Course Outline

Code: SPX211
Title: Exercise Physiology I

School: Health & Sport Science
Teaching Session: Semester 2
Year: 2019
Course Coordinator: Dr Colin Solomon Email: SPX211@usc.edu.au
Course Moderator: Dr Dale Lovell

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 is designed to provide you with an understanding of the physiology of human physical exercise. Specific content includes the theory and practical components of energy transfer, respiratory, cardiovascular, muscle, nervous and endocrine systems physiology during exercise, as well as the regulation and integration of these systems. The course is essential for students wanting to proceed to Honours or a higher degree by research in the area of exercise physiology.

   1.2 Course topics
   Introduction to exercise physiology
   Energy transfer for exercise
   Individual differences in exercise
   Measurement of energy transfer
   Pulmonary components and exercise
   Gas exchange and transport and exercise
   Respiratory system regulation and integration and exercise
   Heart and blood pressure and exercise
   Cardiovascular system regulation and integration and exercise
   Cardiac output and blood distribution and exercise
   Muscular system and exercise
   Nervous system and exercise
   Endocrine system and exercise

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?

Semester 2 2019

Recfind File Number: F15007
<table>
<thead>
<tr>
<th>Specific Learning Outcomes</th>
<th>Assessment tasks</th>
<th>Graduate Qualities or Professional Standards mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>On successful completion of this course, you should be able to:</td>
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</tbody>
</table>
| Demonstrate an understanding of the function, regulation and integration of the energy transfer, respiratory, cardiovascular, muscular, neural and endocrine systems during exercise | Task 1  
Task 2  
Task 3 | Knowledgeable.                           |
| Demonstrate an understanding of how to conduct tests and measurements of physiological function during exercise, which are valid, accurate, and reliable | Task 1  
Task 2  
Task 3 | Knowledgeable.                           |
| Utilise literature, information, and learning resources using multiple sources            | Task 1  
Task 2  
Task 3 | Empowered.                               |
| Understand the scientific method, and assess and discuss the research literature on exercise physiology | Task 1 | Creative and critical thinkers. Sustainability-focused.                   |
| Work in groups to conduct laboratory experiments, in an appropriate manner Compare and share results from laboratory experiments with other students | Task 1 | Engaged.                                      |

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**
   Laboratory classes limited to a maximum of 36 students.

5.2 **Pre-requisites**
   LFS112 or SPX103

5.3 **Co-requisites**
   Nil

5.4 **Anti-requisites**
   Nil

5.5 **Specific assumed prior knowledge and skills (where applicable)**
   N/A

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 **Details of early feedback on progress**
   The results of the Laboratory and Research Quizzes in Week 2 and Week 4 will provide early feedback on progress.
6.3 Assessment tasks

<table>
<thead>
<tr>
<th>Task No.</th>
<th>Assessment Tasks</th>
<th>Individual or Group</th>
<th>Weighting %</th>
<th>What is the duration / length?</th>
<th>When should I submit?</th>
<th>Where should I submit it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Laboratory and Research Quizzes</td>
<td>Individual</td>
<td>30 %</td>
<td>30 min per quiz</td>
<td>Weeks 2, 4, 6, 8, 10, 12</td>
<td>Blackboard</td>
</tr>
<tr>
<td>2</td>
<td>Mid-Semester Exam</td>
<td>Individual</td>
<td>30 %</td>
<td>1.5 hr</td>
<td>Week 7 Lecture time</td>
<td>In class</td>
</tr>
<tr>
<td>3</td>
<td>Final Exam</td>
<td>Individual</td>
<td>40 %</td>
<td>2 hr</td>
<td>Centrally scheduled exam period</td>
<td>Exam venue</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100%</td>
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</tbody>
</table>

Assessment Task 1: Laboratory and Research Quizzes

**Goal:** The laboratory and research quizzes are designed to assess your understanding of the theory and practical components from the laboratory classes, and associated required reading.

**Product:** Online quizzes conducted on the course Blackboard site in Weeks 2, 4, 6, 8, 10, 12.

**Format:** Each quiz will consist of 10-20 multiple choice and or other format questions that pertain to the 1-2 previous laboratory classes, and associated required reading. 30 minutes duration.

**Criteria:** Correct and complete answers to questions.

Assessment Task 2: Mid-Semester Exam

**Goal:** The mid-semester exam is designed to assess your understanding of the theory components of the course from the lectures, and required reading from Week 1 – Week 6 inclusive.

**Product:** Written exam conducted in the lecture time in Week 7.

**Format:** Multiple choice questions. 1.5 hours duration.

**Criteria:** Correct and complete answers to questions.

Assessment Task 3: Final Exam

**Goal:** The final exam is designed to assess your understanding of the theory components of the course from the lectures, and required reading, from Week 1 – Week 13 inclusive.

**Product:** Written exam conducted in the university exam period.

**Format:** Multiple choice questions. 2 hours duration.

**Criteria:** Correct and complete answers to questions.

7. What are the course activities?

7.1 Directed study hours

The directed study hours listed here are a portion of the workload for this course. 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.

<table>
<thead>
<tr>
<th>Location: Specific Campus(es) or online:</th>
<th>Directed study hours for location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>USC Sunshine Coast</td>
<td>Four hours total contact each week: 2-hour lecture and 2-hour laboratory classes</td>
</tr>
</tbody>
</table>
### 7.2 Course content

<table>
<thead>
<tr>
<th>Week # / Module #</th>
<th>What key concepts/content will I learn?</th>
</tr>
</thead>
</table>
| Week 1 | Introduction to exercise physiology  
Energy transfer  
Mechanical force, work and power |
| Week 2 | Energy transfer for exercise  
Blood lactate during high intensity exercise and active and passive recovery |
| Week 3 | Individual differences  
Measurement of energy transfer  
Oxygen consumption and energy expenditure at rest and during exercise |
| Week 4 | Pulmonary components and exercise  
Calculations for exercise physiology |
| Week 5 | Gas exchange and transport and exercise  
Exercise economy and efficiency |
| Week 6 | Respiratory system regulation and integration and exercise  
Revision and feedback session |
| Week 7 | Mid-semester exam  
Peak oxygen utilisation during exercise |
| Week 8 | Cardiovascular system and blood pressure and exercise  
Blood pressure and heart rate and exercise and prediction of peak oxygen utilisation |
| Week 9 | Cardiovascular system regulation and integration and exercise  
Pulmonary ventilation and lactate turn-points |
| Week 10 | Cardiac output and blood distribution and exercise  
Blood and oxygen distribution during exercise |
| Week 11 | Muscular system and exercise  
Muscle force, work, and fatigue |
| Week 12 | Nervous system and exercise  
Physiology during exercise (virtual laboratory) |
| Week 13 | Endocrine system and exercise  
Revision and feedback session |

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:

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Title</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>McArdle W., Katch F., Katch V.</td>
<td>2014</td>
<td>Exercise Physiology Energy, Nutrition and Human Performance</td>
<td>Lippincott Williams &amp; Wilkins</td>
</tr>
</tbody>
</table>

#### 8.2 Specific requirements

According to the Health and Safety policies and procedures applicable within campus areas.
9. **Risk management**

Risk assessments have been performed for all laboratory classes and a low level of health and safety risk exists. Some risks concerns may include equipment, instruments, and tools; as well as manual handling items within the laboratory. It is 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.

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 and supply the required documentation to negotiate an outcome.

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](https://studenthub.usc.edu.au). 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 South Bank** - 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