Queen's University
School of Kinesiology and Health Studies

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<td>Course Name:
KNPE 261/3.0

Theory of Motor Behaviour and Motor Learning</td>
<td>Course Instructor:

Dr. Darrin Wijeyaratnam</td>
<td>Contact Hours:

Lectures: 2 x 1.5 hrs / 12 weeks
Labs: 1 x 2 hrs / 12 weeks

Prerequisite:

Level 2 or above and registration in a KINE Plan.

Exclusion:

N/A</td>
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<td colspan="2">Course Description:

This course will explore the acquisition of motor skills. The principles and theories outlined in this course will provide students with a basic knowledge of sensorimotor behaviour for applications in physical education, kinesiology, and rehabilitation. The main objective of the course is to understand motor skill acquisition, and the principles and procedures available to optimize learning in physical activity programs.

In this course, motor behaviour will be examined from both theoretical and experimental perspectives. The first portion of the course will focus on how movement performance is measured, how information is processed during movement preparation, and how sensory information and motor-control processes contribute to skilled action. The second portion will examine how movement changes through practice, including sensorimotor adaptation, practice conditions, augmented feedback, retention, and transfer. Laboratory activities will provide students with opportunities to collect and analyze human movement data and use those observations to evaluate principles introduced during lectures.</td>
<td>Course Texts:

This course has no required texts.

Students who would like an additional reference may find the following texts useful:
• Schmidt, R. A. & Lee, T. D. (2011). Motor control and learning: A behavioural emphasis (5th ed.). Human Kinetics.
• Lee, T. D., & Schmidt, R. A. (2026). Motor Learning and Performance: From Principles to Applications (7th ed.). Human Kinetics.</td>
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<td colspan="2">Learning Outcomes:

• Describe and distinguish major concepts, principles, and theoretical approaches related to motor performance, motor control, and motor learning.
• Identify and interpret measures of human motor behaviour, including measures of response speed,</td>
<td>Course Evaluation:

Laboratory portfolio 40% (10% x 4)
Midterm examination 20%
Final examination 40%</td>
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movement accuracy, consistency, variability, and learning. • Explain how perceptual, cognitive, sensory, and motor processes contribute to the preparation, control, and execution of movement. • Apply theoretical principles of motor behaviour, including information-processing models, stimulus–response compatibility, speed–accuracy relationships, sensory feedback, motor programs, and motor-learning principles, to novel movement situations. • Differentiate changes in motor performance from evidence of motor learning and explain how acquisition, retention, and transfer tests are used to evaluate learning. • Collect, organize, analyze, visualize, and interpret experimental data from human motor-behaviour tasks using appropriate descriptive and inferential approaches. • Evaluate experimental evidence and communicate scientific findings clearly, including developing hypotheses, interpreting results relative to theory, identifying limitations, and drawing evidence-based conclusions. • Apply principles of motor learning to practical contexts, including physical activity, sport, rehabilitation, and other settings in which motor skills are acquired or modified.	

Course Outline

Introduction to motor behaviour	Sensory conflict and de novo learning
Measuring movement and behaviour	Retention and Transfer
Information processing	Visuomotor adaptation
Response selection and complexity	Motor abilities and individual differences
Response compatibility	Organizing and scheduling practice
Sensory contributions to skilled performance: Vision and proprioception	Augmented feedback
Speed–accuracy trade-offs	Learning through instructions and observation
Fitts' Law	Postural control and sensory reweighing
Motor programs and motor equivalence	Motor learning in applied and clinical contexts
Feedback, online control and coordination	Integration: From stimulus to skilled action
Processes and stages of motor learning	