

PSYD50-10F: Current Topics in Memory and Cognition

Class Meeting Time: Tuesday 9-11

Classroom: MW223

Contact Information for Instructor:

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Introduction to the Course

This seminar 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 category-specific semantic deficits. We will use this topic as an entry point through which to discuss theories and models of semantic memory, and the state of art in the use of brain imaging technologies to 'read minds'.

Category-specific semantic deficits are knowledge deficits observed in people who have suffered some form of brain injury or disease, such as a closed-head injury or Herpes Simplex Encephalitis, resulting in a significant loss of knowledge in specific semantic domains (e.g., animals) while remaining relatively unimpaired in others (e.g., tools). Over 100 detailed case studies have been reported in the literature to date.

These deficits are interesting to cognitive psychologists because the patterns of impairment observed in the patients can be used to shed light on how knowledge is stored in the brain. This will be our primary interest in the course: how is knowledge stored in the mind/brain?

There are several reasons why I believe this topic is ideal for study in a course at this level. First, the deficits 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 examples 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 main issues in the field of semantic memory. 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 and Required Readings:

Week 01: Lecture Topic – Introduction & Review of Syllabus

- Readings for Next Week:
 - Warrington, E. K., & Shallice, T. (1984). Category specific semantic impairments. *Brain*, 107, 829-854.

Week 02: Lecture Topic - Category Specific Semantic Deficits

- Readings for Next Week:
 - Collins, A. M., & Quillian, M. R. (1969). Retrieval time from semantic memory. *Journal of Verbal Learning and Verbal Behavior*, 8, 240-247.

Week 03: Lecture Topic - Models of Semantic Memory: Hierarchical Taxonomic Theory

- Readings for Next Week:
 - Rogers, T. T., & McClelland, J. L. (2008). Precis of Semantic Cognition: A parallel distributed processing approach. *Behavioral and Brain Sciences*, 31, 689-749.

Week 04: Lecture Topic - Models of Semantic Memory II: Connectionist Models

- Readings for Next Week:
 - Caramazza, A., & Mahon, B. Z. (2003). The organization of conceptual knowledge: the evidence from category-specific semantic deficits. *Trends in Cognitive Sciences*, 7(8), 354-361.
 - Tyler, L. K., & Moss, H. E. (2001). Towards a distributed account of conceptual knowledge. *Trends in Cognitive Sciences*, 5(6), 244-252.

Week 05: Lecture Topic - Theories of the Organization of Semantic Memory

- Readings for Next Week:
 - Haynes, J-D., & Rees, G. (2006). Decoding mental states from brain activity in humans. *Nature Reviews Neuroscience*, 7, 523-534.

Week 06: Lecture Topic - Mind Reading: The State of the Art and Ethical Implications

Week 07: Student Presentations

Week 08: Student Presentations

Week 09: Student Presentations

Week 10: Student Presentations

Week 11: Student Presentations

Week 12: Student Presentations

Methods of Evaluation:

Weekly Quizzes (best 4 of 5)	20%	Weeks 2-6
Class Participation	10%	Evaluated Over all 12 Weeks
Presentation and Discussion Leader	10%	To Be Scheduled in Weeks 7-12
2500 Word Term Paper	25%	Due the Last Day of Classes
Final Exam	35%	December Exam Period

Information about Quizzes and the Final Exam

The quizzes will consist of short answer questions based on the reading(s) assigned the previous week. The final exam will consist of short and long answer essay questions. The content of the final exam will be based on the material we have discussed throughout the term, including student presentations.

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

Presentations will be based on a set of questions that will be distributed by Prof. Cree approx. 2-3 weeks into the course. Students will select one of the questions, and provide an answer during their presentation. The questions will be tested on the final exam, so the onus is on the presenter to provide a clear answer to their question that can be used by other students when studying for the exam. Handouts that summarize the answer provided by the presenter, and that can be distributed to the class, are strongly encouraged. The presentation grade will be based primarily on the quality of the answer, rather than slickness of the presentation.

Academic Writing

Writing assignments make-up a large component of this course. If you are not comfortable with your writing abilities, or would like a quick refresher on specific topics, then be sure to make use of the following two excellent resources:

UTSC Writing Centre: AC 210, <http://www.utsc.utoronto.ca/~tlsweb/TWC/index.htm>

U of T Advice on Academic Writing: <http://www.utoronto.ca/writing/advise.html>

Policies on missed exams and assignments.

If you miss a class due to illness, be sure to get appropriate medical documentation. In the case of quizzes, your mark will be computed out of the remaining number of quizzes (e.g., if you miss 1 quiz, then your best 3 of 4 will make up the quiz component of your grade).

Please be aware that I cannot, by U of T policy, accept assignments after the last day of classes.

Other Important Information

The University of Toronto is dedicated to fostering an academic community in which the learning and scholarship of every member may flourish, with vigilant protection for individual human rights, and a resolute commitment to the principles of equal opportunity, equity and justice.

AccessAbility

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible. I will work with you and AccessAbility Services to ensure you can achieve your learning goals in this course. Enquiries are confidential. The UTSC AccessAbility Services staff (located in S302) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations (416) 287-7560 or ability@utsc.utoronto.ca.

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 (<http://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:

- **Papers and Assignments:** Using someone else's ideas or words without appropriate acknowledgement. Submitting your own work in more than one course without the permission of the instructor. Making up sources or facts. Obtaining or providing unauthorized assistance on any assignment.
- **Tests and Exams:** Using or possessing unauthorized aids. Looking at someone else's answers during an exam or test. Misrepresenting your identity.
- **Other Academic Work:** Falsifying institutional documents or grades. 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:

<http://www.utoronto.ca/academicintegrity/resourcesforstudents.html>).

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