



# PHTY800

## Foundation Sciences for Physiotherapy A

S2 Day 2019

*Department of Health Professions*

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#### **Disclaimer**

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## General Information

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Credit points

4

Prerequisites

Admission to DPT

Corequisites

Co-badged status

Unit description

This is the first of two units 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 practice. Students will also have an introduction to physiotherapy assessment and intervention of the cardiorespiratory system.

## 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 exercise capacity and cardiorespiratory fitness.

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.

Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

## General Assessment Information

Information concerning Macquarie University's assessment policy is available at [http://mq.edu.au/policy/docs/assessment/policy\\_2016.html](http://mq.edu.au/policy/docs/assessment/policy_2016.html). Grade descriptors and other information concerning grading requirements are contained in Schedule 1 of the Macquarie University Assessment Policy.

To pass this unit, students must demonstrate sufficient evidence of achievement of the learning outcomes and have attempted all assessment tasks.

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 Schedule 1 of the Assessment Policy.

### 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 5% for the first day, and 5% for each subsequent day including the actual day on which the work is received up to a maximum of 50%. Weekends and public holidays are included. For example:

Due Date	Received	Days Late	Deduction	Raw Mark	Final Mark
Friday, 14th	Monday, 17th	3	15%	75%	60%

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">Quiz</a>	15%	No	Week 5
<a href="#">Clinical simulation / viva</a>	45%	No	Week 14/15/16
<a href="#">Written examination 1</a>	20%	No	Week 14/15/16
<a href="#">Written examination 2</a>	20%	No	Week 14/15/16
<a href="#">Mastery checklist</a>	0%	Yes	Week 14

### Quiz

Due: **Week 5**

Weighting: **15%**

Students will be required to answer questions on basic exercise physiology, anatomy, physical activity and assessment of exercise testing.

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.

## Clinical simulation / viva

Due: **Week 14/15/16**

Weighting: **45%**

The clinical simulation exam involves both practical demonstration of cardiorespiratory assessment and treatment, as well as a viva component.

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.
- Demonstrate competency in tests commonly used in physiotherapy practice to assess exercise capacity and cardiorespiratory fitness.
- 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.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

## Written examination 1

Due: **Week 14/15/16**

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.

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.
- Demonstrate competency in tests commonly used in physiotherapy practice to assess exercise capacity and cardiorespiratory fitness.
- 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.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

## Written examination 2

Due: **Week 14/15/16**

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.
- Demonstrate competency in tests commonly used in physiotherapy practice to assess exercise capacity and cardiorespiratory fitness.
- 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.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

## Mastery checklist

Due: **Week 14**

Weighting: **0%**

**This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)**

A hurdle requirement is an assessment task mandating a minimum level of performance as a condition of passing a unit of study. The mastery register for PHTY800 FSPA is a list of 8 skills in which competence is considered to be a requirement for the assurance of quality physiotherapy practice for registration. Students must demonstrate a minimum level of competence in these skills as a condition of passing this unit by achieving **60% completion** of the mastery register (that is to achieve completion of **5/8 items**) in order to successfully complete the unit. 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:

- 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

exercise capacity and cardiorespiratory fitness.

- Predict, evaluate and interpret exercise data from individuals who are either active or sedentary as well as those with common health conditions.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

## Delivery and Resources

### 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 PHTY801 iLearn site <http://ilearn.n.mq.edu.au>

### Assumed knowledge

This unit assumes that you have comprehensive knowledge of anatomy and physiology.

### 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 observation, assessment and prescription of programs to improve performance of everyday activities and breathing. The teaching approach will be based on students developing a deep understanding of principles and the ability to independently solve problems, with the expectation that students can then translate this knowledge to different scenarios (e.g. patients with similar activity limitations but different diagnoses).

### Textbooks & Readings

#### Essential

This unit does not have any textbooks that are essential for you to purchase.

#### Recommended

Recommended readings for this accessible through Leganto.

The following text will be a useful resource and available in the library reserve and as an e-book. Recommendations about specific readings from these and other resources (such as research papers, books, websites and videos) will be listed on iLearn.

- *Main and Denehy (2016) Cardiorespiratory Physiotherapy: Adults and Paediatrics (5th Ed). Elsevier Health Sciences.*



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 and also available as an e-book.

- *Powers SK and Howley ET (2018) Exercise physiology: Theory and application to Fitness and Performance (10<sup>th</sup> Edition) New York: McGraw Hill*

## **Attendance**

In the Faculty of Medicine and Health Sciences professionalism is a key capability embedded in all our programs. As part of developing professionalism, Faculty of Medicine and Health Sciences students are expected to attend all small group interactive sessions including tutorials, clinical and laboratory practical sessions. In most cases lectures are recorded; however, lecture recordings cannot be guaranteed and some discussion or content may not be available for viewing via the recording system.

All lectures and tutorials are scheduled in your individual timetable. The timetable for classes can be found on the University web site at: <http://www.timetables.mq.edu.au/>. You may make a request to your tutor to attend a different tutorial on a one-off basis for extenuating circumstances.

Failure to attend any learning and teaching activities, including lectures and tutorials, may impact your final results. It is the responsibility of the student to contact their tutor or the unit convenor by email to inform tutors if they are going to be absent.

## **Technology and Equipment**

### On-campus

Teaching rooms are equipped with state of art audio-visual and ICT equipment including iPads, 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

Should you choose to work off campus you will need to have access to a reliable internet connection in order to retrieve unit information & at times to submit assessment tasks via iLearn.

**Consultation with staff:** Staff may be available for individual consultations, please see iLearn site for information on staff availability for consultation.

## **Policies and Procedures**

Macquarie University policies and procedures are accessible from [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

Undergraduate students seeking more policy resources can visit the [Student Policy Gateway](https://students.mq.edu.au/support/study/student-policy-gateway) (<https://students.mq.edu.au/support/study/student-policy-gateway>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## 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)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

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

## Graduate Capabilities

### 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

- Demonstrate competency in tests commonly used in physiotherapy practice to assess exercise capacity and cardiorespiratory fitness.
- 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.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

#### Assessment tasks

- Clinical simulation / viva
- Written examination 1
- Written examination 2

- Mastery checklist

## 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 exercise capacity and cardiorespiratory fitness.
- 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.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

### Assessment tasks

- Quiz
- Clinical simulation / viva
- 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.
- 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.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

## **Assessment tasks**

- Quiz
- Clinical simulation / viva
- Written examination 1
- Written examination 2
- Mastery checklist

## **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**

- 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.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

## **Assessment tasks**

- Quiz
- Clinical simulation / viva
- Written examination 1
- Written examination 2
- Mastery checklist

## **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.
- Demonstrate competency in tests commonly used in physiotherapy practice to assess exercise capacity and cardiorespiratory fitness.
- 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.
- Demonstrate skill in the assessment of breathing and treatment of common

cardiorespiratory impairments.

## Assessment tasks

- Quiz
- Clinical simulation / viva
- Written examination 1
- Written examination 2
- 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.
- Demonstrate skill in the assessment of breathing and treatment of common cardiorespiratory impairments.

## Assessment tasks

- Quiz
- Clinical simulation / viva
- Written examination 1
- Written examination 2
- Mastery checklist

## Changes from Previous Offering

Since 2018, the content for PHTY800 changed from previous offerings in line with the changes across the semester. PHTY800 now focuses primarily on exercise and physical activity, and the key impairment of reduced cardiorespiratory fitness, as well as the primary impairments of the

cardiorespiratory system.