

# **HESC3501**

## **Advanced Exercise Science**

Course Outline  
**Term 2, 2022**

School of Health Sciences  
Faculty of Medicine & Health

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# 1. Staff

Position	Name	Email	Consultation times and locations	Contact Details
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Course Convenor	Dr Nattai Borges	Nattai.borges@unsw.edu.au	By appointment	Room 203 Wallace Wurth Building East
Lecturers	Dr Mitchell Gibbs, Dr Nattai Borges, Dr Mandy Hagstrom	<a href="mailto:Mitchell.gibbs@unsw.edu.au">Mitchell.gibbs@unsw.edu.au</a> <a href="mailto:Nattai.borges@unsw.edu.au">Nattai.borges@unsw.edu.au</a> Mandy.hagstrom@unsw.edu.au		
Practical demonstrators	Grant Holmes	G.holmes@unsw.edu.au		

## Practicum coordinator:

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

## 2. Course information

Units of credit: 6

Pre-requisite(s): HESC1511, HESC2501, and HESC2452

Teaching times and locations: <http://timetable.unsw.edu.au/2022/HESC3501.html>

### 2.1 Course summary

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.

### 2.2 Course aims

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.

## **2.3 Course learning outcomes (CLO)**

At the successful completion of this course you (the student) 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.

**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.

## 2.4 Relationship between course and program learning outcomes and assessments

Course Learning Outcome (CLO)	LO Statement	Related Tasks & Assessment
CLO 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.	Practical skills portfolio Practical Viva exam
CLO 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.	Individual assignment Prescription / periodisation write ups for clients
CLO 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.	Individual assignment Prescription / periodisation write ups for clients Practical Viva exam
CLO 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.	Practical skills portfolio Prescription / periodisation write ups for clients Practical Viva exam

## 3. Strategies and approaches to learning

### 3.1 Learning and teaching activities

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.

## **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.

### **Attendance Requirements**

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

Tutorials and Practicals 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.

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.

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.

## 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.

## 4. Course schedule and structure

This course consists of 50 hours of class contact hours. You are expected to take an additional 100 hours of non-class contact hours to complete assessments, readings, and exam preparation.

<b>Week [Date/Session]</b>	<b>Topic [Module]</b>	<b>Activity [Learning opportunity]</b>	<b>Related CLO</b>
<b>Week 1</b>	Intro + RT basics and testing	Tutorial: Compound lift mechanics  Practical: Squat (front, back, box, goblet, etc.)	1,2,3
<b>Week 2</b>	RT advanced prescription	Tutorial: Case study – practice ExRx  Practical: Deadlift (conventional, Olympic, Sumo, RDL)  Online self-led activity: Influencing the force velocity curve in athletes (1hr)	2,3,4
<b>Week 3</b>	NO CLASS – QUEENS BIRTHDAY	Tutorial – NO CLASS  Practical – Free weight instruction	2,3,4
<b>Week 4</b>	Warm up, Cool down, and athletic testing	Tutorial: Program design – novice (pairs)  Practical: Competency assessment 1	1,2,3,4

		Online self-led activity: Metabolic conditioning (1.5)	
<b>Week 5</b>	Exercise prescription and training for team sports. (speed + plyometrics)	Tutorial: Selecting appropriate exercise variations 'the row'  Practical: Practice PT - Novice	2,3,4
<b>Week 7</b>	Periodisation	Tutorial: Needs analysis for sport  Practical: Olympic lifting  Online self-led activity: Sleep and Performance (1hr)	1,2,3
<b>Week 8</b>	Case study: Periodised planning and prescription for an endurance athlete	Tutorial: Planning a field-based testing session for team sports  Practical: Strength testing and speed testing	1,2,3
<b>Week 9</b>	Exercise prescription for youth and masters athletes	Tutorial: Program design – Advanced (pairs)  Practical: Practice PT – Advanced  Online self-led activity: The use of wearables to monitor athletic training (1.5)	2,3,4
<b>Week 10</b>	Body composition, nutrition and the relative energy deficit in sports (RED's)	Tutorial: Body com/relative energy deficit  Practical: Competency assessment 2	2,3,4

Exam Period: 12 August – 25 August

Supplementary Exam Period: 5 September – 9 September

## 5. Assessment

### 5.1 Assessment tasks

Assessment task	Length	Weight	Due date and time
<b>Assessment 1:</b> Practical skills portfolio		20	Week 4 and 10 in class time
<b>Assessment 2:</b> Individual assignment	2 pages	30	Week 5
<b>Assessment 3:</b> Prescription / periodisation write ups for clients	2000 words	30	Week 10
<b>Assessment 4:</b> Practical Viva exam		20	Exam period

Both written assessments (individual and group) are due in the respective week on **Friday at 9am**.

#### 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

#### **Practical 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.

### **Prescription / periodisation write ups for clients (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.

### **Practical Viva exam (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).

## **5.3 Submission of assessment tasks**

### **Late Submission**

Late submissions will be penalised at 5% per day capped at five days (120 hours). Students will not be permitted to submit their assessments after this date.

### **Special Consideration**

If you experience a short-term event beyond your control (exceptional circumstances) that impacts your performance in a particular assessment task, you can apply for Special Considerations.

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**

Students will receive feedback on the practical skills portfolio (competencies in week 4 and 10) through Moodle and will also receive their graded rubric. Individualised feedback will be provided for the written and group assessments within 10 business days of all students completing the assessment through Turnitin. For the viva, general feedback will be provided via the Moodle page and specific feedback can be provided at the request of the student.

## 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.

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.<sup>1</sup> 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

These resources will take the form of textbooks, 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 [medsciences.med.unsw.edu.au/students/undergraduate/learning-resources](https://medsciences.med.unsw.edu.au/students/undergraduate/learning-resources)

## 8. Administrative matters

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

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<sup>1</sup> International Center for Academic Integrity, 'The Fundamental Values of Academic Integrity', T. Fishman (ed), Clemson University, 2013.

## 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>