PSYB03 Fall 2014
Introduction to Computers in Psychological Research

Lectures: Thurs 1:00-3:00pm
Classroom: IC 204

Labs: Mon 11:00-1:00 or 1:00-3:00pm
Classroom: SW 316

Course website: BlackBoard

Contact Information:

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Goals of the course: This course aims to shape critical thinking in approaching scientific research with the aid of modern-day computer technologies while appreciating their extensive range of strengths along with the constraints that they pose. It will provide students with introductory knowledge and concrete skills regarding computer-based implementations of experimental testing, data analysis, and result visualization in psychological and neuroscience research. More generally, the course encourages and allows students to conceptualize and evaluate experimental research from a practical computational perspective.

Students will learn the basics of programming in Matlab and will be introduced to the Psychophysics Toolbox functions that are relevant to running experiments in psychology. Other programs and online tools often used in research (e.g., databases, spreadsheets, online data collection, etc.) will also be introduced to give students a taste of the many utilities available to them.

Learning Outcomes:

Students will learn the process of acquiring, preparing, analyzing, and presenting psychological research data using computers and a programming language. Specifically, they will be able to:

- Recognize and articulate the wide scope of computer-use in the behavioural sciences: Students will be able to use self-determined criteria and a range of reliable information to communicate how computer-use contributes to research methodologies.
- Understand and demonstrate procedural abstraction when writing computer code: Students will Identify and define a problem, devise innovative approaches to build a solution, and critically evaluate underlying assumptions and arguments to support their solution.
- Demonstrate good commenting and documentation practices when writing computer code: Students will be able to write concise and coherent documentation so that external readers will be able to comprehend the author's purpose of the code.
- Use variables/values/types, assignment, and control flow (conditionals/loops/error handling) as well as recognize the importance of memory considerations and file management in a programming environment: Students will be able to interpret quantitative information, apply reasoning, and perform the appropriate calculations to draw conclusions about their applications and their intended outcomes.
- Generate graphical data and export this for use in reports and presentations: Students will be able to represent analyzed data using charts, diagrams, and other formats to convey information in clear and creative ways.

Software & Textbook:
This course does not have a required textbook. Links to readings, resources, and software will be provided through Blackboard. The student version of Matlab (ver 2010 or higher) is recommended for students to purchase.

Methods of Evaluation:

Lab & Online Activities	30%
Midterm Exam	25%
Final Exam	25%
Final Project	20%

Lab and Online Activities (30%)
Activities are small exercises that are assigned multiple times throughout the term (almost once a week) as a way for you to demonstrate your knowledge of course content. They may require you to write code or provide short answers to questions in lab or online. Some activities may also be peer assessed.

Midterm & Final Exams (25% each)
The midterm test will take place outside of class time (Date TBA), and will cover material from lectures, labs, and activities. The final exam is comprehensive, and takes place at the end of the term. Locations for the tests will be announced in lecture and on Blackboard. All written examinations will be done closed-book without the aid of any electronic devices/notes/computers/etc.

Final Project (20%)
The final project will require you to submit a completed Matlab script that runs an entire experiment from start to finish. This includes stimulus presentation, data collection, simple data analysis and visualization. The complexity of the experiment will be largely up to each student based on their comfort levels with programming in Matlab (all student will be required to meet the same minimum requirements for full marks).

Policies on Missed Assignments:
No late submissions will be accepted for any course work, and no make-up assignments will be provided for missed work. It is your responsibility to ensure that all work is completed on time and to the best of your ability. If you are unable to complete some work due to illness, you are required to provide a doctor's note.

Deferred Exams:
For final exams, UTSC sets the policies (not the course instructor). You are allowed to defer your exam if you cannot write it - but you must follow the university's procedures. Please see this link for information on how to defer a final exam:
http://www.utsc.utoronto.ca/~registrar/current_students/deferred_exams

Policies on Academic Integrity
Plagiarism is a serious offence. In this course there are lots of opportunities to work with your fellow students and learn together as a community. However, all the work you produce in this course should be your own. You will need to understand the code you are writing AND not just copy & paste it, or memorize someone else's work. For more information on the expectations and consequences of academic integrity please review the UTSC Code on Academic Behaviour:
http://www.utsc.utoronto.ca/courses/calendar/University_of_Toronto_Policies.html#Code_of_Behaviour_on_Academic_Matters

Access*Ability*

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 Access*Ability* Services Office as soon as possible (http://www.utsc.utoronto.ca/~ability/). The UTSC Access*Ability* Services 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.