

# Nuclear Medicine Technology

## Director

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**Undergraduate major:** nuclear medicine technology (BS)

**Website:** <https://radsci.medicine.uiowa.edu/programs/nuclear-medicine-technology>

## Program Information

The Nuclear Medicine Technology professional program covers theory and techniques in nuclear medicine technology through didactic and clinical coursework. Prospective students typically apply to this two-year program during their sophomore year and begin in fall of their junior year.

Up to eight students are accepted into this two-year professional program each year. Upon completion, graduates are eligible to apply for the national certification exams in nuclear medicine technology through both the American Registry of Radiologic Technologists (ARRT) and the Nuclear Medicine Technology Certification Board (NMTCB). Students will have also completed didactic coursework for the national certification exam in computed tomography (CT).

Nuclear medicine technology is one of two undergraduate majors in the field of medical imaging offered by the Carver College of Medicine; see Radiation Sciences in the catalog.

The Carver College of Medicine is located on the University of Iowa health sciences campus, and is integrated within University of Iowa Health Care, which includes one of the nation's largest university-owned teaching hospitals. For information about the college's academic programs and resources, see Carver College of Medicine in the catalog.

UI Health Care and the Carver College of Medicine have a proud academic tradition of preparing students for successful careers in the radiation sciences. Today, that tradition continues through its strong curriculum, quality clinical experience, and commitment to undergraduate education in the creation of images and treatment of patients using highly sophisticated equipment and techniques.

## Career Information

A nuclear medicine technologist is a healthcare professional who specializes in the preparation and administration of radioactive materials for diagnostic imaging and therapeutic procedures. Working as part of a multidisciplinary medical team, they collaborate closely with nuclear medicine physicians, radiologists, medical physicists, and other healthcare providers.

Their primary responsibilities include:

- **Imaging Procedures:** Perform nuclear medicine scans using specialized equipment such as gamma cameras and positron emission tomography (PET) scanners to capture images of organ function and structure.

- **Radiopharmaceutical Preparation and Administration:** Prepare and administer radiopharmaceuticals to patients, ensuring proper dosage and safety protocols are followed.
- **Patient Care:** Monitor patients before, during, and after procedures, providing clear instructions and ensuring comfort and safety throughout the process.
- **Equipment Operation and Quality Control:** Operate and maintain imaging equipment, perform quality control checks, and ensure compliance with safety standards and regulatory guidelines.
- **Data Analysis and Documentation:** Analyze imaging results, assist physicians in interpreting data, and maintain accurate patient records.

Nuclear medicine technologists play a vital role in diagnosing and treating a wide range of conditions, including cancer, heart disease, and neurological disorders. They typically work in hospitals, diagnostic imaging centers, and specialized clinics. With additional education and experience, technologists may advance into roles such as PET/CT specialists, educators, researchers, or administrative and leadership positions.

## Programs

### Undergraduate Program of Study Major

- Major in Nuclear Medicine Technology (Bachelor of Science)

## Courses

### Nuclear Medicine Technology Courses

#### RSNM:3120 Nuclear Medicine and PET Clinical Procedures I **3 s.h.**

Introduction to medical specialty of nuclear medicine and molecular imaging; basic theories of radiation protection, radiation physics and nuclear medicine instrumentation, radiopharmacy, nuclear medicine and positron emission tomography (PET) clinical procedures, professional standards of nuclear medicine technologist. Requirements: Nuclear Medicine Technology Program enrollment.

#### RSNM:3121 Nuclear Medicine Technology Clinical Internship I **3 s.h.**

Hands-on clinical experience working with patients and performing routine nuclear medicine diagnostic imaging procedures under direct supervision of qualified clinical instructors. Requirements: Nuclear Medicine Technology Program enrollment.

#### RSNM:3131 Radiopharmaceuticals **3 s.h.**

Introduction to radiopharmaceuticals; emphasis on physical, chemical, and biologic properties and their clinical use; fundamental aspects of radiopharmaceuticals including characteristics, preparation, quality control, and clinical use. Requirements: Nuclear Medicine Technology Program enrollment.

#### RSNM:3132 Radiation Safety and Regulations in Nuclear Medicine **1 s.h.**

Continuation of RSP:3130; geared towards students enrolled in the nuclear medicine technology program.

**RSNM:3140 Foundations in Nuclear Medicine and PET 1 s.h.**

Foundational instruction in the math and chemistry associated with radiopharmacy and instrumentation in the nuclear medicine technology profession, such as positron emission tomography (PET). Requirements: Nuclear Medicine Technology Program enrollment.

**RSNM:3220 Nuclear Medicine and PET Clinical Procedures II 3 s.h.**

Proper execution of nuclear medicine and positron emission tomography (PET) procedures from a technical point of view; published protocols and procedures specific to University of Iowa Health Care; routine setup, common errors, artifact identification, computer processing protocols, and patient care concerns identified for each procedure; review of human anatomy, physiology, and pathology germane to understanding and proper execution of nuclear medicine procedures. Prerequisites: RSNM:3120. Requirements: Nuclear Medicine Technology Program enrollment.

**RSNM:3221 Nuclear Medicine Technology Clinical Internship II 3 s.h.**

Progressive responsibility working with patients and performing nuclear medicine and PET clinical procedures under direct supervision of qualified clinical instructors. Prerequisites: RSNM:3121. Requirements: Nuclear Medicine Technology Program enrollment.

**RSNM:3231 Nuclear Medicine Instrumentation 3 s.h.**

Instruments used in medical imaging to generate and detect ionizing radiation (i.e., SPECT/CT and PET/CT scanners, dose calibrators, well counters, survey meters); focus on instrument quality control testing. Requirements: Nuclear Medicine Technology Program enrollment.

**RSNM:3320 Foundations in Nuclear Medicine Instrumentation 2 s.h.**

Foundations of nuclear medicine and positron emission tomography (PET) physics, computer systems, and instrumentation. Requirements: Nuclear Medicine Technology Program enrollment.

**RSNM:3321 Nuclear Medicine Technology Clinical Internship III 4 s.h.**

Progressive responsibility working with patients and performing nuclear medicine and PET clinical procedures under direct supervision of qualified clinical instructors. Prerequisites: RSNM:3221. Requirements: Nuclear Medicine Technology Program enrollment.

**RSNM:4121 Nuclear Medicine Technology Clinical Internship IV 4 s.h.**

Progressive responsibility working with patients and performing nuclear medicine and PET clinical procedures under direct supervision of qualified clinical instructors. Prerequisites: RSNM:3321. Requirements: Nuclear Medicine Technology Program enrollment.

**RSNM:4221 Nuclear Medicine Technology Clinical Internship V 5 s.h.**

Progressive responsibility working with patients and performing nuclear medicine and PET clinical procedures under direct supervision of qualified clinical instructors. Prerequisites: RSNM:4121. Requirements: Nuclear Medicine Technology Program enrollment.

**RSNM:4222 Nuclear Medicine Technology Capstone and Certification Exam Preparation 5 s.h.**

Students prepare to take the Nuclear Medicine Technology Certification Board (NMTCB) and American Registry of Radiologic Technologists (ARRT) national certification exams. Requirements: Nuclear Medicine Technology Program enrollment.