BASIC COURSE INFORMATION

Instructor: Valerie Carr
Office Location: Dudley Moorhead Hall (DMH), Room 318
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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, 1:30-2:45pm
Classroom: Dudley Moorhead Hall (DMH), Room 348
Prerequisites: Either: (a) PSYC 30 + 3 units of BIO, or (b) 9 units of BIO

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 each of these sub-disciplines in detail, with a focus on both the healthy nervous system and disorders of the nervous system including depression, Alzheimer’s disease, and schizophrenia. From the course catalog: “Principles of brain organization and function underlying behavior. Topics include neuroanatomy and physiology of language, vision, sexual behavior, memory and abnormal behavior.”

COURSE FORMAT

The material in this course will be presented through a combination of lectures, in-class videos and demonstrations, group/partner activities, 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!

COURSE WEBPAGE

Course materials such as the syllabus, assignments and quizzes, announcements, grades, 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**
  o CLO1: Describe the major concepts related to basic neuroanatomy, neurophysiology, and neuropharmacology
  o CLO2: Describe the major transduction mechanisms, neuroanatomical pathways and theoretical perspectives associated with sensory systems, motor systems, emotional systems, and learning processes
  o CLO3: Describe methodological approaches and associated empirical findings used in neuroscience
  o CLO4: Describe dysfunction of the nervous system and its association with various mental health issues
  o Content goals will be assessed via quizzes, midterms, and the final exam

• **Critical thinking and communication goals**
  o CLO5: Discuss how knowledge of neuroscience can be used to interpret a wide range of behavioral phenomena, including students’ own behavior
  o CLO6: Compare media coverage of a neuroscience topic to empirical findings from the scientific literature and communicate the differences
  o Critical thinking and communication goals will be assessed with quizzes, midterms, homework assignments, the final paper, and the final exam

PROGRAM LEARNING OUTCOMES (PLO)

Upon successful completion of the psychology major requirements, students will be able to:

• **Knowledge Base of Psychology**
  o PLO1: Demonstrate familiarity with the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology.

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

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

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

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

REQUIRED TEXTS/READINGS


A small number of additional readings will be posted on Canvas as PDFs.
COURSE REQUIREMENTS AND ASSIGNMENTS

During this course, you will be required to participate in class and to complete the following: Homework, in-class group/partner activities, online quizzes, midterms, a final paper, and a final exam. See details below regarding each type of assignment, including the final exam, in “Grading Policy” and “Schedule”.

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Please review the following sources and policies, as well:
- Office of Graduate and Undergraduate Programs’ Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/

GRADING INFORMATION

Letter grades

Grades will be based on participation (20%), three midterms (40%), a final paper (15%), and a cumulative final exam (25%). Letter grades will be assigned as follows, with students in the top or bottom 2.5% of each grade range receiving a plus or minus, respectively:

- A: 90 - 100%
- B: 80 - 89%
- C: 70 - 79%
- D: 60 - 69%
- F: 0 - 59%

Weighting of graded assignments

Participation (20%)

Your participation grade will encompass in-class group/partner activities, homework, and online quizzes. Late homework assignments will not be accepted and make-up activities will not be permitted if you miss class. However, I allow each student to drop their two lowest participation scores to allow for flexibility. Please note that no makeup quizzes will be allowed, either, except in emergency situations in which documentation is provided by an independent authority (e.g., a doctor’s note), and that makeup quizzes will be short-answer format rather than multiple choice. 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.

As per the University Attendance and Participation Policy F15-12 at http://www.sjsu.edu/senate/docs/F15-12.pdf, “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.”

Midterms (40%) and final exam (25%)

Midterms and the final exam will contain multiple-choice, fill-in-the-blank, labeling, 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, such that the remaining two midterms will count 20% each, giving a total of
40%. The cumulative final exam is required and cannot be dropped. Please note that no makeup midterms/exams will be given except in emergency situations in which documentation is provided by an independent authority (e.g., a doctor’s note), and that makeup exams will be short-answer / essay format.

Final paper: Critiquing media coverage of neuroscience topics (15%)
A goal in this class is for you to acquire the skills to be a critical consumer of media coverage of neuroscience. For this assignment, you will be asked to submit a paper that (a) introduces a neuroscience-related topic, (b) summarizes a recent empirical article relating to that topic, (c) summarizes a popular press story’s coverage of this article, and (d) critically analyzes the accuracy of the popular press story. This assignment and a grading rubric will be discussed in greater detail later in the semester.

Extra credit
You will be allowed to complete a maximum of two extra credit assignments that will each add 1% to your overall grade at the end of the semester. So, for example, if your overall grade was an 81.6% (a B-) and you completed one extra credit assignment, this would bump you to an 82.6% (a B). Extra credit opportunities will be discussed throughout the semester and will include things like attending a scientific talk and writing a summary, or watching a neuroscience-related movie and assessing its accuracy.

Submitting assignments
All assignments are due by the beginning of class on the specified due date unless otherwise stated. If you know in advance that you will be traveling and unable to submit an assignment on the due date, you must submit it in advance of the due date. As mentioned above, no late assignments will be accepted. However, partial credit will be given for late final papers as follows: For each 24-hr period your paper is late, your score will drop 10%. i.e., if you submit your paper three hours late (within the first 24-hr period), your grade will drop by 10%; if you submit it 27 hours late (within the second 24-hr period), it will drop by 20%, and so on.

With the exception of in-class activities, 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.

Academic integrity
Cheating, plagiarism, or other forms of academic dishonesty that are intended to gain unfair academic advantage will not be tolerated. If evidence of academic misconduct is found, you will receive a zero on the assignment(s) in question, and I will file a report with the Office of Student Conduct & Ethical Development. See the office’s website for more information at http://www.sjsu.edu/studentconduct/policies/.

Viewing grades
Grades will be posted on Canvas in a timely manner. 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 before the beginning of class. Laptops are to be used for note-taking and in-class
activities only. I expect you to be respectful of your fellow classmates such that you do not distract them by browsing the internet or chatting online during class. Students not abiding by these policies will be asked to leave the room.

DIVERSITY STATEMENT

It is my goal to create a safe and diversity-sensitive learning environment that respects the rights, dignity, and welfare of all students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of minority perspectives and voices, and appreciation of different cultural and socioeconomic group practices.

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/.
# COURSE SCHEDULE

Note: The schedule is subject to modification (with fair warning) as the instructor deems necessary.

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
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<tbody>
<tr>
<td>Aug 21</td>
<td>Welcome and intro</td>
<td>Skim Ch 1</td>
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<tr>
<td>Aug 23</td>
<td>Neurons and glia</td>
<td>Ch 2</td>
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<tr>
<td>Aug 28</td>
<td>Action potential</td>
<td>Skim Ch 3 and 4</td>
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<td>Aug 30</td>
<td>Synaptic transmission</td>
<td>Ch 5</td>
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<td>Sep 4</td>
<td>Neurotransmitters</td>
<td>Ch 6</td>
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<tr>
<td>Sep 6</td>
<td>Neuropharmacology</td>
<td>[None]</td>
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<tr>
<td>Sep 11</td>
<td><strong>Midterm 1</strong></td>
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<td>Sep 13</td>
<td>Molecular neurobiology (Dr Van Hoven)</td>
<td>[None]</td>
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<td>Sep 18</td>
<td>Neuropsychology and neuroimaging</td>
<td>[None]</td>
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<td>Sep 20</td>
<td>Neuroanatomy I</td>
<td>Ch 7 (180-191)</td>
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<td>Sep 25</td>
<td>Neuroanatomy II</td>
<td>Ch 7 (192-215)</td>
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<td>Sep 27</td>
<td>Cognitive Atlas + Neurosynth tutorial (Vanessa Sochat)</td>
<td>[None]</td>
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<td>Oct 2</td>
<td>Neurodevelopment</td>
<td>Ch 23 (784-805)</td>
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<td>Oct 4</td>
<td>Sex and hormones</td>
<td>Ch 17</td>
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<td>Oct 9</td>
<td><strong>Midterm 2 (Extra credit: Carstensen talk)</strong></td>
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<td>Oct 11</td>
<td>Olfaction and gustation</td>
<td>Ch 8</td>
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<td>Oct 16</td>
<td>Auditory and vestibular systems</td>
<td>Ch 11</td>
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<td>Oct 18</td>
<td>Somatosensation</td>
<td>Ch 12</td>
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<td>Oct 23</td>
<td>Low-level vision</td>
<td>Ch 9</td>
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<td>Oct 25</td>
<td>High-level vision (Dr Grotheer)</td>
<td>Ch 10</td>
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<td>Oct 30</td>
<td>Movement</td>
<td>Ch 13, Ch 14</td>
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<td>Nov 1</td>
<td>Sleep</td>
<td>Ch 19</td>
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<td>Nov 6</td>
<td><strong>Midterm 3 (VC away)</strong></td>
<td>Ch 21</td>
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<td>Nov 8</td>
<td>Attention and consciousness</td>
<td>Ch 21</td>
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<td>Nov 13</td>
<td>Memory systems</td>
<td>Ch 23 (814-817), Ch 24, Ch 25</td>
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<td>Nov 15</td>
<td>Alzheimer's disease and dementia</td>
<td>[None]</td>
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<td>Nov 20</td>
<td>Language</td>
<td>Ch 20</td>
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<tr>
<td>Nov 22</td>
<td><strong>No class, Thanksgiving</strong></td>
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<td>Nov 27</td>
<td>Emotion</td>
<td>Ch 18</td>
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<td>Nov 29</td>
<td>Depression and anxiety</td>
<td>Ch 22 (752-771)</td>
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<td>Dec 4</td>
<td>Schizophrenia</td>
<td>Ch 22 (771-779)</td>
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<td>Dec 6</td>
<td>Review: <strong>Paper due</strong></td>
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<td>Dec 13</td>
<td><strong>Final exam, 12:15-2:30pm</strong></td>
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