San José State University
Psychology Department
PSYC 030, Introduction to Psychobiology, Section 02.

Fall, 2017

Course and Contact Information

Instructor: Zurine De Miguel, Ph.D.
Office Location: DMH, to be determined
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Email: zurine.demiguel@sjsu.edu
Office Hours: Thursdays 8:00 – 9:00 am, or by appointment.
Class Days/Time: Tu/Th 9:00 – 10:15 am.
Classroom: Dudley Moorhead Hall 165
Prerequisites: BIOL 21 or BIOL 65

Faculty Web Page and MYSJSU Messaging

Copies of the course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on Canvas Leaning Management System course login website at http://sjsu.instructure.com. You are responsible for regularly checking with the messaging system through MySJSU at http://my.sjsu.edu to learn of any updates. Please contact me via email or you can call me at (408) (924-6475).

Course Description

Introduction to Psychobiology explores the fundamental biological basis of cognition, behavior and emotion. This course examines the structural and functional study of the nervous system and will consider how the nervous system can use information from the internal and external environments to direct and coordinate adaptive biological and behavioral responses. For example, we will examine how sickness, and the biological transformations it entails, can alter psychological processes. And we will examine how social stress and psychological therapy can modify biological markers relevant to chronic diseases such as cancer.

The lectures complement and expand on the reading material, and in some cases present material that is not in the assigned texts, so attendance is important. The assigned readings are required.

Learning Outcomes and Course Goals

General Educational Learning outcomes (GELO)

This course helps to build important skills for communicating ideas and developing critical thinking in the area of psychobiology.
During classes, students will be encouraged to express their own opinions and critical questions thru group discussions of readings. Furthermore, students will select a topic from a pre-selected pool of topics and will engage in oral presentations about that specific topic. Students will receive feedback during their presentations and questions from the audience, which includes other students and myself. For the development of the topic to be presented, students will engage in locating, integrate and evaluating information from a pool of potential sources of information that will be provided.

Course Learning Outcomes (CLO)

COURSE GOALS

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

1. CLO 1 Identify the functional and structural organization of cells in the central nervous system (CNS)
2. CLO 2 Identify and name the functional and structural organization of the central and peripheral nervous system.
3. CLO 3 Comprehend and describe the neurophysiological and neurochemical mechanisms involved in the communication between cells of the CNS.
4. CLO 4 Relate hormonal functions with activity in the CNS and integrate the activity of both systems with behavior.
5. CLO 5 Identify mediators of the immune system with activity on the CNS and relate this activity with behavioral outcomes.
6. CLO 6 Differentiate the processes of integration and response of the CNS related to the physiological and neuroanatomical basis of sensory information with motor control.

Program Learning Outcomes (PLO)

Upon successful completion of the psychology major requirements…

1. PLO1 – Knowledge Base of Psychology – Students will be able to identify, describe, and communicate the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology.
2. PLO2 – Research Methods in Psychology – Students will be able to design, implement, and communicate basic research methods in psychology, including research design, data analysis, and interpretations.
3. PLO3 – Critical Thinking Skills in Psychology – Students will be able to use critical and creative thinking, skeptical inquiry, and a scientific approach to address issues related to behavior and mental processes.
4. PLO4 – Application of Psychology – Students will be able to apply psychological principles to individual, interpersonal, group, and societal issues.
5. PLO5 – Values in Psychology – Students will value empirical evidence, tolerate ambiguity, act ethically, and recognize their role and responsibility as a member of society.
Required Texts/Readings

Textbooks


Other Readings
The Professor will provide the following texts;


Course Requirements, Assignments

SJSU classes are designed such that in order to acquire the learning outcomes mentioned above (CLO 1 to CLO 6), 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 from University Syllabus Policy S16-9 at http://www.sjsu.edu/senate/docs/S16-9.pdf.

The final grade for the course will be determined based on the number of points accumulated throughout the quarter.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
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<tbody>
<tr>
<td>2 Midterms</td>
<td>2 x 25</td>
</tr>
<tr>
<td>1 Final Exam</td>
<td>25</td>
</tr>
<tr>
<td>Reading/lab Assignments</td>
<td>15</td>
</tr>
<tr>
<td>Group Work Assignments</td>
<td>10 (+2 extra)</td>
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Total maximum points= 100

Score
100 - 98 A+
97 - 93  A
92 - 90  A-
89 - 88  B+
87 - 83  B
82 - 80  B-
79 - 78  C+
77 - 73  C
72 - 70  C-
69 - 65  D
64 or less F

Midterms and Final Exams: Exams will be composed of multiple choice questions and short answer questions. The Final Exam will cover all the topics during the course with special emphasis on the chapters covered since the previous exam. The main objective of the midterms is to provide students with a continuous
feedback scenario that will allow them to develop a solid knowledge in basic psychobiology. The exams will test the development of the skills stayed in CLO 1 to CLO 6.

**Assignments:** Assignments consist on a group project about a topic that students will choose from a pool of selected topics. In-class assignments pretend to stimulate participation and expression of your own opinions and thoughts in Psychobiology through group discussions project presentations from your colleagues. This is a great chance to use the new terminology and concepts learned during the class.

This assignment is based on a simple model for teaching neurobiology and function published by Susan Kennedy in 2013. The assignment is based on active student engagement through presentation and discussion of case studies. The goal is an effective and enjoyable method for learning brain structure-function relationship.

**Structure**

The main topics of neuroanatomy (6 classes) will first introduce, including main parts of the nervous system, the main brain structures and their functions, the types of cells in the brain and how neuronal communication occurs through action potentials and neurotransmitters.

Students will join in groups of 4 to 5 and they will choose from the following pool of case studies:

1- Huntington’s disease (Oliver sacks and Jenni A. Odge)
2- Korsakov syndrome (Oliver Sacks)
3- Phantom limbs (Oliver sacks or Ramachandran (1998))
4- Tourette syndrome (Oliver Sacks)
5- Depression (Robert Sapolsky)
6- Schizophrenia (Robert Sapolsky and Oliver Sacks)
7- Parkinson (Mind over matter from Jenni A. Odge)
8- Prosopagnosia (Oliver Sacks)
9- Multiple scherosis (Tomorrow is another day from Jenni A. Odge)
10- Epilepsy (Jenni A. Odge)
11- A life with a half brain (Jenni A. Odge)
12- Split brain (Jenni A. Odge)

Presentations will be 25 minutes in length leaving 5 minutes for discussion.

The presentation will include:
1- A description of the general features of the case (as applicable): a description of the subject/patient and a description of the incident(s) that lead to the neurological condition. Explain the individual’s personality and behavior prior to the accident, injury or diagnosis and the state of the individual following injury or disease.
2- Overview of the anatomy relevant to the topic including, when appropriate, brain areas affected, pathways, neurotransmitters and any relevant information about treatment directed to restore the neurobiology. To develop this part of the presentation, students are required to consult literature to identify the neurobiological basics and to convey that knowledge in the context of behavior.
3- Examples of unique behaviors presented by the individual described in the case, relate these behaviors to the structures affected by the injury or illness.
4- There will be a discussion leader that will present 2 to 3 questions (previously prepared by the group) to stimulate thought and discussion.

Students are given the flexibility to divide up the responsibilities for the elaboration of the presentation, but all students are required to become familiar with all components of the case study. All of the presentation planning
Grading and peer evaluation
1-Organization of the presentation, 2 points
2-Clarity of material being communicated, 2 points
3- Preparation and overall presentation style (professional appearance, confidence…), 2 points.
4-Discussion will be graded on the quality of the prepared questions and their ability to generate discussion, 2 points.
5-Group member evaluations. The members of each group will evaluate each other in the following aspects: a) Contribution to the content of the proposal, b) being present and on time for all group meetings and c) how well the group member being evaluated works with others (“team player”), 2 points.

Objectives

The main objectives of this assignment is to engage students in the study of brain-behavior relationships using short, manageable case studies of those having suffered some brain injury or disease (CLO4, CLO5 and CLO6 on the present syllabus).

By collaborating with peers in small groups, the projects also allow students work collectively to engage in in-depth analysis of the case and to practice important oral communication skills during the presentation of the case study to the class. Group work setting has been found to have several advantages, including understanding concepts and applying critical thinking skills. This objective helps to build knowledge base of Psychology (PLO1) and to use their critical thinking skills (PLO3)

Finally, the projects allowed for student engagement with material through larger class discussion based on student-created discussion questions following the presentation of the case study. Thus, the entire class is expected to participate in some aspect of the presentation (presentation, discussion leader or general class discussion).

References

Kennedy, S. 2013. Using case studies as a semester-long tool to teach neuroanatomy and structure-function relationships to undergraduates. J Undergrad Neurosci Educ, 12, A18-22

Please find a tentative course calendar at the end of the present syllabus.

Classroom Protocol

Class attendance: your attendance is essential, my lectures cover material that is not included in the text and this information will be included in the exams.

Use of laptops or tablets: Acceptable for course-related work, such as note-taking or lecture slides.

Make-up Policy: A make-up or extension on a course requirement will be given under extraordinary and well-documented circumstances. Please, notify me by email as soon as possible and no later than two days after the schedule exam. If you are not able to provide documentation notify me as soon as possible. Depending on the circumstances, you may be allowed a make-up on these specific requirements. However, a make-up without appropriate written documentation will result in partial credit on these requirements.
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 Number / Title, Semester, Course Schedule

The calendar is tentative and subject to change based on student learning. Changes will be announced in class and a revised syllabus will be posted in Canvas.

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<thead>
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<th>Week</th>
<th>Date</th>
<th>Topics, Readings, Assignments, Deadlines</th>
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<tr>
<td>1</td>
<td>08/24/17</td>
<td>Introductory class and overview</td>
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<tr>
<td>2</td>
<td>08/29/17-08/31/17</td>
<td>Function and structure of the nervous system, Ch. 2</td>
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<td>3</td>
<td>09/05/17-09/07/17</td>
<td>Synapses and action potentials, Ch. 3</td>
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<td>4</td>
<td>09/12/17-09/14/17</td>
<td>Neurotransmitters, Ch. 4</td>
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<td>5</td>
<td>09/19/17-09/21/17</td>
<td>Neurohormones, Ch. 5</td>
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<td>6</td>
<td>09/26/17-09/28/17</td>
<td>Sensorial integration, Ch. 9</td>
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<td>7</td>
<td>10/03/17-10/05/17</td>
<td>Visual integration, Ch. 10; Exam 1 (Thursday)</td>
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<tr>
<td>8</td>
<td>10/10/17-10/12/17</td>
<td>Homeostasis regulation, Ch. 13</td>
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<tr>
<td>9</td>
<td>10/17/17-10/19/17</td>
<td>Homeostasis regulation, Ch. 13</td>
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<tr>
<td>10</td>
<td>10/24/17-10/26/17</td>
<td>Stress, Ch. 15</td>
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<tr>
<td>11</td>
<td>10/31/17-11/02/17</td>
<td>The immune system and sickness behavior; Exam 2 (Thursday)</td>
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<tr>
<td>12</td>
<td>11/07/17-11/09/17</td>
<td>Learning and memory, Ch. 17</td>
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<tr>
<td>13</td>
<td>11/14/17-11/16/17</td>
<td>Group project presentations</td>
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<tr>
<td>14</td>
<td>11/21/17-11/23/17</td>
<td>Group project presentations; Thanksgiving Holiday (Thursday)</td>
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<tr>
<td>15</td>
<td>11/28/17-11/30/17</td>
<td>Group project presentations</td>
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<tr>
<td>16</td>
<td>12/05/17-12/07/17</td>
<td>Group project presentations</td>
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<tr>
<td>18</td>
<td>12/19/17</td>
<td>Final exam (Tuesday) 7:15-9:30am</td>
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