

Master of Science in Clinical Nuclear Medicine
Program code: 055511

INTRODUCTION

The Department of Nuclear Medicine (Faculty of Medicine) offers a Master of Science Program in **Nuclear Medicine**. English is the Language of instruction and research. The aim of this program is to provide training for physicians who are interested in the field of Nuclear Medicine, to improve research and clinical standards in the field of Nuclear Medicine, and to prepare physicians by building professional competence to pursue higher scientific research and clinical training in the field by providing the necessary basic principles in these areas. Only thesis option is offered.

According to the University Council decision dated 4/2/2007, Thesis students admitted with effect from September 2007 are exempted from the comprehensive examination.

PROGRAM REQUIREMENTS

42 TOTAL COURSE CREDITS

29 COMPULSORY COURSES (credits in parenthesis)

0510-501	Biostatistics and Computer in Medicine	(2)
0555-501	Nuclear Medicine physics	(2)
0555-502	Nuclear Medicine Instrumentation	(2)
0555-503	Radiopharmacy	(2)
0555-504	Computer Application in Nuclear Medicine	(2)
0555-505	Radiobiology and Radiation Protection	(1)
0555-506	Clinical Nuclear Medicine I	(4)
0555-507	Clinical Nuclear Medicine II	(4)
0555-508	Clinical Nuclear Medicine III	(4)
0555-509	Seminar I	(1)
2000-501	Scientific Writing and Communication Skills	(3)
2000-503	Ethics and Professionalism	(2)

4 ELECTIVES COURSES

0510-503	Epidemiology	(1)
0520-504	Immunity and Infection	(2)
0530-561	Cardiovascular Physiology	(3)
0530-562	Renal Physiology	(3)
0530-564	Gastrointestinal Physiology	(3)
0530-565	Endocrine Physiology	(3)
0530-566	Neurophysiology	(3)
0555-510	Advances in Nuclear Medicine	(4)
0555-511	Computational Methods	(2)

9 COMPULSORY COURSES

0555-597	Thesis	(0)
0555-598	Thesis	(0)
2000-599	Thesis	(9)

COURSE DESCRIPTION

0555-501: NUCLEAR MEDICINE PHYSICS CR: 2

Concepts and principles of basic nuclear medicine physics; to include interactions of Particulate and electromagnetic radiation, production, modes of radioactive decay, radiation detectors, and their applications, and internal dosimetry.

0555-502: NUCLEAR MEDICINE INSTRUMENTATION CR: 2

Instrumentation of imaging devices is presented in this course including basic function, principles of operation, design considerations, and applications of the nuclear medicine imaging systems.

0555-503: RADIOPHARMACY CR: 2

The design, production, preparation, quality control and biological behaviour of radiopharmaceuticals.

0555-504: COMPUTER APPLICATION IN NUCLEAR MEDICINE CR: 2

Lecture and practice on the principles and application of computers in management of information, data acquisition, and data processing in the nuclear medicine department.

0555-505: RADIOBIOLOGY AND RADIATION PROTECTION CR: 1

Biological effects of ionizing and non-ionizing radiation on cells and whole body, radiation protection instrumentation and their application. Dosimetry to include calculation of radiation absorbed dose. Safe handling of unsealed radioactive sources to include regulatory policies.

0555-506: CLINICAL NUCLEAR MEDICINE I CR: 4

Basic clinical aspects of nuclear medicine. It includes both theory through didactic lectures and practice in clinical service and laboratory. In the practical portion the candidate will participate in

obtaining patient's information, preparing radiopharmaceuticals, operating equipment, doing quality control tests and attending reading sessions.

0555-507: CLINICAL NUCLEAR MEDICINE II CR: 4

Clinical aspects of nuclear medicine; theoretical and practical. The candidate will participate, in the practical portion, in obtaining patient's information, examine patients, checking studies before the patient leaves the department and check the quality control tests. The candidate will learn how to process the information obtained and write preliminary reports. The course also deals with invitro nuclear medicine studies.

0555-508: CLINICAL NUCLEAR MEDICINE III CR: 4

An advance course in clinical nuclear medicine to include interpretation of studies using correlative imaging approach, identifying technical pitfalls and studying the less commonly performed procedures. The course also deals with therapeutic nuclear medicine and understanding the administrative aspects of managing a nuclear medicine laboratories.

0555-509: SEMINAR I CR: 1

Preparation of a seminar on one topic allotted by the advisor. Presentation in the Department.

0555-510: ADVANCES IN NUCLEAR MEDICINE CR: 4 PR: 0555/501,502,503,506,507

Advanced aspects of nuclear medicine science and clinical practice. Students must have mastered basic physics, instrumentation, radiopharmacy, radiochemistry, and computer science before enrolling for this course. In addition, clinical nuclear medicine courses 1&2 are required. Instruction will include both theory taught through didactic lectures and practical application in the clinical service and the laboratory. Topics to be considered include PET, SPECT, instrumentation,

radionuclide therapy, nuclear oncology, and nuclear cardiology at an advanced level.

0555-511: COMPUTATIONAL METHODS
CR: 2

Advanced aspects of computational methods as applicable to the nuclear medicine sciences and the clinical practice of nuclear medicine.

0555-597: THESIS
CR: 0

0555-598: THESIS
CR: 0

2000-599: THESIS
CR: 9