UNSW Course Outline

EXPT2151 Motor Learning and Motor Control - 2024

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General Course Information

Course Code : EXPT2151
Year : 2024
Term : Term 3
Teaching Period : T3
Is a multi-term course? : No
Faculty : Faculty of Medicine and Health
Academic Unit : School of Health Sciences
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

In this course, you will develop a broad understanding of how we coordinate, control and learn voluntary movement. This course explores the underlying neurophysiology of motor control and the concepts and processes that underpin controlled movement, motor learning and fatigue that

are relevant to the role of an exercise and physiotherapy practitioner. You will gain a greater understanding of the structure of the nervous system and how it affects motor control. In addition, you will gain a better understanding of how motor performance and motor learning can be measured and of the associated theories and concepts that underpin the control of voluntary movement such as attention, memory and sensory integration. By the end of this course, you will have the knowledge and capability to assess motor skill proficiency and design training and development programs that optimise the quality of skill acquisition in a range of exercise contexts.

Course Aims

This course aims to provide you with a comprehensive understanding of the neurophysiology of motor control and the factors influencing controlled movement and motor learning relevant to the exercise science, exercise physiology, and physiotherapy professions.

Relationship to Other Courses

Assistance with progression checking:

If you are unsure how this course fits within your program, you can seek guidance on optimising your program structure from staff at the Nucleus Student Hub.

Progression plans for UNSW Medicine and Health programs can be found on the UNSW Medicine & Health website.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Describe the structure and function the components of the neuromuscular and sensory systems as they relate to the control of voluntary and involuntary movements
CLO2 : Explain the changes in motor function that may occur with motor learning and development across the lifespan.
CLO3 : Explain the strengths and limitations of techniques to assess processes of motor learning and motor control
CLO4 : Compare the common theoretical models proposed to explain motor control and the processes of motor learning
CLO5 : Assess a client's motor function in physical activity and exercise, and apply risk management and risk assessment concepts of exercise science associated with motor learning and control
CLO6 : Design motor learning environments and protocols for physical activity and exercise to maximise a client's specific motor learning and control outcomes

Course Learning Outcomes	Assessment Item
CLO1 : Describe the structure and function the components of the neuromuscular and sensory systems as they relate to the control of voluntary and involuntary movements	• Educational presentation project • Final exam
CLO2 : Explain the changes in motor function that may occur with motor learning and development across the lifespan.	• Movement assessment and learning design skills • Educational presentation project • Final exam
CLO3 : Explain the strengths and limitations of techniques to assess processes of motor learning and motor control	• Movement assessment and learning design skills • Educational presentation project • Final exam
CLO4 : Compare the common theoretical models proposed to explain motor control and the processes of motor learning	• Movement assessment and learning design skills • Educational presentation project • Final exam
CLO5 : Assess a client's motor function in physical activity and exercise, and apply risk management and risk assessment concepts of exercise science associated with motor learning and control	• Movement assessment and learning design skills
CLO6 : Design motor learning environments and protocols for physical activity and exercise to maximise a client's specific motor learning and control outcomes	• Movement assessment and learning design skills • Final exam

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

All course materials and course announcements are provided on the course learning management system, Moodle.

By accessing and using the ICT resources provided by UNSW, you are agreeing to abide by the 'Acceptable Use of UNSW ICT Resources' policy particularly on respect for intellectual property and copyright, legal and ethical use of ICT resources and security and privacy.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Educational presentation project Assessment Format: Group	30%	Start Date: Not Applicable Due Date: Week 5: 07 October - 13 October
Movement assessment and learning design skills Assessment Format: Individual Short Extension: Yes (2 days)	30%	Start Date: Not Applicable Due Date: 10/11/2024 11:59 PM
Final exam Assessment Format: Individual	40%	Start Date: Not Applicable Due Date: During Exam Period

Assessment Details

Educational presentation project

Assessment Overview

In this assignment, you will choose a motor control topic discussed in the first half of the term. You will work together in groups of 3-4 to create and deliver a presentation supported by PowerPoint slides, that explains a fundamental motor control concept and its application in exercise science. To enhance your presentation, you are encouraged to integrate information from the provided course material and supplement it with findings from academic literature. You will have the autonomy to choose your group members, as long as all group members are enrolled in the same timetabled class. Formative feedback on your chosen presentation topic and design will be provided early in the term and the presentations will be delivered in the middle of the term.

Feedback will be provided within 10 business days of completion of the assessment.

Course Learning Outcomes

- CLO1 : Describe the structure and function the components of the neuromuscular and sensory systems as they relate to the control of voluntary and involuntary movements
- CLO2 : Explain the changes in motor function that may occur with motor learning and development across the lifespan.
- CLO3 : Explain the strengths and limitations of techniques to assess processes of motor learning and motor control
- CLO4 : Compare the common theoretical models proposed to explain motor control and the processes of motor learning

Detailed Assessment Description

In this assignment, you will collaborate in groups of 3-4 students to create an 8-minute presentation on a motor control topic covered in the first half of the term. Your presentation should explain a fundamental motor control concept and its application in exercise science, utilising a maximum of 10 supporting slides.

Further details provided on Moodle.

Assessment Length

- 8 minutes (10 slides)

Submission notes

Refer to Moodle for submission information

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

Generative AI Permission Level

Planning/Design Assistance

You are permitted to use generative AI tools, software or services to generate initial ideas, structures, or outlines. However, you must develop or edit those ideas to such a significant extent that what is submitted is your own work, i.e., what is generated by the tool, software or service should not be a part of your final submission. You should keep copies of your iterations to show your Course Authority if there is any uncertainty about the originality of your work.
If your Convenor has concerns that your answer contains passages of AI-generated text or media that have not been sufficiently modified you may be asked to explain your work, but we recognise that you are permitted to use AI generated text and media as a starting point and some traces may remain. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.
For more information on Generative AI and permitted use please see here.

Movement assessment and learning design skills

Assessment Overview

This practical assessment task will assess your ability to evaluate an individual's gross motor

skill and use motor learning theory and techniques to elicit changes in their movement patterns and skill outcome.

You will be required to submit a short video of a participant of your choice (friend/housemate/ partner/family member etc.) performing a skill they have very little experience with. The skill should be safe, and not primarily dependent on a component of fitness (e.g. running, pull-up, etc.), some recommended skills will be provided on Moodle. You will then be required to identify any errors or inefficient movement patterns of the participant that are impacting skill completion/performance and implement 2 strategies (e.g. demonstration, instruction, feedback, constraint manipulation, etc.) to assist the participant's learning of the skill.

The assessment is due at the end of term.

Feedback will be provided within 10 business days of submission.

Course Learning Outcomes

- CLO2 : Explain the changes in motor function that may occur with motor learning and development across the lifespan.
- CLO3 : Explain the strengths and limitations of techniques to assess processes of motor learning and motor control
- CLO4 : Compare the common theoretical models proposed to explain motor control and the processes of motor learning
- CLO5 : Assess a client’s motor function in physical activity and exercise, and apply risk management and risk assessment concepts of exercise science associated with motor learning and control
- CLO6 : Design motor learning environments and protocols for physical activity and exercise to maximise a client’s specific motor learning and control outcomes

Detailed Assessment Description

In this practical assessment, you will assess an individual's gross motor skill and implement motor learning techniques to improve their performance.

You will be required to submit a short video of a participant of your choice (friend/housemate/ partner/family member etc.) performing a skill they have very little experience with. The skill should be safe, and not primarily dependent on a component of fitness (e.g. running, pull-up, etc.), some recommended skills will be provided on Moodle. You will then be required to identify any errors or inefficient movement patterns of the participant that are impacting skill completion/performance and implement 2 strategies (e.g. demonstration, instruction, feedback, constraint manipulation, etc.) to assist the participant's learning of the skill.

Further details provided on Moodle.

Assessment Length

- 5minutes

Submission notes

Refer to Moodle for submission information

Assignment submission Turnitin type

This is not a Turnitin assignment

Generative AI Permission Level

Simple Editing Assistance

In completing this assessment, you are permitted to use standard editing and referencing functions in the software you use to complete your assessment. These functions are described below. You must not use any functions that generate or paraphrase passages of text or other media, whether based on your own work or not.
If your Convenor has concerns that your submission contains passages of AI-generated text or media, you may be asked to account for your work. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.
For more information on Generative AI and permitted use please see here.

Final exam

Assessment Overview

This assessment task will be a written examination held during the Final Examination Period, and will cover ALL material presented in lectures, laboratories and assessment tasks from the whole term. The exam will include multiple choice and short answer questions.

Course Learning Outcomes

- CLO1 : Describe the structure and function the components of the neuromuscular and sensory systems as they relate to the control of voluntary and involuntary movements
- CLO2 : Explain the changes in motor function that may occur with motor learning and development across the lifespan.
- CLO3 : Explain the strengths and limitations of techniques to assess processes of motor learning and motor control
- CLO4 : Compare the common theoretical models proposed to explain motor control and the processes of motor learning
- CLO6 : Design motor learning environments and protocols for physical activity and exercise to

maximise a client's specific motor learning and control outcomes

Detailed Assessment Description

Detailed information about this assessment will be provided on the course Moodle page

Assessment Length

2 hours

Submission notes

Refer to Moodle for submission information

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.
For more information on Generative AI and permitted use please see here.

General Assessment Information

Detailed instructions regarding assessments for this course are provided on the course Moodle page (or Open Learning).

For student information on results, grades, and guides to assessment see: https://student.unsw.edu.au/assessment

Grading Basis

Standard

Requirements to pass course

In order to pass this course students must:

- Achieve a composite grade of at least 50 out of 100
- Meet any additional requirements specified in the assessment details section and on Moodle.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 9 September - 15 September	Lecture	Overview of Motor Control and Learning Classification of Motor Skills
	Lecture	Measuring Motor Learning and Performance
	Lecture	Motor Control Theories
	Laboratory	Classifying motor skills
Week 2 : 16 September - 22 September	Lecture	Central Nervous System
	Lecture	Peripheral Nervous System
	Lecture	Integrative Movement Control
	Laboratory	EMG Techniques and Practical/Clinical Us Reflexes and Electrical Stimulation
Week 3 : 23 September - 29 September	Lecture	Touch and Proprioception
	Lecture	Vision
	Lecture	Catching, striking & locomotion
	Laboratory	Role of vision in prehension, catching & walking
Week 4 : 30 September - 6 October	Lecture	Attention as a Limited Capacity Resource
	Lecture	Memory (Components of, Forgetting, and Strategies)
	Lecture	Speed-accuracy, prehension, handwriting & Bimanual Coordination
	Laboratory	Dual task procedures & Fitts Law
Week 5 : 7 October - 13 October	Lecture	Traditional Theories of Skill Acquisition
	Lecture	A Constraints Led Approach to Skill Acquisition
	Lecture	Constraints on Motor Performance
	Assessment	Group Presentations (Assessment 1) conducetd during regular Laboratory sessions
Week 6 : 14 October - 20 October	Other	Flex Week (no classes)
Week 7 : 21 October - 27 October	Lecture	Verbal Instructions and Cues
	Lecture	Observational Learning and Demonstration
	Laboratory	Instruction and Demonstration Techniques for Motor Learning
Week 8 : 28 October - 3 November	Lecture	Feedback: Definitions and Functions
	Lecture	Application of Augmented Feedback
	Laboratory	Feedback Techniques for Motor Learning
Week 9 : 4 November - 10 November	Lecture	Practice Variability and Specificity
	Lecture	Amount and Distribution of Practice
	Laboratory	Practice Variability
Week 10 : 11 November - 17 November	Lecture	Changes in Motor Performance and learning: Aging, injury & learning
	Lecture	Skill Acquisition in Clinical and Sports Settings
	Laboratory	Application of Motor Learning and of Skill Acquisition Theory in Clinical and Sports Settings

Attendance Requirements

Students are expected to attend all scheduled teaching activities, including clinical, laboratory and tutorial classes. Some courses have specific attendance requirements, and an Unsatisfactory Fail (UF) may be recorded as the final grade for the course if students fail to meet the requirements, as specified in the course and assessment information provided on the course Moodle page.

As stipulated in the course information on Moodle, course attendance expectations are determined by the requirements of the accrediting body for each health discipline.

Where a student is unable to attend, they are advised to inform the course convenor, according to the instructions outlined on your course Moodle page.

General Schedule Information

The times and locations of classes can be found on myUNSW under Class Timetable.

The expected engagement for all UNSW 6UOC courses is 150 hours per term. This includes lectures, tutorials, readings, and completion of assessments and exam preparation (if relevant).

Course Resources

Recommended Resources

Recommended resources for this course are provided on the course Moodle page.

Additional Costs

Some SoHS courses have additional costs. Please check the course Moodle page for information about additional costs for this course.

Course Evaluation and Development

Student feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

We use student feedback from myExperience surveys to develop and make improvements to the course each year. We do this by identifying areas of the course that require development from both the rating responses and written comments. Please spare a few minutes to complete the myExperience surveys for this course posted at the top of the Moodle page at the end of term.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
	Rachel Ward					No	No
	Jade O'Brien-Smith					No	Yes

Other Useful Information

Academic Information

As a student of UNSW Medicine & Health you are expected to familiarise yourself with the contents of this course outline and the UNSW Student Code and policies and procedures related to your studies.

Student Code of Conduct

Throughout your time studying at UNSW Medicine & Health, you share a responsibility with us for maintaining a safe, harmonious and tolerant University environment. This includes within the courses you undertake during your degree and your interactions with the UNSW community, both on campus and online.

The UNSW Student Code of Conduct website provides a framework for the standard of conduct expected of UNSW students with respect to both academic integrity and your responsibility as a UNSW citizen.

Where the University believes a student may have breached the code, the University may take disciplinary action in accordance with the Student Misconduct Procedure.

The Student Conduct and Integrity Office provides further resources to assist you to understand your conduct obligations as a student at UNSW.

Academic Honesty and Plagarism

Academic integrity

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW staff and students have a responsibility to adhere to the principle of academic integrity, and ethical scholarship of learning is fundamental to your success at UNSW Medicine & Health.

Plagiarism, contract cheating, and inappropriate use of generative AI undermine academic integrity and are not tolerated at UNSW. For more information see the Academic Integrity and Plagiarism toolkit.

In addition to the information you are required to review in your ELISE training, UNSW Medicine &

Health strongly recommends that you complete the Working with Academic Integrity module before submitting your first assessment task.

Referencing

Referencing is a way of acknowledging the sources of information that you use to research your assignments. Preferred referencing styles vary among UNSW Medicine & Health disciplines, so check your course Learning Management System (e.g. Moodle or Open Learning) page for information on preferred referencing styles.

For further information on referencing support and styles, see the Current Student Referencing page.

Academic misconduct and plagiarism

At UNSW, academic misconduct is managed in accordance with the Student Misconduct Procedure. Allegations of plagiarism are generally handled according to the UNSW Plagiarism Management Procedure. Plagiarism is defined in the UNSW Plagiarism Policy and is not tolerated at UNSW.

Use of Generative AI and other tools in your assessment

UNSW has provided guiding statements for the use of Generative AI in assessments. This will differ, depending on the individual assessment task, your course requirements, and the course stage within your program.

Your course convenor will outline if and how you can use Generative AI in each of your assessment tasks. Inappropriate use of generative AI is considered academic misconduct.

Options for the use of generative AI include: (1) no assistance (for invigilated assessments); (2) simple editing assistance; (3) drafting assistance; and (4) full assistance with attribution; and (5) Generative AI software-based assessments. See your individual assessment descriptions for the level of permitted use of generative AI for each task and see your course Moodle (or Open Learning) page for the full instructions on permitted use of generative AI in your assessment tasks for this course.

Instructions may include a requirement to submit the original generative AI responses, or drafts of your original work, or provide on request.

Submission of Assessment Tasks

Short extensions and special consideration

Short extension

UNSW has a short extension procedure for submission of assessment tasks. Not all tasks are eligible, and eligible tasks have a predetermined extension length. UNSW Medicine and Health have set School-level extension lengths for eligible assessment tasks. See your course assessment descriptions for more information.

Students must check the availability of a short extension in the individual assessment task information for their courses.

Short extensions do not require supporting documentation. They must be submitted through Special Consideration before the assessment task deadline. No late applications will be accepted.

Late penalties apply to submission of assessment tasks without approved extension.

Special consideration

In cases where illness, misadventure or other circumstances beyond your control will prevent you from submitting your assessment by the due date and you require an extension, you need to formally apply for Special Consideration through myUNSW.

UNSW has a **Fit to Sit/Submit rule**, which means that by sitting or submitting an assessment on the scheduled assessment date, you are declaring that you are fit to do so and cannot later apply for Special Consideration. Examinations include centrally timetabled examinations and scheduled, timed examinations and tests managed by your School.

Important information relating to Short Extension and Special Consideration is available here, including eligibility for Special Consideration, circumstances where students with Equitable Learning Plans can apply for Short Extensions and Special Consideration, and the appeals process.

Examinations

Information about the conduct of examinations in your course is provided on your course Moodle

page.

Timed online assessment tasks

If you experience a technical or connection problem during a timed online assessment, such as a timed quiz, you can apply for Special Consideration. To be eligible to apply you need to contact the Course Convenor and advise them of the issue immediately. You will need to submit an application for Special Consideration immediately, and upload screenshots, error messages or other evidence of the technical issue as supporting documentation. Additional information can be found on: https://student.unsw.edu.au/special-consideration

Other assessment tasks

Late submission of assessment tasks

UNSW has standard late submission penalties as outlined in the UNSW Assessment Implementation Procedure, with no permitted variation. All late assignments (unless extension or exemption previously agreed) will be penalised by 5% of the maximum mark per calendar day (including Saturday, Sunday and public holidays).

Late submissions penalties are capped at five calendar days (120 hours). This means that a student is not permitted to submit an assessment more than 5 calendar days (120 hours) after the due date for that assessment (unless extension or exemption previously agreed).

Failure to complete an assessment task

You are expected to complete all assessment tasks for your courses. In some courses, there will be a minimum pass mark required on a specific assessment task (a “hurdle task”) due to the need to assure clinical competency.

Where a hurdle task is applicable, additional information is provided in the assessment information on your course Moodle page.

Feedback on assessments

Feedback on your performance in assessment tasks will be provided to you in a timely manner. For assessment tasks completed within the teaching period of a course, other than a final assessment, feedback will be provided within 10 working days of submission, under normal circumstances.

Feedback on continuous assessment tasks (e.g. laboratory and studio-based, workplace-based, weekly quizzes) will be provided prior to the midpoint of the course.

Any variation from the above information that is specific to an assessment task will be clearly indicated in the course and assessment information provided to you on your course Moodle (or Open Learning) page.

Faculty-specific Information

Additional support for students

The university offers a wide range of support services that are available for students. Here are some links for you to explore.

- The Current Students Gateway: https://student.unsw.edu.au
- Academic Skills and Support: https://student.unsw.edu.au/academic-skills
- Student support: https://www.student.unsw.edu.au/support
- Student Wellbeing, Health and Safety: https://student.unsw.edu.au/wellbeing

Mind Smart Guides are a series of mental health self-help resources designed to give you the psychological flexibility, resilience and self-management skills you need to thrive at university and at work.

- Mind Smart Guides: https://student.unsw.edu.au/mindsmart
- Equitable Learning Services: https://student.unsw.edu.au/els
- Guide to studying online: https://www.student.unsw.edu.au/online-study

Most courses in UNSW Medicine & Health use Moodle as your Learning Management System. Guidance for using UNSW Moodle can be found on the Current Student page. Difficulties with Moodle should be logged with the IT Service Centre.

- Moodle Support: https://student.unsw.edu.au/moodle-support

The IT Service Desk is your central point of contact for assistance and support with remote and on-campus study.

- UNSW IT Service Centre: https://www.myit.unsw.edu.au/services/students

Course evaluation and development

At UNSW Medicine & Health, students take an active role in designing their courses and their overall student experience. We regularly seek feedback from students, and continuous improvements are made based on your input. Towards the end of the term, you will be asked to participate in the myExperience survey, which serves as a source of evaluative feedback from students. Your input to this quality enhancement process is valuable in helping us meet your learning needs and deliver an effective and enriching learning experience. Student responses are carefully considered, and the action taken to enhance educational quality is documented in the myFeedback Matters section of your Moodle (or Open Learning) course page.

School Contact Information

School guidelines on contacting staff:

Course questions

All questions related to course content should be posted on Moodle or as directed by your Course Convenor.

In cases where email communication with course convenors is necessary, we kindly request the following:

- Use your official email address for any correspondence with teaching staff.
- We expect a high standard of communication. All communication should avoid using short-hand or texting language.
- Include your full name, student ID, and your course code and name in all communication.

Our course convenors are expected to respond to emails during standard working hours of Monday to Friday, 9am-5pm.

Administrative questions

If you have an administrative question about your program of study at the School please submit your enquiry online at UNSW Ask Us.

Complaints and appeals

Student complaints and appeals: https://student.unsw.edu.au/complaints

If you have any grievances about your studies, we invite you to address these initially to the Course Convenor. If the response does not meet your expectations, you may then contact the School Grievance Officer, Dr Chris Maloney (c.maloney@unsw.edu.au)