Cognitive Neuroscience

I) Course information

Course number: PSYC55H3 S

Mondays, 10 am – 12 pm
Section: L01 2007 S
Place: HW 214

Prerequisites: PSYB57 & PSYB65

II) Instructor:

Dr. Matthias Niemeier
1265 Military Trail S572
phone: 416-287-7466
e-mail: niemeier@utsc.utoronto.ca I will do my best to respond within two working days.
Office Hours: Tuesdays, 12 – 1 pm.

III) Teaching Assistant:

Bobby Stojanoski.
e-mail: stojanoski@utsc.utoronto.ca

IV) Course coverage and goals

PSYC55 aims at introducing you to the interdisciplinary field of cognitive neuroscience. The course has two goals. The first is to provide you with a "tool-kit" of knowledge about the field. – WHAT are the important methods and findings relating brain functions to cognitive processes? Here are some of the methods that will be covered: neurophysiological methods, studies on brain-damaged patients, transcranial magnetic stimulation, functional imaging, and computer simulations. I will talk about cognitive functions such as perception, control of motor actions, attention, memory, language, and executive functions. Another goal of the course is to look at questions such as, WHY does the brain work the way it works? That is, I hope the course will help you understand the key issues and principles of cognitive neuroscience.

V) Textbook

Required
Title: Principles of Cognitive Neuroscience
Authors: D. Purves et al.
Publisher: Sinauer: Sunderland
ISBN: 978-0-87893-694-6

VI) Web pages

Course Web Site: intranet page
Here you will find the syllabus, the most up-to-date version of the lecture schedule, and announcements. Also, I will put the lecture slides on that page.

Please check on a regular basis for announcements.

VII) Evaluation

I hope that the cognitive neuroscience course will provide you with a sound knowledge about the field, and a good understanding of the important mechanisms. Besides that I think that independence and critical thinking are very important for psychology (and other sciences as well). Therefore, I will determine your grade based on two exams (60% of the total grade) and on papers written by you (40% of the total grade). Here are the details:

15% First reaction paper. Choose a topic from Lecture 1-6. **Please check intranet for tips and instructions on "How to write a reaction paper"!** This first reaction paper will be due on **February 9, 2009**.

25% Mid-term test. Scheduled for **TBA**. Two hours.

25% Second reaction paper. Choose a topic from Lecture 7-12. **Again, please check intranet for tips and instructions on "How to write a reaction paper"!** The second reaction paper will be due on **March 23, 2009**.

35% Final Term test. TBA. Two hours.

Exams:

Exams will have **multiple-choice and short-answer questions**. The final exam will be **cumulative**. Material on the exams will include both **lecture material and text readings**. Although the topics covered will overlap, different things may be emphasized in class than in the book. Therefore, I recommend class attendance. E.g., you need to come to class to hear the details and see videos and demonstrations. The text is intended to reinforce and supplement material presented in class.

Some info about reaction papers:

You are to write two reaction papers with a maximum 4 type-written pages (including figures and tables), double-spaced. Fonts should be set at 12-point. For the first reaction paper please choose a topic from Lectures 1-6. For the second reaction paper please choose a topic from Lecture 7-12.

Objectives

The purpose of writing a reaction paper is to train your skills as a critical reader of psychological research and to develop your scientific writing skills.

You are to think about a particular topic covered in the lecture and reading of your choice and to write your reaction to it. This paper should not be a summary, it should be a description of things you liked, disliked or thought could be done differently. So, the paper could be a question, a criticism or a problem, an alternative interpretation of experiments, or a suggestion for follow-up experiments. In addition to the book chapter, choose **two recently published research articles** (experimental reports published 2006-2009, NOT reviews or books).The articles have to be from the following journals:

- Brain
- Cerebral Cortex
- Cortex
- Current Biology
- Experimental Brain Research

- Journal of Cognitive Neuroscience
- Journal of Neuroscience
- Journal of Neurophysiology
- Nature
- Nature Neuroscience
- Neurology
- Neuropsychologia
- Neuron
- Psychological Science
- Science
- Vision Research

Deadline
Please submit your reaction papers as hard copies. The first reaction paper is due by 5 pm Feb 9, 2009. The second reaction paper is due by 5 pm Mar 23, 2009. Penalty for late assignment: 5% per day.

VIII) Schedule

This schedule is subject to changes as we go along. The most up-to-date schedule will be on the web.

Lec	Day	Topics	Chapters+
1	5 Jan	Introduction; How can we understand the brain?	
2	12 Jan	The Functional Anatomy of the Mind	Ch 1
3	19 Jan	Motor Control	Ch 8,9
4	26 Jan	Action	Ch 9+
5	2 Feb	Perception	Ch 4,5
6	9 Feb	Middle & High-level Vision, 1st reaction paper due	Ch 5+
	16 Feb	Family Day/Reading Week, no class	
	TBA	Mid-term	
7	23 Feb	Space, Time & Numbers	Ch 22+
8	2 Mar	Attention	Ch (10),(11)
9	9 Mar	Attentional Control & Working Memory	Ch 12,(16)
10	16 Mar	Declarative Memory	Ch 14
11	23 Mar	Language, 2nd reaction paper due	Ch 21
12	30 Mar	Executive functions	Ch 23
	TBA	Final exam	

IX) Course Policies
For academic regulations (such as UTSC's official grading practices policy, petitions, code of behaviour on academic matters etc.) please refer to the UTSC calendar.

Sometimes people feel that their grade is not as they had hoped. In that case, please talk to me to see how I can help you to prepare more effectively for exams and to write the reaction papers. Please come as early as possible. I cannot help after the final is written. This includes any requests to change grades post hoc.