NOT A CURRENT SYLLABUS – use this Fall 2013 syllabus to get an idea about content of course for

Behavioral Neuroscience
Psychology 216

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

Instructor
Sarah Meerts
Office: 137 Olin Hall; x5936
Email: smeerts@carleton.edu
Office Hours: M 12:30-1:30, Wed 11-12, and by appointment

Prefect
Nikhil Pandey pandeyn@carleton.edu

Resources:
Textbook: Neuroscience: Exploring the Brain. M. Bear, B. Connors, M. Paradiso
Publisher: Williams & Wilkins, 3rd edition, 2006
Moodle Website: https://moodle2013-14.carleton.edu/course/view.php?id=1 0324

Philosophy and Goals
The goal of this course is to familiarize you with mammalian nervous system functions. Throughout this course you will be exposed to neuroscience principles that you will be asked to apply to problems. What we know about neuroscience comes from empirical experiments that each contributes a piece of information to our overall neuroscience knowledge.

Course objectives: By the end of this course the successful student will be able to
• Describe the mechanisms of cellular communication in the nervous system
• Explain how the nervous system converts physical stimuli in the environment into electrochemical activity used by the brain to analyze its environment
• Describe how chemicals such as hormones, neurotransmitters, drugs, toxins and medications exert their effects on the nervous system
• Explain how experience modifies the structure and function of the brain
• Describe how the nervous system controls motor responses
• Diagram different brain systems and explain how they control complex behaviors
• Compare and contrast data from the literature to formulate ideas about research

Structure/Mechanisms of the course:
This course uses team-based learning and problem sets to challenge you to engage with the material. The format of the course is likely different from what you have experienced in other courses. You will read the assigned chapters on your own, then take a readiness assurance test (RAT) 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 approximately 4-student teams. 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:

![Diagram](image)

*Adapted from Michaelsen & Sweet, 2008*

**Phase 1**
- Preparation (Pre-class)
- Individual Study
  - In-class Readiness Assurance Tests: Jn.divdual Test, Team Test, Appeals, Instructor Feedback

**Phase 2**
- Application of Course Concepts (2-3 class meetings)
  - Team Application Work (e.g., problem sets, case studies)

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

Phase 1- Individual study: each student is expected to read and study the assignments listed on the syllabus prior to class time.

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

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

You will get the most out of the course by coming ready to participate. Please ask me to clarify if you do not understand the material or specific aspects of an assignment. I am happy to meet with you during office hours or set up a meeting at a different time. Also, please use the forum on Moodle. If you have a question, chances are someone else has the same one! I reply to Moodle forum posts that are up by Spm the day before a RAT. Your daily class participation will be evaluated both by the instructor and by your teammates. If you are not present, you cannot participate and your participation and peer evaluation grades will suffer.
Evaluation

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<thead>
<tr>
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<th>Individual</th>
<th>Team</th>
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<tbody>
<tr>
<td>RATs</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>25%</td>
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<td>Final Exam</td>
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<tr>
<td>Article Critique</td>
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<td>Participation</td>
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<td>Peer Evaluation</td>
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Exams

- **Unit Readiness Assurance Test:** Six unit tests, RATs, will cover material from the assigned reading. Each RAT will be 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. Five of the RATs will count towards your final grade in the course. The individual unit 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 completed in class during teamwork. These exams will be a combination of multiple choice, short answer and essay questions based on material covered in the problem sets. The best way to study for the midterm and final exams will be to review the problem sets. Exams will not be cumulative per se, however the material from later exams will build upon material from earlier exams. The midterm will be given in class and the final exam will be on Saturday, November 23 at 3:30pm in Weitz 235.

**Article Critique**

For this assignment, you will critique a peer-reviewed journal article and evaluate it in terms of whether the claims are supported by the evidence presented. This will be a short (2-3) page paper.

**Presentation**

During the final (6th) unit of the course, your team will do a short presentation on a technique used in behavioral neuroscience (to be selected/assigned before the midterm). In addition, your team will write a brief case study or problem set that uses your assigned technique and at least one peer-reviewed journal article using your technique; the rest of us will complete your case study in lab. In total, your presentation will be less than 30 minutes in length. You must complete the presentation to pass the class. More details on this assignment will be forthcoming.

**Participation**

**Team In-class Assignments:** On days when we do not have a RAT, each team will be responsible for completing assignments related to the unit RAT material. 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. Active involvement in the problem sets will greatly facilitate your learning, whether you are articulating your thoughts or asking the questions within your team, or enhancing the full class discussion. If you are not present, you cannot participate and your participation grade will suffer. Unexcused absences will result in receiving zero points for that day’s in-class team assignments. 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.

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 cover 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 one another’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. I will post grades to the Moodle gradebook – keep track of your grade there. Course grades are not curved, so it is possible for everyone to earn a 4.0.

Honor Policy
I expect all students to be truthful and to complete all course assignments including homework, tests and exams 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 and/or a failing grade on the assignment. Please seek help on proper citation format from me or the Student Academic Support programs. 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.

**Etiquette**
I realize that we live in an era when laptops and cell phones travel everywhere with you and facebook 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 tablets and laptops should only be used for course work. Following these guidelines will help you to be actively engaged with other members of the class during our meetings.

**Accommodations for Missed Graded Work**
You are permitted to drop the lowest iRAT score. Therefore, if you miss 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 flexibility built into calculating the grade for the RATs, no make-up RATs will be given. Attendance is a component of the participation grade. Lateness will be penalized. Late assignments will be docked 10% per day. 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.

**Communication**
My preferred mode of communication is email. I check email several times a day, so you can send me urgent messages via email. I try to reply to email within 24-48h. I will use email for short notice items that you need to see – make sure you check your email regularly.

**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. This syllabus is not a contract and it is written on paper not stone. 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 fourth day of term).
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 *free* offerings!

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. Reading guides and online lectures 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. Therefore, before coming to the next class you should visit the Moodle site and print out the *problem set* for that day. Problem sets will be posted to Moodle no later than 24h prior to class, or the instructor will bring a copy for everyone to class.
Schedule:

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<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
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<tr>
<td>Sept 17</td>
<td>Introduction, Team Structuring</td>
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| Unit 1  | Sept 19 Unit 1A RAT, Membrane & Action Potential | Ch 3         |
|         | Sept 24 Unit 1B RAT, Membrane & Action Potential | Ch 4         |
|         | Sept 26 Membrane Potential and Action Potential |              |

| Unit 2  | Oct 1 Unit 2A RAT, Synaptic Transmission & Chemosenses | Ch 5, 6, 8   |
|         | Oct 3 Synaptic Transmission and Chemosenses           |              |
|         | Oct 8 Synaptic Transmission and Chemosenses           |              |
|         | Oct 10 Synaptic Transmission and Chemosenses, discuss article/critique |              |

| Unit 3  | Oct 15 Unit 3A RAT, Vision                     | Ch 9, 10     |
|         | Oct 17 Vision, article critique due            |              |

| Oct 22  | *** Midterm ***                               |              |

| Oct 24  | Begin Motor/Somatosensation                  |              |

| Unit 4  | Oct 29 Unit 4A RATs, Motor Control & Somatosensation | Ch 12, 13, 14 |
|         | Oct 31 Motor Control & Somatosensation        |              |

| Unit 5  | Nov 5 Unit 5A RATs, Stress Response           | Ch 15        |
|         | Nov 7 Motivation Part 1                      | Ch 16 (522-527) |
|         | Nov 12 Motivation Part 2                     | Ch 17        |

| Unit 6  | Nov 14 Unit 6A RATs, work on presentations    | ch 18, articles |
|         | Nov 19 Class Closing                          |              |

November 23 3:30-6:00pm *** Final Exam ***