Students who choose UMDNJ’s School of Health Related Professions want a University that is exclusively dedicated to health care, with state-of-the-art equipment, rigorous coursework, and faculty who care. All our resources go toward supporting a health care educational environment that attracts and nurtures the very best faculty and students.
Description of the Profession

Nuclear medicine combines chemistry, physics, mathematics, computer technology, and medicine in using radioactivity to diagnose and treat disease. Though there are many diagnostic techniques currently available, nuclear medicine uniquely provides information about both the structure and function of virtually every major organ system within the body. It is this ability to characterize and quantify physiologic function which separates nuclear medicine from other imaging modalities, such as X-ray. Nuclear medicine procedures are safe, they involve little or no patient discomfort and do not require the use of anesthesia. Positron Emission Computed Tomography or PET scanning is also incorporated into the field of nuclear medicine.

The Technologist's Role

The Nuclear Medicine Technologist is a highly specialized healthcare professional who works closely with the nuclear medicine physician. Some of the technologist's primary responsibilities are to:

- Prepare and administer radioactive chemical compounds, known as radiopharmaceuticals
- Perform patient imaging procedures using sophisticated radiation-detecting instrumentation
- Accomplish computer processing and image enhancement
- Analyze biologic specimens in the laboratory
- Provide images, data analysis, and patient information to the physician for diagnostic interpretation. During an imaging procedure, the technologist works directly with the patient. The technologist-
  - Gains the patient's confidence by obtaining pertinent history, describing the procedure and answering any questions
  - Monitors the patient's physical condition during the course of the procedure
  - Notes any specific patient comments which might indicate the need for additional images or might be useful to the physician in interpreting the results of the procedure.

* From the Society of Nuclear Medicine
The UMDNJ - SHRP's Nuclear Medicine Technology Program
The academic curriculum and the clinical training facilities have been selected to provide a program that is educational and comprehensive in its methods and capable of thoroughly training students in the principles, ethics and practices of Nuclear Medicine Technology. During this fifteen month, full-time program, students will study nuclear medicine from its roots to present day technology, then explore its future potential in diagnostic and therapeutic medicine. Graduates from the program are awarded a certificate from UMDNJ-SHRP and qualify to be examined for certification by the Nuclear Medicine Technology Certification Board and/or American Registry of Radiologic Technologists. There is also an option to earn a Bachelor of Science degree in Allied Health in conjunction with one of seven affiliated colleges.

Option 1 Certificate in Nuclear Medicine Technology Option 2 Bachelor of Science in Allied Health Technologies

The curriculum for the professional component is the same for both options.

Upon successful completion of the program, the graduate will receive a certificate or a BS degree and will be eligible for examination by the American Registry of Radiologic Technologists and/or the Nuclear Medicine Technology Certification Board.

Accreditation Status
The School of Health Related Professions, as part of UMDNJ, is fully accredited by the Commission of Higher Education of the Middle States Association of Colleges and Schools. The UMDNJ-SHRP Nuclear Medicine Program is currently granted accreditation by Joint Review Committee on Educational Programs in Nuclear Medicine Technology and the NJ State Bureau of Radiological Health.
Clinical Affiliations
The Nuclear Medicine Technology Program provides experiences with varied populations in a wide variety of health care settings by utilizing a large number of health care facilities throughout NJ. Students complete clinical rotations in a variety of facilities.
Affiliated facilities include:
Holy Name Hospital - Teaneck, NJ
Newark Beth Israel Medical Center - Newark, NJ
Robert Wood Johnson UH - New Brunswick, NJ
Somerset Medical Center - Somerville, NJ
St Peter’s University Hospital - New Brunswick, NJ
Palisades General Medical Center - North Bergen, NJ
Rahway Hospital - Rahway, NJ
Toms River Community Medical Center - Toms River, NJ
UMDNJ - University Hospital - Newark, NJ
Cardinal Health Radiopharmacy - Kenilworth, NJ

Transportation and Living Accommodations
The Nuclear Medicine Technology Program is located in Scotch Plains, New Jersey, which is accessible from the Garden State Parkway, and Routes 22 and 78. Clinical experience sites are located throughout New Jersey. A car is recommended for travel to clinical sites and to the Scotch Plains Campus. The University does not have housing accommodations for students in any of its schools. The proximity of UMDNJ to New York City extends opportunities for varied entertainment and recreational activities for students.

Admission Requirements - Certificate in Nuclear Medicine Technology
Requirements for Admission
Completed at least two (2) years of college, (60 credits) with the required course work or the equivalent. Clinical experience in a health related profession is preferred. Clinical experience may include but is not limited to the following: Medical Assistant training, LPN or Nursing Assistant training, x-ray technology, employment in an appropriate position in a medical setting or observation in a Nuclear Medicine Department.
Required Course Work:
1 semester of General Chemistry with laboratory (3 cr.)
2 semesters of Human Anatomy and Physiology with laboratory (6 cr.)
1 semester of General Biology or Microbiology (3 cr.)
1 semester of College Algebra or Pre-Calculus (3 cr.)
2 semesters of English, Communications or Humanities (6 cr.)

General Physics is recommended

Students must have received a grade of C or better for each prerequisite course.

Foreign educated students must submit the following: TOEFL scores (minimum of 600 written exam, 250 computer based exam) and WES translation of foreign transcripts.

After application review, interviews are conducted for candidates who meet the program requirements. In selecting students for admission, the program looks for evidence of character, potential, motivation and sound academic preparation.

Students must provide their own transportation to clinical facilities.

Students must also meet the General Standards for Allied Health Education of UMDNJ. These standards concern observational abilities, communication, intellectual/conceptual abilities, motor coordination, and behavioral and social skills.

Students accepted into the program must complete a CPR course for Allied Health Professionals by the end of the first semester before they can register for the second semester.

THERE IS NO ADVANCED STANDING IN THIS PROGRAM.

FOREIGN EDUCATED APPLICANTS

If you were educated outside of the United States, you must provide the following additional documents:

Evaluation of your foreign transcript. You may obtain an evaluation by contacting World Education Services, Inc., at www.wes.org or by
e-mail at info@wes.org. Refer to the last page of the printed application form for the names and addresses of additional transcript evaluation agencies.

Results of test scores from the Test of English as a Foreign Language (TOEFL) exam. A minimum score of 600 on the written exam, or 250 on the computer-based exam is required. The School's code number is #2895.

If you have any questions regarding the application process, please call the UMDNJ-SHRP Office of Enrollment Services: 973-972-5454, or send an e-mail to shrpadm@umdnj.edu.

REQUIREMENTS FOR ADMISSION TO THE BACHELOR OF SCIENCE IN ALLIED HEALTH TECHNOLOGIES

**Prerequisite 1**
The Department of Medical Imaging Sciences - Diagnostic Medical Sonography Program offers a joint Bachelor of Science Degree in Allied Health Technologies in collaboration with the following institutions:

- Bloomfield College
- Fairleigh Dickinson University
- Felician College
- Georgian Court College
- New Jersey City University
- Ramapo College of New Jersey
- Rutgers University - Newark

The degree offers a unique combination of a liberal arts education and entry into the health career of Nuclear Medicine Technology.

The first six semesters of liberal study is taken at the partner institution (minimum of 90 semester hours). General education courses lead toward a concentration in biology with requirements in math, physics, chemistry and biology. The clinical track is selected in the late sophomore or early junior year through an application to UMDNJ-SHRP.
Applicants must maintain a minimum GPA of 2.75 and have met or be scheduled to complete all prerequisite requirements prior to the planned date for enrolling in the 4th year specialization coursework.

Students admitted to the 4th year professional phase are selected by an Admissions Committee from among those applicants meeting these minimum standards.

**Prerequisite 2**

Prospective students must have a baccalaureate degree in science from an accredited United States University or College and must have completed:

1 semester of General Chemistry with laboratory (3 cr.)
2 semesters of Human Anatomy and Physiology with laboratory (6 cr.)
1 semester of General Biology or Microbiology (3 cr.)
1 semester of College Algebra or Pre-Calculus (3 cr.)
2 semesters of English, Communications or Humanities (6 cr.)

After application review, interviews are conducted for candidates which meet the program requirements. Students accepted into the program must complete a CPR course for Allied Health Professionals prior to starting their clinical practicum.

In selecting students for admission, the Program looks for evidence of character, potential, motivation and sound academic preparation.

The Program attempts to choose applicants, who represent the greatest promise of profiting from opportunities offered by the School of Health Related Professions, preparing them for a positive contribution to the field of Nuclear Medicine Technology and the community.

There is no advance standing in this program.

"Enrollment and continued enrollment of accepted students is conditional, based on the results of certain laboratory tests and fulfillment of immunization requirements in order to determine their ability to perform all essential function."
"UMDNJ/SHRP DOES NOT DISCRIMINATE AGAINST QUALIFIED INDIVIDUALS WITH DISABILITIES IN ADMISSIONS OR IN ACCESS TO PROGRAMS".

UMDNJ-SHRP does not discriminate against qualified individuals on the basis of race, creed, sex, national origin or disability. (The Disability Compliance Coordinator may be reached at 973-972-0044).

The University of Medicine and Dentistry recognizes the value of diversity and is committed to providing appropriate support for its student body.

APPLICATION DEADLINE: May 15th

NUCLEAR MEDICINE TECHNOLOGY PROGRAM CURRICULUM

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<tr>
<th>COURSE#</th>
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</tr>
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<tbody>
<tr>
<td>1 - Semester</td>
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<td>Advanced Patient Care</td>
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<td>3</td>
</tr>
<tr>
<td>NUCM4141</td>
<td>Clinical Applications I</td>
<td>3</td>
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<tr>
<td>MSRA5100</td>
<td>Radiation Bio &amp; Protect</td>
<td>3</td>
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<td>3</td>
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<td>NUCM4200</td>
<td>Nuclear Physics &amp; Instrumentation II</td>
<td>3</td>
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<tr>
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Tuition and Financial Aid
The UMDNJ Board of Trustees approves tuition and fees on an annual basis. The total cost for the Nuclear Medicine Technology Program for the graduating class of 2002 was approximately $9,000.00 (tuition, student fee, technology fee, books and uniforms).

Students are also required to have medical/health insurance. This can be purchased through the university at an additional cost.

Current tuition and fees may be obtained by going to http://shrp.umdnj.edu then click on SHRP Online Registration.

Information about financial aid is available from the Newark Campus Financial Aid Office: ADMC 1208, 30 Bergen Street, Newark, New Jersey 07107-3001. Telephone: (973) 972-4376 or at http://www3.umdnj.edu/paidweb/index.htm.

Course Descriptions
NUCM4100 Nuclear Physics & Instrumentation I 3 Credits
Through a series of lecture and classroom activities, the student is presented with the Bohr atom, characteristic properties associated with nuclear structure and change, mechanisms, modes and results of nuclear transformation. The origin and nature of radiation and its interactions with matter are discussed. Systems and units of measurements are also be presented. A hands on lab is also included which investigates the statistics of counting radiation. (Lecture hrs 42, Lab hrs. 3)

NUCM4141 Clinical Applications I 3 Credits
Each biological system (skeletal, pulmonary, cardiovascular, gastrointestinal) is studied individually, as it pertains to nuclear medicine practices. Following a review of the anatomy, physiology, pathology and medical terminology associated with the organs, the scintigraphic procedures utilized for each are discussed in detail. Emphasis is
placed on indications for procedure performance, routine protocols and special variations, patient considerations and radio-pharmaceuticals of choice. Scintigraphic findings are analyzed to include normal and abnormal images, technical problems and normal variants for each study. (Lecture hours 45)

**NUCM4299 Clinical Practice I**  
5 Credits  
This is the first of three courses in clinical practice and is designed to orient the student to the hospital environment and the nuclear medicine department. Clinical instruction and supervision are provided to help the student acquire the basic skills in Nuclear Medicine Technology to include: radiation safety techniques, patient assessment, quality control and routine imaging procedures. Prerequisites/Co-requisites NUCM4141, NUCM4242. (Clinical hours 420)

**NUCM4200 Nuclear Physics & Instrumentation II**  
3 Credits  
This course is a continuation of NUCM 4100 with applications to the clinical environment. It is designed to familiarize the student with basic radiation detectors, their applications, theory of function and limitations. Through a series of lectures, the student gains an in depth understanding of operating principles, construction and mathematical principles governing radiation detectors, dosimeters, and the statistics of radioactivity. Laboratories are designed to emphasize didactic lectures and to help the student gain a practical knowledge in the use, operation and calibration of these devices. (Lecture hours 30: Laboratory hours 30)

**NUCM4332 Radiopharmacy and Chemistry**  
3 Credits  
Through lectures and laboratory exercises the student develops an understanding of the production of radionuclides, ligand labeling, the formulation and biodistribution of radiopharmaceuticals. The preparation, quality assurance measures, dispensing, disposal, and regulation of radiopharmaceuticals and associated record keeping are emphasized. Methods of biodistribution localization, indications and dosage are also covered. Prerequisites/Co-requisites: NUCM4111, RADS2550. (Lecture hours 42: Laboratory hours 3)

**NUCM4242 Clinical Applications II**  
3 Credits
This course is a continuation of NUCM4141. The cardiac, hemopoietic, central nervous and lymphatic systems are covered to include anatomy, physiology, pathology and associated terminology. The scintigraphic procedures utilized for each are discussed in detail. Scintigraphic findings are analyzed to include normal versus abnormal images, technical problems and normal variants for each procedure. Also covered are miscellaneous imaging procedures, RIA theory and techniques and the therapeutic uses of radionuclides. Prerequisites/Co-requisites: NUCM4141. (Lecture hours 45)

**NUCM4399 Clinical Practice II**

5 Credits

A continuation of Clinical Practice I. The student performs basic imaging procedures mastered in NUCM4299 under supervision. Instruction and supervision in advanced computer-assisted, imaging procedures and specialized equipment are introduced. Emphasis is placed on computer application in diagnostic imaging and problem-solving related to the cardiac and critical patient. Prerequisites/Co-requisites: NUCM4242, NUCM4299. (Clinical hours 420)

**NUCM4343 Clinical Applications III**

2 Credits

This course is a continuation of NUCM4242. The hemopoietic and central nervous systems are covered to include anatomy, physiology, pathology and associated terminology. The scintigraphic procedures utilized for each are discussed in detail. Scintigraphic findings are analyzed to include normal versus abnormal images, technical problems and normal variants for each procedure. Also covered are miscellaneous imaging procedures, radioimmunoassay and laboratory techniques, and therapeutic uses of radionuclides. PET imaging and newly developed procedures will also be discussed. Prerequisites/Co-requisites: NUCM4242, NUCM4299. (Lecture hours 30)

**NUCM4499 Clinical Practice III**

6 Credits

This course presents a comprehensive experience in all areas of Nuclear Medicine to include computer assisted imaging, SPECT imaging, nuclear cardiology, and in-vitro procedures. This clinical practice is designed to provide the student with the opportunity to refine clinical and administrative skills. The student conceptualized psychosocial rehabilitation as a diverse and evolving field that adapts
to demographic public policy and cultural changes. Prerequisites/Co-requisites: NUCM4343, NUCM4399 (Clinical hours 540)

**MSRA5100 Radiation Biology & Protection 3 Credits**
This course covers the basic principles of radiation biology and protection including: units of measurement of radiation, ALARA principle for the reduction of radiation exposure to patients and personnel, nursing radiation safety, and patient management. Monitoring of alpha, beta and gamma rays, personnel monitoring, area monitoring, decontamination techniques, radiation areas, and handling and storage of radioactive materials. (Lecture hours 45)

**DXIT4100 Advanced Patient Care 3 Credits**
An exploration of the patient care skills needed to meet the challenges of the expanding scope of practice, and the professional expectations of the imaging sciences. This course concentrates on areas of increased responsibility for the technologist such as: intravenous therapy, pharmacology, EKG, medical ethics and the legal aspects of present day radiologic science. Students in the Department of Medical Imaging Science who have not had any previous allied health training, are required to complete a 15 hour workshop to include the following material: vital signs, body mechanics, and Aseptic Technique. (Lecture hours 45)

Request for Program Information and an Application Package:

UMDNJ-School of Health Related Professions
Office of Enrollment Services
65 Bergen Street
Newark, NJ 07107-3001
(973) 972-5454

For additional information please contact:

Michael Teters, MS, DABR, CNMT
Program Director/Assistant Professor
UMDNJ-SHRP
1776 Raritan Road
Scotch Plains, NJ 07076
tetersms@umdnj.edu