COGNITIVE NEUROSCIENCE I (PSYCH3BN3) Course Outline - Fall 08

NOTE: Final version of this course outline, including detailed week-by-week reading lists, will be available soon at http://www.science.mcmaster.ca/psychology/psych3bn3/index.html

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Instructor

Professor Sue Becker, *becker at mcmaster dot ca*
Office hours: by appointment.

Course Assistance - TA:

Trent Toulouse, *touloutm at mcmaster dot ca*
Chris Sevigny, *sevigncv at mcmaster dot ca*

Schedule

Tuesdays, Wednesdays and Fridays 12:30-1:20 DSB/AB102.

Course Objectives

This course will survey cognitive neuroscience methods such as brain imaging, neural network modelling, and behavioural testing of neuropsychological patients, toward an understanding of the neurocognitive mechanisms underlying behaviour. Lectures will cover both textbook chapters and 24 selected readings from the current literature. Students are expected to develop an appreciation for the range of techniques used by cognitive neuroscientists, when they are applicable and what they can tell us about cognitive and brain functions, as well as an ability to evaluate critically the scientific literature.

During the first two weeks, introductory material will be covered in a traditional lecture format. In subsequent weeks, for each of the 6 major topic areas, there will be a one-hour introductory lecture given by the instructor followed by four hours of paper presentations and discussions, with the papers presented by students, and the instructor directing and facilitating the discussions.

Materials and Fees

1. Course text: Cognitive Neuroscience: The Biology of the Mind, 3rd Edition, By M.S. Gazzaniga, R.B. Ivry and G.R. Mangun, NY: W.W. Norton & Company, 2009.

2. 23 articles from the recent literature (see final version of syllabus online).

To promote a high quality of in-class discussion, students are expected to have at least skimmed every paper before class, and to have read in great detail the 3 or more papers for which they are writing critiques.

The readings are freely available electronically from the McMaster library web pages (accessible from any on-campus computer), with links to these articles from the following password-protected **READINGS WEB PAGE:**
http://www.science.mcmaster.ca/psychology/psych3bn3/lecturenotes/papers/index.html The course userid and password can be obtained from your instructor or TA.

Assessment

Participation	10%
Three 2-page critiques of papers	30%
One 20-30 minute oral presentation	20%
One final take-home exam	40%

Marks for participation are based on 1) providing feedback to other students on their presentations, by filling out a very brief evaluation form at the end of each presentation, and 2) contributing to the class discussions of the 24 papers. The participation mark will be calculated as follows:
- o Feedback: 1 mark for submitting 1-5 feedback forms with informative and helpful feedback, 2 marks for 6-10 forms, 3 marks for 11-15, 4 marks for 16-20, and 5 marks for 21 or more.
- o Contribution to discussions: 1 mark for contributing in a substantial way (not just asking clarification type questions) to 1 paper discussion, 2 marks for 2-3, 3 marks for 4-7, 4 marks for 8-15, 5 marks for 16 or more.

For the critiques, students will each be randomly assigned 6 papers covering all 6 topic areas. Of those, they can choose at least 3 papers to critique. If more than 3 critiques are turned in, only the best 3 scores will be counted. Critiques are due at the start of class on the day the paper is being presented. **Late critiques submitted after the paper has been presented in class cannot be accepted.**

Please read the guidelines for presentations and critiques on this link.

The assignment of critiques and paper presentation dates to students will be set by the 3rd lecture.

An example of a well written critique by a student who previously took Psych3BN3 can be found on this link (pdf file).

The marking scheme for presentations can be found on this link.

Sample final exam questions from previous years can be found on this link.

Lecture topics, readings, and links to lecture outlines

Introductory Lectures

Sept 5, 9, 10, 12, 16, 17, 19: Introduction to the nervous system, and cognitive neuroscience methods.
- ▪ Readings: Chapters 1 through 4 in Gazzaniga textbook.

Topic 1: Learning and memory

Topic 2: Cerebral lateralization

Topic 3: Reward and decision-making

Topic 4: Emotion

Topic 5: Development and plasticity

Topic 6: Consciousness

Missed Presentations

If a student must miss a presentation due to illness, then as per McMaster's Policy For Absence from School Due to Illness or Compassionate Reasons "... you must bring appropriate documentation to the Office of the Associate Dean of Science (Studies) within one week of the original date of the missed work, and fill out the "Information For Missed Term Work Form". For further details see http://www.science.mcmaster.ca/~associatedean/services/exemptions.html.

In such cases, the student will be required to schedule an individual appointment with the instructors at an alternative time to give his/her presentation.

In addition, the student is asked to email the instructor *and* the teaching assistant with as much advance notice as possible, because one of them will have to cover the student's missed presentation during the originally scheduled class time so that other students may still take part in the paper discussion.

Calculator requirement:

Calculators will not be required during tests.

Calendar Description

See http://registrar.mcmaster.ca/CALENDAR/year2007/crs_2178.htm.

Academic integrity:

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the trnascript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at http://www.mcmaster.ca/univsec/policy/AcademicIntegrity.pdf.

The following illustrates only three forms of academic dishonesty:
1. Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.

2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.

Related courses taught by Sue Becker

Psych 2D03 - Introduction to Neuropsychology
Psych 734 - Neural network models of learning (graduate course)

Outline Last Revised: Sept 4, 2008.