

Topics in Psychology (PSY 4900)
Cognitive and Behavioral Neuroscience
Spring 2010
TR 12:00 – 1:15 AM
Psychology Dept. Conference Room (SS Rm. ____)

Professor's Name: Dr. Matthew Schmolesky

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**(This is BY FAR the best way to contact me)

Professor's Office Phone: 801-626-8745

Office Hours: TR: 1:15-2:00; also by appointment

Office Location: SS 356

Class Web Site: <http://www.online.weber.edu/>

Prerequisite: PSY 2730 (Biopsychology) or NEUR 2050 (Intro to Neuroscience)

Note: As a seminar course our classtime is devoted to *informed* and *educated* discussion. A heavy emphasis is placed on reading and thinking about the material prior to each class session.

I. Textbook: Purves et al. Principles of Cognitive Neuroscience., Sunderland, MA: Sinauer, 2008. Supplemental materials.

II. Web CT – the Course Website

You are required to become familiar with and use the course website via WebCT: <https://www.online.weber.edu/> I will post documents on this site (e.g. copy of syllabus, powerpoint files, assignments, etc.) and will occasionally email students with announcements. For technical issues (e.g. having difficulties accessing WebCT or downloading a document) contact computer support by: a) calling 626-7777, or b) emailing csupport@weber.edu, or, c) go to Lampros Hall and ask for assistance. I do not have answers to questions on WebCT technical issues.

III. Course Objectives

- A. To apply knowledge of nervous system structure and function (gained through one of the prereq courses; PSY 2730 or NEUR 2050) to higher order cognitive functions including attention, memory, emotions, language and symbolic functions, reasoning, decision making, problem solving, and consciousness.

- B. Gain a deeper appreciation for how our mental states, abilities, and processes that makes us who we derive from the interaction of our biological selves with the external world.
- C. To compare human cognition with animal and computer cognition in an effort to forward and reverse engineer the brain function.
- D. To integrate theories and research with real-life applications so as to make the study of Cognitive Neuroscience both interesting and meaningful to the students.
- E. To encourage students to prepare themselves for the real-life application of their degree if they focus upon neuroscience by educating them about different career paths (e.g. clinical, research, industry, etc.).
- F. To appreciate the depth of knowledge currently available concerning the biological basis of behavior and the societal advantages provided by such knowledge in terms of understanding, prediction, and intervention (e.g. through medical and psychological treatment of diseases and disorders).

IV. Course Grade

There will be four forms of assessment: a take home exam, weekly activities, student presentations, and a final writing assignment.

A. Examination (15% of final grade): A take home essay exam will be assigned and will require an analysis and integration of material from the first five weeks of class. It will be distributed at the end of the fifth week and due at the end of the seventh week.

B. Weekly Activities (30% of final grade):

1. Preview Summaries (20% of final grade) Ten weekly preview (not “review”) summaries will be graded of the 13 available. These previews will be due at the beginning of the first class for each of the applicable weeks (see Course Outline below). They will be 2-3 page summaries of the assigned readings for the upcoming week, and should include a brief section of bulleted “key points” and bulleted “questions raised.” Each preview will count for 2% of the final course grade. These assignments will be graded on the basis of full credit (2 points), half credit (1 point) or zero credit. Students can skip 3 of the 13 preview assignments without penalty.

2. Weekly Discussions (10% of final grade). As a seminar course, student preparation and participation is a critical aspect of this course. Student attendance, participation, and engagement will be monitored and graded. While each student is expected to be engaged in every session attended, students will each select two sessions in which they will be the designated “inquisitor.” The inquisitor should make particular efforts to prepare a list of ~10 good questions before

their selected session. Their role is not to be antagonistic, but to use their thoughtful questions to promote the discussion at appropriate times.

C. Student Presentations (40% of final grade)

1. Presentations: Textbook and Review Articles (25% of final grade). At the beginning of the 2nd week of class each student will select one of the available “Class Topics” to present on. For this presentation the student must a) select a related Review or Opinion article from the *Trends in Cognitive Sciences* (TCS) journal (in consultation with the Instructor; selection of these articles must be complete by the end of the fourth week of class), b) prepare a 1-2 page “Discussion Topics” handout for the class to focus the discussion, c) prepare a much more detailed “Discussion Topics Notes” document for personal use (one copy due to me on the presentation date), and d) lead the discussion on the assigned textbook readings and the chosen TCS article. Powerpoint presentations are not permitted for this assignment.
2. Presentations: Research Integration (15% of final grade). For this presentation (which will take place in weeks 14-15) the student must a) select three primary research articles (not reviews or opinions) related to their chosen Class Topic, one of which must be cellular/molecular article, and b) present a ~15 minute powerpoint presentation (with ~5-10 minute Q&A to follow) in which the student integrates their Class Topic textbook readings, their chosen review, and the three primary research articles.

D. Final Writing Assignment (15% of final grade)

Students will write a 1700-2000 word (~5 page) paper to integrate the facts and concepts from their Class Topic textbook readings, their chosen review, and their three chosen primary research articles. This paper is due at the beginning of Finals Week and is intended to give the student the opportunity to further demonstrate their knowledge as a subject matter expert.

E. Grading Scale

The course grade will be assigned according to the scale indicated below:

93-100: A	90-92: A-	87-89: B+	83-86: B
80-82: B-	77-79: C+	73-76: C	70-72: C-
67-69: D+	60-66: D	Below 60: E	

V. Course Outline:

<u>Assignments Due</u>	<u>CLASS Session/Date</u>	<u>Topic</u>	<u>Readings</u>	<u>Discussion Leader</u>	<u>“Inquisitor”</u>
	1. January 5	Introduction to Cognitive and Behavioral Neuroscience	Introduction, Chapter 2	Schmolesky	
	2. January 7	Introduction to Cognitive and Behavioral Neuroscience	Chapters 2 and 3	Schmolesky	
Week 2 Preview Summaries due; <i>Selection of Course Topics</i>	3. January 12	Computation and Cognition in the Motor System	Chap. 9 (pgs. 227-235)	Schmolesky	
	4. January 14	Computation and Cognition in the Motor System	Chap. 9 (pgs. 236-246)	Schmolesky	
Week 3 Preview Summaries due	5. January 19	Overview of Attention	Chap. 10	Schmolesky	
	6. January 21	Effects of Attention on Stimulus Processing	Chap. 11: Auditory and Visual Spatial Attention (pgs. 271-290)	Schmolesky	
Week 4 Preview Summaries due	7. January 26	Effects of Attention on Stimulus Processing	Chap. 11: Attention and Nonspatial Stimulus Attributes; Attention across Sensory Modalities (pgs. 291-297)	Schmolesky	
<i>Course Topic Review Articles Due</i>	8. January 28	Attentional Control and Attentional Systems	Chap. 12: Brain Lesions and Endogenous Attention (pgs. 299-313)	Schmolesky	
Week 5 Preview Summaries due	9. Feb. 2	Attentional Control and Attentional Systems	Chap. 12: Exogenous Attention and Attentional Control as Distributed Neural System (pgs. 313-324)	Schmolesky	

	10. Feb. 4: <i>Take Home Exam Available</i>	Overview of Emotions	Chap. 17	Schmolesky	
Week 6 Preview Summaries due	11. Feb. 9	Emotional Influences on Cognitive Functions	Chap. 18 (pgs. 455-464)		
	12. Feb. 11	Emotional Influences on Cognitive Functions	Chap. 18 (pgs. 464-479)		
Week 7 Preview Summaries due	13. Feb. 16	Social Cognition	Chap. 19		
<i>Take Home Exam Due</i>	14. Feb. 18	Overview of Speech and Language	Chap. 20: Producing, Comprehending, and Representing Speech Sounds (pgs. 511-520)		
Week 8 Preview Summaries due	15. Feb. 23	Overview of Speech and Language	Chap. 20: Acquiring language; Theories of language; Human language (pgs. 520-532)		
	16. Feb. 25	Neural Basis of Language	Chap. 21 (pgs. 533-542)		
Week 9 Preview Summaries due	17. March 2	Neural Basis of Language	Chap. 21 (pgs. 543-551)		
	18. March 4	Representation of Time and Number	Chap. 22		
Week 10 Preview Summaries due	19. March 9	Executive Control Systems	Chap. 23		
	20. March 11	Decision Making	Chap. 24: Phenomenology; Neural Mechanisms and Reward Systems (pgs. 601-612)		
Week 11 Preview Summaries due	21. March 16	Decision Making	Chap. 24: Neuroeconomics (pgs. 613-621).		
	22. March 18	Reasoning and Problem Solving	Chap. 25: Reasoning (pgs. 623-632)		
Week 12 Preview	23. March 23	Reasoning and Problem Solving	Chap. 25: Problem solving		

Summaries due			and Intelligence (pgs. 633-640)		
	24. March 25	Evolution of Brain and Cognition	Chap. 26		
Week 13 Preview Summaries due	25. March 30	Development of the Brain and its Cognitive Functions	Chap. 27		
	26. April 1	Consciousness (pgs. 705-716)	Chap. 28, supp materials	Schmolesky	
	27. April 6	Consciousness (pgs. 716-727)	Chap. 28, supp materials	Schmolesky	
	28. April 8	Presentations: Research Integration			
	29. April 13	Presentations: Research Integration			
	30. April 15	Presentations: Research Integration; Closing Remarks			
Final Papers Due	April 20	Final Exam Week			
	April 22	Final Exam Week			

NO CLASSES: January 18, February 15, March 15-19

VI. Additional Information

A. Attendance

Attendance is required for this class and will be monitored. Students will not be penalized for missing 3-4 of the 30 class sessions. ****IF you miss class, there are two things you can do to get the material you missed. You may look on WebCT for the relevant articles, and/or you may get notes from a classmate. DO NOT not email me or come to my office to ask what you missed.** It is your responsibility to attend class or, if you cannot, contact a classmate to catch up. Please DO email me or come to my office for any other purpose if you think I can be of help.

B. Class Contact

Often it is necessary to miss a part or all of class. When that happens, or when you have questions that you cannot answer on your own, it is helpful to have the name and number of another student in class that you can contact. Please use the space below to write down the name, email, and phone number of at least two students in this class. AND you can use WebCT to email anyone in the class. Also, be aware that you can email any of your classmates via WebCT.

CONTACT INFORMATION FOR CLASSMATES:

_____	_____
Name	Phone or Email
_____	_____
Name	Phone or Email

C. Class Courtesy

Please be courteous of others when coming late to or leaving early from class. Do not make a habit of arriving late or leaving early as many (including me) find it very distracting. The following behaviors are rude when they take place during class time: a) holding private conversations, b) sleeping, c) reading other material, or d) doing other work. Drinking (but not eating) in class may be permitted, so long as it is not disruptive to the learning environment. ****POLICY FOR ELECTRONIC DEVICES: ALL ELECTRONIC DEVICES ARE TO BE OFF AND OUT OF SIGHT/REACH DURING CLASS AND TESTS.** Any disruptive behavior will be addressed immediately, and if the behavior does not cease, you will be asked to leave class. **Students repeatedly engaging in rude behavior will be counseled to drop the course.**

D. Grade Appeals

If, after receiving an exam back during class, you think a mistake has been made in the grading of your work, please do not ask about this during class. Write/type down on a sheet of paper what your questions are, provide reference to notes in class or specific pages from the book, and turn in these questions to the instructor at the end of the class period. You will receive a response, and any grade adjustment necessary, within one week. **THIS IS THE ONLY WAY** that your concerns will be addressed. **ONLY** written questions and comments **THAT YOU SUPPORT** will be evaluated.

E. Academic Dishonesty/Plagiarism/Cheating

I encourage students to work and study together whenever possible. **However, students must hand in their own work.** Whenever you try to pass off someone's work that is not your own, that is cheating. If you cheat on ANY assignment, you will receive a grade of **E (Failing) for the course**. Plagiarism is when you represent someone else's ideas or words as your own. For a very detailed description of plagiarism, please go to the web site and review the PLAGIARISM description. You are responsible for knowing what constitutes plagiarism. ANY plagiarism (even unintentional) will result in a failing grade in the course. Please refer to the following web site for a complete listing of infringements that constitute cheating:
<http://documents.weber.edu/ppm/6-22.htm>.

F. Completing all Work

All assignments must be completed in order for students to pass the course. **Students will receive a grade of I (incomplete) if any work is missing when the final grades are computed.** The grade of I will turn into a UW if the work is not completed in a timely fashion.

G. Students with Disabilities

Any student requiring accommodations or services due to a disability must contact Services for Students with Disabilities (SSD) in room 181 of the Student Service Center. SSD can also arrange to provide course materials (including this syllabus) in alternative formats if necessary.

H. Students' Rights and Responsibilities

Please refer to the following web site for a complete listing of all WSU student rights and responsibilities: <http://documents.weber.edu/ppm/6-22.htm>

VII. Grade Record

Please keep a record of the grades you receive on each assignment. You may also access your grades using the MY GRADES tool on WebCT. Grades are updated within ~1 week of the end of assignment

NOTE: The course syllabus provides a general plan for the course. I am committed to following the syllabus but there is no guarantee that I will. Altering the syllabus may also mean changing the nature or timing of assignments. **By continuing in the course after reading the syllabus, you are indicating that you accept the terms of the syllabus.** March 23 is the last day to drop with a W.