BEHAVIOURAL NEUROSCIENCE I: SURVEY

PSYCH3BN3

Course Outline For Fall 2001

Instructor

Sue Becker
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Course Assistance - TA:

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Schedule

Tuesdays, Thursdays and Fridays, 11:30-12:20. Room: JHE/A113

Evaluation

Participation 10%
Five 2-page critiques of papers 25%
One 20-30 minute oral presentation 25%
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 25 papers. The participation mark will be calculated as follows:
- Feedback: 1 mark for submitting 1-5 feedback forms with informative and helpful feedback, 2 marks for 6-10, 3 marks for 11-15, 4 marks for 16-20, and 5 marks for 21 or more.
- 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 8 papers covering all 8 topic areas. Of those, they can choose at least 5 papers to critique. If more than 5 critiques are turned in, only the best 5 scores will be counted. Critiques are due at the start of class on the day the paper is being presented. Late critiques cannot be accepted.

Please read the following guidelines for presentations and critiques. The attached table lists the assignment of critiques (choose at least 5 from your assigned list) and paper presentations to students. Note that you should not write a critique on a paper you are presenting, so if it happens that you were assigned the same paper to present and critique, let your instructor know and you can then choose another paper to critique from the same topic area.

For the final exam, students will each be randomly assigned 8 papers covering all 8 topic areas. If more than 5 critiques are turned in, only the best 5 scores will be counted. Critiques are due at the start of class on the day the paper is being presented. Late critiques cannot be accepted.

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The final exam will consist of 8 short essay questions, each question covering one of the 8 major topics outlined in the readings. Students will have a choice of answering any 5 of the 8 questions.

Course Objectives
This course will survey behavioural 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 contemporary readings presented by both faculty and students. 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 8 major topic areas, there will be a one-hour introductory lecture given by the instructor followed by three to four hours of paper presentations and discussions, with most if not all of the papers presented by students.

**Required readings:**

2. **Readings from the recent literature** (see below). Most of the readings are available online, either from the university libraries' online subscriptions (accessible from machines on-campus or by proxy access from off-campus) or directly from the author's web page in a couple of cases. Readings not available online are included in the Psych3BN3 coursepack. Please try to print out your course readings right away. If you have trouble accessing and/or printing any of the electronically available readings, please contact your TA and your instructor immediately. We will do everything possible to ensure that every student has equal and prompt access to the readings.

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 5 or more papers for which they are writing critiques.

Links to the electronically available readings can be found on the following link.

**Weekly outline of lecture topics, readings and presenters:**

**Sept 6, 7, 11, 13:** Introduction to the nervous system, and cognitive neuroscience methods including neural network models.

Links to lecture outlines:
- Overview,
- BanichChapter1, BanichChapter2, Quinlan

Readings:
- Chapters 1 and 2 in Banich textbook.

Presenter: Sue Becker.

**Topic 1: Hemispheric specialization**

Links to lecture notes

Readings:
- **Sept 14:**
  - Chapter 3, Banich.
  - Presenter: Sue Becker.
- **Sept 18:**
- **Sept 20**
- **Sept 21**

Links to Kiara’s definitions and lecture notes

**Topic 2: Motor control**

Links to lecture notes

Readings:
- **Sept 25**
  - Chapter 4 in Banich textbook.
Sept 27

Sept 28

Topic 3: Object recognition
Readings:
- Oct 5
  Chapter 5 in Banich
  Presented: Sue Becker
- Oct 9
- Oct 11
- Oct 12

Topic 4: Spatial processing and attention
Readings:
- Oct 16
  Chapters 6 and 7 in Banich textbook.
  Presented by Sue Becker.
- Oct 18
- Oct 19
- Oct 23
- Oct 25
  Presenter: Becker
  Links to lecture notes
Topic 5: Language

Links to lecture notes

Readings:
- **Oct 26**
  - Chapter 8, Banich
  - Presenter: Sue Becker
- **Oct 30**
  - Links to Jennifer's lecture notes
- **Nov 1**
- **Nov 2**

Topic 6: Memory and executive functions

Readings:
- **Nov 6**
  - Chapters 9 and 10 in Banich textbook.
  - Presenter: Becker.
- **Nov 8**
  - Links to Ellen's lecture notes
- **Nov 9**
  - Presenter: Becker
  - Links to lecture notes
- **Nov 13**
  - Presenter: Matteo.
  - Links to Matteo's lecture notes

Topic 7: Emotion

Links to lecture notes

Readings:
- **Nov 15**
  - Chapter 11 in Banich textbook.
  - Presenter: Becker
- **Nov 16**
- **Nov 20**
- **Nov 22**
  - Links to David Z's lecture notes
Topic 8: Plasticity

Links to lecture notes

Readings:

- **Nov 23** Chapter 13, Banich
  Presenter: Sue Becker

- **Nov 27**
  Links to [David G's lecture notes](#)

- **Nov 29**
  Links to [Ekta's lecture notes](#)

- **Nov 30**

Calculator requirement:

Calculators will neither be required nor allowed during tests.

Calendar Description

Outline Last Revised: August 23, 2001