

EXSS6040: Exercise for Cardiovascular and Pulmonary Diseases

Ourimbah

Semester 2 - 2023



THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

OVERVIEW

Course Description

For people with cardiovascular and pulmonary disease, progressive exercise is a key element of clinical management to improve physical and emotional function and increase capacity for participation in activities of daily life and occupation. This course will develop students' expertise in designing, delivering and evaluating safe and effective evidence-based exercise interventions for people with common cardiovascular and pulmonary conditions. Students will develop knowledge in the aetiology and pathophysiology (including symptoms, comorbidities and systemic complications) of a range of cardiovascular and pulmonary conditions and learn about the role of exercise and clinical exercise physiologists in the broader, interdisciplinary medico-pharmacological disease management. Different strategies to promote exercise adherence and disease self-management will be explored, with a focus on long-term physical activity maintenance. Students will also learn and practice specific clinical physiological, perceptual and functional assessments for evaluation of disease and exercise status.

Prior to Semester 2 2021, this course was named Exercise in Cardiovascular and Pulmonary Disease Rehabilitation.

Assumed Knowledge Contact Hours

EXSS6020 and PHAR6704

Ourimbah

Laboratory *

Face to Face On Campus

2 hour(s) per Week for 12 Weeks starting Week 1

Lecture

Online

1 hour(s) per Week for 12 Weeks starting Week 1

Self-Directed Learning

Online

6 hour(s) per Week for 12 Weeks starting Week 1

Tutorial *

Online

1 hour(s) per Week for 12 Weeks starting Week 1

* This contact type has a compulsory requirement.

Unit Weighting

10

Workload

Students are required to spend on average 120-140 hours of effort (contact and non-contact) including assessments per 10 unit course.

COURSE OUTLINE

www.newcastle.edu.au

CRICOS Provider 00109J

CONTACTS

Course Coordinator	Ourimbah Mr Matthew Kolasinski Matthew.Kolasinski@newcastle.edu.au Consultation: By appointment
Teaching Staff	Other teaching staff will be advised on the course Canvas site.
School Office	School of Environmental and Life Sciences SO-104 Science Offices OURIMBAH Science-SELS@newcastle.edu.au (02) 4349 4568 / (02) 4348 4115 9am-5pm (Mon-Fri)

SYLLABUS

Course Content	<ol style="list-style-type: none">1. Pathophysiology and medico-pharmacological management of cardiovascular and pulmonary disease.2. Clinical assessments of disease and exercise status in cardiovascular and pulmonary disease.3. Exercise responses and adaptations in cardiovascular and pulmonary disease.4. Principles of endurance, resistance and functional training in cardiovascular and pulmonary disease.5. Self-management and behaviour change strategies in cardiovascular and pulmonary disease.6. Integrated practice in clinical management of cardiovascular and pulmonary disease.
Course Learning Outcomes	<p>On successful completion of this course, students will be able to:</p> <ol style="list-style-type: none">1. Explain the aetiology and pathophysiology of common cardiac, vascular and pulmonary conditions, including implications for exercise responses.2. Design, justify and evaluate exercise assessments and interventions for people with common cardiovascular and pulmonary diseases in consideration of individual clinical and psychosocial factors.3. Modify exercise according to outcomes of assessments of clinical status.4. Describe pharmacological, medical and surgical management strategies for a range of common cardiac, vascular and pulmonary conditions and the implications for exercise responses and prescription.5. Identify barriers and enablers to exercise for people with common cardiac, vascular and pulmonary conditions, apply evidence-based behaviour change strategies to improve exercise adherence and self-management.6. Adapt and apply appropriate verbal and non-verbal communication to suit different audiences and stakeholders, for instance client and/or population, versus other health and exercise professionals.

Course Materials

Recommended Text:

- Clinical Exercise Physiology 4th Edition — [Jonathan K Ehrman](#), [Paul M. Gordon](#), [Paul S. Visich](#), [Steven J. Keteyian](#).
- Exercise and sport science australia position stand update on exercise and hypertension — James E. Sharman, Neil A. Smart, Jeff S. Coombes, Michael Stowasser. <https://doi.org/10.1038/s41371-019-0266-z>
- Exercise & Sports Science Australia (ESSA) position statement on exercise prescription for patients with peripheral arterial disease and intermittent claudication — Christopher D. Askewa, Belinda Parmenter, Anthony S. Leicht, Philip J. Walkerd, Jonathan Golledge. <https://doi.org/10.1016/j.jsams.2013.10.251>
- Exercise & Sports Science Australia Position Statement on exercise training and chronic heart failure — Steve E. Selig, Itamar Levinger, Andrew D. Williams, Neil Smart, David J. Holland, Andrew Maiorana, Daniel J. Green, David L. Hare. <https://doi.org/10.1016/j.jsams.2010.01.004>
- Australian Association for Exercise and Sports Science position statement on exercise and asthma — Alan R. Morton, Kenneth D. Fitch. <https://doi.org/10.1016/j.jsams.2011.02.009>
- Exercise and Sports Science Australia (ESSA) position statement on exercise and chronic obstructive pulmonary disease — Norman R. Morris, Kylie Hill, James Walsh, Surendran Sabapathy. <https://doi.org/10.1016/j.jsams.2020.08.007>

COMPULSORY REQUIREMENTS

In order to pass this course, each student must complete ALL of the following compulsory requirements:

Contact Hour Requirements:

- Laboratory There is a compulsory attendance requirement in this course. Students must attend a minimum of 80% of laboratory sessions.
- Tutorial There is a compulsory attendance requirement in this course. Students must attend a minimum of 80% of tutorials.

Course Assessment Requirements:

- Assessment 1 - Practical Demonstration: Pass Requirement - Students must pass this assessment item to pass the course. Students must pass this practical assessment to pass the course.

SCHEDULE

Week	Week Begins	Topic	Learning Activity	Assessment Due
1	17 Jul	Hypertension	Laboratory: BP at rest, during exercise, 24-hour monitoring. Normal limits and exercise responses. Tutorial: Identifying motivators and barriers to exercise, formulating goals, and prescribing exercise for a HTN case	Online Learning Activity (2%)
2	24 Jul	Cardiac arrhythmias	ECG application (laboratory) and interpretation, normal ECG and identifying artefact (tutorial).	Online Learning Activity (2%)
3	31 Jul	Ischaemic heart disease	Laboratory: Exercise prescription for cardiovascular disease Tutorial: Follow up on ECG changes and interpretation. Clinical decision making with exercise assessments	Online Learning Activity (2%)
4	7 Aug	Peripheral artery disease	Laboratory: Exercise tests for intermittent claudication, prescribing exercise for people with PAD based on exercise assessments. Tutorial: Providing physical activity advice outside of exercise program	Online Learning Activity (2%)
5	14 Aug	Heart failure	Laboratory: Performing and interpreting cardiopulmonary exercise testing for exercise prescription Tutorial: Decision making with different signs and symptoms	Online Learning Activity (2%)
6	21 Aug	Valve and congenital heart disease	Laboratory: Designing a cardiac rehabilitation programme for mixed CVD	

			client list	
			Tutorial: Clinical decision making and exercise responses in all CVD conditions covered	
7	28 Aug	Asthma	Lung function testing application and administration of respiratory medications (laboratory) and interpretation (tutorial); spirometry, peak expiratory flow.	Online Learning Activity (2%) Written Assignment (25%)
8	4 Sep	COPD	Laboratory: Prescribing and delivering exercise for people with COPD and high symptom burden Tutorial: Exercise assessments, prescription and clinical decision making for COPD clients	Online Learning Activity (2%)
9	11 Sep	Interstitial lung disease	Laboratory: Practical exam. Tutorial: No tutorial due to practical exam but will have catch up 2-hour tutorial in week 11.	Practical Skills Exam (30%)
10	18 Sep	Pulmonary hypertension	Laboratory: Design and deliver a pulmonary rehabilitation class for a variety of chronic lung disease clients Tutorial: Design an adapted exercise program based on case study interpretation.	Online Learning Activity (2%)
Mid Term Break				
Mid Term Break				
11	9 Oct	Cystic fibrosis	Communicating with clients around their lung condition and benefits of exercise (2-hour tutorial).	Online Learning Activity (2%)
12	16 Oct	COVID-19	Laboratory: Case-based scenarios with clinical decision making around referrals and practicing communicating complex topics to clients	Online Learning Activity (2%)
13	23 Oct			Interactive case study (short answer examination) (25%)
Examination Period				
Examination Period				

ASSESSMENTS

This course has 4 assessments. Each assessment is described in more detail in the sections below.

	Assessment Name	Due Date	Involvement	Weighting	Learning Outcomes
1	Practical Skills Exam*	Wednesday Week 9 (in class)	Individual	30%	2, 3, 6
2	Theory assessment	Tuesday 11:59 pm each week	Individual	20%	1, 3, 4, 5
3	Written report and case study interpretation	Sunday 11:59 pm, end of Week 7	Individual	25%	1, 2, 4, 5, 6
4	Interactive case study (short answer)	Wednesday 9:00 am, Week 13	Individual	25%	1, 2, 3, 4, 5, 6

* This assessment has a compulsory requirement.

Late Submissions The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment 1 - Practical Skills Exam

Assessment Type	Practical Demonstration
Description	This assessment will require you to demonstrate competency in practical skills you have developed across the course, including skills related to exercise assessment and delivery. You may be asked to interpret data from assessment tasks discussed throughout the course.
Weighting	30%
Compulsory Requirements	Pass Requirement - Students must pass this assessment item to pass the course.
Due Date	Wednesday Week 9 (in class)
Submission Method	In Class
Assessment Criteria	Demonstration of practical competency; full assessment criteria to be provided on Blackboard.
Return Method	Not Returned
Feedback Provided	Online - Feedback will be provided within two weeks. Verbal feedback can be provided via appointment. The completed rubric will be uploaded to Canvas
Opportunity to Reattempt	Students WILL be given the opportunity to reattempt this assessment. Students who do not obtain 50% in their first attempt will be given the opportunity to re-attempt the assessment to demonstrate competency. If the student passes the re-attempt, then the mark will be capped at 50%.

Assessment 2 - Theory assessment

Assessment Type	Online Learning Activity
Description	Weekly graded online activities (quizzes) to directly assess theoretical content from micro-lectures.
Weighting	20%
Due Date	Tuesday 11:59 pm each week
Submission Method	Online
Assessment Criteria	Multiple choice and short answer activities with correct/incorrect responses.
Return Method	Online
Feedback Provided	Online - Automated feedback will be provided upon completion of the online activities. Feedback will be provided via Canvas

Assessment 3 - Written report and case study interpretation

Assessment Type	Written Assignment
Description	This assessment has been created to develop your skills in prescribing exercise-based interventions for people with common cardiovascular conditions and effectively communicating with referring primary healthcare providers (e.g., GP) around exercise physiology service delivery.
Weighting	25%

Due Date	Sunday 11:59 pm, end of Week 7
Submission Method	Online
Assessment Criteria	Full assessment criteria to be provided on Canvas
Return Method	Online
Feedback Provided	Online - Feedback will be provided within two weeks from submission. In case of a potential delay, students will be notified via Canvas. Written feedback will be provided via Turnitin. Grades and completed rubric will be provided on Canvas

Assessment 4 - Interactive case study (short answer)

Assessment Type	Case Study / Problem Based Learning
Description	This assessment has been created to assess your knowledge of pulmonary conditions, and your skills in communicating knowledge to a lay audience.
Weighting	25%
Due Date	Wednesday 9:00 am, Week 13
Submission Method	Online
Assessment Criteria	Correct/incorrect answers to short answer questions.
Return Method	Online
Feedback Provided	Online - Within two weeks of submission. Feedback will be provided via Canvas or in person via appointment

ADDITIONAL INFORMATION

Grading Scheme

This course is graded as follows:

Range of Marks	Grade	Description
85-100	High Distinction (HD)	Outstanding standard indicating comprehensive knowledge and understanding of the relevant materials; demonstration of an outstanding level of academic achievement; mastery of skills*; and achievement of all assessment objectives.
75-84	Distinction (D)	Excellent standard indicating a very high level of knowledge and understanding of the relevant materials; demonstration of a very high level of academic ability; sound development of skills*; and achievement of all assessment objectives.
65-74	Credit (C)	Good standard indicating a high level of knowledge and understanding of the relevant materials; demonstration of a high level of academic achievement; reasonable development of skills*; and achievement of all learning outcomes.
50-64	Pass (P)	Satisfactory standard indicating an adequate knowledge and understanding of the relevant materials; demonstration of an adequate level of academic achievement; satisfactory development of skills*; and achievement of all learning outcomes.
0-49	Fail (FF)	Failure to satisfactorily achieve learning outcomes. If all compulsory course components are not completed the mark will be zero. A fail grade may also be awarded following disciplinary action.

*Skills are those identified for the purposes of assessment task(s).

Attendance

Attendance/participation will be recorded in the following components:

- Laboratory (Method of recording: Roll call)
- Tutorial (Method of recording: Roll call)

Communication Methods

Communication methods used in this course include:

- Canvas Course Site: Students will receive communications via the posting of content or announcements on the Canvas course site.
- Email: Students will receive communications via their student email account.
- Face to Face: Communication will be provided via face-to-face meetings or supervision.

Course Evaluation	Each year feedback is sought from students and other stakeholders about the courses offered in the University for the purposes of identifying areas of excellence and potential improvement.
Oral Interviews (Vivas)	As part of the evaluation process of any assessment item in this course an oral examination (viva) may be conducted. The purpose of the oral examination is to verify the authorship of the material submitted in response to the assessment task. The oral examination will be conducted in accordance with the principles set out in the Oral Examination (viva) Procedure . In cases where the oral examination reveals the assessment item may not be the student's own work the case will be dealt with under the Student Conduct Rule .
Academic Misconduct	All students are required to meet the academic integrity standards of the University. These standards reinforce the importance of integrity and honesty in an academic environment. Academic Integrity policies apply to all students of the University in all modes of study and in all locations. For the Student Academic Integrity Policy, refer to https://policies.newcastle.edu.au/document/view-current.php?id=35 .
Adverse Circumstances	<p>The University acknowledges the right of students to seek consideration for the impact of allowable adverse circumstances that may affect their performance in assessment item(s). Applications for special consideration due to adverse circumstances will be made using the online Adverse Circumstances system where:</p> <ol style="list-style-type: none">1. the assessment item is a major assessment item; or2. the assessment item is a minor assessment item and the Course Co-ordinator has specified in the Course Outline that students may apply the online Adverse Circumstances system;3. you are requesting a change of placement; or4. the course has a compulsory attendance requirement. <p>Before applying you must refer to the Adverse Circumstance Affecting Assessment Items Procedure available at: https://policies.newcastle.edu.au/document/view-current.php?id=236</p>
Important Policy Information	<p>The Help button in the Canvas Navigation menu contains helpful information for using the Learning Management System. Students should familiarise themselves with the policies and procedures at: https://www.newcastle.edu.au/current-students/no-room-for/policies-and-procedures that support a safe and respectful environment at the University.</p>

This course outline was approved by the Head of School. No alteration of this course outline is permitted without Head of School approval. If a change is approved, students will be notified and an amended course outline will be provided in the same manner as the original.

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