PSYD50 - Summer 2015: Current Topics in Memory and Cognition

Semantic Memory: How to build a meaning-full mind.

Class Meeting Time: Tuesday 1-3   Classroom: SW316

Contact Information for Instructor:
Instructor: Prof. George Cree
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Course Description
This course is designed to help you develop your critical thinking, research, and communication skills. We will accomplish this through a detailed study of the topic of semantic memory, focusing on 4 topics: (1) the history of the field of semantic memory, (2) the category-specific semantic deficit patient literature, (3) feature norming as a means of understanding the structure of semantic representation, and (4) contemporary theories and models of semantic memory structure and computation.

There are several reasons why I believe this topic is ideal for study in a course at this level. First, the semantic memory deficits observed in patients are fascinating, and trying to make sense of the complex patterns of impairment provides a challenging intellectual puzzle. Second, there is no universally accepted account of how or why these patterns of deficits occur. There are currently three major classes of theories, all incomplete, jockeying for position as the all-encompassing theory that will explain how knowledge is stored in the brain. We will evaluate these theories, and it will be your job to decide which one you think is closest to the truth. Third, important data and ideas have emerged from many of the fields of cognitive science, using many varied techniques, including clinical behavioral testing, functional neuroimaging, and computational modeling. We will sample broadly from all of these kinds of evidence in our survey of the literature, providing a solid foundation in modern day, inter-disciplinary research. Finally, many mistakes have been made by researchers along the way, including the use of poorly designed tests, use of questionable data analysis techniques, and pronouncement of inconsistent theoretical claims. The literature is thus replete with examples of what to do, and what not to do, when conducting research, and these will be used to illustrate a rigorous, yet appropriately skeptical, scientific approach to conducting research and developing theory.

By the end of this course you should have a deep understanding of the history and main issues in the field. You should also have a feel for the strengths and weaknesses of each the main approaches used to study the topic, and you should have formed strong, justified opinions about how you think knowledge is stored in the mind/brain.

Topics, Dates, and Readings:

Week 1 (May 5): A Brief History of the Study of Semantic Memory
- Introduction to Course
- Syllabus Review

- Brief history of semantic memory literature.
- Suggested background reading for weeks 2-6:
  - Cree & Armstrong (2007)
  - McRae & Jones (2013)

Week 2 (May 12) History: First Models and Experiments
- Required Reading:
  - Collins & Quillian (1969)

Week 3 (May 19) History: Category Specific Semantic Deficits
- Required Reading:
  - Warrington & Shallice (1984)
- Suggested Readings:
  - Patterson et al. (2007)

Week 4 (May 26) The First Connectionist Model of Semantic Memory
- Required Reading:
  - Rumelhart & Todd (1993)
- Suggested Readings:
  - Rogers & McClelland (2008)

Week 5 (June 2) Feature Norms
- Required Reading:
  - Cree & McRae (2003)
- Suggested Readings:
  - McRae et al. (2005)
  - Garrard et al. (2001)

Week 6 (June 9) Theories of Semantic Organization
- Required Readings:
  - Farah & McClelland (1991)
  - Tyler & Moss (2001)
  - Caramazza & Mahon (2003)

Reading Week - No Class June 16

Week 7 (June 23) Review, Summary, & Discussion of Presentation Topics

Week 8: work on review/experiment/model

Week 9: work on review/experiment/model

Week 10: Student Presentations (July 14th)

Week 11: Student Presentations (July 21st)

Week 12: Student Presentations (July 28th)

Final Papers Due - August 4th

Methods of Evaluation:

Weekly Quizzes (best 4 of 5)	20%	Weeks 2-6
Class Participation	10%	Evaluated Over all 12 Weeks
Presentation 1	5%	Weeks 2-6
Presentation 2	20%	Weeks 10-12
2500 Word Term Paper	45%	Due the Last Day of Classes (August 4th)

Information about Quizzes

The quizzes will consist of short answer questions based on the reading(s), and on material discussed in the previous class. They will typically happen at the beginning of class, and will take about 10-15 minutes to complete. Only the best 4 of 5 will count towards your final grade. The quizzes will happen in classes during weeks 2-6.

Information about the Term Paper

You will write a 2500 word term paper on one of the following 3 topics:

1. Present a Critical Analysis of Theory and/or Data in the Semantic Memory Literature
2. Conduct a Semantic Memory Experiment and Report the Methods and Data
3. Implement and Test a Computational Model of Semantic Memory

Note: You must clear the topic for your Term Paper with Prof. Cree BEFORE the beginning of Week 08. You can do this either (a) during office hours, or (b) through email. To do this, you must present, in written form, an approx. 1 page outline of your paper, in which you outline your thesis and/or proposed goals.

Information about Class Participation

Students are expected to participate actively in class. Attendance in class is expected, and will not be rewarded. In other words, Class Participation marks must be earned, by contributing to the class discussion, be this by asking relevant and probing questions, answering questions posed by others, or posting relevant and interesting information, along with appropriate analysis and discussion, on the class discussion board.

Information about Presentations

Presentation 1 will be based on a set of questions that will be distributed in Week 2. Students will select one of the questions, and provide an answer during their short presentation (3-5 minutes). The presentation grade will be based primarily on the quality of the answer, rather than slickness of the presentation.

Presentation 2 will be based on your final paper. You will give a 10-12 minute presentation on your topic. You will be evaluated by your peers, and this feedback will be incorporated into your final grade. The quality of the peer evaluation you provide will be incorporated into your class participation mark.

On Academic Integrity:
Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (www.governingcouncil.utoronto.ca/policies/behaveac.htm) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

In papers and assignments:
1. Using someone else's ideas or words without appropriate acknowledgement.
2. Submitting your own work in more than one course without the permission of the instructor.
3. Making up sources or facts.
4. Obtaining or providing unauthorized assistance on any assignment.

On tests and exams:
1. Using or possessing unauthorized aids.
2. Looking at someone else's answers during an exam or test.
3. Misrepresenting your identity.

In academic work:
1. Falsifying institutional documents or grades.
2. Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources
(see **www.utoronto.ca/academicintegrity/resourcesforstudents.html**).

On Accommodation:
The University provides academic accommodations for students with disabilities in accordance with the terms of the Ontario Human Rights Code. This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the University's courses and programs.

For more information on services and resources available to instructors and students, please contact Tanya Lewis, Director, Academic Skills and Accessibility Services at 416-978-6786; **tanya.lewis@utoronto.ca**.

On the Library:

Universitiy of Toronto Libraries provides access to a vast collection of online and print resources to faculty, staff, and students. Research help is available by phone, e-mail, chat, and in-person. (See Library website for more details.)

For more information on services and resources available, visit the Library website for your campus.

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The above schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances.