

COGNITIVE NEUROSCIENCE II (PSYCH4BN3) Course Outline - Winter 2011-12

NOTE: This is a preliminary version of the course outline and may be updated as the course proceeds. For the most up-to-date version please go to

<http://www.science.mcmaster.ca/psychology/psych4bn3/index.html>

Instructor

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

Course Assistance - TAs:

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Schedule

Fridays 11:30-2:20 PC-204 and PC-205.

Course Objectives

This course will allow the student to gain an in-depth level of insight into selected topics in cognitive neuroscience. In the Winter 2012 term, the particular focus will be the functions of the medial temporal lobe (MTL) memory system, executive functions of the prefrontal cortex (PFC), and how alcohol abuse affects these MTL and PFC functions. This course will have relatively few formal lectures, and will rely heavily upon small group projects and problem-based learning. Students will read, present and discuss articles from the primary literature, design their own experiment, and conduct a pilot study into the relationship between alcohol consumption and either MTL or PFC cognitive functions, and analyze and present their results to the class.

Materials and Fees

There is no course textbook.

Supplementary readings for lecture 1 will be added soon.

Assessment

Participation	25%
Assignment 1: Selection of cognitive tests	5%
Assignment 2: Ethics application (group work)	15%
Assignment 3: Selection of research articles	5%

Assignment 4: Final project write-up	20%
Presentation 1: literature review	15%
Presentation 2: research projects	15%

Participation:

Participation marks will be based on in-class discussions and group work conducted during class time. It will be based 1/5 on peer assessments of each person's contribution to the group, and 4/5 on the assessment of the TA's and professor.

Assignment 1: see [this link](#).

Assignment 2: Ethics application

A generic version of the experimental protocol we will be following has been approved by the McMaster [Psychology Student Research Ethics Committee](#), contingent upon the instructor's approval of the specific projects to be carried out. All projects must be approved by the course instructor before the research can be carried out.

Link to student ethics application form and sample consent form can be found [here](#)

Link to Instructor's course-based ethics application can be found [here](#).

Link to Instructor's sample consent form can be found [here](#).

Link to sample Lifestyle questionnaire can be found [here](#)

Your group's ethics application should elaborate on the general ethical issues discussed in class, and should go into depth on how any identifiable ethical risks will be mitigated against in your experimental design. You should also add a more specific description of your experimental protocol. Include all in one word document your main ethics application, recruitment advertisement, information/consent sheet and debriefing sheet. Email the entire document as a single attachment to your instructor in time for the due date.

Week-by-week course Outline**Week 1 Jan 6**

Lecture: Overview of course structure and evaluation. Effects of alcohol on the brain and body. Functions of the medial temporal lobe (MTL) and prefrontal cortex (PFC). Common tests of MTL and PFC functions.

Group work: divide into groups, discuss MTL/PFC tests and alcohol questionnaire.

Homework: Assignment 1 due Jan 13.

Week 2 Jan 13

Due today at start of class: Assignment 1 - Test descriptions.

Group work: Discuss tests, and choose 1-2 tests for your study.

Lecture (Becker): Research ethics overview.

Link to slides will be added here

Class discussion: ethics issues specific to the proposed study, e.g. legal and confidentiality issues re studying underage drinking, right to withdraw, social/peer pressure in recruitment and in group test situations.

Group work: Discuss logistics of carrying out the study. How will it be implemented, e.g. in powerpoint etc. How will data be collated, analyzed etc. Work on ethics application, consent and debriefing forms.

Homework: Assignment 2 (Ethics app) is due by 5pm Jan 20.

Week 3 Jan 20

Due today at 5pm: Assignment 2 (Ethics applications). Submit one per group via email to your professor.

Group work: Finalize ethics application. Begin setting up the study. Discuss lit review and presentations. Begin tracking down articles and planning the presentation.

Homework: Assignment 3. Each group member should have selected 2-3 articles to include

in their group's Lit Review Presentation. Bring copies of full references including abstracts to hand in at start of next class.

Week 4 Jan 27

Due today at start of class: Assignment 3 (selection of research articles).

Group work: Finalize setting up the study. Work on Literature Review presentations.

Week 5 Feb 3

Lit Review Presentations: MTL Groups

Week 6 Feb 10

Lit Review Presentations: PFC Groups

Week 7 Feb 17

Group work: Collect data, work on data analysis

Week 8 Mar 2

Group work: Collect data, work on data analysis (note: room 237 is not available in our regular lecture times this week)

Week 9 Mar 9

Group work: Collect data, work on data analysis

Week 10 Mar 16

Group work: Finalize analyses, prepare presentations

Weeks 11 Mar 23

Project Presentations: PFC Groups

Week 12 Mar 30

Project Presentations: MTL Groups

Apr 12: Final project (individual) writeups due.

Related courses taught by Sue Becker

Psych 3BN3 - Cognitive Neuroscience I

[Psych 734 - Neural network models of cognition and perception \(graduate course\)](#)
