

Neuroendocrinology

NSC 314 – Spring 2019

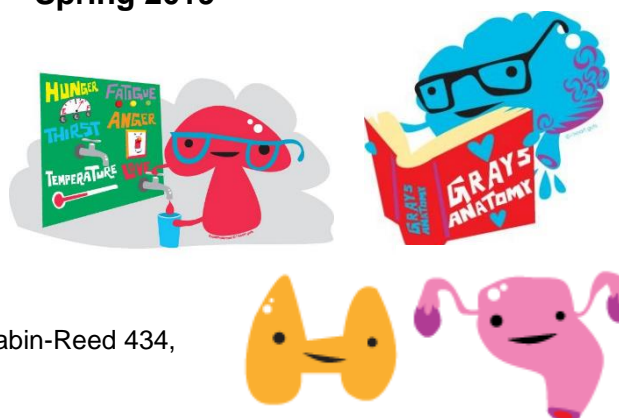
Instructor: Dr. Dan Vahaba
(413) 585-7577
dvahaba@smith.edu

Meeting time: 9:00 – 10:20 am
Tuesday & Thursdays
Bass 102

Office hours: 2:00 – 4:00 pm on Mondays in Sabin-Reed 434,
or by appointment

Course Site: <https://moodle.smith.edu/course/view.php?id=32605>

Required texts: *An Introduction to Behavioral Endocrinology* (5th ed.) Nelson & Kriegsfeld



What is Neuroendocrinology?

Neuroendocrinology (also referred to as behavioral endocrinology) is the study of how hormones act on the brain to affect a wide-range of behaviors, such as learning, communication, aggression, and sexual behavior, as well as how the brain both produces and regulates the production and release of hormones.

What are the course policies & mechanics?

Attendance: While I do not take attendance formally, your success in the class is largely dependent on your presence and participation. Lecture slides for each topic (both before and after in-class annotations) will be uploaded regularly to the course site; however, some of the lecture material will not be exhaustively written on the slides nor explicitly discussed in the textbook. Please be sure to arrive prepared and on-time to avoid distracting your classmates with late entrances.

Participation: In-class discussions are important for the success of this class. As such, be sure to ask questions and be an active participant in class discussions. Please stop me during a lecture if you have any questions. It's likely someone else is wondering the same thing.

Late policy: Any assignment handed in late will lose $\frac{1}{4}$ of the points possible for each day late with the exception of **Reading Reflections**. *Reading Reflections* turned in late will receive no credit.

Extra credit: You can earn up to 2 points of extra credit towards your final grade in the class for attending and writing about one or more of the science talks noted below (*Relevant science talks of interest*). To receive full points, your write-up must be >1 page and include a summary and reflection of the talk.

Accommodations: Any student requiring accommodations in order to complete assignments during and outside of class must be registered with the Office of Disability Services and provide documentation of the requested accommodations in advance of any deadline. Please contact Laura Rauscher, Disability Services Director or visit <http://www.smith.edu/ods/>. I invite all students to come speak with me one-on-one to discuss how, together, we can best meet your learning needs

How will you and I evaluate your progress?

Here's a brief outline of the different sources of points. More details about tests, assignment, etc. will be made available as the semester progresses.

- **Tests** **75%**
 - Test 1 25%
 - Test 2 25%
 - Test 3 25%
- **Final Project** **15%**
- **Assignments** **10%**
- **Test corrections** **(adjusts test grade)**
- **Extra credit** **(adjusts overall grade)**
- **Class Participation** **(adjusts final grade +/- 3%)**
 - Individual and group

Reading Reflections: Reading reflections are due for many of the days with course readings assigned (noted on the course schedule). Only 7 reading reflections need to be completed for full credit. These reflections are open-ended and can include brief summary, questions you have, interesting ideas that come to you, critiques, connections you see...the list goes on. These reflections serve multiple purposes – I hope they will give you a concrete motivation to do the readings before the relevant class, cause you to engage with the readings more deeply, and give me a sense of what each of you is thinking and understanding as the course progresses. They should be related enough to the text that it's clear that you completed the reading.

Suggested format: ≥1 page, summary and questions followed by commentary.

If there are **multiple readings assigned**, touch on one briefly and the other in more detail. If the reading is only from the textbook, you may replace the standard reflection format with answers to three of the chapter end questions (please include the full text of the question in your reflection). If it is partly from the textbook, you may answer one chapter-end question and reflect on the other reading.

Reading reflections should be uploaded to Moodle in the RR slot for that class by 9 pm the night before class so that I can read them before we meet.

Grading scheme:

93– 100	A	80– 82	B-	67– 69	D+
90– 92	A-	77– 79	C+	63– 66	D
87– 89	B+	73– 76	C	60– 62	D-
83– 86	B	70– 72	C-	< 60	F

Relevant science talks of interest:

- **Tues, February 12th at 4:00 pm (**note: this talk is at UMass Amherst**):**
 - **Ed Boyden**, Depts of Biological Engineering and Brain & Cognitive Sciences, MIT
 - “Tools for analyzing and controlling complex biological systems”
 - Integrated Sciences Building 221, UMass Amherst

- **Thurs, March 26th at 12:10 pm (free lunch!):**
 - **Dan Vahaba** (who's that rando? 😊), Dept of Psychology, Smith College
 - "A bird's-eye view on how hormones impact songbird communication"
 - Sigma Xi, McConnell Auditorium, Smith College

Mary Elizabeth Dickason Kind M.D. Annual Lecture Series in the Life Sciences in Memory of Professor Howard Parshley:

- **Mon, April 1st @ 4:30 pm:**
 - **Ariel Levine**, National Institute of Neurological Disorders and Stroke, NIH
 - "Spinal motor circuits and plasticity"
 - McConnell Hall 103, Smith College
- **Mon, April 15th @ 4:30 pm:**
 - **Carolyn Bauer**, Dept of Biology, Adelphi University
 - "Maternal effects of stress in a plural-breeding rodent"
 - McConnell Hall 103, Smith College

Course Outline & Assignments

Week		Topic	Assignments due by class	
1	1/24	Thurs	Course introduction (Brief) history of endocrinology	Syllabus Textbook: ch. 1 – pp. 1- 16
	1/29	Tues	The central nervous system Tools to study the brain	Supplementary readings on Moodle
2	1/31	Thurs	The endocrine system Glands, axes, regulation	Textbook: ch.2 – pp. 35 – 46 & 74 – 82 RR
	2/5	Tues	Hormone synthesis & action	Textbook: ch.2 – pp. 47 – 73 RR
3	2/7	Thurs	Neuroendocrinology methods	Textbook: ch.1 – pp.16 -33
	2/12	Tues	Buffer/catch-up day	
4	2/14	Thurs	Unit #1 Test: basis & methods	Review for test
	2/19	Tues	Sex Determination & Differentiation	Textbook: ch. 3 – pp. 87 – 118 RR
5	2/21	Thurs	Sex Determination & Differentiation	Textbook: ch. 3 – pp. 118 – 142 RR
	2/26	Tues	Sex Differences	Textbook: ch. 4 RR
6	2/28	Thurs	Male reproduction	Textbook: ch. 5 Unit #1 test corrections RR

7	3/5	Tues	Female reproduction	Textbook: ch. 6	RR
	3/7	Thurs	Parental behavior	Textbook: ch. 7	RR
8	3/12	Tues	<i>No class (Spring Break)</i>	sleep, relax	
	3/14	Thurs	<i>No class (Spring Break)</i>	sleep, relax	
9	3/19	Tues	Buffer/catch-up day (Contraception, time permitting)		
	3/21	Thurs	Unit #2 Test: reproduction	Review for test	
10	3/26	Tues	Affiliation	Textbook: ch.8 – pp. 391-410	RR
	3/28	Thurs	Aggression	Textbook: ch.8 – pp.410 - 454	RR
11	4/2	Tues	Communication	Supplementary readings on Moodle	RR
	4/4	Thurs	Learning & Memory	Textbook: ch.12 Unit #2 test corrections	RR
12	4/9	Tues	Endocrine disruption	Supplementary readings on Moodle	RR
	4/11	Thurs	Stress	Textbook: ch.11	RR
13	4/16	Tues	<i>Visiting scientist:</i> Carolyn Bauer	Read: Bauer et al. (2018) & Bauer et al. (2015) + turn in 3 questions per paper	
	4/18	Thurs	Buffer/catch-up day		
14	4/23	Tues	Unit #3 test: behavior	Review for test	
	4/25	Thurs	Final presentations		
15	4/30	Tues	Final presentations	Unit #3 test corrections	
	5/2	Thurs	No class (Wednesday schedule)	study for your other exams 😊	

****topics, readings, and other details may be revised as course progresses****