychopathology and reproductive behavior. Hormone- and brain structure- based sex differences will be discussed with respect to all the above mentioned topics.

There will be 2 case studies that will require a presentation and a short write-up (70% grade)

A final exam worth 30% covering all the course material will be given on the final day of class.

Grades will be calculated using the following scale:

A+=97-100
A=93-96
A-=87-92
The test-book is: An Introduction to Behavioral Endocrinology 4th edition—you do not need to buy this but you can if you want to.

By Randy J Nelson

Published by Sinauer Press

Times allocated are approximate

The Study of Behavioral Endocrinology (Chapter 1)

• Historical Roots of Behavioral Endocrinology
• The Study of Behavior
• How Might Hormones Affect Behavior?
• How Might Behavior Affect Hormones?
• Classes of Evidence for Determining Hormone–Behavior Interactions
• Common Techniques in Behavioral Endocrinology

The Endocrine System (Chapter 2)

• Chemical Communication
• General Features of the Endocrine System
• The Endocrine Glands
• Cellular and Molecular Mechanisms of Hormone Action
• The Major Vertebrate Hormones
• How Hormones Are Regulated
• The Evolution of Hormones

Then in this order

Sex Determination and Differentiation (Chapter 3)
• Sex Determination and Differentiation
• Mammalian Sexual Differentiation
• Avian Sexual Differentiation
• Alternative Reproductive Tactics and Male Polymorphism
• Environmental Sex Determination in Reptiles and Fishes
• The Effects of Hormones on Sexually Dimorphic Behaviors

Stress (Chapter 11)

• The Stress Response
• Physiological Effects of the Stress Response
• Pathological Effects of the Stress Response
• Factors that Affect Stress Responsiveness
• Stress and Social Behavior
• Seasonal Fluctuations in Stress Responses
• Psychological Factors in Stress and Coping
• Stress and Drug Abuse

Sex Differences in Behavior: Animal Models and Humans (Chapter 4)

• Animal Models for Sexually Dimorphic Behaviors
• Sex Differences in Human Behavior
• Sex Differences in Cognitive Abilities

Male Reproductive Behavior (Chapter 5)

• The Proximate Bases of Male Sexual Behavior
• Historical Origins of Research on Male Sexual Behavior
• Male Sexual Behavior in Rodents
• Male Sexual Behavior in Primates
• Male Reproductive Behavior in Birds
• Male Reproductive Behavior in Reptiles

Female Reproductive Behavior (Chapter 6)

• Early Discoveries about Female Sexual Behavior
• Mammalian Female Mating Behavior: A Description
• Are Females Active Participants in Sexual Behavior?
• Components of Female Sexual Behavior
• Female Reproductive Cycles
• Experimental Analyses of Female Sexual Behavior

Homeostasis and Behavior (Chapter 9)

• Basic Concepts in Homeostasis
• Fluid Balance
• Energy Balance
• Control of Food Intake
• Gonadal Steroid Hormones, Food Intake, and Body Mass

**Biological Rhythms (Chapter 10)**

• Exogenous versus Endogenous Control of Biological Clocks
• Types of Biological Clocks and Rhythms
• Circadian Clocks
• Circadian Regulation of Food Intake
• Circadian Control of Feeding
• Food Entrainable Oscillators
• Circannual and Seasonal Rhythms

**Parental Behavior (Chapter 7)**

• What Is Parental Behavior?
• Sex Differences in Parental Behavior
• Parental Behavior in Birds
• Parental Behavior in Mammals
• Neural Changes Associated with Parental Behavior
• Conclusions

**Hormones and Social Behavior (Chapter 8)**

• Affiliation
• Aggression
• Seasonal Changes in Social Behavior
• Increases in Aggression at Puberty
• Sex Differences in Social Behavior
• Individual Differences in Aggression
• Social Experience Feeds Back to Influence Hormone Concentrations
• Physiological Mechanisms Mediating Hormonal Effects on Aggressive Behavior

**Learning and Memory and Hormones and Affective disorders (Chapters 12 and 13)**

**Part 1. Learning and Memory**

• Components of Learning and Memory
• The Effects of Hormones on Learning and Memory
• Sex Differences in Learning and Memory

**Part 2. Hormones and Affective Disorders**

• Perimenstrual Syndrome
• Hormones and Depression
- Hormones and Anorexia Nervosa and Bulimia
- Androgens and Affective Disorders

**Standards of Academic Integrity:** According to the UVM website ([http://www.uvm.edu/~uvmppg/ppg/student/acadintegrity.pdf](http://www.uvm.edu/~uvmppg/ppg/student/acadintegrity.pdf))

“All academic work (e.g., homework assignments, written and oral reports, use of library materials, creative projects, performances, in-class and take-home exams, extra-credit projects, research, theses and dissertations) must satisfy the following four standards of academic integrity:

1. All ideas, arguments, and phrases, submitted without attribution to other sources, must be the creative product of the student. Thus, all text passages taken from the works of other authors must be properly cited. The same applies to paraphrased text, opinions, data, examples, illustrations, and all other creative work. Violations of this standard constitute *plagiarism*.

2. All experimental data, observations, interviews, statistical surveys, and other information collected and reported as part of academic work must be authentic. Any alteration, e.g., the removal of statistical outliers, must be clearly documented. Data must not be falsified in any way. Violations of this standard constitute *fabrication*.

3. Students may only collaborate within the limits prescribed by their instructors. Students may not complete any portion of an assignment, report, project, experiment or exam for another student. Students may not claim as their own work any portion of an assignment, report, project, experiment or exam that was completed by another student, even with that other student’s knowledge and consent. Students may not provide information about an exam (or portions of an exam) to another student without the authorization of the instructor. Students may not seek or accept information provided about an exam (or portions of an exam) from another student without the authorization of the instructor. Violations of this standard constitute *collusion*.

4. Students must adhere to the guidelines provided by their instructors for completing coursework. For example, students must only use materials approved by their instructor when completing an assignment or exam. Students may not present the same (or substantially the same) work for more than one course without obtaining approval from the instructor of each course. Students must adhere to all course reserves regulations, including library course reserves, which are designed to allow students access to all course materials. Students will not intentionally deny others free and open access to any materials reserved for a course. Violations of this standard constitute *cheating*.”

**Religious Holidays:** According to UVM guidelines, students have the right to practice the religion of their choice. Each semester students should submit in writing to their instructors by the end of the second full week of classes their documented religious holiday schedule for the semester. Faculty must permit students who miss work for the purpose of religious observance to make up this work.
Statement on students with disabilities. Accommodations for Students with Disabilities: If you have a disability for which you are or may be requesting accommodations, please contact UVM’s ACCESS Office (Accommodation, Consultation, Collaboration & Educational Support Services) by phone (656-7753) or email (access@uvm.edu). That office will guide you through the processes that are required for accommodations to be made.