

YORK UNIVERSITY  
FACULTY OF HEALTH  
SCHOOL OF KINESIOLOGY AND HEALTH SCIENCE  
HH KINE 3020 3.0

**SKILLED PERFORMANCE AND MOTOR LEARNING**

Fall 2012

This course is an introduction to the psychological principles and underlying neural mechanisms of skilled performance and motor control. In addition, experimental methods employed in the study of motor control will be demonstrated in the laboratory. Topics include the role of attention, information processing and feedback in controlling performance, as well as the contribution of the central nervous system in voluntary motor performance and motor learning.

**Prerequisites:** HH KINE 2050 3.0 [or equivalent "Statistics" course]; and  
HH PSYC 1010 6.0

**Degree Credit**

**Exclusions:** AS/SC PHED 3020.03

|                                   |   |   |
|-----------------------------------|---|---|
| <b><u>Course Instructors:</u></b> | Merv Mosher<br><b>359 Stong College</b><br>ext. 66922<br>mmosher@yorku.ca | Mazyar Fallah<br><b>322 Stong College</b><br>ext. 20555<br>mfallah@yorku.ca |
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|                             |                |                |
|-----------------------------|----------------|----------------|
| <b><u>Office Hours:</u></b> | by appointment | by appointment |
|-----------------------------|----------------|----------------|

**Computer Accounts:** All students require a **Moodle** account, and an “**FAS**” [**File Access Service**] account.

|                                 |   |   |
|---------------------------------|---|---|
| <b><u>Course Web Sites:</u></b> | moodle.yorku.ca<br>www.yorku.ca/mmosher | moodle.yorku.ca<br>www.yorku.ca/mfallah |
|---------------------------------|---|---|

**Laboratory Instructors:**

(to be announced)

**Lectures:** Section A - Mon. & Wed. 12:30, ACE - 102  
Section B - Mon. & Wed. 1:30, ACE - 102

**Laboratories:** Labs for Section A will be held in 125 CB.  
Labs for Section B will be held in 163 CB.  
See the York University Lecture Schedule for the days and times for labs.

\*Labs commence the week of September 10, 2012

**Required texts:**

Mosher, M., Henriques, D. Lecture Notes & Laboratory Manual: Skilled Performance and Motor Learning.

Course Readings: Posted on Moodle

**Course Evaluation:**

|                         |     |   |
|-------------------------|-----|---|
| Lab Assignments         | 15% | Weekly assignments based on labs.               |
| Mid-term exam 1         | 20% | Scheduled <i>Oct. 22</i> , during lecture time. |
| Mid-term exam 2         | 20% | Scheduled <i>Nov. 28</i> , during lecture time. |
| Final exam - 45% - 100% |     | During December exam period.                    |

*The percentage allocated for any course work not attempted/completed will be added to the final exam.*

\*\* Exams cover material from the lectures, readings and labs. All exams are cumulative \*\*

*In the event a mid-term exam is missed the percentage allocated to the exam will be added to the final. There are no make-up exams in the course.*

N.B. An appeal against a grade assigned to an item of course work must be made in writing to the course director within 7 days of the graded work being made available to the class. The result of an appeal may cause the grade to increase, decrease or remain the same.

Although numerical marks are assigned to each piece of work in this course there should be no assumption that a total number of marks translates directly to a letter grade. Letter grades will be determined by the descriptions in the York University Undergraduate Calendar.

**Students who miss the final exam** will only be allowed to write a deferred final exam if the student provides a completed Registrar's Office Attending Physician's Statement showing a physical incapability of writing the final exam, **dated the day of the final exam.**

### **Drop Date:**

Last date to drop a course without receiving a grade: **NOV. 9, 2012.**

### **Lecture Capture:**

Lectures will be digitally recorded and posted online. Please note the York University policy regarding this technology.

The York University Student Code of Conduct specifically prohibits theft of intellectual property, which includes recording a course director's lecture without his/her permission or taking lecture material provided on line, modifying it, and/or using it for your own personal use or gain. The material provided is only to be used for your personal study when you take the course for which it was created. Use in any other way will result, at the minimum, in sanctions in accordance with the York Code and, at the maximum, will be breaking federal, provincial or municipal laws and will be acted on accordingly.

### **Learning Expectations:**

After completion of KINE 3020 3.0 [Skilled Performance and Motor Learning], students will be able to:

- a) describe the basic components of the human nervous system.
- b) compare and contrast different cellular components of the human nervous system.
- c) describe key processes involved in the passage of information between neurons.
- d) describe how the nervous system controls muscles and monitors body and limb positions.
- e) describe how the brain utilizes visual information to control skilled movement.
- f) describe how various structures of the brain control human movement.
- g) identify different types of memory involved in learning.
- h) define skilled performance.
- i) describe the connotations associated with skilled behaviour.
- j) compare and contrast the common motor skill classification systems.
- k) describe methods of assessing the production and outcome of motor skills.
- l) describe characteristics of learners as they progress through stages of learning.
- m) construct a model of information processing used by skilled performers.
- n) summarize the differences in processing abilities between expert and novice performers.

### **IMPORTANT COURSE INFORMATION FOR STUDENTS**

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)

- 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

KINE 3020 3.0 Skilled Performance and Motor Learning – Fall 2012

| <b>Week Beginning</b> | <b>Monday</b>  | <b>Wednesday</b>                                       | <b>Reading</b>              | <b>Laboratory</b>                                    |
|-----------------------|--|--|-----------------------------|--|
| September 3           | Labour Day<br><b>[No Classes]</b>                      | Intro class<br>(admin details)<br>Fallah/Mosher        | See Moodle                  | Labs in this course start the week of September 10.  |
| September 10          | (Fallah starts)<br>Introduction to Nervous System      | Information Transmission                               | See Moodle                  | Lab 1<br>RT / MT<br>Brain Intro                      |
| September 17          | Sensory – Motor Systems 1:<br>Control of Muscle        | Sensory – Motor Systems 2:<br>Proprioception           | See Moodle                  | Lab 2<br>Fatal Vision                                |
| September 24          | Sensory – Motor Systems 3: Visuo-Motor Coordination    | Sensory – Motor Systems 4: Cortical Control of Movem't | See Moodle                  | Lab 3<br>Central Processing                          |
| October 1             | Sensory – Motor Systems 4: Cortical Control of Movem't | Basal Ganglia  | See Moodle                  | Lab 4<br>Mirror Tracing                              |
| October 8             | Thanksgiving<br><b>(no class)</b>                      | Cerebellum   | See Moodle                  | Lab 5<br>Sensorimotor integration and mental imagery |
| October 15            | Motor Learning   | Motor Learning & Summary                               | See Moodle                  | Lab 6<br>Speed / Accuracy                            |
| October 22            | <b>1<sup>st</sup> Midterm</b>                          | (Mosher starts)<br>Definitions/ Info Processing model  | Readings 1 to 5<br>[Moodle] | Lab 7<br>Measures of Error                           |
| October 29            | Error measures<br>Learning - Power Law                 | Co-Curricular Days<br><b>[No lecture]</b>              | Readings 6-10<br>[Moodle]   | Lab only for <u>Monday</u> sections                  |
| November 5            | Classifications / Selective Attention                  | Attention:<br>Perception Stage                         | Readings 11-15<br>[Moodle]  | Lab 8<br>Perception – Crossman's CF                  |
| November 12           | Perception Stage                                       | Decision Stage   | Readings 16-20<br>[Moodle]  | Lab 9<br>Decision - Hick-Hyman                       |
| November 19           | Decision Stage   | Effector Stage   | Readings 21-25<br>[Moodle]  | Lab 10<br>Effector - Fitts Law                       |
| November 26           | Motor Programs   | <b>2<sup>nd</sup> Midterm</b>                          | Review Readings             | Review all labs and confirm marks                    |
| December 3            | Motor Programs [last class]                            | Course completed [No Class].                           | Exam period Dec. 5 – 21     | Exam period Dec. 5 – 21                              |
| December 5-21         | <b><u>Exam Period</u></b>                              | <b><u>Exam Period</u></b>                              | <b><u>Exam Period</u></b>   | <b><u>Exam Period</u></b>                            |