

# SYLLABUS

## PSYC215: SENSATION AND PERCEPTION --- WINTER 2016

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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 will emphasise 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 textbook by George Mather from the University of Sussex in the UK: Foundations of Sensation and Perception to guide us through the course. Use the text as a reference for the contents presented in class, but do not entirely rely on the book. Do not rely on the printouts of the slides that will be posted on Moodle either. Taking notes in class is essential for you to consolidate the content that is being offered to you.

The table below gives you an overview of the course contents. The page numbers listed are the pages in the textbook that are relevant for the lecture and the quiz.

Week	Topic Covered in Class	Tutorials
Jan 4 & 6	Introduction and Principles - Wednesday: pp. 3-24	Psychophysical Methods
Jan 11 & 13	Chemical Senses - Monday: pp. 43-48, 57-59 - Wednesday: pp.49-56	Psychophysical Methods
Jan 18 & 21	Body Senses - Monday: pp. 61-71 - Wednesday: pp. 72-84	Signal Detection Theory
Jan 26 & 28	Sound and Hearing - Monday: pp. 91-100 - Wednesday pp. 100-119	Signal Detection Theory
Feb 1 & 3	The Ear and the Auditory System - Monday: pp. 129-139 - Wednesday: pp. 139-152	Selective Adaptation
Feb 8 & 10	Light and Eye - Monday: pp. 159-169 - Wednesday: pp. 169-182	Selective Adaptation
<b>Reading Week</b>		<b>No Tutorials</b>
Feb 22 & 24	<b>Mid-term (Chapters 1-6): February 22</b> The Retina - Wednesday: pp. 197-228	Loudness <i>Note the schedule change on SOLUS</i>
Feb 29 & March 2	Spatial Vision - Monday: pp. 237-252 - Wednesday: pp. 252-265	Loudness
March 7 & 9	Shapes and Objects - Monday: pp. 275-283 - Wednesday: pp. 283-291	Fourier Analysis
March 14 & 16	Depth Perception - Monday: pp. 297-309 - Wednesday: pp. 309-318	Fourier Analysis
March 21 & 23	Visual Motion - Monday: pp. 327-335 - Wednesday: pp. 336-350	Stereopsis
March 28 & 30	Colour Vision - Monday: pp. 359-377 - Wednesday: Wrap-up, talk about final exam, etc.	Stereopsis

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## 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.

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## TUTORIALS

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We have organized a number of short tutorials on selected topics that will take place this semester. Attendance to six tutorials over the semester, as well as completion of associated worksheets, will be mandatory. Each tutorial is planned to involve minimal amount of work prior to the session, which lasts an hour and fifteen minutes. The objectives of each tutorial will be outlined early in the term. Each student has been assigned a timeslot for tutorials, which can be seen on the SOLUS account.

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## EVALUATIONS

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### TUTORIALS (4% PER TUTORIAL, 24% OF TOTAL MARK)

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.

### QUIZZES (18% OF FINAL MARK)

There will be 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 contents of the previous lecture including the assigned reading. Questions are often similar to the study questions provided in the online materials that accompany your textbook. Some questions are taken directly from there. Only the 18 best quizzes out of 22 will count towards your final mark.

### MIDTERM (18% OF FINAL MARK)

The midterm exam will cover the first 6 weeks of the course. It will comprise:

- 25 multiple-choice, true/false, and fill-in-the-blank questions;
- 2 short answer questions (which you can pick out of 3);
- 1 essay question (which you can pick out of 2).

### FINAL EXAM (40% 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).
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**MARKING SCHEME**

The different assignments will be marked using numerical percentage marks. The final course average will then be converted to a final letter grade according to Queen's Official Grade Conversion Scale:

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
≥ 90	85-89	80-84	77-79	73-76	70-72	67-69	63-66	60-62	57-59	53-56	50-52	≤ 49

**IClicker**

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 book store (about \$50), 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. iClickers loaned from the Department of Psychology must be registered on iClicker.com for a non refundable fee of about \$10.

**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 instructor 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.

**REQUEST FOR ACADEMIC ACCOMMODATION**

Queen's University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact Student Wellness Services (SWS) and register as early as possible. For more information, including important deadlines, please visit the Student Wellness website at: <http://www.queensu.ca/studentwellness/accessibility-services/>

**LOCATION AND TIMING OF FINAL EXAMINATIONS**

As noted in Academic Regulation 8.2.1, "the final examination in any class offered in a term or session (including Summer Term) must be written on the campus on which it was taken, at the end of the appropriate term or session at the time scheduled by the Examinations Office."

The exam period is listed in the key dates prior to the start of the academic year in the Faculty of Arts and Science Academic Calendar and on the Office of the University Registrar's webpage. A detailed exam schedule for the Winter Term is posted the Friday before Reading Week. Students should delay finalizing any travel plans until after the examination schedule has been posted. Exams will not be moved or deferred to accommodate employment, travel/holiday plans or flight reservations.

## 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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