

COGNITIVE NEUROSCIENCE II (PSYCH4BN3) Course Outline - Winter 2010

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 - TA:

Xue Han, *hanx3 at mcmaster dot ca*
Trent Toulouse, *touloutm at mcmaster dot ca*

Schedule

Fridays 11:30-2:20 PC-204 and PC-237.

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 2010 term, the particular focus will be on 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: Selection of research articles	5%
Ethics application	15%

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

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](#).

Ethics application:

All projects must be approved by the [McMaster Research Ethics Board](#) or the [Psychology Student Research Ethics Committee](#)

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](#)

Week-by-week course Outline

Week 1 Jan 8

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 16.

Week 2 Jan 15

Due today: Assignment 1 - Test descriptions.

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

Lecture (Becker): Research ethics overview.

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: Ethics app is due by 5pm Jan 22.

Week 3 Jan 22

Due today at 5pm: Ethics applications. Submit 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: each group member should have selected 2-3 articles to include in their group's Lit Review Presentation.

Week 4 Jan 29

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

Week 5 Feb 5

Lit Review Presentations: MTL Groups

Week 6 Feb 12

Lit Review Presentations: PFC Groups

Week 7 Feb 26

Group work: Collect data, work on data analysis

Week 8 Mar 5

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

Week 9 Mar 12

Group work: Collect data, work on data analysis

Week 10 Mar 19

Group work: Finalize analyses, prepare presentations

Week 11 Mar 26

Project Presentations:

Apr 7: 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 \(graduate course\)](#)
