



Faculty of Medicine & Health  
School of Medical Sciences

# HESC 3501

## Advanced Exercise Science

COURSE OUTLINE

TERM 2, 2021

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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 [medicallsciences.med.unsw.edu.au](http://medicallsciences.med.unsw.edu.au) )

## **HESC3501 Course Information**

This unit focuses on advanced understanding of exercise prescription, delivery and testing for apparently healthy and sporting populations. It covers the areas of exercise physiology, functional anatomy and motor learning, including strength and conditioning, agility training and skill development.

### **OBJECTIVES OF THE COURSE**

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The objectives of this course are to:

1. Provide further theoretical and practical knowledge of exercise science, including the design and delivery of exercise programs and assessments to meet the specific needs of apparently healthy clients that is consistent with the ESSA Code of Professional Conduct and Ethical Practice.
2. Undertake Practicum hours that is within the scope of exercise science training.
3. Understand and apply evidence-based practice, including the ability to compile, critically evaluate, and communicate the scientific rationale for their professional decision making and service delivery.

### **COURSE CO-ORDINATOR and LECTURERS**

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#### **Course Coordinator:**

#### **Dr Mandy Hagstrom**

Rm 202 Wallace Wurth Building East [m.hagstrom@unsw.edu.au](mailto:m.hagstrom@unsw.edu.au)

Students wishing to see the course coordinators should make an appointment *via* email as our offices are not readily accessible.

#### **Lecturers in this course:**

Dr Mandy Hagstrom [m.hagstrom@unsw.edu.au](mailto:m.hagstrom@unsw.edu.au)

#### **Practical demonstrators in this course**

Michael Wewege [m.wewege@unsw.edu.au](mailto:m.wewege@unsw.edu.au)

Imtiaz Desai [i.desai@unsw.edu.au](mailto:i.desai@unsw.edu.au)

#### **Practicum coordinator:**

Caroline Fitzgerald [Exphys.prac@unsw.edu.au](mailto:Exphys.prac@unsw.edu.au)

## **COURSE STRUCTURE and TEACHING STRATEGIES**

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Learning activities occur on the following days and times:

- **Lectures: (online only)** Monday 9–10am
- **Tutorials\*:**
  - Monday 11am-12pm
  - Monday 12-1pm
  - Monday 1-2 pm
- **Practicals\*:**
  - Wednesday 12-2pm
  - Thursday 9-11am
  - Thursday 3-5pm
  - Friday 12-2pm
  - Friday 2-4pm
- **Practicum:**
  - Practicum time will be organised via your practicum site and will vary between students. All questions or concerns regarding practical should be directed to the practicum co-ordinator not the course convenor.
- **Online learning activities:**
  - 4 activities spread throughout the term. To be completed in the week in which the activities are scheduled (Week 2,4,7, and 9).

\* Once enrolled in one of the sessions, students cannot change.

Tutorials and Practical are mandatory. If you fail to attend a tutorial or practical, you must follow the formal university processes and apply through UNSW special consideration. Missed classes are not handled directly by your lecturer or tutor.

Students are expected to attend all scheduled activities for their full duration. Students are reminded that UNSW recommends that a 6 units-of-credit course should involve about 150 hours of study and learning activities.

Lectures will provide you with the concepts and theory essential for understanding the evidence-based rationale for exercise prescription and testing of healthy adults and athletes. To assist in the development of the applied skills, practical classes and practicum hours will be conducted on a variety of topics. These classes allow students to engage in a more interactive form of learning than is possible in the lectures. The skills you will learn in practical classes are relevant to your development as exercise professionals.

For the online component of this course, students are directed to NSCA.com. The national strength and conditioning association, based in America, is arguably the leading governing body in the world in terms of Strength and Conditioning. For each of the topic areas, you are to watch the specific video, undertake an associated reading, and complete a short example activity to cement your learning. For each activity there will be a Moodle forum, on that forum you will post your response to the activity, you may wish to provide feedback or ask questions on fellow students' responses. Open and respectful discussion is required. These 'uploads' are not marked, however they should be completed for each of the four activities. The topics chosen here are general 'interest' areas in the field of strength and conditioning. The videos

and readings should provide you with an introductory level of knowledge in the specified area of conditioning. The content covered in the online component of the course is examinable in the end of semester examination.

## **APPROACH TO LEARNING AND TEACHING**

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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.

Although the primary source of information for this course is the lecture material, effective learning can be enhanced through self-directed use of other resources such as textbooks and web-based sources. Your practical classes will be directly related to the lectures and it is essential to prepare for practical classes before attendance. It is up to you to ensure you perform well in each part of the course; preparing for classes; completing assignments; studying for exams and seeking assistance to clarify your understanding.

## **TEXTBOOKS AND OTHER RESOURCES**

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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.

Haff GG, Triplett NT, editors. Essentials of strength training and conditioning 4th edition. Human kinetics; 2016.

Coombes J, Skinner T. ESSA's Student Manual for Health, Exercise and Sport Assessment. Elsevier; 2014.

See also [medalsciences.med.unsw.edu.au/students/undergraduate/learning-resources](http://medalsciences.med.unsw.edu.au/students/undergraduate/learning-resources)

## **STUDENT LEARNING OUTCOMES**

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HESC3501 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

- 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.

**On completion of this course students should be able to:**

1. Conduct accurate health and exercise evaluations, assess physical activity status, and perform common assessments appropriate for the specific needs of apparently-healthy clients, in accordance with best practice.
2. Integrate knowledge and evidence-based practice to prescribe physical activity and design exercise programs to maintain and promote good health and improve performance for clients across the lifespan.
3. Apply the principles and skill sets of exercise science, including the design and delivery of exercise programs and assessments to meet the specific needs of apparently healthy clients; and be able to adapt the delivery of an exercise prescription to respond to environmental change or change in the needs or capacities of clients.
4. Integrate knowledge, interpret results and communicate scientific data and movement techniques to clients effectively; and act in a manner that is sensitive to client diversity and equity, and is consistent with the ESSA Code of Professional Conduct and Ethical Practice.

## **COURSE EVALUATION AND DEVELOPMENT**

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For course evaluation, student feedback will be gathered at the completion of the course, using among other means, UNSW's myExperience surveys. Student feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

## **ASSESSMENT PROCEDURES**

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• Practicum skills portfolio	(week 4 and week 10 in class time)	<b>20%</b>
• Individual assignment	(week 5)	<b>30%</b>
• Written assessment	(week 10)	<b>30%</b>
• Viva exam	(exam period)	<b>20%</b>

Both written assessments (individual and group) are due in the respective week on **Monday at 9am**. A penalty will apply for late submissions of assessment tasks (50% per day).

### **Practicum skill portfolio (Competencies in week 4 and week 10 worth 10% each) (20%)**

Practical competencies will be selected from a checklist of industry standard skills which students will develop throughout the practical components of this course. These competencies will be taught in practical classes and assessed in weeks 4 and 10 in your regular practical class time. This assessment is a hurdle task where an average of the two x 10% competencies must be at least 70% to pass the course.

You will also be required to keep a logbook in keeping with standards expected by ESSA. This logbook will need to be completed for each hour that you attend your practicum site. This logbook will not be marked as part of your grade for HESC3501 but is needed for graduation and accreditation so must be completed to the standard expected.

### **Individual assignment (Week 5) (30%)**

This is an individual exercise prescription case study assignment. Students will program exercise for one week for a novice client. This assignment will have a two-page limit (one page of prescription tables, and one page of referenced rationale/justification). Feedback provided following this assessment will help improve exercise prescriptions for the group written assignment due in week 10.

### **Written assessment (Week 10) (30%)**

In this group assignment, students will work as a group to write up an exercise prescription/periodisation plan. The prescription will be specific to apparently healthy clients. The prescription will follow evidence-based practice on appropriate exercise prescription and periodisation guidelines for case studies in this population. This assessment will have a maximum word limit of 2000 words.

### **Viva examination (Exam period) (20%)**

This is an oral exam performed individually by each student. Each student will be randomly allocated two case study scenarios and asked a series of pre-determined questions. The questions may be based on any content covered throughout HESC3501 (lectures, online material, practicals, and tutorials). General feedback will be provided via the Moodle page. Specific feedback can be provided at the request of the student. This assessment will be held during the university final exam period. This is a mastery assessment for the course (70% pass mark).

Final exam period: 13 August to 26 August 2021  
Supplementary exam period: 6 September to 10 September 2021

## **GENERAL INFORMATION**

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### **Course prerequisites**

HESC1511, HESC2501 and HESC2452

### **Attendance Requirements**

For details on the Policy on Class Attendance and Absence see [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 practical class is an opportunity for students to develop graduate attribute C by behaving in an ethical, socially responsible and professional manner within the practical 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.

## **Special Consideration**

Please see <https://student.unsw.edu.au/special-consideration>

## **Student Support Services**

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

## **Equitable Learning Services**

See: <https://student.unsw.edu.au/els>

## **Student Appeal and Complaint Procedures**

See: [Student Reviews of Results](#)

See: [Student Complaints Process](#)

## **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 Schedule HESC3501 T2 2021 (subject to variation)**

Week	Date starting	Lecture (Monday)	Online self-led activities	Tutorial (Mondays)	Practical (Tue-Fri) (conducted on campus in Level 1 WW)
1	31/05	Intro + RT basics and testing		Compound lift mechanics	Squat practical – (front, back, box, goblet etc
2	07/06	RT advanced prescription	Influencing the force velocity curve in athletes (1h)	Case study – practice ExRx	Deadlift practical – (Conventional, Olympic, Sumo, RDL)
3	14/06	NO CLASS – QUEENS BIRTHDAY		No class	Free weight instruction
4	21/06	Warm up, Cool down, and athletic testing	Metabolic conditioning (1.5)	Program design – novice (pairs)	Competency assessment 1
5	28/06	Exercise prescription and training for team sports. (speed + plyometrics)		Selecting appropriate exercise variations – ‘the row’	Practice PT - Novice
6	05/07	No class	No class	No class	No class
7	12/07	Periodisation	Sleep and performance (1 h)	Needs analysis for sport	Olympic lifting
8	19/07	Case study: Periodised planning and prescription for an endurance athlete		Planning a field-based testing session for team sports	Strength testing and speed testing

9	26/07	Exercise prescription for youth and masters athletes	The use of wearables to monitor athletic training (1.5h)	Program design- advanced (pairs)	Practice PT - Advanced
10	02/08	Body composition, nutrition and the relative energy deficit in sports (RED's)		Body comp/relative energy deficit tutorial (SLE)	Competency assessment 2