

University of Victoria
School of Exercise Science, Physical and Health Education
EPHE 245 MOTOR LEARNING

Calendar Description

Units: 1.5

Hours: 3-2

Neural and cognitive processes underlying human skilled action and the factors that influence learning and control of these actions. Ways in which the human motor system enables the acquisition and retention of complex movement skills and implications for the design of instructional situations to support retention and optimal performance of skilled actions.

Course Instructors

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Meeting Times and Places

Class Monday
 Thursday 8:30 to 9:50am MCK 150

Laboratory Tuesday 1:00 to 2:50pm MCK 070
 Tuesday 3:00 to 4:50pm MCK 070
 Tuesday 5:00 to 6:50pm MCK 070
 Wednesday 1:00 to 2:50pm MCK 070
 Wednesday 3:00 to 4:50pm MCK 070
 Wednesday 5:00 to 6:50pm MCK 070

Websites www.krigolsonteaching.com
 http://coursespaces.uvic.ca/my/

The Relevance and Purpose of EPHE 245

How do we learn? What do we learn? How can we improve learning? The purpose of this course is simple – it is to provide answers to those three questions. I will let you decide the relevance of this course to your own life and future.

Learning Outcomes

At the end of this course, you will be able to:

1. Distinguish among the phenomena of motor control, motor performance, motor development, and motor learning.
2. Analyze motor tasks and be able to determine the main demands on the performer from these tasks.
3. Identify and describe the general role of the various neural processes and substrates that control motor learning and performance.
4. Compare the power of various theoretical approaches to explain the processes and outcomes of motor learning and control.
5. Analyze the capabilities and limitations of the human performer to learn and perform skilled actions.
6. Analyze the constraints on performance created by the context in which a motor skill is performed.
7. Analyze motor tasks demands in order to determine optimal practice conditions to facilitate the learning of these skilled motor actions.
8. Apply motor learning concepts and principles to design effective practice/relearning/rehabilitation environments.
9. Apply basic research and statistical principles in the examination of general motor learning and performance phenomena.
10. Write concise research reports that analyze and explain experimental data generated through laboratory examination of motor learning and performance phenomena.

These learning outcomes will be achieved through:

- Consistent participation in class discussion and activities,
- Thorough understanding of the course readings,
- Successful completion of formal and informal course assignments,
- Successful completion of laboratory assignments, and
- Thorough preparation for course examinations.

Course Text and other Resources

There is no single assigned text for this course. However, select text chapters and/or research articles will be posted on the course website so there is a textbook chapter or research article that is required reading for each chapter. Additional readings will be posted online at www.krigolsonteaching.com

Assessment

Quizzes (Daily)	20%	Daily
Exam One	20%	October 2 nd
Exam Two	20%	October 30 th
Exam Three	20%	November 27 th
Laboratory / Practicum	20%	
Total	100%	

Assessment Breakdown

Quizzes 20% of course grade
1 or 2 short questions about assigned readings
Every class

Each class will start with a short quiz on the assigned readings. There will be 18 quizzes in total worth 20% of your course grade. The quizzes will be graded simply as right or wrong (1 or 0). If you miss a class there is no chance to redo the quiz.

Exam One 20% of course grade
100 multiple choice questions
October 2nd

Your first exam will consist solely of multiple choice questions and will cover the introductory classes (Topics 1.1, 2.1, 3.1: the first six lectures). In line with the course policy on exam redos, you will have an opportunity to redo Exam One.

Exam Two 20% of course grade
6 short answer questions
October 30th

Your second exam will consist of 12 short answer questions, 4 for each section of the intermediate classes (Topics 1.2, 2.2, 3.2: the second six lectures). These questions will be provided to you at the start of each of the relevant classes. The instructor will randomly select two of the four questions for each of the three sections for you to answer. Note, you will need to incorporate material from the introductory classes to answer the short answer questions – in other words, the exam is cumulative (the first twelve classes). In line with the course policy on exam redos, you will an opportunity to redo Exam Two.

Exam Three 20% of course grade
1 essay question
November 27th

Your third exam will consist of a single essay question on all of the information covered in class. Thus, the exam is cumulative in nature – you will need to incorporate material from throughout the course to answer the essay questions. The essay question will either be:

1. How do we learn?
2. What do we learn?
3. How can we improve learning?

On the day of the exam I will randomly select one of the three exam questions and you will answer

Grade Restrictions

To pass this course you must have a passing grade in the laboratory portion of the course. If you fail the laboratory portion of the course you fail the course as a whole.

Missing / Late Work

Any late work (assignments, labs, etc) will be assigned a grade of zero. No exceptions.

Redo Policy

In this course, you will have the opportunity to redo your class exams. For exams, there is a set redo date (i.e., the Final Exam) when you can attempt to improve your score based on the feedback that is provided to you. There will also be redo opportunities in the laboratory section of the course. These opportunities will come in the form of being able to show your assignment to the teaching assistant BEFORE it is formally due. It will be up to you to ensure that the teaching assistant has sufficient time to provide feedback.

Missed Exams

Due to the redo policy any missed exams will not be made up. The student will be assigned a grade of zero and will simply have the redo opportunity on the Final Exam unless express approval is given by the course instructor before the scheduled exam date. If a student misses the Final Exam they will be given an opportunity to rewrite the exam in December of 2018. There are no exceptions to this policy.

Grade Scaling

In order to fight grade inflation, the grades of this course may be scaled up or down so that the class average falls between 80 to 82.5% with a standard deviation of 10 (i.e., a Gaussian distribution). Note, grade scaling will be employed at the course instructor's discretion. Grade scaling will also apply to the laboratory section of the course.

Course Outline

The course instructor reserves the right to change this course outline at his discretion as he feels fit to do. This course outline is not a binding contract.

Additional Information

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the Resource Centre for Students with a Disability (RCSD) as soon as possible. The RCSD staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations <http://rcsd.uvic.ca/>, the sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

Academic Integrity

Academic integrity is intellectual honesty and responsibility for academic work that you submit individual or group work. It involves commitment to the values of honesty, trust, and responsibility. It is expected that students will respect these ethical values in all activities related to learning, teaching, research, and service. Therefore, plagiarism and other acts against academic integrity are serious academic offences.

The responsibility of the institution

Instructors and academic units have the responsibility to ensure that standards of academic honesty are met. By doing so, the institution recognizes students for their hard work and assures them that other students do not have an unfair advantage through cheating on essays, exams, and projects.

The responsibility of the student

Plagiarism sometimes occurs due to a misunderstanding regarding the rules of academic integrity, but it is the responsibility of the student to know them. If you are unsure about the standards for citations or for referencing your sources, ask your instructor. Depending on the severity of the case, penalties include a warning, a failing grade, a record on the student's transcript, or a suspension.

It is your responsibility to understand the University's policy on academic integrity:

<http://web.uvic.ca/calendar2012/FACS/UnIn/UARe/PoAcI.html>

EPHE 245 Course Overview

	Introductory	Intermediate	Advanced
How We Learn (Learning)	1.11 Repetition & Expertise	1.21 Hebbian Learning	1.31 LTP, LTD & Synaptic Plasticity
	1.12 Feedback & Feedback Scheduling	1.22 Other Types of Learning (RL, OL, SL)	1.32 Dopamine
What We Learn (Memory)	2.11 Human Memory and Procedural Memories	2.21 Motor Schemas	2.31 Neural Basis of Motor Skills
	2.12 Motor Programs	2.22 Motor Primitives	2.32 Predictive Models
How We Can Improve Learning (Instruction)	3.11 Distributed Practice	3.21 Variable Practice	3.31 Specificity of Practice
	3.12 Random Practice	3.22 Part / Whole Practice	3.32 Mental Imagery

Important Dates

Thursday September 7 th	0.0.0 INTRODUCTION
Monday September 11 th	1.1.1 Repetition & Expertise
Thursday September 14 th	1.1.2 Feedback
Monday September 18 th	2.1.1 Procedural Memory (T. Berman)
Thursday September 21 st	2.1.2 Motor Programs
Monday September 25 th	3.1.1 Distributed Practice
Thursday September 28 th	3.1.2 Random Practice
Monday October 2 nd	EXAM ONE
Thursday October 5 th	1.2.1 Hebbian Learning
Monday October 9 th	THANKSGIVING
Thursday October 12 th	1.2.2 Other Types of Learning (C. Hassall)
Monday October 16 th	2.2.1 Motor Schemas
Thursday October 19 th	2.2.2 Motor Primitives
Monday October 23 rd	3.2.1 Variable Practice
Thursday October 26 th	3.2.2 Part / Whole Practice (V. Planella)

Monday October 30 th	EXAM TWO
Thursday November 2 nd	1.3.1 LTP and LTD
Monday November 6 th	1.3.2 Dopamine
Thursday November 9 th	2.3.1 Neural Basis of Motor Skills (C. Williams)
Monday November 13 th	READING BREAK
Thursday November 16 th	2.3.2 Predictive Models
Monday November 20 th	3.3.1 Specificity of Practice
Thursday November 23 rd	3.3.2 Mental Imagery
Monday November 27 th	EXAM THREE
Thursday November 30 th	REVIEW

Note. Some of your scheduled classes will be taught by graduate students (your laboratory instructors). Graduate student teaching is a regular part of course instructor and is to be expected.

EPHE 245 Motor Learning Practicum

As opposed to completing a traditional class laboratory, you have the opportunity to go out into the “real world” and watch / help people learn. For instance, you could volunteer as a coach, help at a physiotherapy clinic, etc.

The purpose of the practicum is to see motor learning theory occurring in a real world environment. A practicum for instance at a dental office would not be appropriate. You need to find an environment where people are either learning or re-learning motor skills.

It will be entirely up to you to find an appropriate practicum and verify it’s appropriateness with the course instructor. Only then, will you be allowed to stop attending your assigned laboratory section. DO NOT start missing your assigned laboratory section BEFORE you have an approved practicum in place.

Requirements:

- i) 40 hours of volunteer time
- ii) A supervisor (teacher, medical doctor, physiotherapist, etc)
- iii) Course instructor approval

Assessment:

- a) Daily Journal (50% of practicum grade: 10% of course grade)
In this journal you will summarize what you did with each unit of time (each practice, game, volunteer session). You need to specifically describe what you did in detail and what you “learned”. You need to also relate what you see to course concepts and content. I would strongly advise showing me your first entry or two to ensure you are on the right track.
- b) Written Summary Paper (50 % of practicum grade: 10 % of course grade)
You will write a 6 to 8 page paper detailing how you either observed or integrated course content during your practicum. For instance, you may choose to try some of the learning improvement strategies we discuss in class or you may see the stages of learning occur. This paper is an opinion paper and the format is largely up to your but it must VERY CLEARLY relate things you saw to course content. Further, you must reference course content with the appropriate citations. The paper must also meet APA guidelines.
- c) Verification of Hours
You must track / record your hours and your “supervisor” must sign off on these hours. The lab coordinator will also be personally contacting all supervisors to verify that you have completed the appropriate number of volunteer hours.

Due:

All practicums must be completed before the end of the current semester.

EPHE 245 Motor Learning Practicum
Approval Form

Student Name:

Student V00 Number:

Laboratory Section:

Proposed Practicum Placement:

Reason for Choosing This Practicum Placement:

Proposed Practicum Location:

Proposed Supervisor Name:

Proposed Supervisor Position:

Proposed Supervisor Contact Information:

 Phone:

 Email:

Student Signature:

Date:

Course Instructor Approval:

Date: