

## Faculty of Health School of Kinesiology and Health Science

**Course:** HH KINE 4210 3.0 Disorders of Visual Cognition

**Course Webpage:** Moodle

**Term:** Winter 2017

**Prerequisite:** HH Kine 3020

### **Course Instructors**

**Course Director:** *Mazyar Fallah, PhD*

**Email:** mfallah@yorku.ca

**Teaching Assistant:** *Johanna Hurtubise*

**Office Hours:** N/A

**Email:** johurt@yorku.ca

### **Email Etiquette:**

- For all email correspondence please use KINE 4210 in the subject header. Please sign all letters with your full name and/or your student number. Email correspondence will not be held with anonymous people.
- We will respond to email only if it can be answered in 10 words or less.
- For complex issues, please use email to arrange for a time where we can meet (preferably during office hours).
- ***Email will not be answered on the weekends*** but shortly afterwards.
- **You may leave a voicemail in the case of extreme emergencies.**

### **Time and Location**

**Lecture:** Tues/Thurs 1-2:30pm SC 224

### **Course Description**

This course introduces the student to visual processing in the brain. Vision, as a major sensory input, is used to guide behaviour as we interact with the world around us. As different stages of visual processing break down due to damage or impairment, there are different behavioural manifestations, made evident in motor behaviors, such as pointing, looking at, tool use, skiing, shaving, and dressing. The course covers the various stages of visual processing and the disorders that manifest from impairments of those stages.

The following is a sample of the topics covered, listing the topic with the motor behavior manifestations:

- Overview of visual processing
- Blindsight
  - action without perception.
  - reaching and grasping what you think you cannot see.
- Balint's syndrome
  - disorders of reaching, grasping and eye movements.
- Visuospatial deficits

- route-finding disorder
- Visual Agnosia
  - appropriate motor responses to unknown items
- Prosopagnosia
  - unable to process faces
- Apperceptive agnosia
  - transformations and topography
- Visuomotor dissociations in normal subjects
  - movements to remembered places.
  - grasping remembered objects.
  - perceptual stability and postural adjustment.
  - distance judgments.
  - locomotion calibration.
- Neglect
  - ignoring half of your body when shaving or dressing
  - directional hypokinesia
- Extinction

### **Course Organization**

The content of the course will be delivered twice a week in lecture format. Students are strongly encouraged to read the relevant textbook chapters prior to the weekly lecture.

### **Course Learning Objectives**

The student will understand how the brain processes vision: changing photons into nerve impulses and analyzing the two-dimensional retinal image to make a three-dimensional world full of objects and motion. By the end of the course, the student should understand both the normal workings of the visual system and the disorders that can occur.

### **Course Text / Readings**

The following texts are the assigned books for the course:

Milner, D.A. and Goodale, M.A. (2006). **The Visual Brain in Action, Second Edition**. Oxford University Press.

Sacks, O. **The Man Who Mistook His Wife for a Hat and Other Clinical Stories**. Simon & Schuster.

### **Tentative Class Schedule**

- Last date to enrol without permission of course instructor: Jan 18
- Last date to enroll with permission of course instructor: Feb 1
- Last date to drop courses without receiving a grade: March 10

<b>Date</b>	<b>Topic(s)</b>	<b>Reading</b>
Jan 5	Introduction	
Jan 10	Overview of Vision	Chapter 1
Jan 12	The Eye	
Jan 17	Central Visual Pathways	
Jan 19	Two Pathways and Ventral Stream	
Jan 24	Dorsal Stream: Motion	
Jan 26	Color Vision	
Jan 31	TBD	
<b>Feb 2</b>	<b>Exam 1</b>	All material up to and including Color Vision
Feb 7	Perception and Action	
Feb 9	Blindsight	Chapter 3
Feb 14, 16	Disorders of Spatial Cognition	Chapter 4
Feb 28, Mar 2	Visual Agnosia	Chapter 5
<b>Mar 7</b>	<b>Exam 2</b>	Perception and Action through Blindsight
Mar 9	Normals	Chapter 6
Mar 14	Spatial Attention	Chapter 7
Mar 16	Feature & Object-based Attention	
Mar 21	Disorders of Attention	
Mar 23	Beyond the Visual System	
Mar 28	Clinical Exam	
Mar 30	Clinical Cases	Oliver Sacks Book
Apr 4	Q&A Session	
<b>TBA</b>	<b>Final Exam</b>	<b>Everything!</b>

## **Evaluation**

**Attendance:** It is your responsibility to attend lectures. You will be tested on all materials that are covered in both lectures and the texts. Some material in the lecture is not in the texts.

### **Final Grade:**

*The final grade for the course\* will be based on the following items weighted as indicated:*

- Class Test 1: 25%
- Class Test 2: 25%
- Final Examination: 50%

There will be two class tests and one final examination. Questions will be drawn from weekly lecture material and the relevant textbook chapters, with the greatest focus on content presented

in class and overlapping with the readings. The format of the questions will be multiple choice, fill in the blank, matching, short answer, and essays. The class tests will not be cumulative. The final examination will cover material from the entire course.

An unofficial list of grades will be posted on the course website as soon as they become available. Please check the course website rather than persistently contacting the teaching team to find out if they are available.

\* Final course grades may be adjusted to conform to Program or Faculty grades distribution profiles.

**Grading:** The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ = 7, C+ = 5, etc.). Assignments and tests will bear either a letter grade designation or a corresponding number grade (e.g. A+ = 90 to 100, A = 80 to 90, B+ = 75 to 79, etc.) (For a full description, see the York University Undergraduate Calendar: [http://calendars.registrar.yorku.ca/pdfs/ug2004cal/calug04\\_5\\_acadinfo.pdf](http://calendars.registrar.yorku.ca/pdfs/ug2004cal/calug04_5_acadinfo.pdf))

An appeal against a grade assigned to an exam must be made in writing to the course director/instructor. **The entire exam will be regarded by the course director.** The result of an appeal may cause the grade to increase, decrease or remain the same.

**Missed Tests:** Only students with a legitimate reason for missing a class test, which is confirmed by official documentation\*, may request accommodation from the Course Instructor. Written documentation should be submitted to the Course Director at the next meeting of the class. In the event that a class test is missed, the percentage allocated to the missed exam will be added to the final exam. If a student misses an exam with no legitimate excuse, the student will receive a grade of zero for the missed test. Further extensions or accommodation will require students to submit a formal petition to the Faculty.

In the case of a sudden emergency, contact me as soon as possible. If you cannot reach me, a message can be left on my office voice-mail, which records the date and time of your call.

\*Official Documentation.

Documentation must be provided by a registered clinical psychologist, psychiatrist, or medical doctor indicating that you were indeed unable to attend on the specific date of the examination because of your specific problem.

## **IMPORTANT COURSE INFORMATION FOR STUDENTS**

Please refrain from talking to others or making audible comments during class lectures or while another student is responding. If it is necessary to make noise, please leave the room first. Please place your cell phone and other electronic equipment in silent mode.

All participants in the course, teaching staff and students, will conduct themselves in a thoughtful and sensitive manner. Correct scientific terminology will be the lingua franca in the classroom.

This is an undergraduate course, not the culmination of a clinical neurology degree. Even though we will discuss many issues involving the relationship between the brain and behavior, you will not be in a position to "diagnose" the problems of another person (including **yourself**). If the material in this course does evoke uneasiness for you, perhaps because you or a family member has gone through a related experience, please feel free to contact the course director confidentially via phone or e-mail or access the resources of the Counselling and Development Centre (145 Behavioural Sciences Building; 416-736-5297).

**Cheating is unacceptable** on this course and any student who participates in this activity can expect to be referred to the appropriate disciplinary authority for their first offence. If you are unclear what does and does not constitute cheating please refer to the Academic Integrity web site (<http://www.yorku.ca/academicintegrity>) and read the section 'For Students'. If you have not completed the Academic Integrity Tutorial which is hosted there, then I would urge you to do so.

All students are expected to familiarize themselves with the following information, available on the Senate Committee on Curriculum & Academic Standards webpage (see Reports, Initiatives, Documents): [http://www.yorku.ca/secretariat/senate\\_cte\\_main\\_pages/ccas.htm](http://www.yorku.ca/secretariat/senate_cte_main_pages/ccas.htm)

- York's Academic Honesty Policy and Procedures/Academic Integrity Website
- Ethics Review Process for research involving human participants
- Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities
- Student Conduct Standards
- Religious Observance Accommodation