

Medical Physics

MDPH 402 - Nuclear Medicine

0.125 EFTS 15 Points
Second Semester 17 July 2023 – 22 Oct 2023

Course Coordinator

Steven Marsh
Room 408, Beatrice Tinsley Building.
steven.marsh@canterbury.ac.nz

Lectures:

Wednesday	4:00pm – 4:50pm	Erskine Rutherford 260
Friday	9.00am – 10:50am	Erskine Rutherford 260

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 you UC email regularly.

Lecture timetable

A detailed timetable can be found on *Learn*.

General Physics and Astronomy Information

Please consult the document General Information for Physics and Astronomy Students on the Physics and Astronomy Web Page: [Department of Science \(canterbury.ac.nz\)](http://www.canterbury.ac.nz/department-of-science/)

Or <https://apps.canterbury.ac.nz/1/science/phys-chem/PHYS%20-%20Course%20Outlines/General.PDF>