

# Medical Physics

## MDPH 402 - Nuclear Medicine

0.125 EFTS 15 Points

Second Semester 15 July 2020 – 18 Oct 2020

### Course Coordinator

Steven Marsh

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### Lectures:

Monday 1:00pm – 1:50pm E12

Friday 9:00am – 10:40am E12

### Description

The purpose of this paper is to educate medical physicists in nuclear medicine relevant to their profession as required by the Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM).

### Assessment

10% Project

15% Presentation

15% Mid-term test

60% Final exam

👉 Note that a pass in the final exam is required to pass the course!

### Pre-requisites

Subject to approval of the director of the programme

### Textbooks

Cherry, S, Sorenson, J and Phelps, M. Physics in Nuclear Medicine (3rd or 4th edition)

### Goal of the Course

The aim of this course is to provide students with a basic understanding of the physics and its implementation in various imaging and treatment procedures performed in Nuclear Medicine.

### Learning Outcomes

The objectives of the course are to understand:

- ☐ Radioactive decay and radionuclide choice
- ☐ Specific properties of detectors used in Nuclear Medicine
- ☐ Radionuclide production
- ☐ Radiopharmaceuticals
- ☐ Non-imaging tracer studies
- ☐ Imaging systems used in Nuclear Medicine
- ☐ Single Photon Emission Computed Tomography (SPECT)
- ☐ Positron Emission Tomography (PET)
- ☐ Diagnostic interpretation of radionuclide studies
- ☐ Analysis methods commonly used in Nuclear Medicine
  
- ☐ Therapeutic uses of unsealed sources

- ☐ Patient doses
- ☐ Dosimetry
- ☐ Radiation protection specific to Nuclear Medicine
- ☐ Professionalism and Ethics

### **Summary of Course Content**

The general topics covered by this course are:

- ☐ Radiopharmaceuticals
- ☐ Nuclear Medicine imaging devices
- ☐ Analysis techniques
- ☐ Nuclear medicine therapy
- ☐ Nuclear medicine radiation protection
- ☐ Professionalism and Ethics

### **Learn**

All important course information can be accessed through the UC *Learn* system available at <http://learn.canterbury.ac.nz/> . You need to login with your UC login and password and then select the course code on the left hand side. Make sure you check the *Learn* page regularly for relevant information and course updates. Note that all course related emails will be sent to your UC email address. No other email addresses will be accepted. It is your responsibility to check your UC email regularly.

### **Lecture timetable**

A detailed timetable can be found on *Learn*.

### **General Physics and Astronomy Information**

Please consult the [General Course Information](#) document for information that applies to all courses administered by the School of Physical and Chemical Sciences relating to Physics and Astronomy.