Nuclear Medicine Technology Program (NMT)

College of Science and Health
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www.uwlax.edu/health-professions/nuclear-medicine-technology/

Nuclear medicine technology is a health professions specialty employing the use of radiopharmaceuticals for diagnostic and therapeutic purposes. Students majoring in this program are provided a substantial educational foundation in the sciences and clinical applications in a hospital internship so that graduates may function as technologists. The pre-professional and professional program collectively requires six semesters on campus to earn a minimum of 66 credits including certain prescribed courses followed by a 12-month internship at an affiliated internship site.

Major

- Nuclear medicine technology - BS (http://catalog.uwlax.edu/undergraduate/nuclearmedicine/ nuclearmedicinetechnologybs)

Courses

NMT 201 Cr.1
Introduction to Nuclear Medicine Technology
Orientation to the application and professional aspects of nuclear medicine technology; including radiation safety and protection, types of imaging procedures performed, computer applications, related allied health professions and ethics. Lect. 0.5, Lab. 1. Offered Fall.

NMT 314 Cr.2
Cross-Sectional Anatomy
This course revisits anatomy specifically from an imaging perspective. Students will learn to identify normal and abnormal structures on CT and MRI scans and locate topographic landmarks on diagnostic and simulation images. Prerequisite: BIO 313 with a grade of "C" or better. Students with credit in RT 421 cannot earn credit in NMT 314. Offered Fall.

NMT 395 Cr.1
Immunology for the Nuclear Medicine Technologist
A highly focused investigation of the practices of immunology for the student of nuclear medicine technology. Offered Fall.

NMT 398 Cr.2
Research Writing in Nuclear Medicine Technology
This course focuses on students learning how to interpret published data and how to write an article ready for publication in professional journals in the field of nuclear medicine. Students in the Nuclear Medicine Technology Program will learn how to read, review, and comprehend NMT literature through a series of different writing exercises. Students will have opportunities to become comfortable deciphering the most up to date journal publications writing a journal article. Students will draft and revise their own work to become publication ready in “The Journal of Nuclear Medicine Technology. Prerequisite: concurrent enrollment in NMT 399; admission to NMT Program. Offered Spring.

NMT 399 Cr.1
Applied Research Writing in Nuclear Medicine Technology
This applied writing lab focuses on students practicing the art of interpreting data and summarizing NMT data. Learning how to summarize data and to write an article ready for publication in professional journals in the field of nuclear medicine will assist them in becoming successful in the field. The applied setting will offer students an opportunity to understand and perfect the different parts of writing an NMT research proposal. The applied writing lab provides opportunities for students to draft and revise their own work to become publication ready in “The Journal of Nuclear Medicine Technology. Prerequisite: concurrent enrollment in NMT 398; admission to NMT Program. Offered Spring.

NMT 401 Cr.2
Management and Methods of Patient Care I
The survey of hospital administrative procedures including medical terms and medical ethics. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Fall, Spring.

NMT 402 Cr.1-4
Clinical Correlation: Anatomy, Physiology and Pathology
A lecture series of topics of current interest selected and presented by nuclear medicine physicians. Emphasis on clinical interpretation of organ systems pathophysiology as viewed by the practicing nuclear physician. Lect. 1-2. Duration: two semesters. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 403 Cr.2-4
Anatomy, Physiology and Pathology
The anatomy, physiology and pathology of the human organ systems treated in the application of nuclear medicine. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 404 Cr.1-3
Management and Methods of Patient Care II
Skills in problem-solving, critical thinking and clinical decision making are developed, as well as oral and written clinical communication skills. Administrative duties including budgeting, medical and legal considerations, and political issues affecting patient care are discussed. Focus on basic measures necessary to provide quality patient care. Basic principles of record keeping and confidentiality of information are explained. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 405 Cr.2-3
Radiation Protection
Properties of alpha, beta and gamma radiations, their effects upon human beings and methods for protecting patients and staff from unnecessary exposure and possible injury. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 407 Cr.2-5
Clinical Instrumentation and Techniques
Structure, operating characteristics and practice in use of nuclear radiation detection instruments and radioisotope handling devices used in medical diagnosis and therapy. Lect. 1-3, Lab. 3-6. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 409 Cr.1-3
Mathematical Evaluation of Clinical Data
A study of the expected variations in results depending on the choice of radionuclide, instrument and patient. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.
NMT 411 Cr.1-2
Records and Administrative Procedures
Records and procedures required by federal, state and professional regulatory agencies to insure proper: (1) acquisition, handling, application, storage, and disposal of radioactive materials; (2) awareness of radiation dosages received by patients and staff; and (3) functioning of detection equipment. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 412 Cr.3-9
Clinical Nuclear Practicum I
The supervised use of radionuclides in imaging and scanning of patients for diagnostic purposes. Lect. 1-3, Lab. 6-18. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 413 Cr.3-9
Clinical Nuclear Practicum II
The supervised use of radionuclides in vitro and in vivo in patients for diagnostic purposes. Lect. 1-3, Lab. 6-18. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 415 Cr.1-3
Application of Radionuclides to Medicine
Review of radionuclides and the compounds into which they are formed that are useful in medical research, diagnosis and therapy. Lect. 1-3. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 416 Cr.1-3
Nuclear Medicine Quality Control Practicum
Elution of Mo/Tc generator, preparation and testing of radiopharmaceutical products. Gamma Camera uniformity, relative sensitivity and spatial linearity and resolution testing. The use of flood field and bar phantoms on in vivo imaging detectors in the nuclear medicine imaging laboratory. Lect. .5-1.5, Lab. 1.5-4.5. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 417 Cr.1-5
Nuclear Radiation Physics and Instrumentation
Properties of alpha, beta and gamma radiations; their origins and interactions with matter; their control and shielding; and the statistics of counting. Lect. 1-3, Lab. 3-6. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 418 Cr.1-3
Clinical Procedures Review
Classroom technique to establish clinical practices used in nuclear medicine imaging; develop techniques used in planar and SPECT imaging. The fundamental skills of patient care, radiopharmaceutical preparation and administration. Emphasis is also on computer processing techniques used in coordination with imaging procedures. Lect.5-1.5. Duration: two semesters. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 419 Cr.1-3
Clinical Radiation Biology
Cellular and organ responses to radiation sources and radionuclides employed in nuclear medicine. Lect. 1-2, Lab. 0-3. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 420 Cr.1-2
Gamma Cameras
This course consists of lectures and laboratory sessions relating to the gamma camera from a physics point of view. It will convey to the student the principles of gamma camera operation, methods of measuring and maintaining camera performance, and the theory and practice of acquiring tomographic studies. Lect. .5-1, Lab. 1.5-3. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 421 Cr.1
Therapeutic Radionuclides
The chemical, physical and biological properties of the radionuclides used in diagnosis and therapy. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 422 Cr.1-4
Clinical Procedures Review II
Classroom technique to establish clinical practices used in nuclear medicine imaging. To develop techniques used in planar and SPECT CT imaging that has been developed in addition to the previous course “Clinical Procedures Review” (NMT 418). The fundamental skills of patient care, radiopharmaceutical preparation and administration will be reviewed. Emphasis is also in computer processing techniques used in coordination with imaging procedures. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Fall, Spring.

NMT 423 Cr.1-3
Radiopharmacy
A study of the radiopharmacology and the chemistry of radionuclides used in the clinical laboratory. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 427 Cr.1-5
Application of Computers to Nuclear Medicine
A study of data collection, data reduction and data enhancement by computer methods. Lect. 1-2, Lab. 0-9. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 429 Cr.1-2
Introduction to Computerized Tomography
This course is designed to present a more in depth overview of CT Scanning and cross-sectional anatomy. Specific topics include the physics & instrumentation of CT scanning and image production. Comparison of cross-sectional anatomy to PET and CT images. Emphasis will be placed on patient considerations, patient safety, and radiation protection. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Fall, Spring.

NMT 495 Cr.1-3
Special Topics in Nuclear Medicine
Topics of current interest in nuclear medicine with emphasis on new or experimental methods. Hours arranged. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.

NMT 499 Cr.3
Independent Study
Independent projects under the direction and supervision of a member of the clinical staff. Hours arranged. Prerequisite: admission to the NMT Program; assignment to a clinical internship site. Offered Annually.