

Psyc 240: Seminar in Behavioral Neuroscience

Fall 2014 Syllabus

Part 1: Course Information

Instructor Information

Instructor: Dr. Sharon Furtak, Assistant Professor of Psychology

- Ph.D. in Behavioral Neuroscience from Yale University
- B.A. in Psychology from the University of Massachusetts-Amherst
- My research focus on the neurobiology of emotional learning & memory.

Class Meetings: Mondays 3:00–5:50pm in AMD 362

Office: AMD 357A

Office Hours: Drop in: Wednesdays 10am-12pm & By Appointment: Thursdays

Office Telephone: 916-278-6666

E-mail: furtak@csus.edu (please do not message me on SacCT)

Course Description

Surveys the fundamental principles of Behavioral Neuroscience, the connection between the brain and behavior. Topics covered over the semester may include: neuroanatomy, electrochemical transmission, sites and mechanism of drug action, sensation and perception, motor systems, developmental processes, neuroendocrine systems, learning and memory, attention, emotion, executive function, neurodegenerative disease and the neurobiology of mental illness. Seminal experiments and recent discoveries within the field of Behavioral Neuroscience will be reviewed and discussed with a focus on how these findings impacted and continue to influence past and current theory. **Prerequisite:** Graduate standing in Psychology.

Textbook & Course Materials

Required Text: Available at Bookstore.

1. Neuroscience, 5th ed. (2012) by Purves, Augustine, Fitzpatrick, Hall, LaMantia, & White. \$135.25. This will be the core textbook used through out the semester. It is a great neuroscience reference for you throughout your career. Please make sure to buy the listed edition. Neuroscience is a rapidly evolving field.
2. Research Article Assignments (RA.1-RA.14) will be made available on SacCT at least 2 weeks prior to the assignment and will consist of 2-3 research articles.

Optional Text: Available at Bookstore.

1. Neuroscience: A historical introduction, 1st ed. (2014) by Glickstein. \$55.00. While this book is optional, it offers a very readable background on neuroscience. It will provide you with a great framework to build on with the information you will read in Purves, et al.

Course Requirements

- Internet connection (DSL, LAN, or cable connection desirable)
- Access to SacCT
- Access to Adobe Reader & Microsoft Office (available in computer lab)

Course Structure

This is a “core” survey course designed for graduate students in all areas of psychology. It is a seminar consisting of lecture and class discussions. Each class meeting will consist of a 60-90 minute lecture on the textbook assignment followed by a student-lead class discussion on the article assignment. There will be 1-2 assigned student discussion leaders each week, see below for more details.

SacCT Access

This course will have readings, quizzes and materials posted online through a course management system named SacCT. You will use your SacLink account to login to the course from the [SacCT login page](https://sacct.csus.edu/) (<https://sacct.csus.edu/>). In SacCT, you will access online lessons, course materials, and resources.

To access this course on SacCT you will need access to the Internet and a supported Web browser (Internet Explorer, Firefox, Safari). To ensure that you are using a supported browser and have required plug-ins please run the [Check Browser](#) from your SacCT course. Refer to the [SacCT Browser Tune-up page](#) for instructions.

Technical Assistance

If you need technical assistance at any time during the course or to report a problem with SacCT you can:

- Visit the [SacCT Student Resources Page](#)
- Review [SacCT Student Tutorials](#)
- Visit the [SacCT Student FAQ's Web Page](#)
- Submit a [SacCT Problem Form](#)

Important Note: This syllabus, along with course assignments and due dates, are subject to change. It is the student's responsibility to check SacCT for corrections or updates to the syllabus. Any changes will be clearly noted in course announcement or through SacCT email.

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Part 2: Course Objectives

At the conclusion of the course, the goal is to have a basic understanding of the fundamental topics in Behavioral Neuroscience and how they contribute to human and animal behavior. As demonstrated by the ability:

- i)* to understand the fundamental principles covered in class;
- ii)* to discuss seminal and current research in Behavioral Neuroscience;
- iii)* to compare and contrast different theoretical approaches to Behavioral Neuroscience;
- iv)* to appropriately apply behavioral neuroscience techniques to enhance an area of either basic or applied research; and
- v)* to develop an empirical study intended to investigate some aspect of Behavioral Neuroscience and effectively describe this study in a written grant proposal.

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Part 3: Topic Outline/Schedule

****Research Article Assignments (RA.1-RA.14) will be made available on SacCT at least 2 weeks prior to the assignment and will consist of 2-3 research articles. Classes that have more than 30pgs assigned in Purves, will be limited to 2 articles.****

NO RECORDING OR PHOTOGRAPHY IN CLASS EXCEPT WITH THE EXPLICIT PERMISSION OF DR. FURTAJ.

Date	Topic	Reading Assignments
Sept. 8	Fundamentals of Neuroscience. An introduction and history of Behavioral Neuroscience.	Purves: Ch.1 & Appendix 1 (48 pgs) Research Article Assignment 1 (RA.1) <i>Optional:</i> Glickenstein (Ch. 1-3) Quiz 1 (Purves Ch. 1& Appendix 1)
Sept. 15	Neurons and Electrical Transmission. Resting membrane potential and action potentials.	Purves Ch. 2-3 (29 pgs) Research Article Assignment 2 (RA.2) <i>Optional:</i> Glickenstein (Ch. 4) Quiz 2 (Purves Ch. 2-3)
Sept. 22	Chemical Transmission Between Neurons. Synaptic transmission, neurotransmitters and their receptors.	Purves Ch. 5-6 (up to pg 126) (49 pgs) Research Article Assignment 3 (RA.3) <i>Optional:</i> Glickenstein (Ch. 5) Quiz 3 (Purves Ch. 5-6)
Sept. 29	Sensation and perception. Part I. Vision: How do we see the things in our world?	Purves Ch. 11-12 (46 pgs) Research Article Assignment 4 (RA.4) <i>Optional:</i> Glickenstein (Ch. 6-8) Quiz 4 (Purves Ch. 11-12)
Oct. 6	Sensation and perception. Part II. Audition and the chemical senses.	Purves Ch. 13 (24 pgs) Research Article Assignment 5 (RA.5) <i>Optional:</i> Glickenstein (Ch. 9) Quiz 5 (Purves Ch. 13)
Oct. 13	Movement and Its Control. Motor neuron circuits and the modulation of movement.	Purves Ch.19 (23 pgs) Research Article Assignment 6 (RA.6) <i>Optional:</i> Glickenstein (Ch. 12-13) Quiz 6 (Purves Ch. 19)
Oct. 20	Development and Plasticity. Stem cells, axonal growth and experience-dependent modification.	Purves Ch. 22&24 (up to pg. 545) (36 pg) Research Article Assignment 7 (RA.7) Quiz 7 (Purves Ch. 22 & 24)

****Research Article Assignments (RA.1-RA.14) will be made available on SacCT at least 2 weeks prior to the assignment and will consist of 2-3 research articles. Classes that have more than 30pgs assigned in Purves, will be limited to 2 articles.****

Date	Topic	Reading Assignments
Oct. 27	Learning and Memory. Synaptic plasticity, declarative memory and non-declarative memory.	Purves Ch. 8 & 31 (41 pgs) Research Article Assignment 8 (RA.8) <i>Optional:</i> Glickenstein (Ch. 14) Quiz 8 (Purves Ch. 8 & 31)
Nov. 3	Motivation. The role of the basal ganglia in movement and reinforcement.	Purves Ch. 18 (17 pgs) Research Article Assignment 8 (RA.9) <i>Optional:</i> Glickenstein (Ch. 15) Quiz 9 (Purves Ch. 18)
Nov. 10	Speech and Language. Lateralization of brain function and aphasias.	Purves Ch. 27 (16 pgs) Research Article Assignment 9 (RA.10) <i>Optional:</i> Glickenstein (Ch. 16) Quiz 10 (Purves Ch. 27)
Nov. 17	No class due to Society for Neuroscience Conference	The topic for grant application must be submitted for approval by today. Online discussion on SacCT will occur during class time from 3-5:50pm on grant application ideas.
Nov. 24	Emotional. The amygdala and emotional perception.	Purves Ch. 29 (20 pgs) Research Article Assignment 11 (RA.11) <i>Optional:</i> Glickenstein (Ch. 18) Quiz 11 (Purves Ch. 29)
Dec. 1	Neurodegenerative Disease. Huntington’s disease, Parkinson’s disease, and Alzheimer’s disease.	Research Article Assignment 12 (RA.12) <i>Optional:</i> Glickenstein (Ch. 17)
Dec. 8	Mental illness and the brain. Part I. Schizophrenia, depression and anxiety disorders.	Research Article Assignment 13 (RA.13) <i>Optional:</i> Glickenstein (Ch. 19)
Dec. 15	Mental illness and the brain. Part II. PTSD, ADHD and autism.	Research Article Assignment 14 (RA.14) <i>Optional:</i> Glickenstein (Ch. 19) Grant Proposal due.

Important Note: This syllabus and due dates of assignments is subject to change. It is the student’s responsibility to check for and keep up with changes in due dates announced on SacCT. Assignment details will be explained in detail within each assignment posted on SacCT. If you have any questions, please contact Dr. Furtak.

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Part 4: Grading Policy

Graded Course Activities

Visit the link in left navigation within SacCT for details about each assignment listed below. (See Part 1 for more information about accessing tools and activities).

Points	Description
33 pts (3 pts each)	1. <i>Quizzes.</i> There will be 11 weekly quizzes that will consist of 5 short answer questions. Quizzes will be on the readings from the textbook for that lecture. Quizzes will be made available on SacCT 72 hours prior to the due date (listed above). All quizzes must be submitted on SacCT by 9am the day of class. Quizzes are open book, not timed and are intended to reflect that you have read the material. There are no make-up quizzes.
21 pts	2. <i>Research Proposal:</i> You will write 3 sections of a typical NIH/NRSA grant application. The application will propose a research project investigating one of the topics discussed during the semester. I encourage you to tie in a research topic related to your Master's thesis. The 3 sections you will need to submit on SacCT by the last day of class are: 1) a NIH Biosketch (limited to 4 pages), 2) Specific Aims (limited to 1 page), and 3) a Research Strategy (limited to 6 pages). Additional instructions, including a rubric, will be given in class and posted on SacCT. Briefly, your Research Strategy should be composed of a summary of relevant literature (citing between 8-12 research articles), an outline of a novel experiment including methodology, possible outcomes, and the importance of the research proposed. I suggest talking with me before October 31 st about possible topics. You must turn in your topic for approval by Nov. 17th . Your proposal is due the last class, Dec. 15th .
26 pts (2 pts each)	3. <i>Class Participation/Reaction Papers:</i> By Saturday at midnight BEFORE each of our Monday classes, beginning on Saturday, Sept. 6 th , you should upload to SacCT a summary of your thoughts on that upcoming week's research articles. The summary should be ~1 page in length single spaced. In addition, you must post 1 discussion question on the Discussion Board on SacCT. No reaction paper is required the week you lead discussion.
20 pts	4. <i>Discussion Leader:</i> Each week a student will be assigned as the discussion leader. The primary responsibility of the discussion leader is to present an analysis/synthesis of the articles assigned and pose relative discussion questions regarding the theories in that week's research article assignment. Plan to spend 30 minutes accompanied with a slide presentation (10-15 slides in PowerPoint form) explaining the background, hypothesis, methods, and results for each reading. This should be followed by discussion questions and synthesis of ideas for each of the readings. You should use the majority of your presentation time to encourage discussion of these ideas, rather than explanation of them. Thus, the object of these student-led discussions is to obtain peer feedback on readings and ideas by stimulating discussion.
100 pts	Total Points Possible

Attendance Policy

This is a graduate class and dependent on participation in the class discussions. You can't discuss if you are not present. If you have more than 2 excused *or* unexcused absence your course grade will be lowered by one +/- grade (e.g. an A- becomes a B+) for every absence after the second. *Regular class attendance and completing reading assignments as assigned will be necessary for the successful completion of this class.*

Late Work & Make Up Policy

Late submissions will not be permitted. There will be no make up quizzes. If you feel you will not make a deadline, you should immediatiely contact Dr. Furtak to see ***if*** arrangements can be made to accommodate you. Be sure to pay close attention to deadlines.

Viewing Grades in SacCT

Points you receive for graded activities will be posted to the SacCT Grade Book typically within 7 days. Click on the My Grades link on the left navigation to view your points.

It is your responsibility to check these grades once posted. If you have a question or complaint about a grade posted on SacCT, then you must email Dr. Furtak within 7 days of the posted grade. In the email, please put in subject line "question regarding grade" and within the email make sure to state which assignment you are referring to and exactly where you believe a grading error was made.

Letter Grade Assignment

Final grades assigned for this course will be based on the percentage of total points earned and are assigned as follows:

Letter Grade	Percentage	Performance
A	93-100%	Excellent Work
A-	90-92.99%	Nearly Excellent Work
B+	87-89.99%	Very Good Work
B	83-86.99%	Good Work
B-	80-82.99%	Mostly Good Work
C+	77-79.99%	Above Average Work
C	73-76.99%	Average Work
C-	70-72.99%	Mostly Average Work
D+	67-69.99%	Below Average Work
D	60-66%	Poor Work
F	0-59.99%	Failing Work

Important note: For more information about grading at Sac State, visit the academic policies and grading section of the university catalog.

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Syllabus

Part 5: Course Policies

Classroom Behavior & Participation

As mentioned above, you are expected to actively participate in class and to share your thoughtful and relevant comments, questions, and ideas. It is expected that your behavior at all time will be respectful and supportive of your fellow students, yourself, and me. You must arrive on time, and be attentive throughout the entire class. Do not work on any other class assignments, readings, do text message, etc., which are all disrespectful. Make sure your phones are turned off, not on vibrate but off or silenced.

Build Rapport

If you find that you have any trouble keeping up with assignments or other aspects of the course, make sure you let Dr. Furtak know as early as possible. As you will find, building rapport and effective relationships are key to becoming an effective professional. Make sure that you are proactive in informing Dr. Furtak when difficulties arise during the semester so that we can help you find a solution.

Complete Assignments

All assignments for this course will be submitted electronically through SacCT unless otherwise instructed. Assignments must be submitted by the given deadline or special permission must be requested from instructor *before the due date*. Extensions will not be given beyond the next assignment except under extreme circumstances.

Understand When You May Drop This Course

It is the student's responsibility to understand when they need to consider disenrolling from a course. Refer to the Sac State Course Schedule for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course. Serious and compelling reasons includes: (1) documented and significant change in work hours, leaving student unable to attend class, or (2) documented and severe physical/mental illness/injury to the student or student's family.

Incomplete Policy

Under emergency/special circumstances, students may petition for an incomplete grade. An incomplete will only be assigned if there is a documented medical reason. All incomplete course assignments must be completed within 1 year.

Inform Your Instructor of Any Accommodations Needed

If you have a documented disability and verification from the [Office of Services to Students with Disabilities \(SSWD\)](#), and wish to discuss academic accommodations, please contact your instructor as soon as possible. It is the student's responsibility to provide documentation of disability to SSWD and meet with a SSWD counselor to request special accommodation *before* classes start.

SSWD is located in Lassen Hall 1008 and can be contacted by phone at (916) 278-6955 (Voice) (916) 278-7239 (TDD only) or via email at sswd@csus.edu.

Commit to Integrity

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom.

Sac State's Academic Honesty Policy & Procedures

"The principles of truth and honesty are recognized as fundamental to a community of scholars and teachers. California State University, Sacramento expects that both faculty and students will honor these principles, and in so doing, will protect the integrity of academic work and student grades."

Read more about Sac State's [Academic Honesty Policy & Procedures](#)

Definitions

At Sac State, "**cheating** is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means."

"**Plagiarism** is a form of cheating. At Sac State, "plagiarism is the use of distinctive ideas or works belonging to another person without providing adequate acknowledgement of that person's contribution."

Source: Sacramento State University Library

Important Note: Any form of academic dishonesty, including cheating and plagiarism, may be reported to the office of student affairs.

Course policies are subject to change. It is the student's responsibility to check SacCT for corrections or updates to the syllabus. Any changes will be posted in SacCT.