

# Hormones and Behavior

## PSYC/BIOL 353

### Spring 2018, College of Charleston

Class Meetings: MWF 10:00-10:50, Maybank 107.

Instructor:

**Michael G. Ruscio, Ph.D.**

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Office hours: MW 2:00-3:30 and by appointment.

Required Textbook: Nelson, R.J. & Kriegsfeld, L.J. (2016). *Introduction to Behavioral Endocrinology*. 5<sup>th</sup> Edition. Massachusetts, Sinauer.

Additional Assigned Readings from:

- Peer Reviewed Journals: *Hormones and Behavior*, *Behavioral Neuroscience*, *Science*, *Nature*, *Behavioural Brain Research* and others.

Course Overview: Hormones can have both dramatic and subtle effects on an animal's behavior. Hormones regulate reproductive behaviors, parental behaviors and aggressive behaviors. Hormonal action can modulate the degree of sociality expressed by animals. This course will examine how hormones interact with the nervous system to produce these complex behaviors seen among all vertebrate species. Additionally, we will examine the neuroendocrinology of unique species specific behaviors. We will take a comparative approach and draw examples of neuroendocrine function from throughout the animal kingdom including fish, birds, reptiles and mammals (including humans).

Course Objectives:

- To gain a working knowledge of the basic components of the endocrine system and neuroendocrine function.
- To understand experimental procedures and measurements used by behavioral neuroendocrinologists.
- To understand the neuroendocrinology of sexual behavior and parental behavior.
- To understand the value of the comparative method and using animal models of behavior.
- To understand the evolutionary conservation of neuroendocrine function.

Grading: Grades will be assigned on the basis of the number of points that you have earned at the completion of the course. The number of points and the approximate percentage of the grade are indicated below.

Source - Number of Points	Number of Points
Exam 1	100
Exam 2	100
Exam 3	100
Paper 1	25
Paper 2	50
Paper 3	50
Portfolio Response	25
Final Exam	100
Attendance and Participation	50
Total	<b>600</b>

Grade Assignment: The combined total of all the above is 600 points. Your final grade in the course will be based on a straight percentage of points:

Number of Points	Approx. % of Total Points	Grade	GPA
552 and Higher	93-100	A	4.00
540-551	90-92	A-	3.70
522-539	87-89	B+	3.30
498-521	83-86	B	3.00
480-497	80-82	B-	2.70
462-479	77-79	C+	2.30
438-461	73-76	C	2.00
420-437	70-72	C-	1.70
402-419	67-69	D+	1.30
378-401	63-66	D	1.00
360-377	60-62	D-	0.70
359 and lower	59% and lower	F	0.00
	Failure Due to Academic Dishonesty	XF	0.00

Tentative Schedule: The following schedule indicates approximate dates when specific chapters will be covered in class. These dates are subject to change based upon the amount of material we cover at each class meeting, and the specific needs of the class. I will make every effort to maintain the exam schedule. If unforeseen circumstances arise and it is necessary to change an exam date, it will be announced in class and posted on OAKS.

Date	Topic	Readings
1/8	Introduction and History	
1/10	Neuroendocrine Methods	Ch1 & Ch 2
1/12	Neuroendocrine Methods	Ch 2
1/15	<i>No Classes- Martin Luther King Jr. Day</i>	-----*1/16 end of add drop
1/17	Endocrine System: Components	Ch 2
1/19	Endocrine System: Function	Ch 2: <i>Paper Topic Assigned</i>
1/22	Endocrine System: Function	Ch 2
1/24	Sex Determination: Intro	Ch 3
1/26	<b><i>Current Topics in Behavioral Neuroendocrinology</i></b>	<b><i>Paper Due</i></b>
1/29	<b>Exam 1</b>	<b>Chs 1-3</b>
1/31	Sex Determination	Ch 3
2/2	Sex Determination	Ch 3
2/5	Sex Differences	Ch 4
2/7	Sex Differences	Ch 4 * last day to withdraw with W
2/9	Sex Differences	Ch 4
2/12	Sex Differences	Ch 4
2/14	Sex Differences	Ch 4
2/16	Male Reproductive Behavior	Ch 5: <i>Paper Topic Assigned</i>
2/19	Male Reproductive Behavior	Ch 5
2/21	Male Reproductive Behavior	Ch 5

2/23	<b>Current Topics in Behavioral Neuroendocrinology</b>	<b>Paper Due</b>
2/26	<b>Exam 2</b>	<b>Chs 3-5</b>
2/28	Female Reproductive Behavior	Ch 6
3/2	Female Reproductive Behavior	Ch 6
3/5	Female Reproductive Behavior	Ch 6
3/7	Female Reproductive Behavior	Ch 6
3/9	Parental Behavior	Ch 7
3/12	Parental Behavior	Ch 7
3/14	Parental Behavior	Ch 7
3/16	Parental Behavior	Ch 7
3/19	<i>Spring Break</i> -----	<i>No Classes</i> -----
3/21	<i>Spring Break</i>	<i>No Classes</i>
3/23	<i>Spring Break</i>	<i>No Classes</i>
3/26	Parental Behavior	Ch 7
3/28	Hormones and Social Behavior	Ch 8
3/30	<b>Current Topics in Behavioral Neuroendocrinology</b>	<b>Paper Due</b>
4/2	<b>Exam 3</b>	<b>Chs 6-7 (Challenge Hypothesis Ch8)</b>
4/4	Hormones and Social Behavior	Ch 8
4/6	Hormones and Social Behavior	Ch 8
4/9	Hormones and Social Behavior	Ch 8
4/11	Guest Lecture	TBD
4/13	Guest Lecture	TBD
4/16	Stress and Aggression	Ch 8
4/18	Stress and Aggression	Ch 8
4/20	Stress and Aggression	Ch 8
4/23	Exam Review	<b>Portfolio Response Paper Due</b>
	<b>FINAL EXAM</b>	FINAL EXAM
	<b>Monday April 30<sup>th</sup> , 8:00am-12:00pm.</b>	

OAKS: Power-point lectures will be made available on OAKS following presentation in class and in some cases before class. Viewing the files is an excellent supplement to attending lecture, and helpful for exam review. Viewing the power point files is not equivalent to attending lecture. Additional material is presented in class not contained on the slides.

Primary Readings and Current Topics in Behavioral Neuroendocrinology:

Discussion Papers:

During the course you will be required to write three discussion papers and a response paper detailing your experience with scientific writing.

The discussion papers will be based upon assigned reading from a primary resource (peer reviewed scientific journal or book chapter). In your paper you will be required to discuss the premises of the research, the methodologies used, the implication of the findings for the field of behavioral neuroendocrinology and the broader field of the behavioral sciences. These papers will be 3-5 pages in length. On the day the paper is due, we will have a class discussion regarding the journal article or book chapter that was assigned.

These papers should be modeled on published scientific commentary in peer reviewed journals or journal club style papers (e.g. journal club articles at <http://www.jneurosci.org>). In your paper you will be required to discuss the premises of the research, the methodologies used, the implications of the findings for the field of behavioral endocrinology. Your written commentary can be an informed critique of some scientific aspect of the paper, an alternative interpretation of the results, an idea for an additional or different experiment, a discussion of a question raised by the research, or (if you feel you didn't understand the paper) a coherent statement of what you didn't understand. Your commentary should (a) show that you read the paper carefully, (b) demonstrate informed, analytical, clear and (whenever possible) creative thought and writing, and (c) be your best writing (proper grammar and spelling, no typographical or word processing errors, etc.). You should not summarize the article (except perhaps in an opening few sentences) or simply repeat its content, nor do you need to write answers to the questions listed below. All information that is not your own should receive proper citations and references following the format in the Nelson text.

The discussion paper should be inspired by a close reading of the target article. A close reading of any empirical journal article means asking yourself the following questions as you read to gain an understanding of the research:

Why was the experiment done?

What was the question asked?

What was the hypothesis?

What were the predicted results?

What was the independent variable?

What was measured?

What was the critical dependent variable?

What were the controls?

Why were these particular controls needed?

What was the main finding?

What was the answer to the question posed in the introduction?

Was the hypothesis confirmed?

How solid (conclusive) was the evidence?

What questions remain unanswered?

What new questions are raised by the research?

What would be an interesting and logical experiment to do next?

On the discussion days listed in the syllabus, please come prepared to contribute to an interesting, informed, and friendly discussion about the target article. This means you need to read it carefully and thoughtfully in advance and bring your completed thought piece with you. A printed copy of your paper is due at the beginning of class on the day listed on the syllabus. **If you do not have your paper in class you will lose 5 points per day for each day late (weekends count).** These 5 points will be deducted from the grade you earn on your paper. If you do not have your paper in class that day, I reserve the right to assign a different reading as it provides an unfair advantage to write a paper having heard class commentary.

In the response paper, you will be asked to assess your experience with scientific writing. This will include articulating the challenges of the experience and describing role of scientific writing might play in your future education or career aspirations. You will also be required to re-submit your previously submitted/graded papers with this response paper. So when I hand back each assignment, hang on to it until the response paper is due!

Exams: Exams will be comprised of a combination of multiple-choice, fill-ins, figure completions, and short answer questions. Exams will cover material in the text as well as material discussed in class. You are responsible for material in the text that may not be covered in class.

Exam Policies:

- Students must take exams at the scheduled times; students arriving more than 10 minutes late will **not** be permitted to take the exam at that time under any circumstances.
- Each student is responsible for bringing one or two Number 2 pencils to each of the exams. A pen is appropriate for short answer questions.
- If you are an athlete and know that you will be unable to attend an exam, please notify me **at least one week in advance**; I will make arrangements for you to take the exam.
- If you are a student with special needs (i.e. a documented learning disability) and you require special arrangements for the exam, please see me as soon as possible so that I have additional time to accommodate your needs. I will accommodate your needs, but **you must provide documentation of your special need in writing at the beginning of the semester**. In addition, **you must schedule your exam with me at least one week in advance**.
- During the **exam class period cell phones must be turned off** and put away (not on your desk). Headsets/ ipods cannot be worn or in use during an exam and must be put away.

Missed and Make-Up Exam Policies: **There will be no make-up exams except under extreme circumstances.** If you are unable to attend an exam for an excusable reason, call or e-mail me prior to class. If you are unable to contact me before class, contact me as soon as possible after class. If you are ill, obtain a note from a physician and submit it along with a completed absence memo (<http://studentaffairs.cofc.edu/services/absence.php>.) to the Associate Dean of Students, 67 George St. (white house next to the Stern Center) 953-3390, Absence Memo Office. Any illness or emergency **must** be documented/confirmed (in writing) by a physician or other administrative authority and from the office of the Associate Dean of Students. **I will then determine if the absence will be excused. If I do not hear from you via e-mail, by phone or in person in a timely manner following a missed exam, it will count as a zero.** It is your responsibility to contact me. In addition, the policies described should not be interpreted as a reason for skipping an exam for which you are not prepared.

**If you miss one exam**, due to a legitimate illness or emergency (i.e. circumstances beyond your control), I will calculate your final mark on the basis of your scores on three term exams, the final exam and your attendance. **If you miss two term exams** due a legitimate illness or emergency (i.e. circumstances beyond your control), one make-up exam may be taken (see below). **You may not miss three exams. You will receive a ZERO for a third missed exam. You may not miss the final exam. If you do, you will receive a ZERO for the final exam.**

Procedure for Obtaining Authorization for an Excused Absence During a Regularly Scheduled Exam:

**In the event of a family (or other) emergency or illness or injury:**

- Obtain a doctor's note or verification from the Student Wellness Center or your physician that you were treated for an illness or injury.
- Contact the Associate Dean of Students or their office (953-3390) and obtain their verification of your absence. The Office of the Associate Dean will send me official documentation/notification of your absence.
- Contact me directly as soon as possible to verify that the Office of the Associate Dean has contacted me and to schedule a make-up exam (if you've missed two exams). **I will then determine if you had appropriate authorization to miss the exam.**

I **strongly** encourage you to attend the regularly scheduled exam. Please remember that an unexcused absence on a test day or a failure to notify me in a timely manner will result in a zero for that test. I strongly encourage you to take the exams on the regularly scheduled dates as **performance on the make-up exam is generally below par.**

Early Exam Policy: Requests to take exams early due to other commitments (i.e. not due to an athletic event or due to a specific special need) will be considered on a case-by-case basis -- however, these requests are strongly discouraged.

*Grievances:* If you feel that an exam was graded improperly or unfairly you may request a re-evaluation of that particular grade. Requests should be made in writing to the professor within one week of receiving the grade and must contain an explanation of why the grade is unfair. I reserve the right to re-grade any portion of any exam submitted for a re-grade.

*Attendance Policy:* Attendance at all scheduled classes is expected and will be tracked. Because we depend upon class discussion to clarify material in the text and because our understanding benefits from full consideration of many viewpoints, absences detract from each student's educational experience. Attendance is one of the best predictors of success in a course. This course covers a large amount of diverse material and it will be extremely difficult to keep up with the amount of information presented in the course if you do not attend lecture.

*Classroom Etiquette:* The purpose of class meetings is not only to inform, but to facilitate discussion and encourage questions to enhance your knowledge of the field of biological psychology. Out of respect for your fellow classmates and professor please refrain from talking during lecture or when a classmate is asking a question. Also when attending lecture please remain in class for the **entire period**. Leaving during class does not count as attendance, detracts from everyone's classroom experience and is simply discourteous. If you have a legitimate reason for needing to leave early (i.e. doctor's appointment, College related function) please see me at the beginning of class to make me aware of the situation. Additional information on the College of Charleston's student code of conduct can be found at: <http://deanofstudents.cofc.edu/policies-and-procedures/classroom-disruption.php>

*Accommodation for Learning and Physical Disabilities:* If you have been diagnosed with a recognized learning disorder (e.g. attention deficit disorder) or a physical disability (e.g. hearing loss or visual impairment) that impairs your academic performance, I will do my best to accommodate your specific needs. However no such accommodation will be made unless you have provided me with your SNAP-issued professor notification letter (PNL). Please provide this at the beginning of the semester. It must be presented at least one week before an exam for any appropriate accommodations to be made

*Student Athletes:* If you are a member of a College of Charleston athletic team which has any scheduled events during any class period you are responsible for providing me with an official team schedule during the first week of class (or as soon as the schedule is available).

*Excessive Absences:* Under specific circumstances, students who fail to attend class regularly during the course of the semester (i.e. stop coming to class and do not drop the course) will be withdrawn from the course and a transcript notation of WA (withdrawn due to excessive absences) will be recorded. Other grades such as W or I may be given in specific circumstances --please consult the undergraduate course catalog for additional specific information on these marks.

*Academic Dishonesty:* Cheating or plagiarism will not be tolerated and will result in a zero grade for an exam. If I suspect you are in violation of the College's honor code you will be reported. Please refer to the Undergraduate Catalog for the College's policy on academic dishonesty of the College of Charleston student handbook (<http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php>). You are responsible for knowing which actions are academically dishonest. Actions that are deemed academically dishonest by the College of Charleston Honor board will result in a grade of XF (failure due to academic dishonesty) on your transcript.

*Late Withdrawal:* If you chose to withdraw from this course after the official withdrawal date (February 7<sup>th</sup>) resulting in a "W" on your transcript, you must obtain the appropriate form from the Undergraduate Dean's Office (2<sup>nd</sup> floor, Randolph Hall). You must obtain my signature, the signature of the Department Chair and the signature of the Dean of the Humanities and Social Sciences. It is your responsibility to get these signatures and process this paperwork in a timely manner. Be prepared to write a letter to the Dean indicating why you want to petition for a late withdrawal from the course. There is no guarantee that the Dean will honor your request and I have no role in processing the paperwork or in the decision process, but your prompt attention to this process is essential.

1/5/18