

Department of Kinesiology and Physical Education
McGill University

EDKP 208: Biomechanics and Motor Learning (3 credits)
Winter 2022

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Lectures (13 weeks)

Mondays & Wednesdays 11:35 am - 12:55 pm **Currie 305/6**

Tutorials (13 weeks)

Mondays 4:35 pm - 5:25 am **Currie 304**

Prerequisites: EDKP 293 Anatomy & Physiology

Restrictions: Not open to those who have taken or are taking EDKP 206

This course includes in-person teaching, and learning activities that have been planned in accordance with public health directives and McGill's protocols. It is important, however, to ensure you have read and abide by the following:

- Please review and follow the [Health Guidelines for Students](#), and it is imperative that you understand when to stay home if, for example, you are [experiencing COVID-19 symptoms](#).
- If you develop COVID-19 symptoms while on campus, please follow the [required guidelines](#), which include ensuring you have a mask on, isolate in a closed, private room, immediately call 1-877-644-4545 (Info-Santé) for instructions, and notify the University by calling 514-398-3000.
- **Masks are required in classrooms settings**, at all times, and masks will be available for you on campus. Masks are also to be worn when entering and circulating in buildings and classrooms.

- If you are in a situation that might require you to miss some lectures or assignments because of short-term absences due to COVID-19, you are to request an academic accommodation using the online form found under the “Personal” menu in Minerva; the form is called “**COVID-19 Academic Accommodations Request Form**”. You are asked to use this form instead of requesting accommodations directly from your instructor.
- Finally, the context of attending University during a pandemic will bring on additional stress and may impact your wellbeing. Please do not hesitate to reach out for support if necessary, and access the many resources available, including, for example, [Student Services](#), the [Office of the Dean of Students](#), and your Faculty’s Student Affairs Office.

In the event of extraordinary circumstances beyond the University’s control, the content and/or evaluation scheme in this course is subject to change.

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.

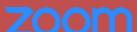
2. Learning Outcomes

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 (subject to minor changes)

Motor Learning **Biomechanics** **Review/Tutorial** **LABORATORY** 

wk	date	Mon 11:35am to 12:55pm	date	Mon 4:35pm to 5:25pm	date	Wed 11:35am to 12:55pm
1					1/5	Introduction 
2	1/10	Processing Information (Schmidt, Ch. 2) 			1/12	Attention and Performance (Schmidt, Ch. 3) 
3	1/17	Sensory Contributions (Schmidt, Ch. 4) 			1/19	Sensory Contributions (Schmidt, Ch. 4) 
4	1/24	LAB 1: Prism & Mirror Drawing  Lab reports – How to	1/24	Review (Highly recommended!)	1/26	Forces (McGinnis, Ch. 1)
5	1/31	Linear Kinematics (McGinnis, Ch. 2)	1/31	Review (optional)	2/2	Linear Kinetics (McGinnis, Ch. 3)
6	2/7	Motor Programs (Schmidt, Ch. 5)	2/7	Review (optional)	2/9	Work, Power, and Energy (McGinnis, Ch. 4)
7	2/14	Speed, Accuracy, Timing (Schmidt, Ch. 6)  LAB 2: Fitt's	2/14	QUIZ	2/16	Torques and Moments (McGinnis, Ch. 5)  LAB 3: Torque
8	2/21	Review for Midterm	2/21	Review (optional)	2/23	Midterm Exam (Lectures weeks 1-7)
	2/28	Study Week (No Class)				
9	3/7	Motor Learning (Schmidt, Ch. 8-9)	3/7	Review (optional)	3/9	Angular Kinematics (McGinnis, Ch. 6)
10	3/14	Organizing Practice (Schmidt, Ch. 10)  LAB 4: Cup stacking	3/14	Review (optional)	3/16	Angular Kinetics (McGinnis, Ch. 7)
11	3/21	Augmented Feedback (Schmidt, Ch. 11)	3/21	Review (optional)	3/23	Fluid Mechanics (McGinnis, Ch. 8)
12	3/28	Augmented Feedback (Schmidt, Ch. 11)	3/28	Review (optional)	3/30	Qualitative Biomechanical Analysis (McGinnis, Ch. 13)
13	4/4	QUIZ  LAB 5: Guidance	4/4	Review (optional)	4/6	Qualitative Biomechanical Analysis (McGinnis, Ch. 14)
	4/11	Review for Final Exam	4/11	Review (optional)		
EXAM PERIOD: Final Exam (Comprehensive with focus [~75%] on Lectures weeks 9-13)						

4. **Instructional methods**

Lecture: PowerPoint presentations available through MyCourses.

Laboratories:

1. January 24 – LAB 1: Prism/mirror drawing
2. February 14 – LAB 2: Fitt's Law
3. February 16 – LAB 3: Torque
4. March 14 – LAB 4: Cup stacking
5. April 4 – LAB 5: Guidance

5. **Required course materials**

McGinnis, P.M. (2020). Biomechanics of Sport and Exercise (4th Edition). Human Kinetics.

Schmidt, R.A., Lee, T.D. (2020). Motor Learning and Performance. (6th Edition). Human Kinetics.

Textbooks are available for purchase at Librairie Paragraphe (2220 McGill College Avenue)

eTextbook options available online at www.humankinetics.com

Available at McGill Library (Course Reserves)

6. **Student Assignment and Evaluation**

Midterm Exam: Lectures wk 1-7	25%
Final Exam: Comprehensive with focus [75%] on wk 9-13	35%
Quizzes (2)	10%
<u>Laboratory Reports (5)</u>	<u>30%</u>
Total	100%

Exams (60%):

Exams will evaluate your knowledge of the material covered during lectures and laboratories. 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.

Quizzes (10%):

Two quizzes will take place over the semester. The focus will be on Biomechanics material but will also include a few questions on Motor Learning.

Laboratory Reports (30%):

Five laboratory will span over the semester. Students will work in groups to collect data, as specified for each laboratory. A group laboratory report will be due 1 week after completing the laboratory with the exception of LAB 3 on Torque to be submitted at the end of the laboratory.

7. McGill Policy Statement: 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. This does not apply to courses in which acquiring proficiency in a language is one of the objectives.” (Approved by Senate on 21 January 2009)

8. Consequences of not completing assignments as requested

An individual who does not complete a required assignment and does not have a university recognized reason for deferral would receive a zero (0) in that portion of the evaluation. Assignments submitted late will receive a penalty of 10% per day late, including weekends.

9. Use of McGill Email Address

We will only communicate with students on their official email address. No response will be provided on non-McGill email addresses.

10. 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](#)” (Approved by Senate on 29 January 2003) (See [McGill’s guide to academic honesty](#) 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 [guide pour l'honnêteté académique de McGill](#). »

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.

11. 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.

12. **Health and safety guidelines**

Please note that this format for the delivery of this course is unusual and must respect the guidelines of health and safety ([General health guidelines | Coronavirus information - McGill University](#)). It is explained by our current extraordinary circumstances, and aims to allow you, as students, to complete this term with the requisite knowledge for this course, and to succeed in your assessments. I ask for everyone's collaboration and cooperation in ensuring that these guidelines are respected. Please note that these conditions may change at anytime following new directives from the government or the University.

DISTANCING

The status of physical distancing is now:

- 0 No distancing in classrooms,**
- 1 One metre in common areas, including shared research spaces, laboratories, offices, and other workplaces.**
- 2 Two metres required when eating or drinking, working out in fitness centres.

MASKS

Procedural masks **are required in all indoor spaces at McGill**, including classrooms.

However, Professors do not need to wear a mask when teaching and remaining at least two metres away from others. Students are required to wear masks at all time indoor (except when eating or drinking or working out in fitness centres).

Eating and drinking in classrooms and teaching labs is prohibited, with the exception of a quick drink of water, if necessary.

DAILY HEALTH CHECK FORM

The daily health check form is still a requirement for all McGill staff before you come to campus. Students must assess their health using the self-assessment found in [General health guidelines | Coronavirus information - McGill University](#)

CLASSROOM VENTILATION

All centrally booked classrooms that are being used in the Winter 2022 term have been assessed to ensure ventilation follows the Government's COVID-19 guidelines.

VACCINATION

- Proof of vaccination is not required for students and instructors to engage in teaching activities on our campuses.
- Here is all the information you need to get vaccinated:
<https://www.mcgill.ca/coronavirus/health-safety/get-vaccinated>.
- If you are undecided or still find you are missing information about the COVID-19 vaccine, please take a moment to visit this page:
<https://www.mcgill.ca/coronavirus/health-safety/get-vaccinated/undecided-about-getting-vaccinated>.

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