

University Of Toronto – Scarborough Campus
Department of Psychology

Course Title: PSYC55H3 Cognitive Neuroscience (Winter 2008)

Prerequisites: PSYB57H3 (Memory & Cognition) & PSYB65H3 (Human Brain & Behaviour)

Course Instructor: P. Vivien Rekkas, Ph.D.
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office location: SW512 (meet here by appointment only)
additional availability: Mondays 9:15am–10:00am (meet in BV363)

Teaching Assistant: Bobby Stojanoski
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Course Description: In this course I will present current methods and theories connecting brain function to cognitive processes such as attention and memory. The tools currently in use in cognitive neuroscience research will be described, along with some of the important research findings they have generated. The advantages and limitations of various methods will be outlined, particularly the application of fMRI.

Required text: Purves, D., Brannon, E.M., Cabeza, R., Huettel, S.A., LaBar, K.S., Platt, M.L., & Woldorff, M.G. (2008) Principles of Cognitive Neuroscience. Sunderland, MA: Sinauer Associates, Inc.

supplemental textbook website: The textbook has a supplemental website (<http://www.sinauer.com/cogneuro/>) that includes slides, chapter summaries, and quizzes. To access quizzes in particular you will need to:

1. Click on the "Online Quizzes" link.
2. Click on the "Create New Account" link.
3. Enter professor's email address to tie into this course:
cogneuro08@gmail.com
4. Enter your personal information to create new account: username, password, real name, and so on. After this you be able to log in with your own account.

supplemental textbook brain atlas: On the inside cover of the textbook there is a code you can use to download an interactive brain atlas called Sylvius 4. Please note that you don't have to use the website or the atlas, these are just optional study aids.

Grading:	a) Midterm Exam	35%
	b) Final Exam	45%
	c) Quizzes (best 5/6, each worth 5% of grade)	20%

Grading/Examinations: Both tests will include short-answer questions (typically students are asked to answer two questions from a total of three options) and approximately 30 multiple choice questions.

Quizzes: Five short quizzes will be held throughout the session (not identical to those shown on the website). The best four marks will go towards 20% of the student's grade. The quizzes will be fifteen minutes in length and can consist of material covered in the textbook and/or class. If written answers are required, writing shouldn't exceed one to two paragraphs in length. You cannot write a make-up quiz for any of the quizzes.

You can choose to opt out of the quizzes. If you choose this option your midterm mark will be worth 45% and your final exam mark will be worth 55%. I don't advise this option, but it is yours to make. You must let me know your decision on the day of the midterm by signing a form that will be included with the exam.

Missed Exams: If you miss an exam you may only attend the make-up exam if there is documented proof of illness or accident. Notes from doctors must specifically state that you could not attend class on the day of the examination. I am required to check these so you must provide specific information regarding where and who I should call (this includes names and exact phone numbers). **Send me a direct email if you miss an exam; do not email the teaching assistant or phone the psychology office** (unless you don't have access to email) within 24 hours to notify me of your situation. **It is your responsibility to find out when the make-up examination will be held, email either myself or the teaching assistant and ask us for this information.**

Plagiarism is an academic offence and carries penalties varying from failure of an assignment to debarment from the University—please don't put me in the position of having to challenge your work, it's a lot easier to detect than you may think. Cheating during exams will result in failure of the examination and possible debarment from the University. It is also unethical.

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Course Outline/Schedule

Week One (January 7th):

Introduction to field (i.e., what is cognitive neuroscience, what can it contribute, what are its limitations?) and discussion of what aspects will be covered in this course. Overview of course expectations, textbook, and grading scheme.

Readings for week: Chapter 1 (7-13; 18-32)

Week Two (January 14th):

1. Reviewing the basics: neuronal structures; action potential; blood flow; brain anatomy and sub-divisions (i.e., old vs. new; white vs. grey matter; primary vs. higher order)
2. Multisensory integration; binding; neuronal coding
3. Discussion of major cognitive constructs

Readings for week: Chapter 2 (pp. 33-48)

Week Three (January 21st):

Quiz One (based on week two material)

Exploring cognitive processes in neural terms: the tools used in cognitive neuroscience

Readings for week: Chapter 3

Week Four (January 28th):

Quiz Two (based on chapter 3, table 3.1)

In-depth discussion of fMRI, especially methodological issues and/or issues pertaining to research design

(please note: most of what will be covered today is *not in textbook*)

Readings for week: Chapter 4 (pp. 98-111 only)

Week Five (February 4th):

Attention research is discussed.

Readings for week: Chapters 11 and 12

Week Six (February 11th):

Attention research is further discussed.

Readings for week: Chapters 11 and 12

Week Seven (February 18th): Reading Week

Lecture Six (February 25th): Midterm Examination

Lecture Seven (March 3rd):

Hour One+: Working memory research is introduced

Hour Two: Midterm is handed back and discussed.

Readings: Chapter 16

Lecture Eight (March 10th):

Quiz Three (based on working memory)

Memory research is discussed.

Readings: Chapter 13 (pp. 336-351, including Box 13B)

Lecture Nine (March 17th):

Memory research is further discussed.

Readings: Chapter 14

****March 23rd is the last day to drop S courses without academic penalty****

Lecture Ten (March 24th):

Quiz Four (based on declarative memory)

Language research is discussed.

Readings: Chapter 15 (pages 439-450)

Lecture Eleven (March 31st):

Quiz Five (based on language)

Emotions and social cognition are discussed.

Readings: Chapter 18

Lecture Twelve (April 7th):

Hour One: Discussion of consciousness.

Putting it all together.

Hour Two: Overview of final exam.