Course Outline

Code: SPX301
Title: Exercise in Cardiorespiratory and Metabolic Health

Faculty of: Science, Health, Education and Engineering
School of: Health & Sport Science
Teaching Session: Semester 2
Year: 2018
Course Coordinator: Mr Yuri Kriel Email: ykriel@usc.edu.au
Course Moderator: Associate Professor Christopher Askew

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 aims to provide you with understanding of the health benefits associated with regular exercise/physical activity and the functional limitations associated with certain chronic diseases. Course content aligns with some Exercise and Sport Science Australia accreditation requirements, if you pursue further studies in clinical exercise physiology. Course content includes risk screening and introduces concepts regarding modification of exercise for clients with risk factors for or cardiopulmonary and metabolic conditions. You will gain further experience in exercise testing and monitoring procedures.

1.2 Field trips, WIL placements or activities required by professional accreditation

<table>
<thead>
<tr>
<th>Activity</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summative assessment tasks</td>
<td>By engaging with course content, attending all lectures and laboratory sessions and successfully completing the summative assessment tasks included in this course, you are evidencing elements of graduate outcomes essential to your professional accreditation with Exercise and Sports Science Australia (ESSA).</td>
</tr>
</tbody>
</table>

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>Explain the pathophysiological mechanisms associated with cardiorespiratory and metabolic conditions, the comorbid relationship that can exist between pathologies and the influence that exercise has on these issues.</td>
<td>Task 1, 2 and 3</td>
<td>Knowledgeable. Empowered.</td>
</tr>
<tr>
<td>Apply pre-exercise screening guidelines and identify if medical referral or input is required prior to exercise participation for various clinical populations</td>
<td>Task 1 and 3</td>
<td>Ethical. Empowered.</td>
</tr>
<tr>
<td>Select and apply procedures during submaximal and maximal exercise tests for various clinical populations</td>
<td>Task 1, 2 and 3</td>
<td>Engaged. Knowledgeable.</td>
</tr>
<tr>
<td>Apply the relative and absolute contraindications to exercise and the exercise termination criteria for various clinical populations</td>
<td>Task 1, 2 and 3</td>
<td>Empowered. Engaged.</td>
</tr>
<tr>
<td>Demonstrate the ability to problem solve and formulate appropriate actions with regards to exercise prescription for various clinical populations.</td>
<td>Task 1, 2 and 3</td>
<td>Ethical Creative and critical thinkers</td>
</tr>
<tr>
<td>Critically analyse and disseminate appropriate professional resources and scientific literature through verbal and written platforms.</td>
<td>Task 2</td>
<td>Creative and critical thinkers</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)

It is assumed that you will be able to demonstrate an understanding of human physiology and exercise testing, as evidenced through the successful completion of the pre-requisite courses or equivalent credit courses.

### 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
During week 4, you will undertake your first summative assessment task, a 60 minute quiz, during your laboratory class. You will receive feedback on this quiz in-class, immediately after completion, allowing you to evaluate your comprehension of concepts and progress during the early stages of the course. This assessment task will also provide early exposure to the question format(s) used in later summative assessment tasks. Additionally, you will be given the opportunity to complete formative on-line multiple-choice quizzes (consisting of 10 questions each) during weeks 3, 7 and 12. The content of these multiple-choice quizzes will be based upon lecture, laboratory and reading content from the proceeding 2-4 weeks. You will receive feedback on your performance in these quizzes immediately upon completion. These formative pieces of assessment, whilst not contributing to your overall course grade, allow further opportunities to gain insight into your comprehension of course topics and your progress throughout semester.

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>Quizzes</td>
<td>Individual</td>
<td>30% (2 x 15%)</td>
<td>Each quiz will take 1 hour.</td>
<td>Week 4, and 9</td>
<td>In laboratory class</td>
</tr>
<tr>
<td>2</td>
<td>Oral and Written Piece - other</td>
<td>Group</td>
<td>25 %</td>
<td>20 minutes</td>
<td>Submission of presentation and written piece - Week 11 laboratory class. Oral Presentation: Wk 12</td>
<td>In class</td>
</tr>
<tr>
<td>3</td>
<td>Examination</td>
<td>Individual</td>
<td>45</td>
<td>120 minutes</td>
<td>Central exam period</td>
<td>N/A</td>
</tr>
</tbody>
</table>

100%

Assessment Task 1: Quizzes

**Goals:** The goals of the two in-class quizzes are 1) to allow you to demonstrate thorough knowledge of, and the ability to explain and apply course theory and concepts and 2) to provide feedback on your engagement and progress during the course.

**Product:** Quizzes

**Format:** Two individually completed 60 minute paper-based quizzes, which will consist of multiple choice and short answer questions. Multiple choice questions will be assessed for correctness and short answer questions for completeness and correctness. Multiple choice questions will be allocated one mark per question. The marks for short answer questions vary and will be noted clearly on the question paper. The first quiz, conducted during your laboratory class in Week 4, will be based on readings, lecture and laboratory materials from Week 1 up to and including Week 3. The second quiz, conducted during your laboratory class in Week 9, will be based on readings, lecture and laboratory materials from Week 1 up to and including Week 8. You are expected to make yourself available during these assessment periods.

**Criteria:** Explanation of the pathophysiological mechanisms associated with cardiorespiratory and metabolic conditions, the comorbid relationship that can exist between pathologies and the influence that exercise has on these issues. Application of pre-exercise screening guidelines, the contraindications to exercise and the exercise termination criteria for various clinical populations. Selection and application of appropriate procedures during exercise tests for various clinical populations. Ability to problem solve and formulation of appropriate actions with regards to exercise testing and prescription.
Assessment Task 2: Oral and Written Piece

**Goal:** The goal of the oral presentation is for you to work collaboratively within a group of four to consolidate, critically analyse and convey relevant, current information regarding pathophysiological processes and the role of exercise in this context to an audience of your peers.

**Product:** Oral and Written Piece - other.

**Format:** You will work in groups and deliver a presentation on a specific condition that is relevant to cardiorespiratory and metabolic health during the lecture and laboratory times of Week 12. You will be required to nominate your topic in Week 2 by selecting from a list of topics on Blackboard. You may also nominate your own topic, but this must be approved by the course coordinator during Week 2. **PowerPoint** presentations will be 15 minutes plus 5 minutes for questions from the audience. The written piece to be provided to the audience will be 1 page in length and contain a summary of the information delivered in the presentation. During the laboratory class in Week 7 you will be allocated some time to work on your presentations as a group as well as receive guidance on presentation skills from your tutor. Both the presentation and the written piece are due to be handed in during your laboratory class of Week 11.

Explicit, detailed assessment criteria and the associated grading rubric relating to the presentations and hand-out are available on the course Blackboard site, and you should refer to these when preparing your presentations.

You and your group members will be asked to supply a grade reflecting your contributions to the group and this grade will represent 0 - 10% of your final Task 2 grade. You will receive a numerical result against a grading rubric and feedback on the presentation will be provided.

**Criteria:** You and your group will be graded on:
- your ability to provide relevant background information about the condition, describe the recommended exercise testing and prescription guidelines and the effects of common treatments on the expected exercise responses and clinical status of individuals.
- the accuracy of your presentation content and the ability to disseminate the content through verbal and written platforms.
- your critical analysis of the relevant research supporting the roles for exercise and physical activity participation in the prevention and treatment of the condition.
- your ability to comprehensively and concisely answer questions about the topic.

Assessment Task 3: Examination

**Goal:** The goal of the final examination is for you to demonstrate thorough knowledge of, and the ability to apply, the course theory and concepts.

**Product:** Examination

**Format:** You will complete an individual paper-based two hour final examination during the centrally-scheduled examination period. The exam content will consist of multiple choice and short answer questions based on readings, lecture and laboratory materials covered throughout the entire semester. You are expected to make yourself available during the examination period.

**Criteria:** Multiple choice questions will be allocated one mark per question. The marks for short answer questions vary and will be noted clearly on the exam paper. Complete, correct answers to the questions will demonstrate your thorough knowledge of, and the ability to explain, apply and demonstrate course theory and concepts.
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>
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<tbody>
<tr>
<td>USC Sunshine Coast</td>
<td>Four hours total contact per week: two hour lecture, two hour laboratory session.</td>
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7.2 Course content

<table>
<thead>
<tr>
<th>Week # / Module #</th>
<th>What key concepts/content will I learn?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lecture: Physical Activity, Chronic Disease and Aging Laboratory: Risk screening, stratification, exercise guidelines and referral</td>
</tr>
<tr>
<td>2</td>
<td>Lecture: Cardiorespiratory Fitness and Clinical Exercise Testing Laboratory: Exercise program design for older individuals</td>
</tr>
<tr>
<td>3</td>
<td>Lecture: Exercise testing: Signs and Symptoms, expected responses Laboratory: Maximal graded exercise testing</td>
</tr>
<tr>
<td>4</td>
<td>Lecture: Cardiac pathophysiology and exercise responses Laboratory: In-Class Quiz 1 (Summative Assessment Task)</td>
</tr>
<tr>
<td>5</td>
<td>Lecture: Exercise prescription in a cardiac context. Laboratory: Exercise prescription for cardiac populations</td>
</tr>
<tr>
<td>6</td>
<td>Lecture: Peripheral Artery Disease and Hypertension Laboratory: Ankle Brachial Index / Claudication exercise test</td>
</tr>
<tr>
<td>7</td>
<td>Lecture: Respiratory pathophysiology and exercise responses Laboratory: Preparing your cardiorespiratory and metabolic oral presentations</td>
</tr>
<tr>
<td>8</td>
<td>Lecture: Exercise prescription in a respiratory context Laboratory: Exercise prescription for respiratory populations</td>
</tr>
<tr>
<td>9</td>
<td>Lecture: Obesity Laboratory: In-Class Quiz 2 (Summative Assessment Task)</td>
</tr>
<tr>
<td>10</td>
<td>Lecture: Metabolic pathophysiology and exercise responses. Laboratory: Student led activity: Administering a maximal graded exercise test</td>
</tr>
<tr>
<td>11</td>
<td>Lecture: Exercise prescription in a metabolic context. Laboratory: Modification of exercise testing protocols for target pathologies and Summative Assessment Task 2 Hand-in.</td>
</tr>
<tr>
<td>12</td>
<td>Lecture: Oral Presentations Laboratory: Oral Presentations</td>
</tr>
<tr>
<td>13</td>
<td>Lecture: Revision Session Laboratory: Exercise prescription for metabolic populations including co-morbidities – Complex case studies</td>
</tr>
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Clothing requirements:

- For the majority of laboratory sessions, you will need to be dressed in clothes and footwear suitable for exercise testing, assessment and delivery. You should wear clothing that allows you to move freely whilst preserving your modesty. Specifically, you should wear clothing that allows you to cycle and/or run, but allows for the placement of ECG electrodes and other monitoring devices on your person, as required for laboratory activities and with your consent.
- For week 12 oral presentations you will need to wear clothing that is appropriate for a professional to present at a conference.
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>
</table>

8.2 Specific requirements
This course has a substantial practical laboratory component intended to build your skills, and assist in ensuring your competency and safety as an exercise scientist or exercise physiologist, in line with external Exercise and Sports Science Australia (ESSA) accreditation requirements. Therefore, attendance of laboratory classes is expected and an attendance roll will be taken at all laboratory classes. Furthermore, in keeping with the U.S.C. Student Charter, professional practice expectations, and the ESSA Code of Conduct, this course has a particular focus on treating all individuals with respect. Specifically, due to the nature of some discussion topics and laboratory tasks in this course and to ensure a safe and respectful environment for all, students may be asked to leave the class and/or course if they demonstrate disrespectful or inappropriate behaviour.

9. Risk management
It is your responsibility to familiarise yourself with the Health and Safety policies and procedures applicable within the University campus areas and to understand the risks of specific courses. In this course you may voluntarily take part in practical exercise science activities, which may include: completion of risk assessment / screening tools including divulging personal information, undertaking submaximal to maximal exercise, physical contact with other members of the class, be required to wear specialist clothing, use sports or diagnostic equipment, partial disrobing, and/or physical connection to instruments for scientific, exercise or clinical measurement. It is imperative that, if you do not wish to (or cannot) take part in any activity, that you make this known to your course co-ordinator, lecturer or laboratory supervisor / demonstrator before opting out of the activity.

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 on 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 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