

SPX231 Motor Control and Learning

School: School of Health - Sport and Exercise Science

2024 | Semester 2

UniSC Sunshine Coast
UniSC Moreton Bay

**BLENDED
LEARNING**

Most of your course is on campus but you may be able to do some components of this course online.

Please go to usc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

This course provides an introduction to the theory, research, and application of motor control and learning. The content is aimed at providing students with an understanding of many of the important principles that influence how movement is initiated, controlled, learned, instructed, and performed. This information is likely to be applicable to a broad range of areas including elite and developmental level sport, physical education, and physical therapy settings.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Tutorial/Workshop 1 – Pre-recorded concept videos and associated activity.	2hrs	Week 1	13 times
Laboratory 1 – Labs delivered face to face.	2hrs	Week 1	13 times

1.3. Course Topics

- The measurement of motor performance
- The role of motor and sensory cortices in movement control
- The role of sensory receptors in movement control
- The basal ganglia & cerebellum
- Control of voluntary movements
- Control of posture and gait
- Attention & Memory
- Transfer of learning & stages of learning
- Specificity & Variability
- Demonstrations & Instructions
- Feedback

2. What level is this course?

200 Level (Developing)

Building on and expanding the scope of introductory knowledge and skills, developing breadth or depth and applying knowledge and skills in a new context. May require pre-requisites where discipline specific introductory knowledge or skills is necessary. Normally, undertaken in the second or third full-time year of an undergraduate programs.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES	GRADUATE QUALITIES
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...
1 Identify and explain the different theoretical approaches and principles of voluntary movement.	Knowledgeable
2 Explain the contribution of the motor and sensory systems during performance, and the factors affecting the initiation and control of action.	Knowledgeable
3 Interpret the typical research methodologies and measurements used in motor control and learning.	Empowered
4 Communicate information on key topics in motor control and learning in written and oral modes.	Knowledgeable
5 Use practice design to optimise learning and performance.	Knowledgeable
6 Explain and apply the principles of motor learning and/or motor control in a practical setting.	Creative and critical thinker

5. Am I eligible to enrol in this course?

Refer to the [UniSC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

LFS122 or HLT100 or SPX103

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Students will undertake a practice exam in-class in week 3. This exam will provide students with an index of their comprehension of the material covered up to this point in the unit. This practice exam will also prepare students for their mid-semester exam in week 5.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Examination - not Centrally Scheduled	Individual	20%	Approx. 1.75 hours	Week 5	In Class
All	2	Oral	Individual	30%	Six minutes, see presentation guidelines on Canvas.	Refer to Format	In Class
All	3	Examination - Centrally Scheduled	Individual	50%	2 hours	Exam Period	Online Submission

All - Assessment Task 1: In Class Test

GOAL:	This assessment task has been designed to examine your understanding of the measurement of skilled performance and the theoretical foundations of motor control and learning. A certain proportion of the questions are aimed at assessing your understanding of the concepts covered in tutorial classes, but the test will also assess your knowledge and understanding of the content covered in readings and learning materials.								
PRODUCT:	Examination - not Centrally Scheduled								
FORMAT:	<p>The in class test will be completed during your normal tutorial class in Week 5. The test is a closed book assessment task and will be conducted under exam conditions. There will be different types of questions such as multiple choice and fill-in-the-gap questions that will be based upon the content from learning materials, tutorials, and readings from the first 4 weeks of the course. You should ensure that you have a calculator available for the test.</p> <p>Marks allocated to each question are outlined on the question sheet. This assessment task comprises 20% of your final grade.</p>								
CRITERIA:	<table border="1"> <thead> <tr> <th>No.</th> <th></th> <th>Learning Outcome assessed</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>You will be assessed on your understanding of the material covered in any of the learning materials, tutorials, and/or readings.</td> <td>1 2 3</td> </tr> </tbody> </table>	No.		Learning Outcome assessed	1	You will be assessed on your understanding of the material covered in any of the learning materials, tutorials, and/or readings.	1 2 3		
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GENERIC SKILLS:									

All - Assessment Task 2: Individual Oral Presentation

GOAL:	This task is aimed at (1) developing your skills as a presenter, (2) encouraging you to explore key research findings in the discipline area, (3) developing your skills in creating a suitable format for a scientific presentation, and (4) providing you with a deeper understanding of some of the key concepts in motor control and motor learning.	
PRODUCT:	Oral	
FORMAT:	SUBMIT: Week 10, week 11 or week 12 Your presentation will be presented in your normal tutorial class. You will use a computer program such as PowerPoint to deliver your presentation in a professional manner, consistent with that of a scientific conference. Topics will be allocated/chosen early in the semester and all presentations will be delivered in tutorial classes in Week 10, 11 or 12.	
CRITERIA:	No.	Learning Outcome assessed
	1	Knowledge and understanding of the content in your topic area 4
	2	Capability to identify and explain how the principles from the topic area could be applied in a practical setting 5 6
	3	Capability to communicate information in a clear, engaging, and coherent manner 3 6
GENERIC SKILLS:		

All - Assessment Task 3: Final Exam

GOAL:	This task has been designed to examine your understanding of the topics covered between week 5 and 13 of semester. Questions will assess your understanding of concepts covered in pre-recorded learning materials, practical sessions and weekly readings.	
PRODUCT:	Examination - Centrally Scheduled	
FORMAT:	You will complete a comprehensive final examination within the allocated Semester 1 examination period. The exam will consist of multiple choice, fill-in-the-gap/s, and short answer questions. The exam will be 2 hours in duration, with 10 minutes allocated for reading. You should ensure that you bring a calculator to the exam.	
CRITERIA:	No.	Learning Outcome assessed
	1	Knowledge of the theoretical foundations of motor control and learning 1
	2	Knowledge and understanding of the key principles and research findings of motor control and learning 3 4
	3	Knowledge of the typical research methods used in the discipline area 3 6
	4	Capability to apply basic motor learning and control principles in clinical and/or sport situations 5 6
GENERIC SKILLS:		

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

Please note that you need to have regular access to the resource(s) listed below. Resources may be required or recommended.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Recommended	J.C. Rothwell	2012	Control of Human Voluntary Movement	Second Edition	Springer
Recommended	David Anderson, Richard Magill	2016	Motor Learning and Control: Concepts and Applications	11th Edition	McGraw-Hill Education

8.2. Specific requirements

This course has a substantive practical component intended to build your skills in sport and exercise science/clinical exercise science. Practical sessions may often involve tasks requiring you to participate in various forms of physical activity such as performing certain motor tasks. Some tasks may require explosive efforts. Some tutorial classes are likely to be conducted outdoors. You should wear suitable clothing and footwear for all tutorial classes. This course has an expectation of a minimum attendance at no less than 80% of tutorial classes. An attendance roll will be recorded at each tutorial class. All content from this unit is assessable, including the content covered in tutorials.

It is your responsibility to wear appropriate clothing and safety equipment, and to determine whether you are able to complete the required activities before participating. It is also your responsibility to research and understand the risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students. It is not compulsory to take part in the physical activities conducted in the tutorial classes for this course, but you are nevertheless encouraged to take on other roles such as recording data and delivering instructions.

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the [online induction training for students](#), and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

The final mark is in the percentage range 47% to 49.4%

The course is graded using the Standard Grading scale

You have not failed an assessment task in the course due to academic misconduct

10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate:

- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.

- 10% (of the assessment task's identified value) for the third day - 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.

- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late. To request an extension you must contact your course coordinator to negotiate an outcome.

10.4. SafeUniSC

UniSC is committed to a culture of respect and providing a safe and supportive environment for all members of our community. For immediate assistance on campus contact SafeUniSC by phone: [07 5430 1168](tel:0754301168) or using the [SafeZone](#) app. For general enquires contact the SafeUniSC team by phone [07 5456 3864](tel:0754563864) or email safe@usc.edu.au.

The SafeUniSC Specialist Service is a Student Wellbeing service that provides free and confidential support to students who may have experienced or observed behaviour that could cause fear, offence or trauma. To contact the service call [07 5430 1226](tel:0754301226) or email studentwellbeing@usc.edu.au.

10.5. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the [Learning Advisers](#) web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au.

10.6. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to [Student Hub](#), email studentwellbeing@usc.edu.au or call 07 5430 1226.

10.7. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, [AccessAbility Services](#) can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to [Student Hub](#), email AccessAbility@usc.edu.au or call 07 5430 2890.

10.8. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit <https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.9. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The [Student Charter](#) sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.10. General Enquiries

In person:

- **UniSC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **UniSC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **UniSC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **UniSC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **UniSC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **UniSC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au