

PSYC58: Cognitive Psychology Laboratory

Instructor:

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TA:

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Class Times and Locations:

Tuesday: 12-2 B469
 Thursday: 12-1 B469

Prerequisites: PSYB01H & [PSYB07H or SOCB06H or STAB22H] & [PSYB51H or PSYB57H]

Course Website: <http://intranet.utsc.utoronto.ca>

Required Materials:

St. James, J. D., Schneider, W., & Eschman, A. (2005). *PsychMate: Experiments for Teaching Psychology. Student Guide, Version 2.0*. Pittsburgh, PA: Psychology Software Tools Inc.

The E-Prime, PsychMate, and PDP++ software is available in the B-wing computer labs. We have a site license for E-Prime, so if you would like to install it on your laptop, let me know. PDP++ is freely available from: <http://psych.colorado.edu/~oreilly/PDP++/PDP++.html>. PsychMate can be installed on your personal windows based computer from your PsychMate student manual CDs.

Course Objectives:

1. To introduce students to modern methodological techniques used by cognitive psychologists to study the mind.
2. To familiarize students to the computer software required for designing reaction time based cognitive psychology experiments, analyzing brain imaging data, and running computer simulations of mental phenomena.
3. To teach students basic techniques for collecting, manipulating, analyzing, and reporting data in APA format.

Course Overview

Lab Schedule (Tuesdays)

The lab component of this course consists of 12 2-hour labs.

Lab 1: Syllabus; APA Format; Consent/Debriefing Forms; Ethics; Intro to E-Prime
 Lab 2: E-Studio; E-Run
 Lab 3: Trouble Shooting in E-Prime; Dealing with Images in E-Prime
 Lab 4: Basic Programming in E-Basic.
 Lab 5: E-Merge and E-DataAid. Basic stats.
 Lab 6: Build an experiment (Stroop).
 Lab 7: Analyze data (Stroop).
 Lab 8: Report your findings (Stroop). Begin independent projects.
 Lab 9: Implement XOR and Encoder problems in PDP++
 Lab 10: Implement and Test Rogers and McClelland's (2004) Model in PDP++
 Lab 11: Brain Tutor
 Lab 12: Analysis of the Working Memory Experiment using Brain Examiner

Lecture Schedule (Thursdays)

The Lecture component of the course will consist of 12 60-minute lectures. The lectures will consist of demonstrations and hands-on exercises based on readings from the PsychMate student lab manual. Please be sure to have read the appropriate chapter, and completed the relevant experiments, before coming to each lecture.

Lecture 1: Reaction Time Procedures
 Lecture 2: Scanning Short Term Memory
 Lecture 3: Additive Factors Methodology
 Lecture 4: Signal Detection
 Lecture 5: Rotation of Mental Images
 Lecture 6: Attentional Interference and Stroop
 Lecture 7: Selective Attention and Response Competition
 Lecture 8: Iconic Memory
 Lecture 9: Change Blindness
 Lecture 10: Lexical Decisions
 Lecture 11: Automaticity and Stereotyping
 Lecture 12: Typicality in Categorization
 Lecture 13: Sentence-Picture Comparison
 Lecture 14: Automatic vs. Controlled Processing
 Lecture 15: Mental Comparisons
 Lecture 16: Introduction to Parallel Distributed Processing (PDP)
 Lecture 17: PDP Models of Semantic Cognition
 Lecture 18: Introduction to Brain Imaging
 Lecture 19: Working Memory and fMRI

Course Evaluation

There are five evaluative mechanisms in this course:

Assignments:

- 1. Lab Worksheets. (15%).** Worksheets will be distributed during each lab. You will be asked to complete these either individually or in small groups (it will be specified on each worksheet) and submit them before the beginning of the next lab. You will not be allowed to submit group worksheets for labs that you did not attend.
- 2. PsychMate Lecture Questions. (15%).** Questions will be assigned for each Lecture, based on the readings for that week. They will be listed on the Lab Notes provided each Lab. Answers must be printed before coming to class and submitted before each lecture begins.
- 3. E-Prime/PDP++ Project and Written Report (30%).** Students will implement their own original experiment in E-Prime (or simulation in PDP++) and write a short report (max. 10 pages, including references and graphs) in APA format outlining the hypotheses of the experiment/simulation, the methods, and the results. The topic must be related to either visual expertise training, or semantic memory, and can not be an exact replication of a published study. A significant component of the marks will be awarded based on difficulty and novelty of the project.

Exams:

- 4. Midterm Exam. (20%).** The Midterm exam will be scheduled during the Midterm exam period. The time and place will be determined by the Registrar's office. The exam will be designed to test your knowledge of theoretical and practical issues related to experiment design and E-Prime. It will be a mix of formats (e.g., multiple choice, short answer, true/false, etc.).
- 5. Final Exam. (20%).** The final exam will take place during the December exam period. The exam will be designed to test your knowledge of theoretical and practical issues related to experiment design, E-Prime, Brain Imaging, and PDP modeling. It will be a mix of formats (e.g., multiple choice, short answer, true/false, etc.).

Note: the lab printer has a very bad habit of malfunctioning just before each class begins. I highly recommend that you print your answers at home well in advance of coming to school.

Policies on Late Assignments:

A penalty of 10% will be deducted for each calendar day that an assignment is late, beginning once class has started (so, for example, if you arrive 30 minutes late to class, the maximum grade you will receive is 90%; or if you hand it in 24 hours and 1 minute after class begins, the maximum grade will be 80%). I do not have jurisdiction to extend deadlines for assignments beyond the last day of classes, so be sure to submit all materials by that time. If necessary, students may petition the Registrar's office for permission to submit assignments or write midterm exams after the last day of classes. Such petitions are not automatically granted, and indeed, will likely be denied without a valid reason. Such petitions must be submitted by the last day of the final examination period of the term.

Policies on Missed Exams:

The only reasons considered valid for missing an exam are (1) you are not in the physical condition to write an exam as verified by a medical professional, (2) you are not in the appropriate mental condition to write an exam as verified by a medical professional or registered clinical psychologist, or (3) it is a University of Toronto recognized religious holiday for a religion you are part of as verified by documentation from an appropriate religious leader. If you miss an exam for one of the reasons above, there will be a make-up exam scheduled that will be similar in length and difficulty to the original midterm. The make-up will typically occur a few days after the original exam. Thus, if you are going to miss the exam for one of the reasons above:

1. Send me an e-mail at egree@utsc.utoronto.ca, from your UTSC email account, to let me know ASAP,
2. check the course intranet page (and UTSC email account) for the date and time of the makeup, and
3. show up for the make-up exam *bringing your documentation along with you*.

If you miss the final exam I cannot provide a make-up. Instead you will have to petition to be allowed to write a deferred final exam during the next exam period (up to four months away).

Policies on academic integrity

Please review the Code of Student Conduct, a copy of which can be found on pages 378-397 of the official print version of the UTSC 2005-2006 Course Calendar.

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. 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. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

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