

Psyc 323: Laboratory in Attention

Course Syllabus

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Office hours: Monday, 1:00pm – 2:30 pm, Craine 210.

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Office hours: Wednesday, 2:00pm – 3:30 pm, Humphrey Hall 323.

1. Course overview.

1.1 Summary.

This course introduces selected topics in visual attention research, and includes hands-on experience in conducting, analysing, and reporting the results of experiments. We will begin with a survey of research in attention, followed by three research units. Each unit focuses on one research question in the attention literature. These units will consist of a lecture introducing the research topic; a tutorial on a research methodology, which will be paired with a short assignment; an experiment, for which we will be collecting data in class; and a written report. At the end of the course, students will present a novel research proposal in the form of a mock poster presentation.

1.2 Goals.

The goals of this course are to provide you with an understanding and appreciation for psychological research in attention, as well as hands-on experience in such research. It is my goal to introduce you to techniques used in visual attention research, as well as to provide you with experience in applying statistics and writing technical research reports.

1.3 Getting in touch with the Instructor or TA.

If you have any questions or concerns, please post on the Moodle discussion board. The Teaching Assistant or instructor check these boards periodically and answer questions. If you have a question or concern that requires more than a brief response, please attend the TA office hours instead.

If you wish to contact the instructor, please attend the office hours outlined, or e-mail to make an appointment.

2. Course calendar

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|---------------------|---|----------------------|---|
| Tuesday Sept. 11 | Introduction to course. | Thursday Sept. 13 | Introduction to Attention research |
| 1:00pm–2:30 pm | Thought paper 1 assigned. | 11:30am–1:00 pm | Thought paper 2 assigned. |
| Humphrey 219 | | Humphrey 219 | |
| Tuesday Sept. 18 | Research topic: Attentional Selection. Lecture. | Thursday Sept. 20 | Tutorial: Creating Experiments in Matlab. |
| 1:00pm–2:30 pm | Thought paper 3 assigned. | 11:30am–1:00 pm | |
| Humphrey 219 | | Humphrey 219 | |
| Tuesday Sept. 25 | Data collection: Attentional Load. | Thursday Sept. 27 | In-lab data analysis. |
| 1:00pm–2:30 pm | Tutorial assignment 1 due. | 11:30am–1:00 pm | |
| Humphrey 219 | | Humphrey 219 | |
| Tuesday Oct. 2 | In-lab data analysis and write-up. | Thursday Oct. 4 | Research topic: Change Blindness. Lecture. |
| 1:00pm–2:30 pm | | 11:30am–1:00 pm | Lab 1 report due. |
| Humphrey 219 | | Humphrey 219 | Thought paper 4 assigned. |
| Tuesday Oct. 9 | Tutorial: Signal detection theory (d'). | Thursday Oct. 11 | Data collection: One-shot change detection. |
| 1:00pm–2:30 pm | | 11:30am–1:00 pm | Tutorial assignment 2 due. |
| Humphrey 219 | | Humphrey 219 | |
| Tuesday Oct. 16 | In-lab data analysis. | Thursday Oct. 18 | In-lab data analysis and write-up. |
| 1:00pm–2:30 pm | | 11:30am–1:00 pm | |
| Humphrey 219 | | Humphrey 219 | |
| Tuesday Oct. 23 | Research topic: Attention and Visual Processing. Lecture. | Thursday Oct. 25 | Tutorial: Adaptation. |
| 1:00pm–2:30 pm | Lab 2 report due. | 11:30am–1:00 pm | |
| Humphrey 219 | Thought paper 5 assigned. | Humphrey 219 | |

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| Tuesday Oct. 30 1:00pm–2:30 pm Humphrey 219 | Data collection: Feature-based attention. Tutorial assignment 3 assigned. | Thursday Nov. 1 11:30am–1:00 pm Humphrey 219 | In-lab data analysis. |
| Tuesday Nov. 6 1:00pm–2:30 pm Humphrey 219 | In-lab data analysis and write-up. | Thursday Nov. 8 11:30am–1:00 pm Humphrey 219 | Lecture: Survey of topics in attention. Lab report 3 due. |
| Tuesday Nov. 13 1:00pm–2:30 pm Humphrey 219 | Tutorial: Psychometric functions. Presentation topics due. | Thursday Nov. 15 11:30am–1:00 pm Humphrey 219 | Class Cancelled |
| Tuesday Nov. 20 1:00pm–2:30 pm Humphrey 219 | Poster presentations, day 1. Tutorial 4 due. | Thursday Nov. 22 11:30am–1:00 pm Humphrey 219 | Poster Presentations, Day 2. |
| Tuesday Nov. 27 1:00pm–2:30 pm Humphrey 219 | Poster presentations, Day 3. | Thursday Nov. 29 11:30am–1:00 pm Humphrey 219 | Last day: wrap-up! Thought paper 6 assigned. |

3. Course components.

3.1 Lecture and discussion.

Each research unit will be introduced by a lecture that will summarize key ideas and studies pertaining to the topic. Each lecture will also be accompanied by one or two short readings, which you are expected to read. The readings are considered supplementary to the lectures, and will help you get the most out of the research topics. The articles will be available on Moodle before the lecture.

At the end of each lecture, I will provide you with two or three discussion questions. The discussion questions will be designed to allow you to write a short (less than 600 words) paper, which will be due at 4:00pm the day after lecture. More on these in the *evaluation* section of the syllabus.

3.2 Tutorials.

Following introductory lectures, a tutorial on a methodological tool will be given that will be applied in its respective research unit. These tutorial classes will include a lecture and follow-along exercises designed to acquaint you with the technique being introduced. At the end of the tutorial, you will be given a short assignment that will test your ability to apply the concepts learned. This assignment is due in the class following the tutorial.

3.3 Data collection.

For each research topic, we will be conducting a study of our own. These studies will ask a novel research question, but will incorporate established methodologies from the attention literature. In order to have data for these studies, students will participate in the studies during class time. Participation in the studies is, of course, optional, but it would be very much appreciated (by the whole class) if each student did participate – the more data, the better! At no point will we be collecting any personal data, and students' data will be stored with randomly assigned number-codes.

3.4 In-lab data analysis and write-ups.

After data collection, students will be tasked with analysing the data to determine whether the results are in concert with the experimental hypothesis or hypotheses. Data analysis will be performed using IBM SPSS and/or Microsoft Excel. Some instruction on the statistical techniques required will be provided, although familiarity with basic statistical concepts will be presumed. Class time will be allocated to the data analysis and write-up to give students ample access to the required software.

3.5 Poster presentations.

The final component of the course will be a mock-poster presentation. Poster presentations are a common format of research presentation at scientific conferences. Researchers will normally mount a large poster (often 4' or more in width) that contains information (some written, though heavily biased towards images) that summarizes the research question, methodology, results and conclusions of one or more studies.

We will be mimicking this presentation format in the final weeks of this course. Students will propose a study, or series of studies, investigating a topic of their choosing that pertains to attention. Students will need to present the background, relevant literature, hypotheses, methodology, and possible results for the selected topic. Research topics will need to be

approved by the instructor a week before presentations begin (see Calendar). Students will stand by a computer monitor in the lab and present their research “poster” to small groups of 3-5 composed of students, the instructor, and teaching assistant, who will then evaluate the presentation and research proposal. Presentations will be complete when each group of evaluators has seen each presentation once.

4. Evaluation.

4.1 Mark breakdown

| | | |
|-----------------------|------------------|-------------|
| Thought papers: | 6 × 2% = | 12% |
| Tutorial assignments: | 4 × 5% = | 20% |
| Lab reports: | 3 × 15% = | 45% |
| Poster presentation: | 1 × 23% = | 23% |
| | Total = | 100% |

4.2 Course components

4.2.1 Thought papers.

Thought papers are designed to assess your understanding and critical thinking with respect to the material presented in each research topic’s lecture and readings. At the end of each lecture, two to three discussion questions will be presented that center around core theories, methodologies, or results. In a short paper, discuss each of these questions, critically evaluating the perspectives that can be taken on the issues. The papers will be marked with an overall mark (out of 5). Please do not use more than 600 words. Don’t feel the need to use up all 600 words – if you can get your points across with fewer words, that’s great!

4.2.2 Tutorial assignments.

Following each tutorial, we will be provided with a short assignment that will test your ability to apply your new knowledge. The format of the assignment will vary with each tutorial, but it will typically involve a number (<15) of questions that you will need to solve or answer. These assignments are due the class following the tutorial.

4.2.3 Lab reports.

Each of the three research topics will culminate in the completion of a lab report. Lab reports will briefly summarize the methods, results, and conclusions of the experiment that we have conducted. These reports will be approximately 4-6 pages in length (double spaced), and will have a methods section, results section, and discussion section. The methods section will describe the participants, apparatus, and procedure of the

experiment – details on these will be provided in-class for each experiment. The results section will detail the necessary descriptive and inferential statistics used to test our hypotheses. Finally, the discussion section will interpret the results you have described and what they mean for our understanding of the research topic. All lab reports will need to follow APA 6th edition formatting.

4.2.4 Poster presentations.

The final component of the course will be a presentation-based research proposal. In these presentations, you will give a brief (3-5 minute) talk describing a proposal for a study, or series of studies, with time for questions afterwards. The topic will be of your choosing, constrained only to be related to attention.

Ultimately, marks will be assigned by the instructor, but reviews by the teaching assistant and other students will be taken into account in the marking. Presentations will be evaluated based on the quality of the research question, proposed methodology, the poster's visual appearance, and the quality of the oral presentation.

4.3 Grading Method

The instructor will be employing the “Numbers in, Letters out” method of grading. That is, marks during the course will be calculated and communicated as quantities (either as a percentage, or as a fraction of total possible marks). Once the course ends, final marks will be converted to a letter grade using the Queen's Official Grade Conversion scale (below).

| Numerical course average | Grade |
|---------------------------------|--------------|
| 90-100 | A+ |
| 85-89 | A |
| 80-84 | A- |
| 77-79 | B+ |
| 73-76 | B |
| 70-72 | B- |
| 67-69 | C+ |
| 63-66 | C |
| 60-62 | C- |
| 57-59 | D+ |
| 53-56 | D |
| 50-52 | D- |
| 49 and below | F |

5. Late Policy.

For all assignments, late submissions will receive a penalty of 10% per day late. That is, for each day overdue a submission is, 10% of the maximum available mark will be deducted from the final grade given. Weekends are not counted as a single day, but as two days. It is your responsibility to inform the instructor in a timely manner of any problems that may lead to your inability to submit an assignment on time.

6. Accommodation Policy.

If you require special accommodations for this course, please contact the instructor as soon as possible to have the proper arrangements made. Please also be sure to have consulted with Queen's Disability Services in order to determine what accommodations are appropriate. Further information can be found at the Queen's Disability Services website: <http://www.queensu.ca/hcds/ds/index.html>

7. Moodle.

Moodle will be the hub of information for this class. All class announcements will be posted on the Moodle board, and a Question and Answers board will be provided to allow you to ask course-related questions. Finally, all course materials (readings, lecture slides, etc.) will be posted on the Moodle page. It is your responsibility to ensure that you have access to the Moodle course page.

8. Copyright.

The materials available on the Moodle course website and presented in class are copyrighted and are for the sole use of students registered in Psyc 323. The material on the Moodle course website may be downloaded for a registered student's personal use, but shall not be distributed or disseminated to anyone other than students registered in Psyc 323.

Figures included in lecture slides will occasionally be reproduced from published scientific articles. In these cases, citations to the original work will be provided. The figures are included for the purposes of criticism and review, and students may **not** copy, alter, distribute or use these figures for any purposes other than those related to this course (Psyc 323F, 2012).

Failure to abide by these conditions is a breach of copyright, and may also constitute a breach of academic integrity under the University Senate's Academic Integrity Policy Statement.

9. Academic Integrity

The instructor of this course takes the values of academic integrity very seriously and expects students to behave in accordance with these values while enrolled in this course.

Academic integrity is constituted by the five core fundamental values of honesty, trust, fairness, respect and responsibility (see www.academicintegrity.org). These values are central to the building, nurturing and sustaining of an academic community in which all members of the community will thrive. Adherence to the values expressed through academic integrity forms a foundation for the "freedom of inquiry and exchange of ideas" essential to the intellectual life of the University (see the Senate Report on Principles and Priorities <http://www.queensu.ca/secretariat/policies/senateandtrustees/principlespriorities.html>).

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments conform to the principles of academic integrity. Information on academic integrity is available in the Arts and Science Calendar (see Academic Regulation 1 <http://www.queensu.ca/artsci/academic-calendars/2011-2012-calendar/academic-regulations/regulation-1>), on the Arts and Science website (see <http://www.queensu.ca/artsci/academics/undergraduate/academic-integrity>), and from the instructor of this course. Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulation on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.