Course Outline

Code: SPX331
Title: Exercise Physiology II

Faculty of: Science, Health, Education and Engineering
School of: Health & Sports Sciences
Teaching Session: Semester 1
Year: 2019
Course Coordinator: Dr. Dale Lovell Tel: 5459 4464 Email: dlovell@usc.edu.au
Course Moderator: Colin Solomon

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 you with an in-depth understanding of the integrated physiological processes involved during exercise. It builds on the level of knowledge gained in Exercise Physiology I and aims at enhancing your theoretical and practical knowledge of the responses to exercise with various stressors. This course also aims for you to gain experience in reading and interpreting original research articles in exercise physiology. This course will provide you with laboratory experience for the measurement of physiological responses to exercise in research or clinical settings, and as such is essential if you wish to undertake Honours or postgraduate research in the area of Exercise Physiology.

1.2 Course topics
1. Cardiovascular physiological principals
2. Conducting aerobic assessment
3. Interpretation of testing data
4. Musculoskeletal physiological principles
5. Conducting anaerobic assessment
6. Understanding fatigue
7. Altitude and exercise
8. Exercise and thermal stress

2. What level is this course?
300 level Graduate - Independent application of graduate knowledge and skills. Meets AQF and professional requirements. May require pre-requisites and developing level knowledge/skills. Normally taken in the 3rd or 4th 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?**

<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>
<td>You will be assessed on the learning outcome in task/s:</td>
<td>Completing these tasks successfully will contribute to you becoming:</td>
</tr>
<tr>
<td>Evaluate and discuss neuromuscular and cardiovascular physiology under conditions of rest and exercise.</td>
<td>1, 2, 3</td>
<td>Knowledgeable.</td>
</tr>
<tr>
<td>Analyse exercise data and evaluate current sport science research</td>
<td>1</td>
<td>Creative and critical thinkers.</td>
</tr>
<tr>
<td>Evaluate and describe specific physiological responses and adaptations to exercise that are dependent on exercise intensity, duration, frequency, environmental conditions.</td>
<td>1, 2, 3</td>
<td>Knowledgeable.</td>
</tr>
<tr>
<td>Evaluate and describe the physiological responses to various modes of exercise and training methodologies</td>
<td>1, 2, 3</td>
<td>Knowledgeable.</td>
</tr>
</tbody>
</table>

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**

SPX211

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**

<table>
<thead>
<tr>
<th>Task No.</th>
<th>Assessment Tasks</th>
<th>Individual or Group</th>
<th>Weighting %</th>
<th>Duration/length</th>
<th>When should I submit?</th>
<th>Where should I submit it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sport Science Quiz</td>
<td>Individual</td>
<td>30</td>
<td>20 MCQ</td>
<td>Weeks 3, 5, 9, 11, 13</td>
<td>Blackboard</td>
</tr>
<tr>
<td>2</td>
<td>Data analysis and report writing</td>
<td>Individual</td>
<td>30</td>
<td>1.5 hr</td>
<td>Week 7</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>Examination period</td>
<td></td>
</tr>
</tbody>
</table>
Assessment Task 1: Sport Science Quiz

**Goal:** Five quizzes on contemporary issues in advanced exercise physiology based on recent research articles in conjunction with lab based activities and lecture material. Two research articles will be available to students prior to each quiz with similar themed topics in the lab and from the lectures.

**Product:** 5 X Quiz

**Format:** The quiz will be multiple choice questions given to you on Blackboard.

**Criteria:** Your quiz will be assessed on:
- Two recent research articles
- Lab based activities
- Lecture material

<table>
<thead>
<tr>
<th>Generic skill assessed</th>
<th>Skill assessment level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Literacy</td>
<td>Graduate</td>
</tr>
<tr>
<td>Problem solving</td>
<td>Graduate</td>
</tr>
</tbody>
</table>

Assessment Task 2: Data analysis and report writing

**Goal:** Students will analyse and interpret VO\(_2\) max data. You will be required to produce two graphs and interpret the data from the graphs. An explanation of the physiological mechanisms and comparison with athletic and non-athletic populations is also required.

**Product:** 1.5 hr

**Format:** Report

**Criteria:** You will be assessed on:
- Depth of sport science research
- Analysis, evaluation and interpretation of research results
- Critical assessment and comparison of current studies.

<table>
<thead>
<tr>
<th>Generic skill assessed</th>
<th>Skill assessment level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem solving</td>
<td>Graduate</td>
</tr>
</tbody>
</table>

Assessment Task 3: Final exam

**Goal:** This is a key assessment to demonstrate your competencies, knowledge and understanding of exercise physiology and an important document testifying to your ability to ESSA.

**Product:** A 2 hr exam

**Format:** Multiple choice (MCQ) and short answer questions

**Criteria:** Knowledge and understanding of theoretical and practical principles of exercise physiology pertaining to the materials covered throughout the semester

<table>
<thead>
<tr>
<th>Generic skill assessed</th>
<th>Skill assessment level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem solving</td>
<td>Graduate</td>
</tr>
</tbody>
</table>
7. What are the course activities?

7.1 Directed study hours
4 hours total contact:
2 hr lecture
2 hrs practical sessions

The workload in this course is based on an average commitment of 10-12 hours per week to achieve a satisfactory level of performance.

7.2 Teaching semester/session(s) offered
Sippy Downs: Semester 1

7.3 Course content

<table>
<thead>
<tr>
<th>Teaching Week / Module</th>
<th>What key concepts/content will I learn?</th>
<th>What activities will I engage in to learn the concepts/content?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Directed Study Activities</td>
</tr>
<tr>
<td>1</td>
<td>Introduction to Exercise Physiology II</td>
<td>Review of basic laboratory skills</td>
</tr>
<tr>
<td>2</td>
<td>Cardiovascular and Respiratory Systems</td>
<td>The Metabolic Cart and VO2max Testing (Cycle ergometer)</td>
</tr>
<tr>
<td>3</td>
<td>Anaerobic Threshold concept</td>
<td>The Metabolic Cart and VO2max Testing (Cycle ergometer)</td>
</tr>
<tr>
<td>4</td>
<td>Training for anaerobic power and capacity</td>
<td>Quiz review</td>
</tr>
<tr>
<td>5</td>
<td>Training for aerobic power and capacity</td>
<td>Computer based exam</td>
</tr>
<tr>
<td>6</td>
<td>The physiology of strength training</td>
<td>Lactate and OBLA Testing</td>
</tr>
<tr>
<td>7</td>
<td>Hormones and exercise</td>
<td>Effects of exercise on changes in blood hormones</td>
</tr>
<tr>
<td>8</td>
<td>Performance Analysis</td>
<td>Advanced Computing skills (Microsoft Excel) for data treatment and interpretation</td>
</tr>
<tr>
<td>9</td>
<td>Upper vs lower body exercise</td>
<td>Quiz review</td>
</tr>
<tr>
<td>10</td>
<td>Exercise, Training, Fatigue and Performance</td>
<td>Review of mechanism of fatigue</td>
</tr>
<tr>
<td>11</td>
<td>Exercise, Responses and adaptation to Altitude Exposure</td>
<td>Effects of Simulated Altitude on exercise capacity</td>
</tr>
<tr>
<td>12</td>
<td>Exercise, Responses and adaptation to Thermal Stress</td>
<td>Effects of Simulated heat on exercise capacity</td>
</tr>
<tr>
<td>13</td>
<td>Aging and exercise</td>
<td>Review of Course topics</td>
</tr>
</tbody>
</table>

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>2010</td>
<td>Exercise Physiology</td>
<td>Lippincott Williams &amp; Wilkins</td>
</tr>
</tbody>
</table>

8.2 **Required and recommended readings**

Lists of required and recommended readings may be found for this course on its Blackboard site. These materials/readings will assist you in preparing for tutorials and assignments, and will provide further information regarding particular aspects of your course.

8.3 **Specific requirements**

It is compulsory for all students to wear suitable exercising clothing and covered footwear appropriate for physical activity in practical classes and for all practical sessions.

9. **Risk management**

Health and safety risks for this course have been assessed as low.

It is your responsibility as a student 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. It is also your responsibility to familiarise yourself with the University’s general health and safety principles by reviewing the online Health Safety and Wellbeing training module 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 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.
Contact Student Central for further assistance: +61 7 5430 2890 or 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