

## SYLLABUS

### PSYC215: SENSATION AND PERCEPTION --- WINTER 2015

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The course introduces sensory information processing and perception as well as the methods required to study the complex relations between the physical world of light and sound, and the subjective experience of objects and events. Topics include a short history of the field and a summary of the methodology of psychophysics, which is then followed by a thorough discussion of the mechanisms underlying touch, somatosensation, the chemical senses, hearing, and vision.

#### CONTACT INFORMATION

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#### COURSE OBJECTIVES

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This course is an introduction to how we make sense of sensory input –our only source of information about the world. We will:

- explore how sensation differs from perception;
- investigate different theoretical traditions that have attempted to account for perceptual phenomena;
- survey the methods that are used to study sensation and perception;
- trace the functional and anatomical organization of the different sensory modalities, from sensory transduction and signal transmission, through stages of information processing, to perception.

We will cover the basic principles involved in seeing and hearing, in touch, taste and smell. Many principles are common to more than one sensory modality, and will be emphasized. Throughout, we assume that the goal of perception is behaviour. Perception is our only means of extracting information from the environment, allowing us to experience the discrete objects, people and events “out in the world” that drive our behaviour.

## TEXTBOOK

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We will be using a mandatory textbook by George Mather from the University of Sussex in the UK: Foundations of Sensation and Perception. We will cover chapters 1 through 12, one chapter each week. An in-depth understanding of the main text is required for quizzes and the final exam, and reading the book tutorials is encouraged.

Date	Topic Covered in Class
Jan 5 & 7	Chapter 1: General Principles
Jan 12 & 14	Chapter 2: The Chemical Senses
Jan 19 & 21	Chapter 3: The Body Senses
Jan 26 & 28	Chapter 4: The Physics and Biology of Audition
Feb 2 & 4	Chapter 5: Perception of Sound
Feb 9 & 11	Chapter 6: The Physics of Vision – Light and the Eye
Reading Week	
Feb 23 & 25	Chapter 7: Visual Physiology
March 2 & 4	Chapter 8: Spatial Vision
March 9 & 11	Chapter 9: Shape and Object Perception
March 16 & 18	Chapter 10: Depth Perception
March 23 & 25	Chapter 11: Visual Motion Perception
March 30 & 1	Chapter 12: Color Vision

## LECTURES

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Reading of assigned book chapters will be mandatory before the start of each new week. Additional material will be taught in class, for which a basic knowledge of the book content is highly desirable. When textbook material is replicated, it is because:

- it is particularly important or interesting;
- It is hard to understand without further explanation;
- It is not present at all in the textbook, or not well enough.

## TUTORIALS

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We have organized a number of short tutorials on selected topics that will take place this semester. Attendance to four tutorials over the semester, as well as completion of associated homework, will be mandatory. Each tutorial is planned to involve minimal amount of work prior to the session, which lasts for 45 minutes to an hour. Sign-ups and tutorial selection will occur at the start of the semester. The objectives of each tutorial will be outlined early in the term.

## EVALUATIONS

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TUTORIALS (4% OF FINAL MARK EACH, 16% OF TOTAL MARK)

Last updated: 15 Jan. 15

Tutorials are an opportunity to gain in-depth knowledge about selected topics, and foster your ability to think clearly and logically, with regards to testing hypotheses and designing experiments. Fifteen to 30 minutes will be reserved at the end of each tutorial where you will complete a short assignment. This will take the form of a well-defined problem, which can be answered using concepts learned during the tutorial. For example, you might have to design an experiment that uses a psychophysical method of your choice, or create an experiment that allows testing a hypothesis based on Bayes' rule.

### GROUP PROJECT (16% OF FINAL MARK)

For the project, you will be presented with a perceptual phenomenon in class. You will then be asked to write a report about it. This will be a maximum of 8 pages, double-spaced, not including references and figures. We will demonstrate the phenomenon on **Monday January 26<sup>th</sup>**, and the group reports will be due on **Wednesday February 11<sup>th</sup>**. The report should include four sections:

1. Describe the phenomenon.
2. Develop a testable hypothesis to 'explain' what you observe.
3. Design an experiment that could test your hypothesis.
4. Explain clearly what you could learn from hypothetical results.

Most of the mark comes from the group mark on the assignment, but peer-assessment of your participation in the group will also be considered.

You will be assigned to a group in the third week of class. You are responsible for arranging meetings as a group. We strongly encourage you to meet regularly at scheduled times in order to work on the two projects. Almost no classes or labs run between 5:30 and 6:30 at night, or after 9:30 at night – these may therefore be good times to meet. We would also encourage you to use the groups as a place to raise questions, identify challenging problems, explore the course material, and prepare for the final exam. Our Moodle page provides a means to communicate within the groups. Initially, this is the only means to identify who your group members are. Later, you may switch to other communication means, but you might as well just use the Moodle system.

### QUIZZES (18% OF FINAL MARK)

We will have short multiple choice question quizzes in every class, using the iClicker system. Quizzes are always at the beginning of the class. They refer directly to the assigned reading for the current lecture, but they may also cover material presented in the previous lecture. Questions are at the level of the study questions provided in the online materials that accompany your textbook. Some questions are taken directly from there. Only the 18 best quizzes will count for your final mark.

### FINAL EXAM (50% OF FINAL MARK)

The final exam will cover all 12 weeks of the course. It will comprise:

- 50 multiple-choice, true/false, and fill-in-the-blank questions;
- five short answer questions (which you can pick out of 6)
- two essay questions (which you can pick out of 3).

### OTHER INFORMATION

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#### IClicker

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For the weekly quizzes and for occasional polls and short experiments in class, you need an iClicker. If you don't have one yet, you either have to purchase one from the campus computer store (about \$40), or you may be able to borrow one from the Department of Psychology. Bring a \$30 cash deposit and ask for Amanda Miller or Marie Tooley in the General Office. Make sure you bring your iClicker to class or otherwise you cannot participate in the quizzes.

All iClickers have to be registered to their student before we can use them. Once you have your iClicker, registration can be easily done online at <http://iclicker.com/registration>. It's a quick and easy process whereby you must enter your Queen's student number and the iClicker's serial number, which is found on the rear of the remote. DO NOT USE iclicker registration through Moodle. Use the URL above instead.

### MISSED OR LATE ASSIGNMENTS

Missed quizzes will not be repeated. If you bring valid documentation from a health professional, funeral home, coach of sports team, etc. we can add the percentage of a missed quiz to the remaining ones. Note that we evaluate only the 18 best ones out of a total of 22 quizzes anyway.

Please see the instructors or a teaching assistant AS SOON AS POSSIBLE if you are unable to complete work so that we can talk about it. In general, work that is not handed in on time will receive a mark of zero.

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## REQUEST FOR ACADEMIC ACCOMMODATION

If you need academic accommodation for the final exam or special classroom arrangements please visit Queen's Disability Service at <http://www.queensu.ca/hc/ds/students/accommodations.html>

## ACADEMIC INTEGRITY

Academic integrity is constituted by the five core fundamental values of honesty, trust, fairness, respect and responsibility (see <http://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 at <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.

## COPYRIGHT OF COURSE MATERIALS

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