HESC3541

Clinical Exercise Physiology

Course Outline

Term 1, 2024

School of Health Sciences

Faculty of Medicine & Health

CRICOS Provider Code 00098G

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1. Staff

Position	Name	Email	Consultation times and locations	Contact Details
Course Convenor	Briana Clifford	b.clifford@unsw.edu.au	By appointment on campus or on teams	02 9065 1813
Lecturer	Belinda Parmenter	b.parmenter@unsw.edu.au		
	David Simar	d.simar@unsw.edu.au		
	Kate Drury	k.drury@unsw.edu.au		
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	Blake Cochran	b.cochran@unsw.edu.au		
Tutors	Belinda Durey	b.durey@unsw.edu.au		
	Kate Drury	k.drury@unsw.edu.au		

2. Course information

Units of credit:

Pre-requisite(s): Units of credit: 6 Pre-requisite(s): HESC2501, PHSL2502, PATH2202 or PATH2201, PHSL2501

Teaching times and locations: https://timetable.unsw.edu.au/2024/HESC3541.html

2.1 Course summary

This course will provide you information about the epidemiology and the pathophysiology of respiratory, metabolic, cardiovascular, and immune diseases. You will gain knowledge of how to set up and implement exercise testing and programming in these special populations to provide symptomatic relief, as well as to manage the underlying disease. You will also learn how to manage the interaction between exercise and medications in these special populations. By the end of the term, you will be able to successfully use exercise testing and programming in individuals with these diseases to improve their health and quality of life. The teaching and learning approaches used in this course will include problem-based learning as well as more traditional evidence-based information provided during the lectures.

2.2 Course aims

1. To provide knowledge on the epidemiology and the pathophysiology of respiratory, metabolic, cardiovascular, and immune disorders

2. Develop an understanding of the specificity of those populations based on their symptoms and treatments and their exercise limitations

3. Develop practical skills necessary for the assessment of the exercise capacity and the prescription of exercise in those populations

4. Develop competencies in exercise testing interpretation

2.3 Course learning outcomes (CLO)

At the successful completion of this course you (the student) should be able to:

1. Describe the physiological mechanisms responsible for the development of the chronic diseases addressed in this course, as well as the medications used to manage these diseases.
2. Identify exercise limitations and contraindications to exercise associated with the chronic diseases addressed in this course.
3. Administer pre-exercise screening and safely conduct exercise testing, including monitoring of the cardio-respiratory function at rest and during exercise and recovery.
4. Collect, analyse and interpret data from exercise testing to construct individualised exercise programs.

2.4 Relationship between course and program learning outcomes and assessments

Course Learning Outcome (CLO)	**LO Statement**	**Program Learning Outcome (PLO)**	**Related Tasks & Assessment**
CLO 1	Describe the physiological mechanisms responsible for the development of the chronic diseases addressed in this course, as well as the medications used to manage these diseases	[PLO1, 4, 5]	1, 2, 5
CLO 2	Identify exercise limitations and contraindications to exercise associated with the chronic diseases addressed in this course	[PLO1, 4, 5]	2, 4, 5

CLO 3	Administer pre-exercise screening and safely conduct exercise testing, including monitoring of the cardio-respiratory function at rest and during exercise and recovery	[PLO2, 3]	3, 4
CLO 4	Collect, analyse and interpret data from exercise testing to construct individualised exercise programs	[PLO2, 3]	3, 4, 5

3. Strategies and approaches to learning

3.1 Learning and teaching activities

Online lectures – These lectures will provide you information on the epidemiology, the pathophysiology and treatment of respiratory, metabolic, cardiovascular, and immune diseases. This information will be used to inform exercise testing and prescription in those populations, considering the specificity of each population and the interaction with the medications used.

Lecture notes will be available in PDF format and recordings accessible on **Moodle.** Learning content will be released on Thursday's, the week before for the following week.

Tutorials – During the tutorials, a problem-based learning strategy will be used to discuss testing exercise capacity in specific populations. These tutorials will also help you to learn how to use scientific literature to improve exercise testing and prescription in these populations and how to analyse data collected during exercise tests.

Practicals – During the practicals you will learn clinical skills concerning exercise testing in clinical conditions that will consist of:

- lung function assessment (spirometry)
- cardiac activity monitoring (electrocardiography)
- exploring the metabolic and respiratory adaptations (gas analysis)

3.2 Expectations of students

Students are reminded that UNSW recommends that a 6 units-of-credit course should involve about 150 hours of study and learning activities. The formal learning activities total approximately 50 hours throughout the term and students are expected (and strongly recommended) to do at least the same number of hours of additional study.

Students are expected to review the required readings before attending the corresponding classes as described in the Handbook.

Students who require an appointment with the course convenors can contact them by email or using the Course Discussion Board in Moodle.

3.3 Attendance requirements

“Students are expected to attend all scheduled clinical, laboratory and tutorial classes. An Unsatisfactory Fail (UF) may be recorded as the final grade for the course if students fail to meet the minimum requirement of 80% attendance for clinical, laboratory and tutorial classes (unless otherwise specified on Moodle). Course attendance expectations are determined by the requirements of the program accrediting body. Where a student is unable to attend, they are advised to inform the course convenor as soon as possible but no later than 3 days after the scheduled class and, where possible, provide written documentation (e.g. medical certificate) to support their absence.”

4. Course schedule and structure

Week	*Date*	*Lecture 1*	*Lecture 2*	*Lecture 3*	*Tutorial* Tues 11am, Thurs 9am/ 11am	*Laboratory* Friday 9am/ 11am/ 1pm/ 3pm
1	12/02 - 16/02	Asthma - **CH**	Cystic fibrosis - **SW**	Chronic obstructive pulmonary diseases – **DS**	Exercise testing in clinical population	Pulmonary function assessment
2	19/02 - 23/02	Exercise testing in respiratory diseases - **DS**	Exercise programming in respiratory diseases - **DS**	Insulin resistance and type 2 diabetes – **Cba**	Maximal exercise testing	Introduction to exercise testing
3	26/02 - 02/03	T2D case study - **CBa**	Exercise testing in metabolic diseases - **CBa**	Exercise programming in metabolic diseases – **Cba**	Exercise testing in metabolic diseases	Introduction to exercise testing
4	04/03 - 08/03	Endothelial dysfunction & Atherosclerosis - **BCo**	Coronary artery diseases – **KD**	Coronary artery diseases: case study – **KD**	ECG	Testing Aerobic capacity
5	11/03 - 15/03		Peripheral arterial diseases – **BP**	Peripheral arterial diseases: case study – **BP**		Testing Aerobic capacity
6	18/03 - 22/03					

7	25/03 - 29/03	Valvular diseases - **KD**	Pacemaker - Arrythmia – **KD**	Pacemaker – Arrythmia case study – **KD**		
8	01/04 - 05/04	Chronic heart failure - **KD**	Cardiac Rehabilitation - **KD**	Cardiac rehabilitation – **KD**	Data Analysis	Clinical Assessment: Testing metabolic adaptations
9	08/04 - 12/04	Immunology – **DS**	Immune system and exercise - **DS**	Cancer: pathophysiology – **BC**	Report preparation	
10	15/04 - 19/04	Cancer: pathophysiology - **BC**	Rehabilitation in paediatric cancer - **BC**	Rehabilitation in cancer – **BC**		

CH- Cristan Herbert, **SW**- Shafagh Waters, **DS**- David Simar, **CBa**- Callum Baker, **KD**- Kate Drury, **BCo**- Blake Cochran, **BP**-Belinda Parmenter, **BC**- Briana Clifford.

Exam Period: 26 April – 9 May 2024
Supplementary Exam Period: 20 May – 24 May 2024

5. Assessment

5.1 Assessment tasks

Assessment task	Length	Weight	Mark	Due date and time
Assessment 1: Mid Term Exam (short answer questions)	75min	20%	42	Week 5 (Monday 11/03/2022, 4pm)
Assessment 1: Clinical Skills Assessment (Practical Assessment)	N.A.	20%	45	Week 8 (during usual practical session)
Assessment 3: Report on Exercise Testing	4 pages	20%	100	Week 10 (Friday 21/04/2022, 4pm)
Assessment 4: Final Exam (short answer questions)	2h	40%	100	Examination Period

Further information

UNSW grading system: https://student.unsw.edu.au/grades

UNSW assessment policy: https://student.unsw.edu.au/assessment

5.2 Assessment criteria and standards

Assessment: Online Quizzes (Weeks 2, 4, 8, 10).

Online quizzes offered at the end of each block of lectures on the four main topics (respiratory disorders, metabolic disorders, cardiovascular disorders and immune disorders) to test your knowledge on the information delivered on these topics. Answers will need to be submitted through Moodle. These quizzes are not weighted and are primarily for revision purposes.

Assessment 1: Mid Term Exam

This exam will test your knowledge on the disease pathophysiology, the effects of exercise on the pathologies or symptoms and the potential interactions with medications in respiratory, metabolic and some cardiovascular disorders.

Assessment 2: Clinical Skills Assessment (Practical Assessment)

This assessment will evaluate your skills in performing critical clinical tasks during an exercise test. You will get the opportunity to perform practice runs before being assessed during the 'testing metabolic adaptations' lab. The skills you will be assessed on will be randomly assigned. The marking criteria for each skill can be found below.

Clinical Skills Assessment Form – HESC3541

Pre-screening procedure / protocol design

Student's name: _____

Date: _____

Assessor: _____

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1. MEDICAL INTERVIEWING SKILLS (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

2. PROTOCOL DESIGN (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

3. DESCRIPTION / EXPLANATION OF THE PROCEDURES TO THE PATIENT (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

4. MONITORING OF THE PATIENT (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

5. OVERALL CLINICAL COMPETENCE

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

COMMENTS ON STUDENT'S PERFORMANCE:

Clinical Skills Assessment Form – HESC3541

Pre-screening procedure / protocol design

Descriptors of Competencies assessed

1. **Medical Interviewing Skills:** Facilitates patient's telling of story; effectively uses questions/directions to obtain accurate, adequate information needed; responds appropriately to affect, non-verbal cues. Identifies and explores the patient's issues and concerns within the scope of a focused consultation.

2. **Protocol design:** Effectively develop individualized protocol based on anthropometric data and medical history previously collected from the patient. Appropriately assess risk levels and limitations or contraindications to exercise.

3. **Description / Explanation of the procedures to the patient:** Selectively orders/describes the different steps involved in the exercise test. Communicate effectively with patient. Appropriately describe ways of communicating during the test.

4. **Monitoring of the patient:** Communicate effectively with patient during the test. Appropriately collect information to monitor patient's response to the exercise test.

5. **Overall Clinical Competence:** Demonstrates judgment, synthesis, caring, effectiveness and efficiency. Note that this is <u>not</u> an average of the other domains. It is a global assessment that takes into account that in different settings the competencies take on different weightings.

Clinical Skills Assessment Form – HESC3541

Spirometry – Gas analysis

Student's name: _____

Date: _____

Assessor: _____

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1. MEDICAL INTERVIEWING SKILLS (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

2. DESCRIPTION / EXPLANATION OF THE PROCEDURES TO THE PATIENT (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

3. POSITIONING OF THE PATIENT / USAGE OF THE SPIROMETER / GAS ANALYSER (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

4. ANALYSIS OF THE PERFORMANCE / MONITORING OF GAS EXCHANGE (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

5. OVERALL CLINICAL COMPETENCE

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

COMMENTS ON STUDENT'S PERFORMANCE:

Clinical Skills Assessment Form – HESC3541

Spirometry – Gas Analysis

Descriptors of Competencies assessed

1. **Medical Interviewing Skills:** Facilitates patient's telling of story; effectively uses questions/directions to obtain accurate, adequate information needed; responds appropriately to affect, non-verbal cues. Identifies and explores the patient's issues and concerns within the scope of respiratory disorders.

2. **Description / Explanation of the procedures to the patient:** Selectively orders/describes the different steps involved in the spirometry and gas analysis. Communicate effectively with patient.

3. **Positioning of the patient / Usage of the spirometer / gas analyser:** Provide clear and appropriate instructions on the correct positioning of the patient during the test. Adequately demonstrate the correct usage of the spirometer and the gas analyser.

4. **Analysis of the performance:** Effectively identify characteristic values for the spirometry. Appropriately analyse the shape of the spirometry flow volume loop curve. Clinically interpret the performance of the patient for the spirometry. Determine predictive maximal ventilation. Effectively identify characteristic resting values for the gas analysis.

5. **Overall Clinical Competence:** Demonstrates judgment, synthesis, caring, effectiveness and efficiency. Note that this is <u>not</u> an average of the other domains. It is a global assessment that takes into account that in different settings the competencies take on different weightings.

Clinical Skills Assessment Form – HESC3541

Blood pressure

Student's name: _____

Date: _____

Assessor: _____

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1. DESCRIPTION / EXPLANATION OF THE PROCEDURES TO THE PATIENT (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

2. CORRECT POSITIONING / ORGANISATION / EFFICIENCY (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

3. MONITORING OF THE HAEMODYNAMIC RESPONSE (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

4. INTERPRETATION OF THE RESULTS (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

5. OVERALL CLINICAL COMPETENCE

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

COMMENTS ON STUDENT'S PERFORMANCE:

Clinical Skills Assessment Form – HESC3541

Blood pressure

Descriptors of Competencies assessed

1. **Description / Explanation of the procedures to the patient:** Selectively orders/describes the different steps involved. Communicate effectively with patient.

2. **Correct positioning of the Cuff / Sphygmomanometer / Organisation / Efficiency:** Appropriately position the apparatus and can describe critical aspects concerning the correct positioning of the patient. Prioritises; is timely, succinct

3. **Monitoring of the haemodynamic response:** Effectively perform assessment in a timely manner during each stage. Correctly identify normal haemodynamic response to exercise. Appropriately assess safety of pursuing the test based on the values collected in real time.

4. **Interpretation of the results:** Effectively analyse the data collected during the test and can assess the normality of the response.

5. **Overall Clinical Competence:** Demonstrates judgment, synthesis, caring, effectiveness and efficiency. Note that this is not an average of the other domains. It is a global assessment that takes into account that in different settings the competencies take on different weightings.

Clinical Skills Assessment Form – HESC3541

Electrocardiography

Student's name: _____

Date: _____

Assessor: _____

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1. DESCRIPTION / EXPLANATION OF THE PROCEDURES TO THE PATIENT (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

2. CORRECT POSITIONING OF THE ELECTRODES (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

3. DETERMINATION OF THE HEART VECTOR (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

4. INTERPRETATION OF THE ECG TRACE (__ Not Observed)

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

5. OVERALL CLINICAL COMPETENCE

1 2 3 | 4 5 6 | 7 8 9
Unsatisfactory Satisfactory Superior

COMMENTS ON STUDENT'S PERFORMANCE:

Clinical Skills Assessment Form – HESC3541

Electrocardiography

Descriptors of Competencies assessed.

1. **Description / Explanation of the procedures to the patient:** Selectively orders/describes the different steps involved. Communicate effectively with patient.

2. **Correct positioning of the electrodes:** Effectively describe correct anatomical positioning of the electrodes and appropriately place them on the patient.

3. **Determination of the heart vector:** Use relevant data to effectively determine the heart vector. Clinically interpret its significance.

4. **Interpretation of the ECG trace:** Can describe strategy to systematically assess ECG trace. Can identify major cardiac abnormalities.

5. **Overall Clinical Competence:** Demonstrates judgment, synthesis, caring, effectiveness and efficiency. Note that this is not an average of the other domains. It is a global assessment that takes into account that in different settings the competencies take on different weightings.

Clinical Skills Assessment Form – HESC3541

Electrocardiography

Descriptors of Competencies assessed.

1. **Description / Explanation of the procedures to the patient:** Selectively orders/describes the different steps involved. Communicate effectively with patient.

2. **Correct positioning of the electrodes:** Effectively describe correct anatomical positioning of the electrodes and appropriately place them on the patient.

3. **Determination of the heart vector:** Use relevant data to effectively determine the heart vector. Clinically interpret its significance.

4. **Interpretation of the ECG trace:** Can describe strategy to systematically assess ECG trace. Can identify major cardiac abnormalities.

5. **Overall Clinical Competence:** Demonstrates judgment, synthesis, caring, effectiveness and efficiency. Note that this is not an average of the other domains. It is a global assessment that takes into account that in different settings the competencies take on different weightings.

Assessment 3: Report on Exercise Testing Week 10 (Friday 21/04/2022, 4pm)

This assessment will be completed in pairs. To be able to prepare this document you will need to submit your group of two via the link on Moodle by Friday 4pm in Week 4 (8/03/22). Failure to provide timely information concerning your group will result in a penalty of 25% on your mark for this assignment.

The data used to complete that document will be generated during labs 3 and 4. During those labs your performance in conducting the exercise testing will be assessed against set criteria described above. You will also be given access to pre-existing data if you would like to use those instead.
Report will need to be submitted through Moodle by Friday at 4pm in Week 10 (19/04/2022). Please be aware that because this is a group assignment, the short extension policy cannot be applied.

More information on this assessment task can be found under the assessments tab on Moodle.

Marking Criteria for the Report on Exercise Testing

Anthropometry (30 marks):	Anthropometry
	Medical history / Lifestyle / Classification
	Description of the pre-testing procedure and parameters measurement
Aerobic capacity (30 marks):	Description of the testing procedures
	Method for determination of the different parameters
	Analysis of the data collected and determination of specific parameters to determine physical capacity (VO2max, ventilatory threshold, double product break point)
	Inclusion of pertinent graphs to support parameters determination
Metabolic test (30 marks):	Description of the testing procedures
	Method for determination of the different parameters
	Analysis of the data collected and determination of specific parameters to determine physical capacity (Cross Over Point, Lipoxmax)
	Inclusion of pertinent graphs to support parameters determination
Document (10 marks):	Clear, concise and informative, creative, engaging and useful
	Adapted to AEP audience, individualised testing procedure
	Use of references that are fully quote as footnotes

Marking Criteria for the Report on Exercise Testing (Continued)

	1	2	3	4
Anthropometry	Most of the relevant information including age, gender, height, weight, BMI missing. Major issues with the corresponding units	Some of the relevant information included with issues with the corresponding units	Most of the relevant information including age, gender, height, weight, BMI included. Some issues with the corresponding units	All relevant information including age, gender, height, weight, BMI and the corresponding units included
Medical history, medications, lifestyle screening	Very limited information provided and very little details	Some relevant information including medical history, family history, medications, physical activity levels, diet, sleep, smoking, drinking is provided but the level of details is insufficient	Most of the relevant information including medical history, family history, medications, physical activity levels, diet, sleep, smoking, drinking is provided but the level of details does not support the full interpretation of the data collected	All relevant information including medical history, family history, medications, physical activity levels, diet, sleep, smoking, drinking provided with adequate level of details to support full interpretation
Pretesting procedures and parameters used	Very limited pretesting procedures, including, ECG, BP, HR, SaO2 and spirometry are described and limited corresponding values are provided	Some relevant pretesting procedures, including, ECG, BP, HR, SaO2 and spirometry are described and some of the corresponding values are provided	Most relevant pretesting procedures, including, ECG, BP, HR, SaO2 and spirometry are adequately described and most of the corresponding values are provided	All relevant pretesting procedures, including, ECG, BP, HR, SaO2 and spirometry are adequately described, and the corresponding values are provided
Classification and risk assessment	No interpretation of the data recorded during the pre-screening is provided with no risk assessment or categorisation	There is a limited attempt to perform a risk assessment using the data recorded during the pre-screening with some categorisation in terms of risk level	A risk assessment is performed using the data recorded during the pre-screening with some categorisation in terms of risk level	The data recorded during the pre-screening including anthropometry, medical history, medication, lifestyle and pretesting procedures is adequately used to perform a risk assessment for the client and to categorise in terms of risk level
Description of the testing procedures for the maximal test	There is very limited description of the testing procedures for the max test making it impossible to reproduce the protocol	The testing procedures for the max test are incorrectly described with critical information missing to be able to reproduce the protocol	The testing procedures for the max test are mostly adequately described with only few details missing to be able to reproduce the protocol	The testing procedures for the max test are adequately described with sufficient details so that the protocol can be reproduced
Description of the methods for the determination of the VO2max, the ventilatory threshold and the double product breakpoint	The methods for the determination of the VO2max, the ventilatory threshold and the double product break point are not described or are mostly incorrect	The methods for the determination of the VO2max, the ventilatory threshold and the double product break point are described with several errors	The methods for the determination of the VO2max, the ventilatory threshold and the double product break point are described with minor errors but still support the determination of the three parameters	The methods for the determination of the VO2max, the ventilatory threshold and the double product break point are adequately described and support the correct determination of the three parameters
Determination of the VO2max, the ventilatory threshold and the double product breakpoint	The VO2max, the ventilatory threshold and the double product break point are incorrectly or not determined. Some graphs are included but contain major errors or are not relevant	The VO2max, the ventilatory threshold and the double product break point are determined but some incorrectly. Most of the relevant graphs are included but contain major errors	The VO2max, the ventilatory threshold and the double product break point are mostly adequately determined, and the relevant graphs are included but contain few errors	The VO2max, the ventilatory threshold and the double product break point are adequately determined, and the relevant graphs are included to support their determination

Analysis of the data and interpretation of the results for the maximal test	Most of the data is incorrectly analysed and interpreted with very limited or no conclusions drawn in relation to the maximality of the test, the correspondence of the ventilatory threshold with the double product break point, their level in respect to the maximal capacity and the implications for the level of fitness of the client	The data is only partially analysed and interpreted correctly with very limited conclusions drawn in relation to the maximality of the test, the correspondence of the ventilatory threshold with the double product break point, their level in respect to the maximal capacity and the implications for the level of fitness of the client	The data is analysed and interpreted mostly correctly with some conclusions drawn in relation to the maximality of the test, the correspondence of the ventilatory threshold with the double product break point, their level in respect to the maximal capacity and the implications for the level of fitness of the client	The data is analysed and interpreted correctly with the appropriate conclusions drawn in relation to the maximality of the test, the correspondence of the ventilatory threshold with the double product break point, their level in respect to the maximal capacity and the implications for the level of fitness of the client
Description of the testing procedures for the metabolic test	There is very limited description of the testing procedures for the metabolic test making it impossible to reproduce the protocol	The testing procedures for the metabolic test are incorrectly described with critical information missing to be able to reproduce the protocol	The testing procedures for the metabolic test are mostly adequately described with only few details missing to be able to reproduce the protocol	The testing procedures for the metabolic test are adequately described with sufficient details so that the protocol can be reproduced
Description of the methods for the determination of the cross over point and the lipoxmax	The methods for the determination of the cross over point and the lipoxmax are not described or are mostly incorrect	The methods for the determination of the cross over point and the lipoxmax are described with several errors	The methods for the determination of the cross over point and the lipoxmax are described with minor errors but still support the determination of the two parameters	The methods for the determination of the cross over point and the lipoxmax are adequately described and support the correct determination of the three parameters
Determination of the cross over point, the lipoxmax and the total energy expenditure	The cross over point, the lipoxmax and the total energy expenditure are incorrectly or not determined. Some graphs are included but contain major errors or are not relevant	The cross over point, the lipoxmax and the total energy expenditure are determined but some incorrectly. Most of the relevant graphs are included but contain major errors	The cross over point, the lipoxmax and the total energy expenditure are mostly adequately determined, and the relevant graphs are included but contain few errors	The cross over point, the lipoxmax and the total energy expenditure are adequately determined, and the relevant graphs are included to support their determination
Analysis of the data and interpretation of the results for the metabolic test	Most of the data is incorrectly analysed and interpreted with very limited or no conclusions drawn in relation to the cross over point and the lipoxmax, their level in respect to the maximal capacity and the implications for the level of fitness of the client	The data is only partially analysed and interpreted correctly with very limited conclusions drawn in relation to the cross over point and the lipoxmax, their level in respect to the maximal capacity and the implications for the level of fitness of the client	The data is analysed and interpreted mostly correctly with some conclusions drawn in relation to the cross over point and the lipoxmax, their level in respect to the maximal capacity and the implications for the level of fitness of the client	The data is analysed and interpreted correctly with the appropriate conclusions drawn in relation to the cross over point and the lipoxmax, their level in respect to the maximal capacity and the implications for the level of fitness of the client
Quality of the document	The document is mostly unclear and not useful as it lacks a lot of the relevant information	The document is not really clear or informative making it hardly useful	The document is mostly clear, concise and informative, creative, engaging and useful but could be improved	Clear, concise and informative, creative, engaging and useful document
Suitability for the target audience	The document is not fit for AEP audience and does not use individualised testing procedures	The document is only marginally adapted to an AEP audience and mostly uses non individualised testing procedures	The document is mostly adapted to an AEP audience and uses mostly individualised testing procedures	The document is clearly adapted to an AEP audience and uses individualised testing procedures
References	No relevant references included or quoted, and the document is full of typos and grammatical errors	Only few relevant references are included and are only partially quoted. The document contains several typos and grammatical errors	Most relevant references are correctly included and quoted, and the document only contains few typos and grammatical errors	All relevant references are correctly included and quoted, and the document is free of typos and grammatical errors

Assessment 4: Final exam
This exam will test your knowledge about the disease's pathophysiology, the effects of exercise of the pathologies or symptoms and the potential interactions with medications. It will also test your practical skills for testing patients, analysing the data obtained using the test, prescribing exercise using data from the tests and information from scientific literature.

5.3 Submission of assessment tasks

Late Submission

UNSW has standard late submission penalties as outlined in the UNSW Assessment Implementation Procedure, with no permitted variation. All late assignments (unless extension or exemption previously agreed) will be penalised by 5% of the maximum mark per day (including Saturday, Sunday, and public holidays). For example, if an assessment task is worth 30 marks, then 1.5 marks will be lost per day (5% of 30) for each day it is late. So, if the grade earnt is 24/30 and the task is two days late the student receives a grade of 24 – 3 marks = 21 marks.

Late submission is capped at 5 days (120 hours). This means that a student cannot submit an assessment more than 5 days (120 hours) after the due date for that assessment.

Short Extension

UNSW has introduced a short extension procedure for submission of individual assessment tasks. This does not include timed assessments, exams, quizzes, group tasks, presentations, clinical skills assessments or practical assessments. Students must check the availability of a short extension in the individual assessment task information for their courses. For this course, students may apply for a short extension of up to 2-days for a maximum of one assessment task during the term.

Short extensions do not require supporting documentation. They must be submitted before the assessment task deadline. No late applications will be accepted. Late penalties apply to submission of assessment tasks without approved extension.

Special Consideration

In cases where short term events beyond your control (exceptional circumstances) will affect your performance in a specific assessment task, you may formally apply for Special Consideration through myUNSW.

UNSW has a Fit to Sit rule, which means that by sitting an examination on the scheduled date, you are declaring that you are fit to do so and cannot later apply for Special Consideration. Examinations include centrally timetabled examinations and scheduled, timed examinations, tests and practical assessments managed by your School.

You must apply for Special Consideration **before** the start of your exam or due date for your assessment, except where your circumstances of illness or misadventure stop you from doing so.

If your circumstances stop you from applying before your exam or assessment due date, you must **apply within 3 working days** of the assessment, or the period covered by your supporting documentation.

More information can be found on the Special Consideration website.

5.4. Feedback on assessment

Summative and formative feedback on assessments will be provided to you for each task as specified below:

Assessment task: Quizzes – Mark given on quiz completion.

Assessment task: Mid Term exam – Mark and written feedback (corrected answers) given within 10 days of exam completion.

Assessment task: Clinical Skills assessment – within 10 working days of assessment.

Assessment task: Within 10 working days of submission.

6. Academic integrity, referencing and plagiarism

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.

Please use Vancouver or APA referencing style for this course. Change to referencing style used in your course.

Further information about referencing styles can be located at https://student.unsw.edu.au/referencing

Academic integrity *is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage.*[1] *At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.*

Further information about academic integrity and ***plagiarism*** *can be located at:*

- *The Current Students site* https://student.unsw.edu.au/plagiarism*, and*
- *The ELISE training site* https://subjectguides.library.unsw.edu.au/elise

The Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: https://student.unsw.edu.au/conduct.

7. Readings and resources

Textbook 1: Brooks G.A., Fahey T.D. and Baldwin K.M. (2004). Exercise Physiology, human bioenergetics and its application. McGraw-Hill. 4th Ed.

Textbook 2: Hampton R.J. (2013). The ECG made easy. Churchill Livingstone Elsevier. 8th Ed.

[1] International Center for Academic Integrity, 'The Fundamental Values of Academic Integrity', T. Fishman (ed), Clemson University, 2013.

Textbook 3: LeMura L.M. and von Duvillard S.P. (2004). Clinical Exercise Physiology: Application and Physiological Principles. Lippincott Williams and Wilkins. (Purchase at the bookshop, Also in special reserve)

Textbook 4: Ehrman J.K., Gordon P.M., Visich P.S. and Keteyian S.J. (2019). Clinical Exercise Physiology. Human Kinetics. 4th Ed.

Textbook 5: American College of Sports Medicine (2014). ACSM's Guidelines for Exercise Testing and Prescription. Lippincott Williams and Wilkins. 9th Ed

8. Administrative matters

Student enquiries should be submitted via student portal https://portal.insight.unsw.edu.au/web-forms/

9. Additional support for students

- *The Current Students Gateway:* https://student.unsw.edu.au/
- *Academic Skills and Support:* https://student.unsw.edu.au/academic-skills
- *Student Wellbeing and Health:* https://www.student.unsw.edu.au/wellbeing
- *UNSW IT Service Centre:* https://www.myit.unsw.edu.au/services/students
- *UNSW Student Life Hub:* https://student.unsw.edu.au/hub#main-content
- *Student Support and Development:* https://student.unsw.edu.au/support
- *IT, eLearning and Apps:* https://student.unsw.edu.au/elearning
- *Student Support and Success Advisors:* https://student.unsw.edu.au/advisors
- *Equitable Learning Services (Formerly Disability Support Unit):* https://student.unsw.edu.au/els
- *Transitioning to Online Learning* https://www.covid19studyonline.unsw.edu.au/
- *Guide to Online Study* https://student.unsw.edu.au/online-study