Hormones, Brain, & Behavior
Psychology 218

Nuts and Bolts

Class Meetings: 2,3c (T, Th 10:10-11:55)  Location: Weitz 235

Instructor: Sarah Meerts
Olin 137, x5936, smeerts@carleton.edu

Writing Assistant: Jessi Jacobsen

Office Hours: Monday 12:30-1:30 pm, Thurs 8:45-9:45 am, and by appointment

Philosophy and Goals

The goal of this course is to introduce you to the field of Hormones, Brain, and Behavior. We will discuss interactions between hormones, the brain and behavior using examples from both animals and humans. In this class, we will build on the foundation laid in Principles of Psychology by extending your understanding of biological psychology. Scientific knowledge is developed through empirical research. Therefore, we will discuss many of the key experiments that have shaped our understanding of the field of behavioral neuroendocrinology. Being able to articulate oral and written arguments about science is a critical aspect of being a psychologist. To meet that goal, students will strengthen their abilities to interpret experimental data and to express scientific arguments through class discussions, by completing essay exam questions, a short writing assignment and writing a critical analysis paper.

Course Objectives:
Upon completion of this course, students will be able to:

• Explain the organization and function of the endocrine system
• Describe the process of mammalian sexual differentiation of the brain and peripheral structures critical to reproduction
• Critique the evidence regarding effects of endocrine disruptors on behavior and physiology
• Explain the role of hormones in the regulation of reproductive and social behaviors, homeostasis, and stress responses
• Apply principles of hormone and behavior research to analyze case studies involving hormonal affects on behavior
• Interpret empirical findings related to the roles of hormones in the display of behavior
• Clearly express thoughts and ideas through writing

Resources

Required readings

• Books:
  • “Why Zebras Don’t Get Ulcers” 3rd edition, by Robert Sapolsky. We will use portions of this book in the 5th and final unit of the course.
  • Additional articles and chapters will be posted on Moodle.

• Video: We will discuss several films in this class. They are available on Netflix and will be shown in 344 in the Libe at 8pm. Bigger, Faster, Stronger on Sept 19, Fed Up, On Oct 18, and Acceptance on Nov 7.
• Useful Websites:
  For different explanations of material in readings:
  http://sites.sinauer.com/nelson4e/index.html
  http://www.biopsychology.com/
  For help finding peer-reviewed articles:
  http://search.proquest.com/psycinfo/advanced?accountid=9892

Reading Guides
Each unit will have a reading guide posted to Moodle. The best way to make use of the reading guide is as an aid to help you determine the concepts and materials that you will be responsible for on the RATs (Readiness Assessment Tests). Students that use the reading guide to answer the questions from memory have performed well on the RATs.

Moodle
You should become very familiar with the Moodle site. Course materials and grades will be posted to the Moodle site. If you have trouble with Moodle call the help desk: x5999.

Course Structure
This course uses team-based learning and problem sets to challenge you to engage with the material. The format of the course may be different from what you have experienced in other courses. You will read the assigned reading on your own, then take a readiness assurance test (RAT) that serves to ensure you are ready for the team exercise; in the next several class meetings you will work with your team on problem sets that require use of the principles addressed in the readings (see below for more detail). Students have found that this course requires considerable individual preparation, but they come away with a deeper, more satisfying and longer-lasting understanding of the material.

Team-Based Learning:
The class will be divided into teams of approximately 5 students. The function of these teams is for students to work together to apply the principles the students learn by reading the class assignments. The three-phase process will be repeated for each instructional unit. How this works is shown in the following diagram:

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation (Pre-class)</td>
<td>Readiness Assurance (one class meeting)</td>
<td>Application of course concepts (2-4 class meetings)</td>
</tr>
<tr>
<td>Individual Study</td>
<td>Individual Test</td>
<td>Team Application Work (e.g., problem sets, case studies)</td>
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<td></td>
<td>Team Test</td>
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<td></td>
<td>Instructor Feedback</td>
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<td>Appeals</td>
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</table>
Phase 1 - Individual study: each student is expected to read and study the assignments listed on this syllabus prior to class time.

Phase 2 – In-class Readiness Assurance Tests: You will take the individual Readiness Assurance Test (iRAT), hang that in, then meet with your team to re-take the same test as a team (tRAT).

Phase 3 – Application Exercises: For the next 2-4 class meetings, you will work with your team on application exercises.

Out-of-class team activities are limited (only the video parody) so primarily individual preparation will occur outside of class time. You will get the most out of the course by coming ready to participate – so it is vital that you come prepared. During the course you will have the opportunity to evaluate your teammates' attitudes and contributions (and they will evaluate you) to the in-class exercises.

I am happy to meet outside of class to help you clarify concepts or answer questions about specific aspects of an assignment.

### Assessments

<table>
<thead>
<tr>
<th></th>
<th>Individual</th>
<th>Team</th>
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</thead>
<tbody>
<tr>
<td>RATs</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>20%</td>
<td></td>
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<tr>
<td>Final Exam</td>
<td>20%</td>
<td></td>
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<tr>
<td>Endo Parody Video Paper</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>In-class Activities</td>
<td></td>
<td>5%</td>
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<tr>
<td>Peer Evaluation</td>
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<td>5%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>70%</strong></td>
<td><strong>30%</strong></td>
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### Exams

- **Unit Readiness Assurance Tests:** Five unit quizzes, RATs, will cover material from the assigned reading. Each RAT will be approximately 20-25 multiple-choice questions in length. Unit RATs will be taken first individually and then as a team, providing scores for both individual and team portions of the final grade. Four of the RATs will count towards your final grade in the course. The individual RAT on which you scored the lowest grade will automatically be dropped before final grades are determined.

- **Midterm and Final Exams:** The midterm and final exams will cover material assigned during group work completed in class. These exams will be a combination of short answer, essay, and drawing questions. Exams will not be cumulative per se, however the material from later exams will build upon material from earlier in the term. The best way to prepare for the exams is to review problem sets. The midterm will be given in class and the final exam will be self-scheduled.

### Endocrine Parody Video

You will make an instructional video that describes an endocrine process and how it affects behavior. We will share these videos with the community to spread awareness of hormones, brain, and behavior.

### Writing Assignments

Hormones, Brain, & Behavior is a WR (writing-rich) course in which you will cultivate your writing skills. For the critical analysis paper you will select a topic of substantial interest to
you that is related to one discussed in class and write a critical analysis of the research on
that topic. Your paper should focus on the hormonal and/or neural basis of one of the types
of behaviors/functions from class. You should construct an argument and then reference
peer-reviewed journal articles to support your position. The focus should be narrow enough
to cover it in some depth in ~10 double-spaced pages. To receive full credit you must turn in
on the assigned dates: 1) a description of the topic, its general importance and why it is of
particular interest to you, 2) a thesis statement, 3) references with descriptions, 4) a rough
draft to your teammates and to me, and you must provide comments to your teammates’
papers, 5) the final paper. More detail on the paper will be forthcoming. Your final grade will
be reduced by 5% if you turn in any portion of the paper late.

Our course is fortunate to have a writing assistant, Jessi Jacobsen, who will be available to
help you fulfill the writing expectations of this course. Jessi will contact the class to let you
know when she will be available for consultation.

In-Class Activities
Team In-class Assignments: Each team will be responsible for completing assignments
related to the unit RAT material. Team members will take on specific roles (reader, recorder,
facilitator, evaluator) for each assignment. Each team member must understand and be able
to explain the answers, because we will discuss the problem set as a class. Students will be
called at random to explain their team’s solution to the problem under discussion.
Attendance is required. Unexcused absences will result in receiving zero points for that
day’s in-class team assignments (email me if you know you will miss class). In-class
discussion participation will be monitored. Each student is expected to participate
constructively within his/her group and to enhance full class discussions. Also, as mentioned
above, the midterm and final exams will cover material from the team assignments. The best
way to learn the material is to attend class and participate with your team. At the end of
each unit, the team will turn a single problem set that will be returned to you at the next
class.

Please note, in order to be a good team member you must be prepared to contribute. Firstly,
this means coming to class having completed the assigned readings. Secondly, you will
want to reference the readings as you complete your problem set. Therefore, you must
bring the assigned reading. Members are responsible for writing individual notes and
answers to the problems on their own copy of the problem set. The midterm and final exams
will focus on material from the team assignments.

Peer Evaluation
A critical aspect of this course is to work well with your team. You must be prepared to
contribute, speak up to share your view, and step back to hear what others have to say. To
promote optimal teamwork, team members will assess each other’s contributions to the
team at two points during the term. The first peer evaluation will serve to help you adjust
your behavior in the team and the second evaluation will contribute towards your final grade.
More details on the peer evaluation will be provided in class.

Course Policies
No opportunities to improve a grade will be offered after the end of the course, which is the date
of the final examination. In addition, there will be no opportunities to improve a grade besides
those mentioned in this syllabus, unless offered by the instructor to all students. Students
should stay up to date on calculating their grade so they can adjust their study times to achieve
the grade they seek. Grades will be posted to Moodle.
Honor Policy
I expect all students to be truthful and to complete all course assignments including homework, tests and exams, papers etc without assistance from any source. If you use ideas from others, including their data findings or their wording, you must acknowledge that you borrowed another person's idea. If an instance of academic dishonesty occurs in this class, the case will swiftly be referred to the Academic Standing Committee, which will take appropriate action that can include dismissal from the college. Please seek help on proper citation format from me or the Student Academic Support programs when you are writing your papers. Also see http://apps.carleton.edu/campus/doc/honesty/ for additional information the academic honesty at Carleton. Plagiarism will not be tolerated and will result in an automatic zero for the assignment.

E-tiquette
I realize that we live in an era when laptops and cell phones travel everywhere with you and snapchat and texting constantly beckon to you. It is also important that you learn to disconnect from these technologies so that you and others around you can focus on the task at hand. During our class meeting times, your cell phone should remain stowed away and laptops should only be used for course work.

Accommodations for Missed Graded Work
You are permitted to drop the lowest iRAT score. Therefore, if you miss a class in which RATs are given due to illness or a conflict that will be the grade that is excluded when calculating final grades. Because of the flexiblity built into calculating the grade for the RATs, no make-up RATs will be given. Attendance is a component of the in-class activity grade. Lateness will be penalized. Late assignments related to the paper will be docked 10% per day. If you do not submit a first draft to me, you will not be able to participate in the peer review session and will receive a zero for that portion of the paper. A single cumulative make-up exam will be offered near the end of the term for any student with an excused absence for the midterm or final exam.

Religious Observances
Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me before the end of the second week of the term to discuss appropriate accommodations.

The Syllabus
The timeline for the topics and their organization in this syllabus are best viewed as a roadmap of where we want to go. We may adjust the timeline as we go. I am always experimenting with ways to make this material interesting and fun, but sometimes those experiments fail and we must make changes. We may or may not cover all the material listed, but what we cover, I will present in the most interesting and challenging way that I can.

Academic Support Resources:

Office of Disability Services
I encourage students with disabilities, including 'invisible' disabilities like chronic diseases, learning disabilities, and psychiatric disabilities to discuss with me after class or in office hours appropriate accommodations approved by the Office of Disability Services. Please discuss with me any accommodation you may need before the first RATs (the second day of class)

Academic Support Center
The Academic Support Center (ASC) provides many services to Carleton students including time management, study- and test-preparation skills coaching, and writing support. They
support all students in achieving their academic goals whether you are trying to kick it up a notch (go from an A- to an A) or whether you are struggling with a course. The ASC staff is ready to challenge and assist you; take advantage of these offerings!

The Writing Center
The Writing Center, located on the 2nd floor of Scoville and in the Libe (room 329), has peer writing consultants that can work with you during any stage of the writing process (brainstorming to final proofreading). You can find hours by going to: https://apps.carleton.edu/campus/asc/writingcenter/. You can reserve specific times for conferences in Scoville by using their online appointment system: https://writingcenter.carleton.edu/. Walk-ins are welcome at Scoville, though writers with appointments have priority. The Libe location requires no appointments.

Writing Assistance For Students Whose First Language Is Not English
If you are a second language writer and believe you might benefit from working individually with a writing consultant on a regular basis this term, email Renata Fitzpatrick, Second-Language Writing Coordinator, call her at x5998, or stop by her office in 201 Scoville. She can arrange once- or twice-a-week meetings between you and a specific writing consultant throughout the term.

What do I do now?

1. The first part of class for each Unit will include a RAT that you will take individually, and then with your team. Therefore, your first step should be to read the assigned reading for that RAT, which is listed on the syllabus. Reading guides will be posted to Moodle.

2. In subsequent classes you and your team will work on problems that require application of the principles you read about for the exam.
<table>
<thead>
<tr>
<th>Week 1</th>
<th>Date</th>
<th>Activity</th>
<th>Assessment</th>
<th>Reading</th>
<th>Turn In</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Sept 13</td>
<td>Course Introduction, Team Structuring, practice problem set</td>
<td></td>
<td>Syllabus, in class</td>
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<td></td>
<td>Sept 15</td>
<td>Endocrine Systems</td>
<td><strong>Unit 1a RATs</strong></td>
<td>Nelson Ch 1</td>
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<td>Sept 20</td>
<td>Systems</td>
<td><strong>Unit 1b RATs</strong></td>
<td>Nelson Ch 2, Watch BFS</td>
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<td></td>
<td>Sept 22</td>
<td>Systems, Discussion BFS</td>
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<td>Paper topic, 1 pg summary</td>
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<td>Week 2</td>
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<td>Week 3</td>
<td>Sept 27</td>
<td>Sexual Differentiation</td>
<td><strong>Unit 2 RATs</strong></td>
<td>Nelson Ch 3 &amp; Ch 4, articles</td>
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<td></td>
<td>Sept 29</td>
<td>Sexual Differentiation</td>
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<td>Week 4</td>
<td>Oct 4</td>
<td>Teamwork: Thesis Mosh Pit, Video Planning</td>
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<td>annotated references &amp; thesis</td>
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<td>Oct 6</td>
<td>Reproductive Behavior</td>
<td><strong>Unit 3 RATs</strong></td>
<td>Nelson Ch 5 &amp; Ch 6, articles</td>
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<td>Oct 11</td>
<td>Reproductive Behavior</td>
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<td></td>
<td>Oct 13</td>
<td>Reproductive Behavior</td>
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<td>Week 5</td>
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<td>Week 6</td>
<td>Oct 18</td>
<td><em><strong>Midterm Exam</strong></em></td>
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<td>Oct 20</td>
<td>Discussion Fed Up</td>
<td><strong>Unit 4 RATs</strong></td>
<td>Nelson Ch 9, Carlson Ch 12</td>
<td>paper draft to moodle by midnight</td>
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<td></td>
<td>Oct 25</td>
<td>Homeostasis</td>
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<td>Oct 27</td>
<td>Homeostasis</td>
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<td>bring comments to turn in</td>
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<td>Week 7</td>
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<td>Nov 1</td>
<td>Homeostasis, Peer review</td>
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<td>Week 8</td>
<td>Nov 3</td>
<td>ANS/Stress Response</td>
<td><strong>Unit 5 RATs</strong></td>
<td>Sapolsky, Adams Ch 16</td>
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<td></td>
<td>Nov 8</td>
<td>ANS/Stress Response</td>
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<td>Watch House</td>
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<td></td>
<td>Nov 10</td>
<td>ANS/Stress Response</td>
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<td>Final paper due</td>
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<td>Nov 15</td>
<td>Wrap up</td>
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<td>Week 9</td>
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<tr>
<td>Week 10</td>
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<td><em><strong>Final Exam - Monday Nov 21 3:30-6pm</strong></em></td>
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