

## Course Outline

**Code: SPX231**

### **Title: Motor Control and Learning**

<b>School:</b>	Health & Sport Sciences
<b>Teaching Session:</b>	Semester 1
<b>Year:</b>	2019
<b>Course Coordinator:</b>	Dr Rob Buhmann
<b>Course Moderator:</b>	Dr Max Stuelcken

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 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 - Applying broad and/or deep knowledge and skills to new contexts. May require pre-requisites and introductory level knowledge/skills. Normally undertaken in the 2nd or 3rd year of an undergraduate program

#### **3. What is the unit value of this course?**

12 units

#### 4. How does this course contribute to my learning?

<b>Specific Learning Outcomes</b> On successful completion of this course you should be able to:	<b>Assessment Tasks</b> You will be assessed on the learning outcome in task/s:	<b>Graduate Qualities or Professional Standards mapping</b> Completing these tasks successfully will contribute to you becoming:
Identify and explain the different theoretical approaches and principles of voluntary movement.	1 - In Class Test 2 - Oral Presentation 3 - Final Exam	Knowledgeable.
Explain the contribution of the motor and sensory systems during performance, and the factors affecting the initiation and control of action.	3 - Final Exam	Knowledgeable.
Interpret the typical research methodologies and measurements used in motor control and learning.	1 - In Class Test 2 - Oral Presentation 3 - Final Exam	Empowered.
Communicate information on key topics in motor control and learning in written and oral modes.	2 - Oral presentation 3 - Final Exam	Knowledgeable.
Use practice design to optimise learning and performance.	2 - Oral Presentation 3 - Final Exam	Knowledgeable.
Explain and apply the principles of motor learning and/or motor control in a practical setting.	2 - Oral Presentation 3 - Final Exam	Creative and critical thinkers.

#### 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 Enrolment restrictions

Nil

##### 5.2 Pre-requisites

LFS122 or SPX103

##### 5.3 Co-requisites

Nil

##### 5.4 Anti-requisites

Nil

##### 5.5 Specific assumed prior knowledge and skills (where applicable)

Nil

## 6. How am I going to be assessed?

### 6.1 Grading scale

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

### 6.2 Assessment tasks

Task No.	Assessment Tasks	Individual or Group	Weighting %	What is the duration/length?	When should I submit?	Where should I submit it?
1	In Class Test	Individual	20	Approx. 1.25 hours	Week 3	During normal tutorial class.
2	Group Oral Presentation	Group	30	See presentation guidelines on Blackboard	Week 11 or 12	During normal tutorial class
3	Final Exam	Individual	50	2 hours (plus 10 minutes reading time)	Exam Period	Exam Period
			100%			

#### 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>	In Class Test
<b>Format:</b>	The in class test will be completed during your normal tutorial class in Week 3. 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 2 weeks of the course. You should ensure that you have a calculator available for the test.
<b>Criteria:</b>	You will be assessed on your understanding of the material covered in any of the lectures, tutorials, and/or readings. Marks allocated to each question are outlined on the question sheet. This assessment task comprises 20% of your final grade.
<b>Generic skill assessed</b>	
<b>Skill assessment level</b>	
Problem solving	Introductory

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**Assessment Task 2: Group 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>	Group oral presentation
<b>Format:</b>	Your presentation will be presented in your normal tutorial class in small groups. 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 11 or 12.
<b>Criteria:</b>	Specific details of the assessment criteria will be made available to you on Blackboard. In general, the main areas upon which your group will be assessed include your knowledge and understanding of the content in your topic area, your capability to identify and explain how the principles from the topic area could be applied in a practical setting, and your capability to communicate information in a clear, engaging, and coherent manner. This task comprises 30% of your final grade.
<b>Generic skill assessed</b>	<b>Skill assessment level</b>
Communication	Introductory
Problem solving	Introductory

**Assessment Task 3: Final Exam**

<b>Goal:</b>	This assessment task is designed to assess your knowledge of the material covered within this course, including lectures, practical tasks (tutorials), and selected readings (see Blackboard).
<b>Product:</b>	Written exam
<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.
<b>Criteria:</b>	Marks available for each question are outlined on the examination paper. You will be assessed on many aspects of the content covered within the course including, but not limited to, your knowledge of the theoretical foundations of motor control and learning, your knowledge and understanding of the key principles and research findings of motor control and learning, your knowledge of the typical research methods used in the discipline area, and your capability to apply basic motor learning and control principles in clinical and/or sport situations. You will be awarded a grade for this assessment up to a total of 50% of your final module grade.
<b>Generic skill assessed</b>	<b>Skill assessment level</b>
Problem solving	Developing

## 7. What are the course activities?

### 7.1 Directed study hours

4 hours per week (2 hour lecture; 2 hour practical/tutorial)

### 7.2 Teaching semester/session(s) offered

Sippy Downs: Semester 1

### 7.3 Course content

Teaching Week	What key concepts/content will I learn?	What activities will I engage in to learn the concepts/content?	
		Directed Study Activities	Independent Study Activities*
1	Lecture = Introduction; Measurement of motor performance Tutorial = Testing abilities & Measuring reaction time and accuracy	1 x Lecture 1 x Tutorial (Practical)	Text book chapters 1, 2, and 3.
2	Lecture = Motor control theories Tutorial = Spontaneous gait transitions & In class test revision	1 x Lecture 1 x Tutorial (Practical)	Text book chapter 5.
3	Lecture = Neuromotor basis for motor control Tutorial = <b>In Class Test</b>	1 x Lecture 1 x Tutorial (In Class Test)	Text book chapter 4
4	Lecture = Sensory components of motor control Tutorial = Vision in locomotion & Proprioception	1 x Lecture 1 x Tutorial (Practical)	Text book chapter 6
5	Lecture = Functional skills & Action preparation Tutorial = Reaction time & Fitts' law	1 x Lecture 1 x Tutorial (Practical)	Text book chapters 7 and 8
6	Lecture = Attention & Memory Tutorial = Dual-task design and implementation	1 x Lecture 1 x Tutorial (Practical)	Text book chapters 9 and 10.
7	Lecture = Transfer of learning & Measuring learning Tutorial = Testing the phenomenon of bilateral transfer	1 x Lecture 1 x Tutorial (Practical)	Text book chapters 11 and 13.
8	Lecture = Stages of learning Tutorial = Group oral presentation preparation	1 x Lecture 1 x Tutorial (Practical)	Text book chapter 12.
9	Lecture = Amount and distribution of practice & Whole/part practice Tutorial = Measuring and analysing part versus whole practice	1 x Lecture 1 x Tutorial (Practical)	Text book chapters 17 and 18.
10	Lecture = Specificity & Variability Tutorial = Specificity of learning task in two environments	1 x Lecture 1 x Tutorial (Practical)	Text book chapter 16.
11	Lecture = Demonstrations & Instructions Tutorial = <b>Group Oral Presentations</b>	1 x Lecture 1 x Tutorial (Practical)	Text book chapter 14
12	Lecture = Feedback Tutorial = <b>Group Oral Presentations</b>	1 x Lecture 1 x Tutorial (Practical)	Text book chapter 15
13	Lecture = Exam revision & Careers/research in motor learning/control Tutorial = Exam revision	1 x Lecture 1 x Tutorial	All text chapters, lecture notes, tutorial content, & readings.

\* See Blackboard for readings and other study activities. Please note that the course activities may be subject to variation.

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

Please note that 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)

Please note that you need to have regular access to the resource(s) listed below as they are required:

Author	Year	Title	Publisher
Magill, R. A. & Anderson, D. I.	2017 (11 <sup>th</sup> Edition)	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.

## 9. Risk management

This course contains physical activity in indoor and/or outdoor environments, and some of the physical activities require maximal efforts and explosive movements. 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.

## 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:

- a) The final mark is in the percentage range 47% to 49.4%
- b) The course is graded using the Standard Grading scale
- c) You have not failed an assessment task in the course due to academic misconduct

## 10.3 Assessment: Submission penalties

Late submission of assessment tasks will 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 submit an

**Application for Assessment Extension (AAE)** form which can be downloaded from the Blackboard site for this course.

## 10.4 Study help

In the first instance, you should contact your tutor, then the Course Coordinator. Additional assistance is provided to all students through Academic Skills Advisers. To book an appointment or find a drop-in session go to [Student Hub](#).

Contact Student Central for further assistance: +61 7 5430 2890 or [studentcentral@usc.edu.au](mailto:studentcentral@usc.edu.au)

## 10.5 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>

## 10.6 General Enquiries

In person:

- **USC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **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

**Tel:** +61 7 5430 2890

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