

**University of Waterloo  
Department of Kinesiology  
Course Outline – KIN356**

**Course Title:** Information Processing in Human Perceptual Motor Performance

**Lectures:** M 11:30-12:50 & W 1:00-2:20  
BMH 1621

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**Prerequisites:** Kin 222, 155

**Course Description:**

This course focuses on perception in human motor performance. The specific topics covered will be psychophysics, visual processing, theories of perception, multisensory integration, attention, memory and learning.

**Learning objectives:**

At the end of the course you should be able to:

- Apply common techniques for measuring perception in real world settings
- Explain the interaction between bottom-up and top-down influences on visual perception
- Apply theories of visual perception to real-world situations
- Manage complex projects including finding relevant information, extracting key ideas, evaluating the evidence, and synthesizing the information
- Develop professional communication skills by participating in class discussions, group assignments and in-class presentations.

**Textbook:**

Sensation & Perception, 4<sup>th</sup> ed. Editor J. M. Wolfe

**Clickers are required and can be purchased in the bookstore.**

**Course material:** Additional readings and activities will be provided on the course web page (D2Learn) to augment lecture material. Content is organized by units and topics.

## LECTURE SCHEDULE

<b>Unit 1: Fundamentals of Neuroscience - Chapter 1</b>	
1.1 Physiology of sensory perception	<b>In-class case study #1</b>
1.2 Principles of perceptual measurement	
<b>Unit 2: The Visual System</b>	
2.1 Retinal processing: early vision – Chapter 2	<b>In-class case study #2</b>
2.2 Cortical processing – Chapter 3	
2.3 Object perception – Chapter 4	
2.4 Space perception – Chapter 6	
2.5 Motion perception – Chapter 8	
2.7 Eye movements / Affordances	
<b><u>Mid-term exam February 23<sup>rd</sup></u></b>	
<b>Unit 3: Multisensory integration</b>	
3.1 Auditory perception – Chapters 9-11	
3.2 Vestibular perception – Chapter 12	
3.3 Somatosensory perception – Chapter 13	
<b>Unit 4: Cognitive functions</b>	
4.1 Intro to executive functions	
4.2 Mental chronometry	

4.3 Attention – Chapter 7	<b>In-class case study #3</b>
4.4 Memory	
4.5 Learning	
4.6 Special Topic: exercise and cognitive functions	
<b>Web site presentations and course review</b>	

## EVALUATION

<b>Evaluation component</b>	<b>% Course Grade</b>
Mid-term exam (1 <sup>st</sup> half)	<b>25%</b>
Final exam (cumulative)	<b>35%</b>
Web assignment	<b>25%</b>
In-class case studies	<b>10%</b>
Participation (clickers)	<b>5%</b>

### Mid-term exam:

There will be a midterm exam worth 25% of the course grade. This will occur in-class on Monday February 23<sup>rd</sup>, 2013. The format will be a combination of short answer, diagram/graph and long answer questions that will cover the content from the first 6 weeks.

### Web assignment:

According to feedback from co-op education employers, there are four other “core skills” that are valued in the workplace: communication skills, the ability to work in a team, computer skills, and project management. The web assignment is designed to help you develop these core skills. It is worth 25% of your course grade. You will work in a group of approximately 5 people to develop a Web site on topic of your choice (see examples on the D2LEARN). This is a multi-step assignment, which will be completed over the entire term. Your mark will be based on the successful completion of all timelines (3%), web assignment content and clarity as determined by the instructor (9%), team presentation in the last week of class (5%), team-evaluation (3), feedback from other groups (5%).

### Key timelines for the web assignment:

- Jan 26<sup>th</sup> – Team contract and topic due
- Feb 11<sup>th</sup> – Search topics and key references due (maximum of 5)
- Feb 25<sup>th</sup> – Web outline with references due (minimum 5/team member)
- Apr 1<sup>st</sup> – Web assignment due
  - Self-evaluation and team evaluation due
- Apr 6<sup>th</sup> – Web assignment feedback due

**In-class case studies:**

The purpose of these assignments is to provide opportunity to apply course content knowledge to specific cases or examples from health, work or sports. You can view them as 'sample' exam questions that you have an opportunity to practice during the course. For the in-class case studies you will be provided a question once you arrive that requires an answer which is to be completed and submitted to the instructor before the end of the class. This assignment will be completed as a group project. The highest 2 grades (out of 3) will be included in the final mark (total = 10%). Note that it is necessary that an individual be present during the class to receive credit. Individual grades may be adjusted up or down by 10% by the instructor based on group evaluations.

**Final exam:**

The final exam will occur during the final exam period and therefore the date, time and location will be scheduled by the University. The format will be a combination of short answer, diagram/graph and essay style questions that will cover the entire content of the course. The value of the exam will be 35% of your grade.

**Academic Integrity:** In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check [www.uwaterloo.ca/academicintegrity/](http://www.uwaterloo.ca/academicintegrity/) for more information.]

**Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, [www.adm.uwaterloo.ca/infosec/Policies/policy70.htm](http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm). When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.

**Discipline:** A student is expected to know what constitutes academic integrity [check [www.uwaterloo.ca/academicintegrity/](http://www.uwaterloo.ca/academicintegrity/)] to avoid committing an academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate Associate Dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline, [www.adm.uwaterloo.ca/infosec/Policies/policy71.htm](http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm). For typical penalties check Guidelines for the Assessment of Penalties, [www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm](http://www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm).

**Appeals:** A decision made or penalty imposed under Policy 70 (Student Petitions and Grievances) (other than a petition) or Policy 71 (Student Discipline) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals) [www.adm.uwaterloo.ca/infosec/Policies/policy72.htm](http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm).

**Note for Students with Disabilities:** The Office for persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.