

Physiology of the Senses

4710A – 001/650
Course Format 2019

1. This course is offered in the fall term. Students who have not taken Physiology 3120 or an equivalent can request special permission by contacting [Tutis Vilis](#). There are no other prerequisites for the course.

Enrolment to the in-class section (001) is reserved for Physiology Honors Students until July 21. After that it is open to everyone. You can enroll in the online section at (650) any time. The two sections are identical. **You are free to attend the class no matter which section you are enrolled in.**

This course provides students with an introduction to the function of the many stages used by the nervous system to process our sensory inputs; its sensory physiology including that of touch, taste, pain, smell, vision, motion and hearing. The focus is on a concise and lucid description for how the various brain regions function and interact. Each sensory modality is used to exemplify a particular aspect of sensory processing from how stimuli are encoding at the periphery to the feature extraction processes of the sensory cerebral cortex.

The first half of the course deals with vision from its detection in the eye to the function of the cerebral cortex in the recognition of objects including faces and the cortical role in directing one's actions to these objects. This emphasis on vision stems from the fact that more is known about vision than the other senses and because the mechanisms adopted by the visual system are mirrored and adopted by the other senses.

By the end of the course, successful students will be able to identify the pathways used by each of the senses for perception.

By the end of the course, successful students will be able to explain the mechanisms used by each of the senses for transduction.

Topics covered are:

September 5	Session 1	The Eye
September 12	Session 2	Primary Visual Cortex
September 19	Session 3	Visual Perception of Objects
September 26	Session 4	Visual Perception of Motion
October 3	Session 5	Association Cortex
October 10	Session 6	Streams for Visually Guided Action
October 17	Session 7	Touch, Pain, Taste and Smell
October 19	10am	Midterm 10 am
October 24	Session 8	Muscle Sense
October 31	Session 9	Hearing
November 14	Session 10	Balance
November 21	Session 11	Eye Movements
November 28	Session 12	Memory

2. Each session consists of:

- The in-Class lecture Thursdays from 12:30 to 2:30 in Room 1170 in the Interdisciplinary Research Building. The Video recorded sessions will be posted every Friday. These present the new basic conceptual building blocks.
- Each week a series of **practice problems** are available **on the [WEB site](#)**. These problems allow you to review and extend the basic conceptual building blocks. It is very important that you use these problems to perfect your problem-solving skills. Students that have done poorly in previous years have admitted that they mindlessly click the mouse to find the correct answers and then memorize them. I promise you that you will need your problem-solving skills in the midterm and a final exam. Your memory will be of little help. In the problems you will learn that
 - there is more than one right answer
 - but some right answers are better than others
 - which is better can vary depending on circumstances
 - The question of [why manhole covers are typically round](#) was made famous by [Microsoft](#) and is a good example problem-solving.
 - see video of [Dan Pink on the surprising science of motivation](#) and why studying for marks might not be the right strategy.
- You can go over your solutions during a **problem-solving tutorial** with your tutors,

Kartik Seyon Pradeepan kpradeep@uwo.ca

Emma Stewart estewa48@uwo.ca, and

Vaishu Sukumar vsukuma@uwo.ca

on Tuesdays MC-17 or Wednesdays, SH-3307, 4:30 to 5:30. But try all the problems on your own first before coming to the tutorials. Make sure that you understand the reasons for why one answer was more correct and the others less correct or wrong. You will also have a chance to try out new quiz questions taken from previous weekly OWL quizzes. There is also an **online tutorial session** each week through OWL in the BBC VRoom, on Tuesday at 8pm with your TA's These sessions are Skype-like interactions.

- A **weekly OWL Quiz** consisting of 3 to 5 multiple choice questions which must be completed in 15 min any time from 5:30pm to midnight every Wednesday. The first quiz is Wednesday September 12. The answers are posted after midnight.

3. All the course materials are posted on this [web site](#).

This material consists of:

- 1) The animated HTML presentation of each session (without voice).
- 2) Videos of previous week's lectures are posted the day after the lecture.
- 3) A PDF file that can be used to obtain a printed version of each session. An updated version of the PDF is posted on the night before the lecture.
- 4) Practice problems and answers as well as related experiments. A PDF of all the problems is available at the bottom of the Practice column.
- 5) Links to other interesting related Web sites.

The **testable material** is all that is in the PDF's and the Practice Problems. Links material is FYI and the references in the PDF's are not testable.

4. The **evaluation** consists of:

- Final examination 50% - 3 hrs., about 60 multiple choice questions.
- Midterm test 30% - 1.5 hrs., about 30 multiple choice questions. The midterm **covers lectures 1 through 6**.
- Weekly OWL Quiz 20%. 3 to 5 multiple choice questions to be completed using OWL every Wednesday any time between 5:30 and midnight.

5. Course Lecturer and Manager - T. Vilis - - Office hours, best by appointment, 3:30 to 5 PM Thursdays at the [Brain and Mind Institute](#), Room 3180, Brain and Mind Institute, Interdisciplinary Research Building. For appointment :<mailto:vilis@uwo.ca>.

Department of Physiology and Pharmacology Policies to be Included in Course Outlines

June 1, 2018

Policy on Plagiarism

The Department of Physiology and Pharmacology strongly condemns plagiarism. Plagiarism is the “act or instance of copying or stealing another’s words or ideas and attributing them as ones own.” (Excerpted from Black’s Law Dictionary, West Group, 1999, 7th ed. Pg 1170 and the definition used by Western’s Scholastic Discipline document). Plagiarism can be intentional or unintentional and regardless of intent, is a scholastic offence. It should be noted that self-plagiarism, plagiarizing ones own words for multiple assignments is subjected to the same penalty as plagiarizing another. Courses in Physiology and Pharmacology use turnitin, a similarity checking software embedded within OWL. We encourage all students to run their assignments through turnitin prior to submitting their reports for grading. Any report flagged as yellow (25-49% matching text), orange (50-74% matching text) or red 75-100% matching text) will be considered plagiarism (pending investigation by the instructor). It should be noted that a document could be plagiarized yet still pass the similarity check on turnitin.

The *minimum* penalty for a first time plagiarism offence of any kind is a grade of zero on the assignment. In addition, details of the offence will be forwarded to Dean’s office and stored. A second offence will carry a much stricter penalty in line with Western’s Scholastic Discipline policies <http://www.westerncalendar.uwo.ca/2017/pg113.html>

Cell Phone and Device Policy

The Department of Physiology and Pharmacology is committed to ensuring that testing and evaluation are undertaken fairly. For all tests and exams, it is the policy of the Department of Physiology and Pharmacology that any devices with a battery (e.g. cell phone, tablet, camera, watch, smart watch, ipod) are strictly prohibited. These devices MUST be left either at home or with the students bag/jacket at the front of the room and MUST not be at the test/exam desk or in the individuals pocket. Any student found with one of these prohibited devices will receive a grade of zero on the test or exam. Non-programmable calculators are only allowed when indicated by the instructor. The Department of Physiology and Pharmacology is not responsible for stolen/lost or broken devices.

Appeals Policy

The Department of Physiology and Pharmacology follows the Western University student academic appeals policy (http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#SubHeading_181). All appeals to individual graded course components must be submitted to the course instructor within 3 weeks of the grade being released. All final course grade appeals must be received by January 31 (1st term

classes) or June 30 (2nd term half classes and full year classes). You must first appeal to the course manager. If this appeal is rejected, then you can appeal to the Undergraduate Chair of the Department of Physiology and Pharmacology (Brad.Urquhart@schulich.uwo.ca). If this appeal is rejected, you may then appeal to the Assistant Dean of the Bachelor of Medical Sciences Undergraduate Education Committee (Candace.Gibson@schulich.uwo.ca).

You must have suitable grounds for appeal which may include: 1) appeal on medical or compassionate grounds; 2) appeal based on extenuating circumstances beyond your control; 3) appeal based on bias, inaccuracy or unfairness. All appeals must be accompanied by a detailed explanation along with supporting documentation. You should submit your appeal as an e-mail with a single attachment. If you have multiple supporting documents, you should merge them into a single document.

[Back to Main Page](#)