

**THE UNIVERSITY OF BRITISH COLUMBIA**  
**School of Human Kinetics**  
**Human Kinetics 230**

**Human Motor Behaviour I**

**Instructor:** Dr. Ian M Franks  
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**Lectures:** Wednesday: 5:00 pm – 8:00 pm

Room: Angus 226 and Computer Room WMG

**Course Description**

HKIN 230 provides a foundation for understanding the characteristics and principles of motor learning and control and how different factors influence learning and performance. This course is an introduction to the area of human motor learning and control. It introduces students to the cognitive processes that underlie human movement, the process of learning motor skills and the factors that influence acquisition, performance, and control. Students of this course will gain knowledge, appreciation, and understanding of the conceptual and empirical foundations in motor learning and control.

**Course Text**

Schmidt, R.A., and Lee, T.D. (2005). *Motor Control and Learning: A Behavioral Emphasis (4<sup>th</sup> Ed.)*. Champaign, Illinois: Human Kinetics Publishers.

**Course Learning Objectives**

As part of the learning objectives of this course, students will:

1. Discuss fundamental principles and concepts in motor learning and control.
2. Define and explain the essential terms and language used in motor learning and control.
3. Discuss the role of cognition, attention, and memory in motor learning and control.
4. Discuss the roles of knowledge of results and transfer of learning in motor skill acquisition.
5. Discuss the foundations of practice techniques and organization.
6. Discuss how the information-processing framework is applied to the study of motor learning and control.
7. Discuss the rationale of research methods and experiments in motor learning and control.
8. Discuss how concepts and principles in motor learning and control can be applied to teaching, skill development, and performance.

**Structure**

This will be a 3-credit lecture course with lectures on Wednesday. The lectures will focus upon the concepts, principles, and research in human motor learning and control from a behavioural level of analysis and will **complement** the readings from the text. In addition there will be either, a laboratory, demonstration, quiz or discussion (or a combination) during the second part of scheduled lecture time.

Students are responsible for reading relevant chapters of the text **in advance of classroom lectures and discussion**. The text contains more material than can be covered directly in class. **Students are responsible for this material and it will be tested during quiz and final exams**. In addition, material will be covered in the lectures that will **not** appear in the readings. **This material will also be tested**.

### Assessments and Examinations

Assessment of learning objectives will be conducted through written examinations and quizzes . Exams and quizzes will cover material from all lectures, reading, discussions, demonstrations and laboratories. There will be 4 quizzes given throughout the course and the student can select the best 3 marks for inclusion in their final grade. The lab exam will be conducted during class time toward the end of the year. The final exam will be cumulative and inclusive of all material covered in the course.

Students must write the final exam, lab exam and at least 3 quizzes in order to complete the course. There will be no make up times for lab exam or quizzes. Also this course will adhere to the final exam date set by the University. As per University regulations, no exceptions to the date of the final exam will be made.

### Evaluation Profile and Exam Dates

The following weightings will be used to convert raw marks to a final grade percentage at the completion of the course:

Quizzes (3 x 10%)	30%	TBA
Laboratory Examination	20%	TBA
Final Examination	50%	TBA

### Lecture Topics and Readings

#### **Lecture 1. Measurement**

Conceptual Overview  
Research Methodology  
Measurement of Motor Performance

Chapter 1: Evolution of a field of study (Optional)  
Chapter 2: Methodology for studying motor behavior

#### **Lecture 2. Systems Analysis of Human Performance**

Information Processing Framework  
Stages of Information Processing  
Factors Influencing Information Processing

Chapter 3: Human information processing (52-79)

#### **Lecture 3. Attention**

Frameworks of Attention  
Attention and Task Performance  
Attention and Interference  
Directed Attention

Chapter 4: Attention and Performance

#### **Lecture 4. Sensory Motor Control**

Basic Systems of Control  
Sensory Contributions  
Closed Loop Processes

Chapter 5: Sensory contributions to motor control

#### **Lecture 5. Open loop control**

Central Contributions  
Open Loop Processes

Chapter 6: Central contributions to motor control

#### **Lecture 6. Motor Programs**

Inhibition of programmed movements  
Motor Programs

Chapter 6: Central contributions to motor control

#### **Lecture 6. Fitts Law**

Logarithmic speed accuracy trade-off  
Linear speed accuracy trade-off  
Explanations of Fitts Law

Chapter 7: Principles of speed & accuracy (207-224)

#### **Lecture 7. Coordination**

Dynamic-Pattern Theory

Chapter 8: Coordination

#### **Lecture 8. Motor Learning**

Defining and Assessing Motor Learning  
Methodologies in Learning  
Learning and performance

Chapter 13 The learning process

#### **Lecture 9. The Process of Learning**

Characteristics of Learning  
Theories of Motor Learning

**Lecture 10. Conditions of Practice**

Prepractice Considerations

Distribution of Practice

Variability of Practice

Specificity of Practice

Mental Practice

Whole and Part Practice

**Lecture 11. Augmented Feedback**

Feedback Definitions

Effects of Feedback

Feedback Delivery

**Lecture 12. Retention and Transfer**

Retention and Memory

Assessing Retention

Transfer of Learning

Assessing Transfer

Chapter 11: Conditions of practice

Chapter 12: Augmented feedback

Chapter 14: Retention and transfer