



Australia's
Global
University

Faculty of Medicine
School of Medical Sciences

HESC 4551

RESEARCH PROJECT

COURSE OUTLINE

Term 3, 2019

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Please read this manual/outline in conjunction with the following pages on the [School of Medical Sciences website](#):

- [Advice for Students](#)
- [Learning Resources](#)

(or see "STUDENTS" tab at medicalsciences.med.unsw.edu.au)

HESC 4551 Course Information

Credit Points: 6 UOC

OBJECTIVES OF THE COURSE

This course will lead on from the prerequisite course, HESC4501 Exercise Physiology Research Seminars, and will give students experience in conducting a literature review on a self-selected topic related to exercise physiology. It is primarily a self-directed project that involves deciding on a research question/topic and addressing this question by a narrative review of the literature. Assessment tasks will provide experience in a range of research activities such preparation of proposals and written reports, and oral presentations.

COURSE CO-ORDINATOR and LECTURERS

Course Coordinator:

To Be Advised

Co Coordinator:

Dr Chris Maloney (CM)

c.maloney@unsw.edu.au

School of Medical Sciences Ph 9385 1362

Office: Room 327, Level 3, East Wing, Wallace Wurth

Students wishing to see the course coordinators should make an appointment *via* email as our offices are not readily accessible. We will organize to meet you in a convenient location elsewhere in the building.

Program Contact (please submit enquiries via the UNSW Student Portal Web Forms):

<http://unsw.to/webforms>

Tel: (02) 9385 2557

COURSE STRUCTURE and TEACHING STRATEGIES

This course consists of a self-directed literature review of a student's topic of choice in relation to exercise physiology. Students will receive guidance on the literature review process from the course convenor via a lecture format.

Learning activities occur on the following days and times:

Lecture:

There will be one Introductory lecture: Week 1, Wednesday (2 hours session) **STUDENTS are requested** to attend this session.

Guidance Sessions:

These 30 minute sessions will be offered to students upon request in week 5. If you wish to have guidance, please email in week 4 to arrange a mutually convenient time to meet. These sessions are short so come prepared.

Seminar Session:

These 2 hour sessions will be held on Wednesday in **week 8** you are required to attend the **whole of the session** that you are **presenting** in. You therefore must ensure that this session does not clash with other commitments.

Students are expected to attend all scheduled activities for their full duration (2 hours of lecture in week 1 and one two hours seminar session in week 8). 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 contact sessions for this course add to 4 hours throughout the term. Thus, students are expected to do the bulk (~145 hours) of the study independently.

Independent study:

Independent studies will be an essential component of the course, as you will be asked to retrieve publications from databases, synthesise and have critical reading on what you will present. You will also need to finalise an individual talk outside of course contact hours. This strategy is to foster your independence as an exercise scientist/physiologist to gather information to inform your practice facilitating an evidence-based approach.

APPROACH TO LEARNING AND TEACHING

The learning and teaching philosophy underpinning this course is centred on student learning and aims to create an environment which interests and challenges students. The teaching is designed to be engaging and relevant in order to prepare students for future careers.

How the course relates to the Exercise Physiology profession

The information and ideas presented in this course will enable students to build critical thinking and good communication skills necessary for professionals. Good communication skills are necessary to build an effective relationship between the patient and the practitioners. Along with the knowledge base of techniques used in experimental research, an understanding of how research is published and ranked is a prerequisite to appreciate the quality of a piece of research. It is essential that a professional carer has a solid understanding of research in the field of Exercise Sciences to appreciate the novel techniques and progress that has been made; enabling them to prescribe exercise programs backed by evidence that has been rigorously examined.

How the course relates to other courses in the Exercise Physiology program

Together with Research Seminars (HESC4501), this 4th year course builds upon the knowledge accumulated **throughout the whole program**. It uses previously understood fundamental concepts to build the necessary critical thinking towards professional independence.

Although the primary source of information for this course is the scientific literature itself, effective learning can be enhanced through self-directed use of other resources such as textbooks and Web based resources to enhance your research skills. The seminar session is essential to prepare for you for listening to and presenting scientific knowledge in a way that is accessible and understandable. This skill will be invaluable to you when you are on placement and you will use this skill daily in your working career.

STUDENT LEARNING OUTCOMES

HESC4551 will develop those attributes that the Faculty of Medicine has identified as important for an Exercise Scientist/Physiologist Graduate to attain. These include; skills, qualities, understanding and attitudes that promote lifelong learning that students should acquire during their university experience.

Graduate Attributes

- A. Research, inquiry and analytical thinking abilities
- B. The capability and motivation for intellectual development
- C. Ethical, social and professional understanding
- D. Effective communication
- E. Teamwork, collaborative and management skills
- F. Information Literacy – the skills to locate, evaluate and use relevant information.

At the end of the course you should be able to:

- Synthesize and analyse data from review of scientific literature
- Develop an understanding of current techniques used in biomedical research
- Develop skills in critically evaluating research articles and writing a literature review
- Be able to organise, present and discuss research data

COURSE EVALUATION AND DEVELOPMENT

For course evaluation, feedback has been gathered at the completion of the course, using among other means, UNSW's Course and Teaching Evaluation and Improvement Process and myExperience. Student feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

This course has added practical sessions that scaffold the transition to a research centred approach to learning and provided essential skills required to enable an exercise scientist/physiologist to develop evidence-based practice.

TEXTBOOKS AND OTHER RESOURCES

These resources will take the form of text books, journal articles or web-based resources. If available, links to the electronic form of these resources will be put on the course Moodle page.

A good reference for this course is the following text:
Evidence-Based Practice in Exercise Science: *The six step approach*.
William E Amonette, Kirk L English and William J Kraemer.
Human Kinetics, Lower Mitcham, SA Australia

See also medalsciences.med.unsw.edu.au/students/undergraduate/learning-resources
<https://medalsciences.med.unsw.edu.au/students/undergraduate/advice-students>

ASSESSMENT PROCEDURES

Summary of Assessment tasks	Weight	Due Date
ASSESSMENT TASK 1 – PROJECT PROPOSAL A concise summary of the background, introduction to previous literature, rationale for the review and any hypotheses/aims of the review	20%	Week 3
ASSESSMENT TASK 2 – ORAL PRESENTATION An oral presentation introducing the topic of the literature review its importance to exercise physiology, its aims, hypothesis and methods to be used	30%	Week 8
ASSESSMENT TASK 3 – WRITTEN REPORT A review of the literature detailing its importance and relevance to exercise physiology, the current understanding and the future of this area of research.	50%	Week 11

Submission of Assessment Tasks

All assignments are to be submitted via the course Moodle Page.

Penalties for late submission of assignments – In cases where an extension has NOT been granted, the following penalties will apply:

1. For assignments submitted one day after the due date, a **penalty of 50%** of the maximum marks available for that assignment will be incurred.
2. A further 25% of the maximum possible allocated marks (i.e., a total of 75%) will be deducted from assignments which are two (2) days late.
3. Assignments received more than two (2) days after the due date **will not be allocated a mark**, however, these assignments **must** still be submitted to pass the unit.

GENERAL INFORMATION

Attendance Requirements

For details on the Policy on Class Attendance and Absence see [Advice for Students](#) and the [Policy on Class Attendance and Absence](#).

Attendance at practical classes is compulsory, and must be recorded in the class roll at the start of each class. Arrival more than 15 minutes after the start of the class will be recorded as non-attendance. It is your responsibility to ensure that the demonstrator records your attendance and no discussions will be entered into after the completion of the class. Satisfactory completion of the work set for each class is essential. It should be noted that non-attendance for other than documented medical or other serious reasons, or unsatisfactory performance, for more than 1 practical class during the session may result in an additional practical assessment exam or ineligibility to pass the course. Students who miss practical classes due to illness or for other reasons must submit a copy of medical certificates or other documentation to the course coordinator.

Practical Classes

The seminar class is an opportunity for students to develop graduate attribute C by behaving in an ethical, socially responsible and professional manner within the class.

Students must take due care with biological and hazardous material and make sure all equipment is left clean and functional. In the interests of safety, special attention should be paid to any precautionary measures recommended in the notes. If any accidents or incidents occur, they should be reported immediately to the demonstrator in charge of the class who will record the incident and recommend what further action is required. For more details see [Advice for Students-Practical Classes](#)

Special Consideration

Please see [UNSW-Special Consideration](#) and [Student Advice-Special Consideration](#)

If you unavoidably miss the progress exam, you must lodge an online application in myUNSW for special consideration. If your request for consideration is granted an alternative assessment will be organised which may take the form of a supplementary exam or increased weighting of the final exam.

See: [Student-Advice-Reviews and Appeals](#)

Student Support Services

See: [Student Advice-Student support services](#).

Academic Integrity and Plagiarism

The [UNSW Student Code](#) outlines the standard of conduct expected of students with respect to their academic integrity and plagiarism.

More details of what constitutes plagiarism can be found [here](#)

Course Timetable and Room allocation

Class Type	Date	Weeks	Location	Size
Lecture	Wed 9AM-11AM	1	Wurth LG03	40
Seminar	Wed 9AM-11AM	8	Wurth LG02	10
	Wed 11AM-1PM	8	Wurth LG02	10
	Wed 2PM-4PM	8	Wurth LG02	10
	Wed 4PM-6PM	8	Wurth LG02	10

TIMETABLE

Week	Date	Item	Details
1	Wednesday 18th September	Introductory Seminar	Introductory Lecture: Session will overview the course
2			
3	Friday 4th October	Project Proposal	Assessment task 1 is to be submitted no later than midnight Friday of WEEK 3.
4	Please EMAIL to arrange a time next week	Guidance session	
5	Week starting 14th October	Guidance sessions	Students wishing to get guidance on their review can email a staff member to arrange to have a 30 minute meeting.
6			
7			
8	Wednesday 6th November	Oral Presentation	Assessment task 2 to be submitted no later than 9 AM Monday of WEEK 8 (i.e., the PowerPoint presentation to be used during your Oral presentation is to be posted via Moodle).
9			
10			
11	Monday 25th November	Written Report	Assessment task 3 is to be submitted no later than 9 AM Monday WEEK 11 (i.e., the final written report is to be posted via Moodle).

A primarily self-directed project that involves deciding on a research question/topic and addressing this question by a narrative review of the literature.

In some instances, the literature review may be completed under the guidance of an internship supervisor as part of a larger research project.

Your literature review topic should be determined by the end of week 1.

Literature review - Assessment Task 1 – *PROJECT PROPOSAL*

Learning Outcomes

- To clearly define the research question, provide a brief background and rationale for the review
- Provide an overview of the methods and the hypothesis
- To synthesize and present data from a critical review of the literature

See *Course Schedule* for submission instructions

The Proposal is to be a concise overview of the research topic, rational and relevance to exercise physiology, any hypotheses and any protocols or procedures being used, with a discussion on potential outcomes

General Assessment Guidelines :

Word Count – 1000-1500 word limit

	Unsatisfactory	Below Average	Satisfactory	Good	Excellent
BACKGROUND Introduction to the area being reviewed	Introduction lacking detail	Minimal Detail given. Some relevant background.	Clear account of the scientific background	Concise and clear account of the scientific background	Very concise and clear account of the scientific background
RATIONALE Aims, Why review being done, search strategies, inclusion exclusion criterion	Poor rationale for the review and poor logic	Attempted to give a logical rational but lacks detail	Good rationale provided and sound logic demonstrated	Clear and logical rationale for the review/research area	Very concise, clear and logical rationale for the review/research area
POSSIBLE CLINICAL SIGNIFICANCE	Poor association between the possible clinical significance and the background and discussion	Minimal association between the possible clinical significance and the background and discussion	Association between the possible clinical significance and the background and discussion	Links between the possible clinical significance and the background and discussion	Very clear links between the possible clinical significance and the background and discussion
Overview of reviews structure/ area being reviewed with reference to previous literature	Poor discussion and referencing to previous studies	Minimal discussion or relation to previous studies	Discussion sound with reference to previous studies	Discussion clear and logical with reference to some seminal studies	Discussion very clear and logical with reference to the seminal scientific studies
STYLE/ PRESENTATION	Disjointed flow of ideas. Sentences poorly constructed. Non-professional expression and lacking style. Delivery not entirely clear. Some grammatical or spelling errors	Poor flow of ideas some poor language. Style is colloquial a grammatical or spelling error noted	A good flow of ideas. Sentences well constructed but lacking professional expression and style. Delivery not entirely clear. Minor grammatical or spelling errors	Clear flow of ideas. Sentences well constructed and professional expression and style used. Delivery clear. Minor grammatical but no spelling errors	Very clear and logical flow of ideas. Sentences very well constructed and professional expression and style used. Delivery very clear and technical. No grammatical or spelling errors

Project Proposal Marking Scheme - Review HESC 4551

Student **Date**

Examiner
.....

Total Mark /10

Background <i>Overview of field:</i>	Max. Marks = 4	Unsatisfactory (mark = 0)	Below average (0.5)	Satisfactory (mark = 1.0)	Good (mark = 1.5)	Excellent (mark = 2.0)	Mark
Clear description of field investigated	2						
Aims adequately explained	2						
Content	Max. Marks = 4	Unsatisfactory (mark = 0)	Below average (0.25)	Satisfactory (mark = 0.5)	Good (mark = 0.75)	Excellent (mark = 1.0)	Mark
How is this review adding to the field	1						
Scope of review explained	1						
Methods described briefly (i.e. search criterion, major methods used)	1						
Overview of review structure, refers to current literature	1						
Presentation <i>Readability:</i>	Max. Marks = 2	Unsatisfactory (mark = 0)	Below average (0.25)	Satisfactory (mark = 0.5)	Good (mark = 0.75)	Excellent (mark = 1.0)	Mark
Able to be understood by an educated but non-expert reader	1						
Grammar, spelling, and concise sentence structure	1						

Comments:

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Assessment Task 2 – ORAL PRESENTATION

Of the format **6 minutes** presentation, 2 minutes questions/discussion followed by 2 minutes of Feedback/ direction from the markers

Learning Outcomes

- To be able to organise, present and discuss a research topic
- To generate original scientific illustrations

See *Course Schedule* for submission instructions

Assessment Criteria

Use this to guide your preparation of the presentation. Note that the marking scheme on next page will be used to grade your presentation. Each category will be marked on a sliding scale from 0 to full marks for that division.

Presentation	Unsatisfactory	Below Average	Satisfactory	Good	Excellent
<p>Overview – rationale for review & selection of appropriate scientific journal articles relevant to the project</p>	<p>Selection of articles inappropriate for the assignment (e.g. textbook chapters). No attempt to identify clinical relevance.</p>	<p>Selection of some appropriate articles (original research articles or reviews). Unclear at times, with minimal description of the clinical relevance.</p>	<p>Selection of appropriate articles (original research articles or reviews). Clear and accurate description of the clinical relevance.</p>	<p>Selection of appropriate original research articles. Clear and accurate description of the clinical relevance. Possibly critical thought</p>	<p>Selection of appropriate original research articles. Clear and accurate description of the clinical relevance. Some critical thought.</p>
<p>Body of the Presentation</p> <ul style="list-style-type: none"> ▪ <i>Background, If appropriate Hypothesis</i> ▪ <i>Aims</i> ▪ <i>Methods to be used</i> ▪ <i>Discussion</i> 	<p>Incomplete and inaccurate overview of articles. Lacking, or inaccurate, details for all or some of the purpose and methods. Some attempt to identify the clinical relevance.</p>	<p>Below average overview of the articles. Minimal detail for purpose and methods of review.</p>	<p>Good overview of the articles. Report purpose and methods of own study.</p>	<p>Good overview of the topic area, articles, Reports purpose and methods of own study. Some attention to the key details.</p>	<p>Very clear description of topic area, research plan and methodology to be used. Very good critical analysis of topic including strengths and limitations of study design</p>
<p>Quality of the presentation</p> <ul style="list-style-type: none"> ▪ <i>Presentation style</i> ▪ <i>Clarity of slides</i> ▪ <i>Allocation of time</i> ▪ <i>Ability to correctly interpret & answer questions</i> 	<p>Presentation style poor read most of presentation with little eye contact. Slides not clear. Slides overcrowded. Little use of figures and diagrams. Presentation goes over/significantly under time. Unable to interpret and answer most questions.</p>	<p>Below average presentation style with some eye contact. Read some. Some unclear slides. Some use of figures and diagrams. Over time. Answered some questions with reasonable accuracy</p>	<p>Good presentation style with some eye contact. Mostly clear slides. Uses figures and diagrams. Keeps to time. Answers most questions with reasonable accuracy</p>	<p>Good presentation style with eye contact. Clear slides. Good use of figures and diagrams. Adheres to the prescribed format. Keeps to time. Understands questions and answers them with reasonable accuracy</p>	<p>Clear, fluent and concise presentation with good eye contact. Clear slides without overcrowding. Clear figures and diagrams. Adheres to the prescribed format. Keeps to time & appropriate allocation of time. Accurate answers to questions</p>

Oral Presentation Marking Scheme - Review HESC 4551

**Total
Mark /20**

Student Date

Examiner

Background (Context)	Max. Marks = 4	Unsatisfactory (mark = 0)	Below average (0.5)	Satisfactory (mark = 1.0)	Good (mark = 1.5)	Excellent (mark = 2.0)	Mark
Review topic justified and relevant to Ex Phys.	2						
Aims/ Scope of Review adequately explained	2						
Content	Max. Marks = 4	Unsatisfactory (mark = 0)	Below average (0.5)	Satisfactory (mark = 1.0)	Good (mark = 1.5)	Excellent (mark = 2.0)	Mark
Enough information given to understand topic	2						
Information is focussed and on topic, evidence from current literature is apparent	2						
Slides appearance & Presentation Style	Max. Marks = 8	Unsatisfactory (mark = 0)	Below average (0.5)	Satisfactory (mark = 1.0)	Good (mark = 1.5)	Excellent (mark = 2.0)	Mark
Used pictures, diagrams & tables: Effectively explained	2						
Confident voice, audience engagement & timing (not too short/long, not read)	2						
Able to be understood by an educated but non-expert reader	2						
Slides attractive Font size & colour easy to read	2						
Conclusions	Max. Marks = 4	Unsatisfactory (mark = 0)	Below average (0.5)	Satisfactory (mark = 1.0)	Good (mark = 1.5)	Excellent (mark = 2.0)	Mark
Summary of strengths & weaknesses	2						
Ability to interpret & answer questions	2						

Comments:

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Assessment Task 3 – WRITTEN REVIEW

Learning Outcomes

- To read, assess, and synthesis the literature of a chosen area
- To be able to write a literature review

See *Course Schedule* for submission instructions

The review article should follow the following guidelines:

Title – Up to 20 words, Student number and name

Abstract – Up to 300 words (should be updated to include interpretation of literature reviewed)

Key words – Up to five key words defining the topic developed in the review

Introduction

Body of text

Conclusion



Up to 3,000 words

It is advisable to use appropriate sub headings to section off distinct areas of the literature being reviewed

Figures and Tables – if appropriate include no more that 3 to 5 figures or tables including legends

References – Up to 30 references of original research articles (> 15 references). No **review articles** should be cited in main sections (ok in the introduction/ background section).

Article should be formatted, 1.5 line-spacing, Margins 2.5 cm. Body text: 12 font. Illustration legend text 10 font. Total Word Count ~3500 +/- 10%. The file should be a word document (.doc or .docx format).

General Assessment Guidelines

Report	Unsatisfactory	Below Average	Satisfactory	Good	Excellent
Literature Review – Basis of Review, Background, Aim(s) and if appropriate a Hypothesis. Identification of the relevance to Exercise Physiology	Background is unrelated to reviewed subject, does not give enough information for reader to understand field being reviewed. Aim(s) not explained; Ambiguous Hypothesis is presented. No link at all to exercise physiology. No attempt to identify clinical relevance.	Background is somewhat related to reviewed subject, gives minimal information for reader to understand topic. Aims poorly explained, A poor Hypothesis. Poor link to exercise physiology. Poor attempt to identify clinical relevance	Background is supportive of reviewed subject. Gives some information for reader to understand topic. Aims explained simply Hypothesis is presented. Some link to exercise physiology. An attempt to identify clinical relevance provided.	Background sheds light on the gap filled by reviewing the subject. Aims well explained, A plausible Hypothesis is presented. Clear link to exercise physiology identifying. Some evidence of clinical relevance provided.	Background is so clear it demonstrates why subject needs to be reviewed. Aims precise and concise, A scientifically plausible Hypothesis is presented. Excellent link to exercise physiology identifying a strong clinical relevance.
Body of the Report • Background /Aim(s) • Methods • Overview of subject matter being reviewed and Conclusions • Depth of critical analysis	Incomplete and inaccurate overview of the literature. Lacking, or inaccurate, details for all or some of the overviewed literature, methods, results and conclusions. No critical analysis of the field. Inappropriate conclusions that are unsupported by the literature presented	Poor overview of the literature. Lacking, or inaccurate, details for some of the purpose, methods, results and conclusions. Some critical analysis. Poor conclusions that are loosely supported by the results	Simple overview of the literature. Aims and methods described. Review reasonably presented some minor detail lacking for purpose, methods, results and conclusions. Attempt at critical analysis. Appropriate conclusions that are supported by literature	Good overview of the literature. Aims and methods described well. Review presented in a concise manner. No detail lacking for purpose, methods, results and conclusions. Good critical analysis of literature. Appropriate conclusions that are clearly supported by results and the literature.	Comprehensive and concise overview of the literature, reporting the purpose, key measures, key results and the most pertinent conclusions. Aims and methods easily understood and fully well. Review presented in a professional manner. Excellent critical analysis of literature. Conclusions and discussion expertly related to findings in the literature.
Quality of the writing and presentation • Adherence to prescribed format • Fluency and style • Spelling • Grammar • Appropriate referencing	Unprofessional language style used e.g.: background information in results section, conclusions and discussion in results section. A large number of careless spelling and grammatical mistakes. Overuse of the first person. Excessive colloquial tone. Inaccurate referencing. Illogical structure of the report.	Unprofessional language style used at times. A number of careless spelling and grammatical mistakes. Some use of the first person and Colloquial tone used. Inaccurate referencing. Poor structure of the report.	Professional language style used e.g.: no background information in results section, conclusions and discussion in results section. Minimal number of spelling and grammatical mistakes. Good use of 3 rd person. Appropriate referencing.	Scientific style used Ideas easy to follow. Fluent logical flow of ideas. All information in the appropriate sections. One or two grammar and spelling mistakes. Good referencing	Clear, fluent and concise scientific writing. No errors in written expression. Adheres to the prescribed format. Accurate referencing.

Literature review Marking Scheme - Review HESC4551

Student **Date**

Examiner

Total Mark /50

Background	Max Marks = 10	Unsatisfactory (mark = 0)	Below average (0.25)	Satisfactory (mark = 1.0)	Good (mark = 1.5)	Excellent (mark = 2.0)	Mark
Abstract concise & relevant	2						
Clinical relevance of the review adequately explained	2						
Scope of the review adequately explained	2						
Coverage of appropriate research to date in this area	2						
Explanation of gaps in the literature	2						
Content	Max Marks = 20	Unsatisfactory (mark = 0)	Below average (1.0)	Satisfactory (mark = 2.0)	Good (mark = 3.0)	Excellent (mark = 4.0)	Mark
Accurate & detailed description of study methods/procedures	4						
Results well presented	4						
Conclusions are valid	4						
Depth of critical analysis of literature	4						
Accurate summary of strengths, weaknesses & future directions	4						
Quality of the writing	Max Marks = 20	Unsatisfactory (mark = 0)	Below average (1.0)	Satisfactory (mark = 2.0)	Good (mark = 3.0)	Excellent (mark = 4.0)	Mark
Clear, fluent writing	4						
Grammar & spelling	4						
Adherence to prescribed format	4						
Written for educated but non-expert reader	4						
Referencing (accuracy & format)	4						

Comments:

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