



# PHTY800

## Foundation Sciences for Physiotherapy A

S2 Day 2014

*Department of Health Professions*

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#### **Disclaimer**

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## General Information

Unit convenor and teaching staff

Unit Convenor

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75 Talavera Rd

Student consultation by appointment via email

Credit points

4

Prerequisites

Admission to DPT

Corequisites

Co-badged status

Unit description

This is the first of two units of study which will examine the application of foundation sciences underpinning physiotherapy research and practice. Building on students' pre-requisite and assumed knowledge, the main focus of this unit will be exercise science. This unit will examine the physiological responses and adaptations to inactivity, physical activity and exercise training. Comparisons in exercise response and adaptations to training will be made in healthy individuals across the lifespan and those with common health conditions. Students will acquire skills in exercise testing and exercise prescription required for physiotherapy management of common conditions.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

Explain the range of physiological (metabolic, cardiovascular, musculoskeletal, respiratory, thermoregulatory and endocrine) responses to exercise and exercise training in different population groups across the lifespan including healthy individuals and those with common health conditions.

Discuss the principles, including biomechanics, of exercise testing and exercise prescription including strategies to promote adherence and program concordance with the person's goals.

Demonstrate competency in tests commonly used in physiotherapy practice to assess impairments (including weakness and reduced joint range, co-ordination, cardiorespiratory fitness) amenable to exercise therapy.

Predict, evaluate and interpret exercise data from individuals who are either active or sedentary as well as those with common health conditions.

Design and progress an evidence-based exercise program specifically tailored to a person's goals, measured impairments, health status and exercise preferences.

Critically evaluate exercise programs and recommend modifications to enable individuals with health conditions to participate.

## General Assessment Information

### Assessment/Standards

Macquarie University uses the following grades in coursework units of study:

HD	High Distinction	85-100
D	Distinction	75-84
CR	Credit	65-74
P	Pass	50-64
F	Fail	0-49

Grade descriptors and other information concerning grading are contained in the Macquarie University Grading Policy, which is available at: <http://www.mq.edu.au/policy/docs/grading/policy.html>

Further details for each assessment task will be available on iLearn including marking rubrics.

All final grades in the Department of Health Professions are determined by a grading committee and are not the sole responsibility of the Unit Convenor.

Students will be awarded one of these grades plus a Standardised Numerical Grade (SNG). The SNG is not necessarily a summation of the individual assessment components. The final grade and SNG that are awarded reflect the corresponding grade descriptor in the Grading Policy.

To pass this unit, students must complete all assessments and receive a total mark of at least 50%.

## Extensions for Assessment Tasks

Applications for assessment task extensions must be submitted via [www.ask.mq.edu.au](http://www.ask.mq.edu.au). For further details please refer to the Disruption to Studies Policy available at [http://mq.edu.au/policy/docs/disruption\\_studies/policy.html](http://mq.edu.au/policy/docs/disruption_studies/policy.html)

## Late Submission of Work

All assignments which are officially received after the due date, and where no extension has been granted by the course convenor or tutor, will incur a deduction of 10% for the first day, and 10% for each subsequent day including the actual day on which the work is received. Weekends and public holidays are included. For example:

Final Mark	Raw Mark	Deduction	Days Late	Received	Due Date
45%	e.g. 75%	30%	3	Monday, 17 <sup>th</sup>	Friday, 14 <sup>th</sup>

## Assessment Tasks

Name	Weighting	Due
Quiz	15%	Week 5
Practical/Viva Examination	45%	Week14/15/16
Written Examination 1	20%	Week14/15/16
Written Examination 2	20%	Week14/15/16
Mastery Checklist	0%	Continuous

## Quiz

Due: **Week 5**

Weighting: **15%**

Students will be required to answer questions on basic exercise physiology, biomechanics and assessment and treatment of weakness.

On successful completion you will be able to:

- Explain the range of physiological (metabolic, cardiovascular, musculoskeletal, respiratory, thermoregulatory and endocrine) responses to exercise and exercise training in different population groups across the lifespan including healthy individuals and those with common health conditions.
- Discuss the principles, including biomechanics, of exercise testing and exercise prescription including strategies to promote adherence and program concordance with

the person's goals.

## Practical/Viva Examination

Due: **Week14/15/16**

Weighting: **45%**

Students will be required to analyse a short case study before 1) explaining how they would measure the primary impairment 2) prescribe an individualised exercise program to manage the impairment.

On successful completion you will be able to:

- Discuss the principles, including biomechanics, of exercise testing and exercise prescription including strategies to promote adherence and program concordance with the person's goals.
- Demonstrate competency in tests commonly used in physiotherapy practice to assess impairments (including weakness and reduced joint range, co-ordination, cardiorespiratory fitness) amenable to exercise therapy.
- Predict, evaluate and interpret exercise data from individuals who are either active or sedentary as well as those with common health conditions.

## Written Examination 1

Due: **Week14/15/16**

Weighting: **20%**

This 3 hour examination is an integrated examination for PHTY800, PHTY801 and PHTY802. The purpose of this approach is to help students see how the content of the 3 units integrate together to achieve the broad aims of semester A. The PHTY800 component is worth 20% and questions contributing to the PHTY800 component of the exam will be clearly labelled. The questions will test students' understanding of all content delivered in this unit of study. The focus of the exam will be the understanding and application of basic knowledge and principles.

On successful completion you will be able to:

- Explain the range of physiological (metabolic, cardiovascular, musculoskeletal, respiratory, thermoregulatory and endocrine) responses to exercise and exercise training in different population groups across the lifespan including healthy individuals and those with common health conditions.
- Discuss the principles, including biomechanics, of exercise testing and exercise prescription including strategies to promote adherence and program concordance with the person's goals.
- Predict, evaluate and interpret exercise data from individuals who are either active or

sedentary as well as those with common health conditions.

- Design and progress an evidence-based exercise program specifically tailored to a person's goals, measured impairments, health status and exercise preferences.
- Critically evaluate exercise programs and recommend modifications to enable individuals with health conditions to participate.

## Written Examination 2

Due: **Week14/15/16**

Weighting: **20%**

This 3 hour examination is also an integrated examination for PHTY 800, PHTY 801 and PHTY 802. The purpose of this approach is to help students to see how the content of the 3 units integrate together to achieve the broad aims of semester A. The PHTY 800 component is worth 20% and the questions related to this component will be clearly labelled. This exam will test students' understanding of all content delivered in this unit of study. It will rely heavily on case studies and the application of knowledge to simple cases.

On successful completion you will be able to:

- Explain the range of physiological (metabolic, cardiovascular, musculoskeletal, respiratory, thermoregulatory and endocrine) responses to exercise and exercise training in different population groups across the lifespan including healthy individuals and those with common health conditions.
- Discuss the principles, including biomechanics, of exercise testing and exercise prescription including strategies to promote adherence and program concordance with the person's goals.
- Predict, evaluate and interpret exercise data from individuals who are either active or sedentary as well as those with common health conditions.
- Design and progress an evidence-based exercise program specifically tailored to a person's goals, measured impairments, health status and exercise preferences.
- Critically evaluate exercise programs and recommend modifications to enable individuals with health conditions to participate.

## Mastery Checklist

Due: **Continuous**

Weighting: **0%**

Students will be required to demonstrate mastery of 10 specified key clinical skills. Students will be responsible for ensuring that their tutor assesses their competence on the 10 skills during the semester. When students demonstrate competency in a skill the tutor will sign their mastery registry. The Mastery Registry will form part of students' professional portfolio which they will

assemble over the program.

On successful completion you will be able to:

- Demonstrate competency in tests commonly used in physiotherapy practice to assess impairments (including weakness and reduced joint range, co-ordination, cardiorespiratory fitness) amenable to exercise therapy.

## Delivery and Resources

### Assumed knowledge

This unit assumes that you have comprehensive knowledge of anatomy and basic physiology. You should compare your knowledge against the “Assumed Knowledge” description on ilearn. If you do not have adequate knowledge in this area we have listed a number of resources on ilearn to help you revise and perform well in this unit.

### Teaching and Learning Strategy

This unit will have a 2 hour lecture and 2 hour tutorial every week. Lectures will provide foundation knowledge and also use large group demonstrations and discussion, enabling students to use tutorial time efficiently to practice testing and prescribing exercise for a wide range of impairments and scenarios. The teaching approach will be based on students developing a deep understanding of principles and ability to independently solve problems with the expectation that students can then translate this knowledge to different scenarios (e.g. different parts of the body with similar problems).

### Unit Organisation

This is a four credit point unit run over a 13 week session. Each week there is a two hour lecture and a two hour tutorial. Further information is available via the PHTY800 online unit.

### Attendance

All lectures and tutorials are scheduled in your individual timetable. You may make a request to your tutor to attend a different tutorial on a one-off basis for extenuating circumstances. In most cases lectures are recorded however, attendance is expected at both lectures and tutorials, as this is where the majority of learning occurs. Failure to attend may impact your final results. It is the responsibility of the student to contact their tutor by email to inform tutors if they are going to be absent. The timetable for classes can be found on the University web site at: <http://www.timetables.mq.edu.au/>.

### Textbooks

The following exercise physiology text is **strongly recommended**, however if you have a similar text from previous studies that is fine. Copies will be held in library reserve.

***Powers SK and Howley ET (2012) Exercise physiology: Theory and application to Fitness and Performance (8<sup>th</sup> Edition) New York: McGraw Hill***

Other useful texts include:

*Baechle TR and Earle RW (2008) Essentials of strength training and conditioning: National Strength and Conditioning Association (3<sup>rd</sup> Edition) Champaign: Human Kinetics*

## Readings

The readings for each week will be listed in the tutorial worksheets available on ilearn. For readings that are journal articles available electronically through the library it is your responsibility to find and download these. For readings that are chapters from a textbook and meet copyright restrictions they will be available on e-reserve as a PDF.

## Technology and equipment

### On-campus

Teaching rooms are equipped with state of art audio-visual and ICT equipment including ipads, laptops, internet connection, high quality video cameras and multiple LCD screens. Students will use a range of physiotherapy specific equipment typically used in the assessment and management of people with a range of health conditions.

### Off-campus

To study optimally when off campus you will need to have access to a reliable internet connection to retrieve unit information & at times to submit assessment tasks via iLearn.

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy [http://mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://mq.edu.au/policy/docs/academic_honesty/policy.html)

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy [http://mq.edu.au/policy/docs/grievance\\_management/policy.html](http://mq.edu.au/policy/docs/grievance_management/policy.html)

Disruption to Studies Policy [http://www.mq.edu.au/policy/docs/disruption\\_studies/policy.html](http://www.mq.edu.au/policy/docs/disruption_studies/policy.html) *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.



## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: [https://students.mq.edu.au/support/student\\_conduct/](https://students.mq.edu.au/support/student_conduct/)

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## Learning Skills

Learning Skills ([mq.edu.au/learningskills](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

## Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

## IT Help

For help with University computer systems and technology, visit <http://informatics.mq.edu.au/help/>.

When using the University's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students.

## Graduate Capabilities

### PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

### Learning outcomes

- Explain the range of physiological (metabolic, cardiovascular, musculoskeletal, respiratory, thermoregulatory and endocrine) responses to exercise and exercise training

in different population groups across the lifespan including healthy individuals and those with common health conditions.

- Discuss the principles, including biomechanics, of exercise testing and exercise prescription including strategies to promote adherence and program concordance with the person's goals.
- Demonstrate competency in tests commonly used in physiotherapy practice to assess impairments (including weakness and reduced joint range, co-ordination, cardiorespiratory fitness) amenable to exercise therapy.
- Predict, evaluate and interpret exercise data from individuals who are either active or sedentary as well as those with common health conditions.
- Design and progress an evidence-based exercise program specifically tailored to a person's goals, measured impairments, health status and exercise preferences.
- Critically evaluate exercise programs and recommend modifications to enable individuals with health conditions to participate.

## **Assessment tasks**

- Quiz
- Practical/Viva Examination
- Written Examination 1
- Written Examination 2
- Mastery Checklist

## **PG - Critical, Analytical and Integrative Thinking**

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

## **Learning outcomes**

- Explain the range of physiological (metabolic, cardiovascular, musculoskeletal, respiratory, thermoregulatory and endocrine) responses to exercise and exercise training in different population groups across the lifespan including healthy individuals and those with common health conditions.
- Discuss the principles, including biomechanics, of exercise testing and exercise prescription including strategies to promote adherence and program concordance with the person's goals.

- Demonstrate competency in tests commonly used in physiotherapy practice to assess impairments (including weakness and reduced joint range, co-ordination, cardiorespiratory fitness) amenable to exercise therapy.
- Predict, evaluate and interpret exercise data from individuals who are either active or sedentary as well as those with common health conditions.
- Design and progress an evidence-based exercise program specifically tailored to a person's goals, measured impairments, health status and exercise preferences.
- Critically evaluate exercise programs and recommend modifications to enable individuals with health conditions to participate.

## **Assessment tasks**

- Quiz
- Practical/Viva Examination
- Written Examination 1
- Written Examination 2

## **PG - Research and Problem Solving Capability**

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

## **Learning outcomes**

- Predict, evaluate and interpret exercise data from individuals who are either active or sedentary as well as those with common health conditions.
- Design and progress an evidence-based exercise program specifically tailored to a person's goals, measured impairments, health status and exercise preferences.
- Critically evaluate exercise programs and recommend modifications to enable individuals with health conditions to participate.

## **Assessment tasks**

- Practical/Viva Examination
- Written Examination 1
- Written Examination 2

## **PG - Effective Communication**

Our postgraduates will be able to communicate effectively and convey their views to different

social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

## **Learning outcomes**

- Explain the range of physiological (metabolic, cardiovascular, musculoskeletal, respiratory, thermoregulatory and endocrine) responses to exercise and exercise training in different population groups across the lifespan including healthy individuals and those with common health conditions.
- Discuss the principles, including biomechanics, of exercise testing and exercise prescription including strategies to promote adherence and program concordance with the person's goals.
- Design and progress an evidence-based exercise program specifically tailored to a person's goals, measured impairments, health status and exercise preferences.
- Critically evaluate exercise programs and recommend modifications to enable individuals with health conditions to participate.

## **Assessment tasks**

- Practical/Viva Examination
- Mastery Checklist

## **PG - Engaged and Responsible, Active and Ethical Citizens**

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

## **Learning outcomes**

- Discuss the principles, including biomechanics, of exercise testing and exercise prescription including strategies to promote adherence and program concordance with the person's goals.
- Design and progress an evidence-based exercise program specifically tailored to a person's goals, measured impairments, health status and exercise preferences.
- Critically evaluate exercise programs and recommend modifications to enable individuals with health conditions to participate.

## **Assessment tasks**

- Practical/Viva Examination
- Written Examination 1
- Written Examination 2

## **PG - Capable of Professional and Personal Judgment and Initiative**

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

## **Learning outcomes**

- Discuss the principles, including biomechanics, of exercise testing and exercise prescription including strategies to promote adherence and program concordance with the person's goals.
- Predict, evaluate and interpret exercise data from individuals who are either active or sedentary as well as those with common health conditions.
- Design and progress an evidence-based exercise program specifically tailored to a person's goals, measured impairments, health status and exercise preferences.
- Critically evaluate exercise programs and recommend modifications to enable individuals with health conditions to participate.

## **Assessment tasks**

- Practical/Viva Examination
- Written Examination 1
- Written Examination 2

## **Changes from Previous Offering**

No substantial changes are planned for this unit in 2014