

# Physiology of the Senses

## Online Course

4710A – 001/650

Course Format 2017

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](#).

This course provides students with an introduction to the many steps used by the nervous system to process our sensory inputs; including those from 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 decoding processes of the 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 this sense than others 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 explain the mechanisms used by each of the senses for transduction.

Topics covered are:

September 7	Session 1	The Eye
September 14	Session 2	Primary Visual Cortex
September 21	Session 3	Visual Perception of Objects
September 28	Session 4	Visual Perception of Motion
October 5	Session 5	Association Cortex
October 19	Session 6	Streams for Visually Guided Action
October 26	Session 7	Touch, Pain, Taste and Smell
October 28	9am UCC	Midterm
November 2	Session 8	Muscle Sense
November 9	Session 9	Hearing
November 16	Session 10	Balance
November 23	Session 11	Eye Movements
November 30	Session 12	Memory

2. Each session consists of:

- The in-class sessions occur on Thursdays in MSB 384.
- . A Video recording of these sessions will be posted every Friday. These present the new basic conceptual building blocks.

- Each week a series of **practice problems** are assigned to review and extend these basic conceptual building blocks. These are very important because they allow the students to develop and perfect their **problem-solving** skills. These practice problems teach students that
  - o there is more than one right answer
  - o some right answers are better than others
  - o which is better can vary depending on circumstances
  - o The question of [why manhole covers are typically round](#) was made famous by [Microsoft](#) and is a good example problem-solving.
  - o 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, Margarita Maltseva, (Email: [mmaltsev@uwo.ca](mailto:mmaltsev@uwo.ca)) and Nole Hiebert (Email:[nole.hiebert@gmail.com](mailto:nole.hiebert@gmail.com)).on Tuesdays or Wednesdays, Dental Sciences, Rm 3008, 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. The first tutorials are on September 13 and 12.
  
- There is also an **online tutorial session** each week through OWL in the BBC VRoom, on Tuesday at 8pm with Alex Major( [Email: mailto:amajor7@uwo.ca](mailto:amajor7@uwo.ca)) and Margarita Maltseva, (Email: [mmaltsev@uwo.ca](mailto:mmaltsev@uwo.ca)). 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 14.

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

This material consists of:

1. The animated Flash presentation of each session (without voice),
2. Videos of previous week's lectures, 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. The references added to some lectures are for your information only. They are not material that will be tested.
4. Practice problems and answers as well as related experiments,
5. Links to other interesting related Web site.

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

4. The **evaluation** consists of:

- The final examination, worth 50%, is 3 hrs. long with about 60 multiple choice questions. 1/3 of the questions cover lectures 1 through 6 and 2/3 cover lectures 7 through 12.
- Mid term test 30% - 1.5 hrs, about 30 multiple choice questions. The midterm covers lectures 1 through 6.
- Weekly OWL Quiz 20% - multiple choice question.

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 240 Natural Science Building. For appointment Email: <mailto:vilis@uwo.ca>

6. A [UWO Student Medical Certificate \(SMC\)](#) is required where a student is seeking academic accommodation. This documentation should be obtained at the time of the initial consultation with the physician or walk-in clinic.

7. Students who are in emotional/mental distress should refer to Mental Health@Western <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.

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