UNSW AUSTRALIA | Medical Sciences Medicine

DEPARTMENT OF EXERCISE PHYSIOLOGY

HESC2501

Exercise Physiology

COURSE OUTLINE

SEMESTER 2, 2016

CONTENTS **PAGE**

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)

HESC2501 Course Information

The focus of this course in on the physiological adaptations of the respiratory, cardiovascular, endocrine and musculoskeletal systems to acute and chronic exercise, building on knowledge and skills developed in Human Physiology A and concurrently developed in Human Physiology B. Specific adaptations to the different component of exercise (intensity, duration, type) will be presented. Skills and techniques used to monitor and analyse those adaptations will be developed throughout this course e.g. submaximal and maximal exercise tests, ECG, spirometry.

Credit Points: 6 UOC

Course Pre-requisites:
BIOC2181 Fundamentals of Biochemistry
PHSL2501 Human Physiology A

OBJECTIVES OF THE COURSE

1. To encourage a comprehensive understanding of the human physiological response (energy utilisation, endocrine, cardiovascular, respiratory, musculoskeletal) to both acute and repeated bouts of exercise
2. To provide knowledge of measurement principles and techniques commonly utilised in exercise physiology
3. To provide confidence in performing basic measurements in exercise testing.

COURSE CONVENOR and LECTURERS

Course Convenors:
A/Prof Jeanette Thom
Rm 217 Wallace Wurth Building West ph: 9385 1090
Dr Andrew Keech
Rm 202 Wallace Wurth Building West ph: 9385 8331

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

Lecturers:

Dr Chris Maloney	**c.maloney@unsw.edu.au**
A/Prof Stephen Boutcher	**s.boutcher@unsw.edu.au**
Dr Yati Boutcher	**y.boutcher@unsw.edu.au**
Dr Maria Matuszek	**m.matuszek@unsw.edu.au**

Demonstrators:

Mr Matthew Jones	**matthew.jones@unsw.edu.au**
Ms Briana Clifford	**b.clifford@unsw.edu.au**
Alex Engel	**alexander.engel@student.unsw.edu.au**
Jessica Bellamy	**j.bellamy@unsw.edu.au**

Exercise Physiology Coordinator:
Mr Ryan Ling exphys.med@unsw.edu.au

Technical Officer:
Mr Balu Daniel b.daniel@unsw.edu.au

STUDENT LEARNING OUTCOMES

HESC2501 will develop those attributes that the Faculty of Medicine has identified as important for an Exercise Physiology Graduate to attain. These include; skills, qualities, understanding and attitudes that promote lifelong learning that students should acquire during their university experience.

Graduate Attributes

- Develop a thorough understanding of the relationship between physical activity and health
- Attain competencies in conducting a broad range of exercise-based clinical tests and in delivering lifestyle change programs that use exercise for the primary prevention of disease and the management of chronic disease
- Attain skills and detailed clinical knowledge relevant to cardiopulmonary, metabolic, musculoskeletal and neuromuscular rehabilitation
- Develop advanced problem solving skills and a capacity for critical thinking
- Develop an ability to engage in independent and reflective learning for the betterment of professional clinical practice
- Develop a broad range of communication skills and an ability to work as a member and a leader of a team, with respect for diversity and a high standard of ethical practice

This course will enable students to explore and gain further understanding of the response of the human body to physical activity with an emphasis of their application to real situations in the field of Exercise Physiology. This course provides the fundamental knowledge and promotes the development of skills which will work towards the realisation of the overall Bachelor of Exercise Physiology program objectives and skills of an Exercise Physiologist.

On completion of this course students should:

1. Have developed knowledge of the changes in energy utilisation, endocrine, cardiovascular, respiratory and musculoskeletal systems in response to acute or repeated bouts of exercise.
2. Demonstrate basic competencies in skills associated in exercise testing (e.g. heart rate and blood pressure measurement; the collection of blood by finger prick for the analysis of lactate).
3. Communicate effectively through written reports of scientific laboratory experiments.

COURSE STRUCTURE and TEACHING STRATEGIES

Learning activities occur on the following days and times:

- Lectures: Monday 11 am – 1 pm, Thursday 5-6 pm
- Large practicals: Wednesday 1-3 pm or 3-5 pm
- Small Practicals: WED 1-3pm, THU 3-5pm, FRI 1-3pm or THU 1-3pm

Students are expected to attend all scheduled activities for their full duration (3 hours of lectures per week, and up to 2 hours of practical sessions per week). 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 are approximately 75 hours throughout the semester and students are expected (and strongly recommended) to do at least the same number of hours of additional study.

RATIONALE FOR THE INCLUSION OF CONTENT AND TEACHING APPROACH

How the course relates to the Exercise Physiology profession

The content allows students to develop a fundamental knowledge of the human physiological response to physical activity. This forms the basis upon which further knowledge and skills enable an Exercise Physiologist to deliver lifestyle programs that use exercise with an aim of promoting disease prevention and rehabilitation of chronic disease. This course also enables students to develop the skills of communication and critical thinking. It reflects the position of the course convenor that their practice within the field will require these skills for ongoing development.

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

The course will build upon material presented in earlier courses in the program, in particular Introductory Exercise Science (HESC1501), Exercise Programs and Behaviour (HESC1511), as well as Human Physiology A (PHSL2501). The skills and knowledge developed in this course will provide a strong base in exercise physiology essential for the clinically oriented courses offered in third stage such as Physical Activity and Health (HESC3504) and Clinical Exercise Physiology (HESC3541).

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.

Lectures – This approach is used to present relatively large amounts of information at a time on specific topics throughout the course. PDF copies of the lecture notes will USUALLY (some guest lecturers may choose not to make their notes available) be available on Moodle prior to each lecture, so you should be able to think about and develop an understanding of the lecture concepts as they are presented, rather than writing voluminous notes. However, there will be information and explanations presented in lectures in addition to those covered

in the notes that you should take down if they help you to understand the material. The lecturer will also try to allow some time for interaction and activities in each lecture to provide you with an opportunity to clarify or reinforce the ideas that have been presented. You should take these opportunities to think about the information that has been presented and ask questions to enhance your understanding.

Lectures are considered by the course convenor to be only a summary of the concepts and theory essential for meeting the course objectives and student learning outcomes outlined above. In order to do well in this course it is essential that students make use of other resources, such as the recommended and additional textbooks (see below in TEXTBOOKS AND OTHER RESOURCES section) and Web-based resources.

Laboratories – Labs are designed to help you to develop technical skills that will be relevant in your professional career, and to apply experiments to demonstrate and reinforce key theoretical concepts that have been covered in lectures. Lab notes will be available to download from Moodle at least 1 week prior to each lab. Students are required to bring a printed copy of the lab notes, and expected to have read the lab notes prior to the lab. Attendance at ALL labs is compulsory and attendance will be marked.

Lab expectations: Students are expected to behave in an ethical, socially responsible and professional manner within the laboratory class. Punctual arrival is expected as important information including safety precautions are discussed at the beginning of each class and late students will be refused entry and marked as absent. Turn-off mobile phones before entering (mobile phones are not to be used or answered during the class). The use of computers for work not related to the current laboratory is not permitted in class. Eating is not permitted, however students may bring water.

All students must come prepared for active participation wearing clothing which is suitable for exercise (e.g. shorts or track pants, T-shirt or light sweater, and running shoes). Enclosed footwear is compulsory. Students who are not dressed appropriately for the lab (e.g. open footwear) or do not have a legitimate reason for not participating (e.g. medical complaint or injury) will be refused entry to the class and will then be marked absent. Students must take care with biological and hazardous material and leave all equipment clean and functional. Students who do not adhere to these basic laboratory rules will be marked absent.

There are 8 labs (each 2 hours) in this subject; including 5 large-group (~50 students) labs and 3 smaller-group (~8 students) labs.

Independent study – There is insufficient time in the lectures, tutorials and practical for you to develop a deep understanding of the concepts covered in this course. In order for you to achieve the learning outcomes that will be assessed, you will need to revise the material presented in the course regularly. You will probably also need to do additional reading beyond the lecture materials in order to learn effectively. Relevant additional resources will be cited in each lecture.

Assessments – These tasks have been chosen as tools to enhance and guide your learning as well as a way of measuring performance, and are therefore central teaching strategy in this course.

ASSESSMENT PROCEDURES

Summary of Assessments	% Total Marks	Due Date
ASSESSMENT TASK 1 – MID SEMESTER EXAM	20%	Week 5
ASSESSMENT TASK 2 – LABORATORY ASSIGNMENTS	Report 1: 3% Report 2: 12%	Week 3 Week 9
ASSESSMENT TASK 3 – END OF SESSION EXAM	40%	Exam period
ASSESSMENT TASK 4 – OSCE	25%	Exam period

ASSESSMENT TASK 1 - MID SEMESTER EXAM

The MID SEMESTER EXAM is a written exam comprised of multiple choice and short answer questions, and analytical interpretation of typical experimental situations. It will cover lecture and laboratory material from weeks 1-4. It will be held in week 5 during the lecture timeslot, and is 50 minutes duration (writing time). In the weeks prior to the mid-semester exam students will be allocated an examination room (TBA) to allow for adequate spacing between students. No extra time will be given to a student who has arrived at the wrong room and needs to find their way to the other room to sit the exam. Students are only permitted to leave the room after they have submitted their mid-semester exam for assessment.

Learning Outcomes

1. Have developed knowledge of the changes in energy utilisation, endocrine, cardiovascular, respiratory and musculoskeletal systems in response to acute or repeated bouts of exercise.

ASSESSMENT TASK 2 - LABORATORY ASSIGNMENTS

You have to **submit 2 lab reports**. Each report has a word limit of 2000 words, excluding bibliography and figures/tables.

The goal of the laboratory reports is to enable and consolidate learning by ‘doing’. Assessing this learning can enhance:

1. Conceptual understanding of the theory-practice relationship;
2. Higher level reasoning skills; and
3. Development of exercise physiology practical competence.

Items 1 and 2 are assessed through the laboratory report writing, and item 3 is assessed through the OSCE.

Laboratory assignments are to be submitted via MOODLE (TurnItIn) **by 9:00am** on the due date.

The first assignment will cover Laboratory 1 (Wingate testing in week 1). This assignment is to be submitted in week 3. This is worth 3% (basically a formative assessment). Students will receive feedback on this assignment. Students are then required to provide a summary from their feedback as to the improvements they plan to implement on the next Laboratory report.

The second assignment will cover either Laboratory 3 OR 6. This is worth 12%. You are allowed to choose which of these labs to write up. This assignment is to be submitted in week 9. The summary of feedback from Assignment 1 needs to be submitted with this lab report.

Lab content will also be assessed in the OSCE (practical skill competency) and the Final Exam (knowledge and application competency).

Learning Outcomes

1. Have developed knowledge of the changes in energy utilisation, endocrine, cardiovascular, respiratory and musculoskeletal systems in response to acute or repeated bouts of exercise.
3. Communicate effectively through written reports of scientific laboratory experiments.

Marking Criteria

To achieve the highest possible marks please refer to the rubric and further details are provided in Laboratory 1 Prac Manual. you must do the following:

Referencing for the laboratory assignment

Referencing is a process that identifies the sources of information used in your assignment. Some of the main purposes of referencing are: to justify/support the position you take in your assignment, to show the arguments put forward by different writers, and to allow the reader to locate the sources used. Further information can be found at http://www.apastyle.org

ASSESSMENT TASK 3 - END OF SESSION EXAM

The END OF SESSION EXAM is a written exam comprised of multiple choice and short answer questions, and analytical interpretation of typical experimental situations. It will be held during the examination period following the end of semester, and will cover ALL lectures and laboratory material from the ENTIRE semester.

Learning Outcomes

1. Have developed knowledge of the changes in energy utilisation, endocrine, cardiovascular, respiratory and musculoskeletal systems in response to acute or repeated bouts of exercise.

Table 1: Marking criteria for laboratory assignments submitted in HESC2501

Assignment Marking Criteria	Not satisfactory 0%	Developing (Not Yet Competent) 25%	Competent 50%	Good 75%	Advanced 100%
Introduction (20 marks) • Explain the key concepts being studied, with regard to the relevant underlying physiology. (8) • Review the relevant literature – detail findings from directly relevant previous research on the topic, and from credible scientific journals. (8) • State the aim and hypotheses of the lab. (4)	* Unable to explain any concepts relevant to the lab. * Unable to review any literature. * Unable to state an aim and hypotheses.	* Inadequate explanation of the key concepts relevant to the lab. * Inadequate review of some relevant research, or provided largely irrelevant references. * Unclear aim and hypotheses were stated.	* Basic explanation of the key concepts relevant to the lab. * Basic review of some relevant research. * Basic aim and hypotheses were stated.	* Explained key concepts relevant to the lab. * Good review of relevant research. * Clear aim and plausible hypotheses were stated.	* Clear, concise, and focused explanation of all key concepts relevant to the lab. * Clear, concise, comprehensive and focused review of relevant research. * Clear, concise, and focused aim and hypotheses were stated.
Methods (12 marks) • Procedures explained in adequate detail to enable replication of the entire task by an independent researcher, and are written scientifically (not copied from the lab manual). (8) • Inclusion of participant characteristics. (2) • Inclusion of statistical methodology. (2)	* Unable to write procedures, or did not paraphrase the lab notes. * No/incorrect participant characteristics * No/incorrect statistical methodology stated	* Inadequate procedural steps or lacking key detail to enable task replication, or largely inadequate paraphrasing. * Some irrelevant, incorrect and/or missing key information. * inadequate participant characteristics were stated * inadequate statistical methodology stated	* Basic procedural steps or lacking some detail to enable task replication. * Mostly relevant and correct information included. * basic participant characteristics were stated * basic statistical methodology stated	* Clear procedural steps that would enable task replication. * Relevant and correct information included. * Good participant characteristics were stated * Good statistical methodology stated	* Clear, concise, comprehensive and focused detail of the procedural steps that would enable task replication. * Relevant, concise and correct information included. * Clear, concise participant characteristics were stated * Clear, concise statistical methodology stated
Results (24 marks) • Summarize the key data in text (i.e. describe the data prior to use in the tables / figures). (8) • Correct reporting of statistics used. (4) • Present the key data /results – data is relevant, correct and appropriately presented (e.g. in tables / figures). (12)	* Unable to summarize any data. * Irrelevant and/or incorrect data and/or unable to present data in tables / figures. * No/incorrect statistics presented	* Inadequate, overly-brief or inconsistent summary of the key data. * Some irrelevant and/or incorrect data or missing key data, and/or presented in inadequate tables / figures. * No/incorrect statistics used to present the data	* Basic summary of the key data. * Mostly relevant and correct data presented in basic tables / figures (including labelling). * Basic statistics used to summarize the data	* Clear summary of the key data. * Relevant and correct key data presented in good tables / figures. * Good use of statistics to summarize the data	* Clear, concise and focused summary of the key data. * Relevant and correct key data presented in well-designed tables / figures. * Excellent use of statistics to summarize the data.
Discussion & Conclusion (26 marks) • States the key findings (expected and/or unexpected) from the data. (4) • Explains and 'makes sense' of the findings for the reader, with regard to the relevant underlying physiology. (8) • Compares findings to previous research / group data (e.g. from the Introduction). (8) • Implication(s) of the findings (e.g. for science or clinical applications). (2) • Final statement (Conclusion) summarizing the study and the major finding(s). (4)	* Unable to identify any findings from the data. * Unable to explain & 'make sense' of the key findings. * Unable to compare own findings to previous literature and group data. * Unable to discuss any implication of the findings. * Unable to provide a conclusion.	* Inadequate statement of findings (expected or unexpected) from the data. * Inadequate explanation which did not clearly 'make some sense' of the findings. * Inadequate comparison of own findings to previous literature and group data. * Inadequate discussion of the implication of the findings. * Inadequate or unclear conclusion	* Basic statements of key findings (expected or unexpected) from the data. * Basic explanations with limited interpretation to 'make sense' of the key findings. * Basic comparison of own findings to previous literature and group data. * Basic discussion of the implication of the findings. * Basic conclusion	* Clear statements of key findings (expected or unexpected) from the data. * Clear explanations with interpretation to 'make sense' of the key findings, being critical of own methodology. * Clear comparison of own findings to previous literature and group data. * Clear discussion of the implication of the findings. * Clear conclusion.	* Clear, concise and focused statements of key findings (expected or unexpected) from the data. * Clear, concise, comprehensive and focused explanations with in-depth interpretation to 'make sense' of the key findings, being critical of own methodology. * Clear, concise and focused comparison of own findings to previous literature and group data. * Clear, concise and focused discussion of the implication of the findings. * Clear, concise and focused conclusion.
Other (Referencing, Language and Presentation) (18 marks) • Appropriate Reference section (APA format) & referencing of statements in the body of the report. (8) • Overall presentation, writing quality and attention-to-detail e.g. correct grammar, spelling and punctuation, consistency in presentation (line spacing, paragraphing etc.), correct units and use of past tense. (8) • Included the Summary of feedback form. (2)	* Unable to reference, either within text or a Reference section. * Extremely poor overall presentation, writing quality and attention-to-detail. * No summary of feedback form	* Inadequate referencing, either within text or in the Reference section. * Inadequate overall presentation, writing quality or attention-to-detail. * Inadequate summary of feedback form	* Some appropriate and correct referencing within text and in the Reference section. * Basic overall presentation, writing quality and attention-to-detail. * Summary of feedback form is included	* Mostly appropriate and correct referencing, both within text and in the Reference section. * Good overall presentation, writing quality and attention-to-detail. * Summary of feedback form is included	* Completely appropriate and correct referencing, both within text and in Reference section. * Advanced-level overall presentation, writing quality and attention-to-detail. * Summary of feedback form is insightful.

ASSESSMENT TASK 4 - OBJECTIVE STRUCTURED CLINICAL EXAMINATION (OSCE)

The OSCE will be held during exam period. It will assess the student's ability to perform various practical skills commonly applied in clinical exercise physiology. Each student will be required to attend on only one of these weeks. Further information confirming the location and times of the skills exam for each individual student will be provided in the weeks prior to the exam by the course convenor. Where possible, the assessment environment will mimic real-life practice and you will need to treat the station as such.

Learning Outcomes

2. Demonstrate basic competencies in skills associated in exercise testing (e.g. heart rate and blood pressure measurement; the collection of blood by finger prick for the analysis of lactate).

Marking Criteria

EACH student will be required to perform a range of skills (listed in the table below), under the supervision of an examiner. Broadly, the assessment covers three categories:

(1) *exercise physiology competency*

a. able to correctly conduct test / assessments using protocols taught in this course and identify criteria for test completion or test termination
b. able to execute a test / assessment by performing the tasks in a logical sequence
c. able to monitor the client throughout the test / assessment, ensuring client safety

(2) *technical skill*

a. able to correctly use all equipment required in testing
b. able to correctly set up a client for testing
c. able to identify equipment safety issues, ensuring client safety (and the following of OHS guidelines), and able to propose alternative strategies to conduct the test if equipment fails

(3) *communication skills*

a. able to effectively communicate verbally to the client
b. able to establish a good rapport with the client
c. able to explain testing procedures to a client and check their understanding
d. able to explain the results to the client in a manner that the client can understand

The exam venue will be divided into 8 stations. Some exercise physiology skills which could be assessed for competency during the OSCE include:

Skill Area	Competencies - students need to be able to demonstrate an ability to:
Cardiovascular Function Assessment	• correctly attach and fit a heart rate monitor in preparation for heart rate measurement • correctly attach a sphygmomanometer in preparation for blood pressure measurement • perform a manual and electronic measurement of resting & exercise heart rate. • perform a measurement of resting & exercise systolic and diastolic blood pressure • interpret and explain the results to the subject

Blood Collection and Blood Lactate Assessment	• perform the collection of blood from a subject by finger-prick following an exercise bout and examine the sample for blood lactate • interpret and explain the results to the subject • perform all tasks with consideration of safe handling of blood and sharps disposal
Respiratory Function Assessment	• perform a measurement of vital capacity and $FEV_{1.0}$ • interpret and explain the results to the subject
Aerobic Capacity Assessment	• correctly set up a subject on a Monark bicycle ergometer in preparation for exercise • explain a sub-maximal aerobic exercise test protocol used to assess aerobic fitness in healthy populations to a participant • adjust the workloads on the bicycle to allow the subject to exercise at a power output designated by the examiner • set up an athlete for a VO_2 max assessment, using the metabolic cart • explain a VO_2 max test protocol to an athlete prior to testing and confirm understanding • monitor the subject throughout testing using pre-established cues • interpret and explain the results to the subject
Anaerobic Capacity Assessment	• correctly set up a client for a Wingate test • correctly set up the computer for the measurement of peak power or anaerobic capacity • explain the testing protocol to the client • ensure the client understands the test requirements, the safety issues and test termination • monitor and verbally encourage the subject throughout testing • guide the subject at test completion into a cool down
ECG Assessment	• correctly set up a 12 lead ECG using appropriate lead placement • describe a protocol used in a 12 lead ECG stress test • run an ECG assessment • interpret and explain the results to the subject

Penalties for Late Submission of Assignments

In cases where an extension has NOT been granted, the following penalties will apply: For assignments submitted after **9:00am** on the due date, a penalty of 50% of the maximum marks available for that assignment will be incurred. 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. 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.

TEXTBOOKS AND OTHER RESOURCES

Suggested Reference Books

McArdle WD, Katch FI, Katch VL (2014) Exercise Physiology. Energy, Nutrition and Human Performance. (8th edition) Lippincott, Williams and Wilkins. Philadelphia, USA. (The 7th edition would be suitable, too)

Lecture Readings

- Lecture Block 1 (Biochemistry & Nutrition) – chapters 1-11
- Lecture Block 2 (Cardiovascular & Respiratory) – chapters 12-17
- Lecture Block 3 (Muscle function and exercise training) – chapters 18, 21-23
- Lecture Block 4 (Exercise considerations) – chapters 24-25, 31

Coombes, J. & Skinner, T. (2014). ESSA's Student Manual for Health, Exercise and Sport Assessment. Elsevier. Sydney, Australia.

This text will be useful for many lab sessions conducted throughout the Exercise Physiology degree, and is also available in the UNSW library.

Other Suggested Reference textbooks

- American College of Sport Medicine. (2014). ACSM's health-related physical fitness assessment manual. 4th ed. Lippincott, Williams and Wilkins, Philadelphia, USA.
- American College of Sport Medicine. (2013). ACSM guidelines for exercise testing and prescription. 9th ed. Lippincott, Williams and Wilkins, Philadelphia, USA.
- Australian Institute of Sport. (2013). Physiological tests for elite athletes. 2nd ed. (Gore CJ. Editor) Human Kinetics, Champaign.IL., USA.
- Bourke L & Deakin V. (2014). Clinical Sports Nutrition. 4th ed. WCB/McGraw-Hill, Boston, USA.
- Hampton JR. (2013). The ECG made easy. 8th ed. Churchill Livingstone, Edinburgh, UK.
- Houston ME. (2012). Biochemistry primer for Exercise Science. 4th ed. Human Kinetics, Champaign IL, USA.
- Kenney WL, Wilmore JH, & Costill DL. (2014). Physiology of Sport and Exercise. 6th ed. Human Kinetics, Champaign.IL., USA.
- Powers SK & Howley ET. (2014). Exercise Physiology. (9th edition) WCB/McGraw-Hill, Boston, USA.

COURSE EVALUATION AND DEVELOPMENT

Each year feedback is sought from students about the course and continual improvements are made based on this feedback. The Course and Teaching Evaluation and Improvement (CATEI) Process of UNSW is the way in which student feedback is evaluated and significant changes to the course will be communicated to subsequent cohorts of students.

Based on the feedback received:
We have incorporated marks to the first lab report which until this year was formative only. We have acquired dual stethoscopes for enhancing learning for taking blood pressure. We have added extra OSCE practice sessions and moved the OSCE exam from the final teaching weeks to the exam period. We have modified the feedback rubric of the lab reports to enhance student understanding. We have added online quizzes to the course.

GENERAL INFORMATION

The Department of Exercise Physiology is part of the School of Medical Sciences within the Faculty of Medicine. It is located in the Wallace Wurth building.

Associate Professor Jeanette Thom is Head of Department. Appointments to meet with her may be made via email (j.thom@unsw.edu.au).

Dr Rachel Ward is the Exercise Physiology Program Authority. Appointments to meet with her may be made via email (rachel.ward@unsw.edu.au).

There is an Honours program conducted by the School. The Honours program is coordinated by Dr Thomas Fath (t.fath@unsw.edu.au) Ph:93858495. Any students considering an Honours year should discuss the requirements with the coordinator.
Honours Administrator: Vicky Sawatt (v.sawatt@unsw.edu.au) Ph:9385 8195.

Postgraduate degrees
The Department of Exercise Physiology offers students the opportunity to enter into the following graduate programs:

- ***Research Masters:*** For more information contact the post-graduate coordinator Dr Pascale Carrive (p.carrive@unsw.edu.au)

- ***Doctorate*** (***Ph.D)***: For more information contact the post-graduate coordinator Dr Pascale Carrive (p.carrive@unsw.edu.au)

Enrolment and administrative help
Mr Ryan Ling is available to help with problems with enrolment and scheduling, and should be the first point of contact for administrative problems. He can be found in the Medical Education and Student Office (MESO) Ground floor of the Wallace Wurth Building.
Ph:9385 2960. Email: exphys.med@unsw.edu.au

Attendance Requirements

Attendance is expected at all lectures, practicals, tutorials and examinations for this course. Attendance at all practicals, tutorials and examinations will be recorded. Students who do not participate in these sessions for any reason other than medical or misadventure, will be marked absent and may be awarded a grade of FAIL for the entire course.

If absent for medical reasons, a medical certificate must be lodged with the lecturer within 7 days of the time period of the certificate's expiry. No consideration will be given after this time except for truly exceptional circumstances. Arrival more than 15 minutes after the start of the class will be recorded as non-attendance. Although lectures will be available on Echo360, student participation is encouraged in the lectures and these are important to attend.

COURSE TIMETABLE

		Lectures (1hr)			*Labs (2hrs)*	
Wk	*Date*	*Lecture 1* *MON 11-12 pm* *LG03 WW*	*Lecture 2* *MON 12-1 pm* *LG03 WW*	*Lecture 3* *THURS 5-6 pm* *Mathews ThC*	*Large Lab* *WED 1-3pm* *WED 3-5pm* *WW Rm* 120	*Small Lab* *WED 1-3pm* *THU 3-5pm* *FRI 1-3pm or THU 1-3pm* *WW Clin Ex Phys labs*
1	25 Jul	**1.1: Introduction to Exercise Physiology** Review of the course and assessment **JT / AK**	**1.2: Biochemistry review** Metabolism & energy generation **CM**	**1.3: Measurement of human energy expenditure** **CM**	**LAB 1**: **Anaerobic capacity testing** (Wingate + Lab reports) **(AK, BC, AE, JB)**	
2	1 Aug	**2.1: Anaerobic Exercise Assessment** Anaerobic metabolism during exercise **JT**	**2.2: Aerobic Exercise Assessment** Aerobic metabolism during exercise **JT**	**2.3: Aerobic Exercise Assessment II** **JT**	**LAB 2**: **Cardiovascular response to exercise** (HR, BP, RPE) **(MM, BC, AE, JB)**	
Assignment – Lab 1 Report: Due Fri 12th Aug 9.00am (via TurnItIn on Moodle)						
3	8 Aug	**3.1: Cardiovascular response to exercise** **YB**	**3.2: Cardiovascular response to exercise II** **YB**	**3.3: Lactate and Exercise** **MM**		**LAB 3**: **VO_2max** Wed 1-3: AK, BC Thu 3-5: AK, BC Fri 1-3: AE, MJ
4	15 Aug	**4.1: Cardiovascular response to exercise III** **YB**	**4.2: Cardiovascular response to exercise IV (assessment)** **YB**	**4.3: ECG – Introduction** **AK**		**LAB 3**: **VO_2max** Wed 1-3: AK, BC Thu 1-3: AK, BC Thu 3-5: AK, BC
5	22 Aug	**5.1: ECG – Exercise testing** **AK**	**5.2: ECG – Interpretation** **AK**	**Mid-semester Exam** (Room TBA) **Supervisor: JT / AK**	**LAB 4: ECG** **(AK, BC, AE, JB)**	
6	29 Aug	**6.1: Respiratory response to exercise** **JT**	**6.2: Exercise Training: Resistance** **JT**	**6.3: Review of Exam, Elective & Gen Ed Session** **JT / RW**	**LAB 5: Cardio-respiratory response to exercise** (VT & LT) **(MM, BC, AE, JB)**	
7	5 Sept	**7.1: Exercise Training: Adaptations** **AK**	**7.2: Exercise Training: Programming (Aerobic)** **AK**	**7.3: Exercise Training: Programming (Anaerobic / Concurrent)** **AK**		**LAB 6: Combined skills** Wed 1-3: AK, BC Thu 3-5: AK, BC Fri 1-3: AE, MJ

8	12 Sept	**8.1: Specific nutritional requirements of athletes** **MM**	**8.2: Optimal nutrition for sports performance** **MM**	**8.3: Exercise Training: Ergogenic Aids** **MM**		**LAB 6: Combined skills** Wed 1-3: AK, BC Thu 1-3: AK, BC Thu 3-5: AK, BC
Assignment – Lab Report 2: Due Fri 23rd Sept 9.00am (via TurnItIn on Moodle)						
9	19 Sept	**9.1: Resistance Training and DOMS** **AK**	**9.2: Muscle Fatigue** **AK**	**9.3: Detraining** **JT**	**LAB 7**: **Muscle response to exercise** **(JT, BC, AE, JB)**	
Mid Semester Break (26 Sept – 3 Oct)						
10	3 Oct	LABOUR DAY		**10.3: Exercise and Gender** **JT**		**LAB 8**: **OSCE Skills Practice** (WW120) Wed 1-3: AK, BC Thu 3-5: AK, BC Fri 1-3: AE, JT
11	10 Oct	**11.1: Exercise and Childhood** **MM**	**11.2: Exercise and Pregnancy** **MM**	**11.3: Exercise and Overtraining** **AK**		**LAB 8**: **OSCE Skills Practice** (WW120) Wed 1-3: AK, BC Thu 1-3: AK, BC Thu 3-5: AK, BC
12	17 Oct	**12.1: Exercise and the environment: thermal stress** **YB**	**12.2: Exercise and the environment: altitude** **SB**	**12.3: Review lecture** **JT**		

Please note that there may be some slight alterations to this schedule.

Lecturers and Demonstrators: Dr Jeanette Thom (JT), Dr Andrew Keech (AK), Dr Chris Maloney (CM), Dr Yati Boutcher (YB), Dr Stephen Boutcher (SB), Dr Maria Matuszek (MM), Briana Clifford (BC), Alex Engel (AE), Jessica Bellamy (JB), Matthew Jones (MJ)

The mid-semester exam is held Thursday 25th August 5 pm. The venue is to be allocated. The exam consists of 50 min reading/writing time.