Psychology 129: Neuroscience – Fall, 2015

Basics

PSYC 129
Mon/Wed, 1:30 – 2:45pm
Dudley Moorhead Hall, Rm 355

Instructor

Valerie Carr, PhD
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Office: Dudley Moorhead Hall, Rm 318
Office Hours: Mon/Wed 4:30-5:30pm, or by appointment

Textbook


Pre-reqs

Either PSYC 30 and 3 units of biology, or 9 units of biology

Course Description

Neuroscience is defined as the study of the nervous system. This field comprises several related disciplines including: neuroanatomy, neurochemistry, neuropharmacology, neurophysiology, neuroendocrinology, neuroimmunology, neuropathology, and neuropsychology. The united efforts of such disciplines have produced a better understanding of the function of the nervous system and its relationship to behavior. This course will examine the research methods and findings of each of these sub-disciplines in detail, with a focus on both the healthy nervous system and dysfunction of the nervous system.

Course Format

The material in this course will be presented through a combination of class lectures, in-class videos and demonstrations, and assigned readings from the textbook and scientific journals. Lectures will complement the reading material and will include additional information not covered in the readings. As such, attendance 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 or in the readings -- asking questions and offering ideas during lecture is welcomed and encouraged!

Note: Canvas will be used for posting lecture slides, additional readings, and any course-related announcements.
Learning Outcomes

Course learning outcomes (CLOs)
Upon successful completion of this course, students will be able to:

- **Content goals**
  - CLO1: Describe the major concepts related to basic neuroanatomy, neurophysiology and psychopharmacology
  - CLO2: Describe the major transduction mechanisms, neuroanatomical pathways and theoretical perspectives associated with sensory systems, motor systems, emotional systems, and learning processes
  - CLO3: Describe methodological approaches and associated empirical 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 midterms, quizzes, and the final exam

- **Critical thinking goals**
  - CLO5: Discuss how knowledge of neuroscience can be used to interpret a wide range of behavioral phenomena, including their own
  - Critical thinking goals will be assessed with midterms, quizzes, homework assignments, the forgetting paper, and the final exam

- **Communication goals**
  - CLO6: Review empirical findings from the scientific literature concerning a topic relevant to the course allowing them to communicate complex topics relating to the nervous system and behavior
  - Communication goals will be assessed via the final paper

Program learning outcomes (PLOs)
Upon successful completion of the psychology major requirements, students will be able to:

- **Knowledge Base of Psychology**
  - PLO1: Identify, describe, and communicate the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology.

- **Research Methods in Psychology**
  - PLO2: Design, implement, and communicate basic research methods in psychology, including research design, data analysis, and interpretations.

- **Critical Thinking Skills in Psychology**
  - PLO3: Use critical and creative thinking, skeptical inquiry, and a scientific approach to address issues related to behavior and mental processes.

- **Application of Psychology**
  - PLO4: Apply psychological principles to individual, interpersonal, group, and societal issues.

- **Values in Psychology**
  - PLO5: Value empirical evidence, tolerate ambiguity, act ethically, and recognize their role and responsibility as a member of society.
Course Evaluation

Grades will be based on three midterms (50%), a cumulative final exam (25%), a paper (15%), and in-class participation (10%).

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.

Exams
Exams will contain multiple-choice, fill-in-the-blank, matching and short answer questions that cover the assigned reading material and information presented in class. The lowest score of the three midterms will be dropped. This is to allow for flexibility to accommodate family emergencies, medical problems, and other unplanned events. Because of this drop policy, please note that no makeup midterms will be given, even in the event of a family emergency or illness.

Paper
A goal in this class is for you to acquire the skills to be a critical consumer of media coverage of neuroscience. For the written assignment, you will be asked to submit a paper that (a) summarizes two recent empirical articles involving neuroscience, (b) summarizes the popular press’s coverage of these articles, and (c) critically analyzes the accuracy of the popular press stories. This assignment will be discussed in greater detail later in the semester.

In-class participation
The majority of your grade will be based on the midterms, final exam, and paper. However, there will also be several quizzes and homework assignments—announced in advance—that will account for 10% of your final grade. Your lowest score will be dropped to allow for flexibility to accommodate family emergencies, medical problems, and other unplanned events. Because of this drop policy, there will be no opportunities to make up missed quizzes, nor will late homework assignments be accepted. Should you miss a class, it is your responsibility to find out what material you missed—preferably by contacting one of your fellow students—and to prepare for the next class session.

Handing in assignments
All assignments are due at the beginning of class on the specified due date. This includes all homework assignments, assignments relating to the forgetting project, and the forgetting paper itself. If you know in advance that you will be unable to attend class the day that an assignment is due, you must submit it in advance of class that day. As mentioned above, no late assignments will be accepted. However, partial credit will be given for late papers as follows: for each day your paper is late, your score will drop one letter grade.
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. **Note that although laptops are permitted, they are to be used for note-taking purposes 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

General Expectations, Rights and Responsibilities of the Student

As members of the academic community, students accept both the rights and responsibilities incumbent upon all members of the institution. Students are encouraged to familiarize themselves with SJSU’s policies and practices pertaining to the procedures to follow if and when questions or concerns about a class arises. See University Policy S90–5 at [http://www.sjsu.edu/senate/docs/S90-5.pdf](http://www.sjsu.edu/senate/docs/S90-5.pdf). More detailed information on a variety of related topics is available in the SJSU catalog, at [http://info.sjsu.edu/web-dbgen/narr/catalog/rec-12234.12506.html](http://info.sjsu.edu/web-dbgen/narr/catalog/rec-12234.12506.html). In general, it is recommended that students begin by seeking clarification or discussing concerns with their instructor. If such conversation is not possible, or if it does not serve to address the issue, it is recommended that the student contact the Department Chair as a next step.

Academic integrity

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The [University Academic Integrity Policy S07-2](http://www.sjsu.edu/senate/docs/S07-2.pdf) requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The [Student Conduct and Ethical Development website](http://www.sjsu.edu/studentconduct/) is available at [http://www.sjsu.edu/studentconduct/](http://www.sjsu.edu/studentconduct/).

Students must not plagiarize, cheat, or collude in connection with exams or papers and must acknowledge fully all sources and all assistance received in work submitted to the instructor for evaluation. Students who are dishonest in any class assignment or examination will receive an “F” in this course. When practiced, academic integrity ensures that all students are fairly graded. Violations demonstrate a lack of respect for oneself, fellow students, and the course instructor, and can ruin the university's reputation and the value of the degrees it offers.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc.

- Refer to the current semester’s Catalog Policies section at: [http://info.sjsu.edu/static/catalog/policies.html](http://info.sjsu.edu/static/catalog/policies.html)
- Add/drop deadlines can be found on the current academic calendar web page: [http://www.sjsu.edu/academic_progs/calendars/academic_calendar/](http://www.sjsu.edu/academic_progs/calendars/academic_calendar/)
- The late drop policy is available at: [http://www.sjsu.edu/aars/policies/latedrops/policy/](http://www.sjsu.edu/aars/policies/latedrops/policy/)
• Students should be aware of the current deadlines and penalties for dropping classes.
• Information about the latest changes and news is available at the Advising Hub at:
  http://www.sjsu.edu/advising.

Consent for Recording of Class and Public Sharing of Instructor Material
University Policy S12-7, http://www.sjsu.edu senate/docs/S12-7.pdf, requires students to obtain
an instructor's permission to record the course. Common courtesy and professional behavior
dictate that you notify someone when you are recording him/her. You must obtain the
instructor’s permission to make audio or video recordings in this class. Such permission allows
the recordings to be used for your private, study purposes only. The recordings are the
intellectual property of the instructor; you have not been given any rights to reproduce or
distribute the material. Course material developed by the instructor is the intellectual property of
the instructor and cannot be shared publicly without his/her approval. You may not publicly
share or upload instructor generated material for this course such as exam questions, lecture
notes, or homework solutions without instructor consent. Note that you may obtain my
permission either by emailing me or asking me in class at the beginning of the semester.

Campus Policy in Compliance with the American Disabilities Act
If you need course adaptations or accommodations because of a disability, or if you need to
make special arrangements in case the building must be evacuated, please make an
appointment with me as soon as possible, or see me during office hours. Presidential Directive
97-03 at http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf requires that students
with disabilities requesting accommodations must register with the Accessible Education Center
(AEC) at http://www.sjsu.edu/aec to establish a record of their disability.

Student resources

Computer labs
Computer labs for student use are available in the Academic Success Center located on the 1st
floor of Clark Hall and on the 2nd floor of the Student Union. Additional computer labs may be
available in your department/college. Computers are also available in the Martin Luther King
Library.

Learning assistance resource center (LARC)
The Learning Assistance Resource Center (LARC) is located in Rm 600 in the Student Services
Center. It is designed to assist students in the development of their full academic potential and
to motivate them to become self-directed learners. The center provides support services, such
as skills assessment, individual or group tutorials, subject advising, learning assistance,
summer academic preparation, and basic skills development. For more information see the
LARC website at http://www.sjsu.edu/larc/.

SJSU writing center
The SJSU Writing Center is located in Room 126 in Clark Hall. It is staffed by professional
instructors and upper-division or graduate-level writing specialists from each of the seven SJSU
colleges. Our writing specialists have met a rigorous GPA requirement, and they are well trained
to assist all students at all levels within all disciplines to become better writers. For more
information see the Writing Center website at http://www.sjsu.edu/writingcenter/about/staff/.
Library liaison
Bernd Becker
Phone: (408) 808-2348
Email: bernd.becker@sjsu.edu
http://libguides.sjsu.edu/psychology

Peer mentor center
The Peer Mentor Center is located on the 1st floor of Clark Hall in the Academic Success Center. The center is staffed with peer mentors who excel in helping students manage university life, tackling problems that range from academic challenges to interpersonal struggles. On the road to graduation, peer mentors are navigators, offering “roadside assistance” to peers who feel a bit lost or simply need help mapping out the locations of campus resources. Peer mentor services are free and available on a drop-in basis, no reservation required. For more details see the Peer Mentor website at http://www.sjsu.edu/muse/peermentor/.

Student success and wellness
Attending to your wellness is critical to your success at SJSU! You are strongly encouraged to take advantage of the workshops and programs offered through various Student Affairs Departments on campus such as Counseling Services, the SJSU Student Health Center/Wellness & Health Promotion Dept, and the Career Center. See http://www.sjsu.edu/wellness or http://www.sjsu.edu/counseling/Workshops/ for a schedule and links to many other services on campus that support your wellness. See http://events.sjsu.edu to register for workshops.

Schedule
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 on Canvas.

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
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<tbody>
<tr>
<td>Aug 24</td>
<td>Welcome and intro</td>
<td>Ch 1</td>
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<tr>
<td>Aug 26</td>
<td>Neurons and glia</td>
<td>Ch 2</td>
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<td>Aug 31</td>
<td>Resting membrane potential</td>
<td>Ch 3</td>
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<td>Sep 2</td>
<td>Action potential</td>
<td>Ch 4</td>
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<td>Sep 7</td>
<td>No class, Labor Day</td>
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<td>Sep 9</td>
<td>Synaptic transmission I</td>
<td>Ch 5</td>
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<tr>
<td>Sep 14</td>
<td>Synaptic transmission II</td>
<td>Ch 5</td>
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<tr>
<td>Sep 16</td>
<td>Neurotransmitters</td>
<td>Ch 6</td>
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<tr>
<td>Sep 21</td>
<td>Midterm #1</td>
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<tr>
<td>Sep 23</td>
<td>Neuropharmacology I</td>
<td>Ch 6</td>
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<tr>
<td>Sep 28</td>
<td>Neuropharmacology II</td>
<td>Ch 6, Ch 15 (504-507)</td>
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<td>Sep 30</td>
<td>Neuroanatomy I</td>
<td>Ch 7</td>
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<tr>
<td>Oct 5</td>
<td>Neuroanatomy II (guest lecture)</td>
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<tr>
<td>Oct 7</td>
<td>Vision I</td>
<td>Ch 9, Ch 10</td>
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<tr>
<td>Oct 12</td>
<td>Vision II</td>
<td>Ch 10</td>
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<tr>
<td>Oct 14</td>
<td>Midterm #2</td>
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<tr>
<td>Oct 19</td>
<td>No class, Conference</td>
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<tr>
<td>Oct 21</td>
<td>Auditory and vestibular systems</td>
<td>Ch 11</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Chapters</td>
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<td>Oct 26</td>
<td>Chemical senses and somatosensation</td>
<td>Ch 8, Ch 12</td>
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<td>Oct 28</td>
<td>Movement I</td>
<td>Ch 13</td>
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<tr>
<td>Nov 2</td>
<td>Movement II</td>
<td>Ch 14</td>
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<td>Nov 4</td>
<td>Hypothalamus and motivation</td>
<td>Ch 15, Ch 16</td>
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<td>Nov 9</td>
<td>Emotion</td>
<td>Ch 18</td>
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<tr>
<td>Nov 11</td>
<td><strong>No class, Veteran's Day</strong></td>
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<td>Nov 16</td>
<td><strong>Midterm #3</strong></td>
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<td>Nov 18</td>
<td>Learning and memory I</td>
<td>Ch 24</td>
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<tr>
<td>Nov 23</td>
<td>Learning and memory II</td>
<td>Ch 23, Ch 25</td>
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<tr>
<td>Nov 25</td>
<td>Sleep</td>
<td>Ch 19</td>
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<tr>
<td>Nov 30</td>
<td>Language</td>
<td>Ch 20</td>
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<tr>
<td>Dec 2</td>
<td>Mental illness</td>
<td>Ch 22</td>
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<tr>
<td>Dec 7</td>
<td>Review; <strong>paper due</strong></td>
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<tr>
<td>Dec 16</td>
<td><strong>Final exam, 12:15-2:30pm</strong></td>
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