Instructor: Valerie Carr
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Email: valerie.carr@sjsu.edu
Office Hours: Tues/Thurs, 4:30-5:30pm, and by appointment
Class Days/Time: Tues/Thurs, 9:00-10:15am
Classroom: Dudley Moorhead Hall (DMH), Room 308
Prerequisites: PSYC 30 equivalent

Course Description
The goal of this course is to help you build a strong theoretical and methodological foundation for understanding the nervous system. The field of neuroscience is incredibly extensive and interdisciplinary; as such, we will explore the nervous system through a variety of approaches—neuroanatomy, neuropharmacology, neurophysiology, neuropsychology, and neuroimaging. Both classic and recent research findings will be covered in lectures and via student-led discussions. Given that the function of the nervous system is never as conspicuous and astonishing as when it fails us, we will also focus on dysfunction of the nervous system and advances in understanding the underlying causes of such dysfunction.

Course Format
This is a graduate seminar, and as such, student presentations and group discussions will comprise the majority of the course. That said, lectures will also be provided, particularly early in the course, to ensure basic understanding of assigned topics prior to group discussions. Participation is essential for optimal performance in the course. Keeping pace with the reading schedule and being proactive about seeking help are similarly important in achieving a successful outcome. Please ask questions when you don’t understand information in lecture, in the readings, or during discussions -- asking questions and offering ideas is welcomed and encouraged!

Canvas
Course materials such as the syllabus, lectures slides, readings, and midterms etc, can be found on the Canvas learning management system course website at http://sjsu.instructure.com. You are responsible for regularly checking Canvas to learn of any updates.
Course Learning Outcomes (CLO)
Upon successful completion of this course, students will be able to:

- **Content goals**
  - CLO1: Describe major concepts related to basic neuroanatomy, neurophysiology and psychopharmacology.
  - CLO2: Describe the major transduction mechanisms, neuroanatomical pathways and theoretical perspectives associated with sensory and motor systems, emotion, language, and learning processes.
  - CLO3: Describe methodological approaches and associated findings used in neuroscience.
  - CLO4: Describe dysfunction of the nervous system and its association with various mental health issues.
  - Content goals will be assessed via three midterms.

- **Critical thinking goals**
  - CLO5: Discuss how knowledge of neuroscience can be used to interpret a wide range of behavioral phenomena, including your own.
  - Critical thinking goals will be assessed by midterms, reaction papers, and a final project.

- **Communication goals**
  - CLO6: Present and discuss empirical findings from the scientific literature concerning topics relevant to the course.
  - CLO7: Given a topic of your choosing related to neuroscience, review the relevant literature and propose a series of experiments that will further knowledge of said topic.
  - Communication goals will be assessed via student-led discussions of empirical work and a final project with both oral and written components.

Program Learning Outcomes (PLO)
Upon successful completion of the psychology major requirements, students will be able to:

- **Knowledge Base**
  - Students completing the MA in Psychology program will understand the major theoretical perspectives and research methods across areas of experimental psychology, i.e., Developmental, Social, Cognitive, and Physiological.
    - PLO1: Understand the major theoretical perspectives and research methods across areas of experimental psychology, i.e., Developmental, Social, Cognitive, and Physiological.

- **Research Methods and Scholarship**
  - Graduates of our program will possess an advanced level of competence in research methods, statistical techniques, and technical writing skills. Students completing the MA in Psychology program are required to complete a thesis. The thesis will:
    - PLO2.1: Demonstrate creative problem-solving in the design, implementation of empirical research.
    - PLO2.2: Demonstrate project management skills in the implementation of empirical research.
    - PLO2.3: Demonstrate advanced competency in the statistical analysis and interpretation of empirical research findings.
    - PLO2.4: Be able to communicate (oral and written) their research findings at a professional level.
• **Career Enhancement**
  o Graduates of our program will experience career enhancement through placement in a doctoral program or acceptance of a position requiring a master’s in psychology in the public or private sector. Students completing the MA in Psychology program will:
  o PLO3: achieve career enhancement through placement in a doctoral program or acceptance of a position requiring a master’s in psychology in the public or private sector.

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**Required Texts/Readings**

There is no textbook for this course. Instead, required readings will include a number of scientific journal articles pertaining to neuroscience, each of which will be available on Canvas as PDFs.

For those wishing to consult a reference textbook throughout the course, your undergraduate BioPsych/Neuro textbook should work well, but additional suggestions include:


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**Course Requirements and Assignments**

During this course, you will be required to participate in class and to complete the following: reaction papers to assigned readings, student-led discussions of assigned readings, midterms, and a final project (see details below in “Grading Policy” and “Schedule”).

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in [University Policy S12-3](http://www.sjsu.edu/senate/docs/S12-3.pdf).

[University policy F69-24](http://www.sjsu.edu/senate/docs/F69-24.pdf) states, “Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading.”
Grading Policy

Grades will be based on three midterms (30%), in-class participation (30%), and a final project (40%).

A (90 - 100%)
B (80 - 89%)
C (70 - 79%)
D (60 - 69%)
F (0 - 60%)

Students in the top or bottom 2.5% of each grade range will receive a plus or minus, respectively. The instructor reserves the right to relax (but not stiffen) this criterion, depending on the actual distribution of grades.

Midterms (30%)
Each of three midterms will be completed at home and will involve short essay questions that cover lecture content as well as the assigned readings. Midterms will be turned in via Canvas by the beginning of class on the dates noted in the schedule below, and will each be worth 10%.

In-class participation (30%)
Participation will be divided into two categories: reaction papers to the assigned readings (15%), and student-led discussions of the readings (15%). Starting with the second unit of the course, we will be alternating one day of lecture with one day of student-led discussions of the assigned readings.

Reaction papers: These will be short responses (1 page, single spaced) to the assigned readings and will be turned in via Canvas the night before each discussion by 11:59pm. Reaction papers will briefly summarize each article and include discussion points or questions to be covered the following day.

Student-led discussions: For each assigned reading, one student will create a slide presentation highlighting the aims, methods, results, and conclusions of the relevant study and will lead a group discussion of that study. Given the number of assigned readings and course enrollment, each student will likely present two times during the semester.

Final project (40%)
When pursuing a PhD in Psychology or Neuroscience, it is very likely that you will apply for a graduate fellowship from a governmental agency such as the NIH or NSF. To prepare you for such applications, your final project will involve choosing a neuroscience-related topic that interests you, and writing a research proposal formatted as an NIH graduate fellowship application (proposal: 30%). Prior to submitting your proposal, you will also present your ideas to the class as a 5-10 min slide presentation in order to receive critical feedback that will in turn improve your proposal (presentation: 10%). This project will be discussed in greater detail as the semester progresses.

Submitting assignments
With the exception of in-class presentations, all assignments will be submitted via Canvas. It is your responsibility to ensure that submitted files are properly uploaded and complete by the due date. As such, blank/incomplete/corrupt files will not be accepted, similar to how a blank piece of paper would never be accepted in class. I suggest beginning the submission process at least 30 mins in advance of each deadline to ensure sufficient time to correctly upload your files and address any Canvas-related difficulties.
Assignments submitted late will be accepted for partial credit as follows: for each 24-hr period that your assignment is late, your score will drop 10%. I.e., if you submit an assignment one hour late (during the first 24-hr period), your grade will drop by 10%; if you submit it 25 hours late (during the second 24-hr period), it will drop by 20%, and so on.

Note: If you have a conflict or will be traveling such that you are unable to submit an assignment on the due date, you must submit it in advance of the due date in order to receive full credit.

Viewing grades
Note that “All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course grades.” See University Policy F13-1 at http://www.sjsu.edu/senate/docs/F13-1.pdf for more details.

Classroom Protocol
Students are expected to maintain a level of professional and courteous behavior at all times. You are required to silence your cell phones and other electronic devices before the beginning of class. Although laptops are permitted, they are to be used for presentations, viewing journal articles, and note-taking only. Students not abiding by these policies will be asked to leave the class and will not be permitted to use their devices for the remainder of the semester.

University Policies
Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs’ Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/.
Schedule: PSYC 230, Seminar in Physiological Psychology, Spring 2017

Note: The schedule is subject to modification, as the instructor deems necessary. You are responsible for noting any changes to the schedule announced either in class or via Canvas.

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
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<tbody>
<tr>
<td>Jan 26</td>
<td>Welcome and intro</td>
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<td>Jan 31</td>
<td>Neurophysiology</td>
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<td>Feb 2</td>
<td>Neurotransmission</td>
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<td>Feb 7</td>
<td>Neuroanatomy I</td>
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<td>Feb 9</td>
<td>Neuroanatomy II</td>
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<td>Feb 14</td>
<td>Methods: Neuropsychology</td>
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<td>Feb 16</td>
<td>Methods: Neuroimaging</td>
<td>Ward (chapter from Student’s Guide to Cog Neuro)</td>
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<td>Feb 21</td>
<td>Vision; Midterm 1 due</td>
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<td>Feb 23</td>
<td>Vision: Discussion</td>
<td>Kanwisher, J Neuro, 1997; Gauthier, Nature 2000</td>
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<td>Feb 28</td>
<td>Attention</td>
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<td>Mar 7</td>
<td>Somatosensation</td>
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<tr>
<td>Mar 9</td>
<td>Somatosensation: Discussion</td>
<td>Feinberg, JNNP 2010; DeCharms, PNAS 2005</td>
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<tr>
<td>Mar 14</td>
<td>Movement</td>
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<td>Mar 16</td>
<td>Movement: Discussion</td>
<td>Petrou, JAMA Neuro 2016; BrainStorm press release</td>
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<td>Mar 21</td>
<td>Language</td>
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<td>Mar 23</td>
<td>Language: Discussion</td>
<td>Berken, Neuroimage, 2015; Abutalebi, Neuro Aging, 2014</td>
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<td>Mar 28, 30</td>
<td>No class, spring break</td>
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<td>Apr 4</td>
<td>Memory I; Midterm 2 due</td>
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<td>Apr 6</td>
<td>Memory II</td>
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<td>Apr 13</td>
<td>Emotion</td>
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<td>Apr 18</td>
<td>Emotion: Discussion</td>
<td>Wicker, Neuron, 2003; Mobbs, PNAS, 2010</td>
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<td>Apr 20</td>
<td>Mood disorders</td>
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<td>Apr 25</td>
<td>Mood disorders: Discussion</td>
<td>Williams, Neuropharm 2015; Phan, Biol Psy 2013</td>
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<td>Apr 27</td>
<td>Sleep (recorded: WPA)</td>
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<td>May 2</td>
<td>Sleep: Discussion</td>
<td>Chow, PNAS 2013; Horikawa, Science 2013</td>
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<td>May 4</td>
<td>Schizophrenia</td>
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<td>May 9</td>
<td>Schizophrenia: Discussion</td>
<td>Kompus, Ngia, 2011; Whitfield-Gabrieli, PNAS, 2009</td>
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<td>May 11</td>
<td>Midterm 3 due</td>
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<tr>
<td>May 16</td>
<td>Oral presentations</td>
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<tr>
<td>May 23</td>
<td>Final paper due by 9:30am</td>
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