Department of Kinesiology and Physical Education
McGill University

EDKP 208: Biomechanics and Motor Learning (3 credits)
Winter 2019

Coordinator: Caroline Paquette, PhD
Office: room 224, Currie Gymnasium
Phone number: (514) 398-4184 x00890
E-mail: caroline.paquette@mcgill.ca
Office hours: Tuesdays 1-3PM, Thursdays 2-4PM or by appointment

Teaching Assistants: Dorelle Hinton
dorelle.hinton@mail.mcgill.ca
Alexandra Potvin-Desrochers
alexandra.potvin-desrochers@mail.mcgill.ca

Course Assistant - Tomlinson Engagement Awardee for Mentoring (TEAM):
Zachary Hazan
zachary.hazan@mail.mcgill.ca
Darelle Pool
darelle.pool@mail.mcgill.ca
Office hours: By appointment

Lectures (13 weeks)
Tuesdays & Thursdays 11:35-12:55 pm
Currie 408/9

Tutorials (13 weeks)
Thursdays 1:05-1:55 pm
Currie 304 (teaching lab)

Prerequisites: EDKP 293 Anatomy & Physiology
Restrictions: Not open to those who have taken or are taking EDKP 206

1. Course Description

This course is designed to provide physical and health education students with basic, qualitative, theoretical knowledge of biomechanics and motor learning. Applicable strategies to integrate and implement this knowledge to improve teaching and coaching skills in sport, dance and physical activity will be addressed.

2. Learning Outcomes

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

1. Summarize the basic principles, applications and theoretical concepts in biomechanics and the acquisition of motor learning;
2. Teach and apply these concepts in education and sport situations;
    a. Teach biomechanics/motor learning principles;
    b. Analyze a sport skill qualitatively and apply motor learning principles to improve performance.

3. Course Content

Calendar (subject to minor changes)  *Denotes oral presentations by students*

	Biomechanics		Motor Learning		Review	
wk	**date**	**Tu 11:35pm to 12:55pm**	**date**	**Th 11:35pm to 12:55pm**	**date**	**Th 1:05pm to 1:55pm**
1	1/8	Introduction	1/10	Processing Information (Schmidt, Ch. 2)	1/10	Review (optional)
2	1/15	Forces (McGinnis, Ch. 1)	1/17	Attention and Performance (Schmidt, Ch. 3)	1/17	Review (optional)
3	1/22	Linear Kinematics (McGinnis, Ch. 2)	1/24	Sensory Contributions (Schmidt, Ch. 4)	1/24	Review (optional)
4	1/29	Linear Kinetics (McGinnis, Ch. 3)	1/31	Sensory Contributions (Schmidt, Ch. 4)	1/31	Review (optional)
5	2/5	Work, Power, and Energy (McGinnis, Ch. 4)	2/7	Motor Programs (Schmidt, Ch. 5)	2/7	Review (optional)
6	2/12	Torques and Moments (McGinnis, Ch. 5)	2/14	Speed, Accuracy, Coordination (Schmidt, Ch. 6)	2/14	Review (optional)
7	2/19	Review for Midterm	2/21	Midterm Exam (Lectures wk 1-6)	2/21	Review (optional)
8	2/26	Angular Kinematics (McGinnis, Ch. 6)	2/28	Motor Learning (Schmidt, Ch. 8-9)	2/28	Review (optional)
	3/5	**Study Week (No Class)**				
9	3/12	Angular Kinetics (McGinnis, Ch. 7)	3/14	Organizing Practice (Schmidt, Ch. 10)	3/14	Review (optional)
10	3/19	Qualitative Biomechanical Analysis (McGinnis, Ch. 13)	3/21	Augmented Feedback (Schmidt, Ch. 11)	3/21	Review (optional)
11	3/26	Fluid Mechanics (McGinnis, Ch. 8)	3/28	Augmented Feedback (Schmidt, Ch. 11)	3/28	Review (optional)
12	4/2	Qualitative Biomechanical Analysis (McGinnis, Ch. 14)	4/4	Motor Learning Review	4/4	Review (optional)
13	4/9	Biomechanics Review	4/11	Review for Final Exam	4/11	Review (optional)
EXAM PERIOD: Final Exam (Comprehensive with focus [75%] on Lectures wk 8-13)						

4. **Instructional methods**

Lecture: PowerPoint presentations available through MyCourses.

5. **Course materials**

McGinnis, P.M. (2013). Biomechanics of Sport and Exercise (3rd Edition). Human Kinetics.

Schmidt, R.A., Lee, T.D. (2014). Motor Learning and Performance. (5th Edition). Human Kinetics.

Hardcopies of these books are available for purchase at Librarie Paragraphe (2220 McGill College Avenue)

eTextbook options available online at www.humankinetics.com

6. **Student Assignment and Evaluation**

Midterm Exam: Lectures wk 1-7	25%
Final Exam: Comprehensive with focus [75%] on wk 8-13	30%
In class quizzes (best of 2)	10%
Oral Presentation	
Presentation	20%
Peer Assessment	5%
Attendance & filling out peer assessment	10%
Total	**100%**

Exams (55%):

Exams will evaluate your knowledge of the material covered during lecture. The final exam will occur within the exam period at a date and time to be announced by the Exam Office (http://www.mcgill.ca/students/exams). Students are advised **NOT** to make travel arrangements until after the final exam schedule has been posted. The final exam **WILL** be cumulative, but weighted more heavily on the material covered in the second half of the course.

Oral Presentation (35%):

Student teams will be required to teach a biomechanics or motor learning concept. Students will be assigned to one of eight groups (~ 6 students per group). Topics will be randomly assigned and communicated after Tuesday January 22, 2019 (Add/Drop deadline). Presentations will have a duration of 40 +/- 5 minutes.

1- Presentation – 25%

You will team-teach the assigned topic during regular class time. The instructor and TA will be following a detailed rubric to grade your presentation (rubric available on MyCourses). Twenty percent of your final grade will be assigned with that rubric. The other 5% will come from peer evaluation (as described in the next point).

2- Peer evaluation – 10%
Every student in class will be required to grade the oral presentations (except your own). Evaluations will be filled online through MyCourses and will have to be completed by midnight on the day of the presentation. A penalty of 1 point per day late, including weekends will be enforced. Attendance to the oral presentations will be taken. If you are not in class for oral presentations or if you come in late, you will not be allowed to provide peer evaluations and points for your peer evaluation will be deducted. You will lose 3 points per class missed.

7. **Right to write in English or in French**

"In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded."

8. **Academic integrity**

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see http://www.mcgill.ca/integrity for more information).

L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le site http://www.mcgill.ca/integrity).

I encourage you to visit the above-mentioned websites as soon as possible to insure that you are aware of the definitions of cheating, plagiarism and other academic offences that are used by McGill. Simply taking this initiative may help you avoid accidental and unfortunate situations.

In addition, I encourage you to visit the following website for precious help on how to refer to internet resources in your assignments, and especially, how to critically evaluate the scientific value of what you read on the internet: http://www.mcgill.ca/library/library-findinfo/internet/

9. **MELS Professional Competencies for the Teaching Profession relevant to EDKP208**

This course provides an opportunity for students to develop 3 of the 12 core competencies required in the teaching profession.

Competency 1– To act as a professional who is inheritor, critic and interpreter of knowledge or culture when teaching students.
As in most theory courses the knowledge taught in this course will allow students to use this information as part of their overall strategy to help them select the underlying reasons driving their methods in a classroom setting. Information from this course will provide a strong rationale to inform the student's professional approach as a physical

and health educator. This will be useful in guiding, justifying and explaining the curriculum to their students. Evaluation procedures will check the level of competence and understanding as it relates to this information.

Competency 2- To communicate in the language of instruction, both orally and in writing, using correct grammar, in various contexts related to teaching.
Specific terminology and vocabulary used with this subject matter is taught. This knowledge will enhance the students' ability to effectively communicate ideas and subject matter using appropriate writing and speaking skills for the subject material. This is a good opportunity for prospective teachers to develop linguistic competency in general and specifically to the scientific terminology used in biomechanics and motor learning.

Competency 8- To integrate information and communications technologies (ICT) in the preparation and delivery of teaching and learning activities and for instructional management and professional development purposes.
In this theory course technologies including animation software, internet, MyCourses, and computer presentation software are used to enhance the learning environment of the student. This technology is easy to use and is very accessible and applicable to the student for future use as teachers in the field. There are also many situations where this technology is not applicable to the learning situation and the students will have an opportunity to see examples of and recognize the advantages and limitations of using such technology in certain teaching situations. Other approaches that are more practical will also be used in the course and will help the student recognize the relative advantages and disadvantages of ICT with this course material. More practically, the student's appropriate use, and plan for use, of video technology in assessing performance within a physical and health education setting will be evaluated.