



## COURSE OUTLINE

# SPX231 Motor Control and Learning

**Course Coordinator:** Robert Buhmann (rbuhmann@usc.edu.au) **School:** School of Health and Behavioural Sciences

2021 | Semester 2

USC Sunshine Coast  
USC Moreton Bay

**ON CAMPUS**

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

*Please go to the USC website 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
<b>ON CAMPUS</b>			
Laboratory 1	2hrs	Week 1	13 times
Lecture	2hrs	Week 1	13 times

### 1.3. Course Topics

- Introduction to motor control and learning
- The measurement of motor performance
- Motor control theories
- Neuromotor basis for motor control
- Sensory components of motor control
- Functional skills & Action preparation
- Attention & Memory
- Transfer of learning & Measuring learning
- Stages of learning
- Amount and distribution of practice & Whole and part practice
- 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 [USC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

#### 5.1. Pre-requisites

LFS122 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	Individual	20%	Approx. 1.25 hours	Week 5	In Class
All	2	Oral	Individual	30%	Six minutes, see presentation guidelines on Blackboard	Refer to Format	In Class
All	3	Examination - Centrally Scheduled	Individual	50%	2 hours	Exam Period	Exam Venue

#### All - Assessment Task 1: In Class Test

<b>GOAL:</b>	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 lectures.		
<b>PRODUCT:</b>	Examination		
<b>FORMAT:</b>	<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 lectures, 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>		
<b>CRITERIA:</b>	<b>No.</b>		<b>Learning Outcome assessed</b>
	1	You will be assessed on your understanding of the material covered in any of the lectures, tutorials, and/or readings.	1 2 3

#### All - Assessment Task 2: Individual Oral Presentation

<b>GOAL:</b>	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.
<b>PRODUCT:</b>	Oral
<b>FORMAT:</b>	<p>SUBMIT: Week 10, week 11 or week 12</p> <p>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.</p>

CRITERIA:	No.	Learning Outcome assessed
	1	Knowledge and understanding of the content in your topic area <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">4</span>
	2	Capability to identify and explain how the principles from the topic area could be applied in a practical setting <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">5</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">6</span>
	3	Capability to communicate information in a clear, engaging, and coherent manner <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">3</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">6</span>

#### All - Assessment Task 3: Final Exam

<b>GOAL:</b>		
<b>PRODUCT:</b>	Examination - Centrally Scheduled	
<b>FORMAT:</b>	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 <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">1</span>
	2	Knowledge and understanding of the key principles and research findings of motor control and learning <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">3</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">4</span>
	3	Knowledge of the typical research methods used in the discipline area <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">3</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">6</span>
	4	Capability to apply basic motor learning and control principles in clinical and/or sport situations <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">5</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">6</span>

## 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. Directed study hours may vary by location. 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 Blackboard 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	PUBLISHER
Recommended	John Rothwell	1994	Control of Human Voluntary Movement	Chapman & Hall
Recommended	Magill, R. A. & Anderson, D. I.	2017	Motor Learning and Control: Concepts and Applications	McGraw-Hill

## 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?

## 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 Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.

### 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. 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](mailto:studentcentral@usc.edu.au).

### 10.5. 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](mailto:studentwellbeing@usc.edu.au) or call 07 5430 1226.

## 10.6. 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](mailto:AccessAbility@usc.edu.au) or call 07 5430 2890.

## 10.7. 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
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website: <http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

## 10.8. General Enquiries

### In person:

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

**Tel:** +61 7 5430 2890

**Email:** [studentcentral@usc.edu.au](mailto:studentcentral@usc.edu.au)