Johns Hopkins Hospital
Schools of Medical Imaging

Nuclear Medicine Technology Program
2012 – 2013

Sponsored by the Russell H. Morgan Department of Radiology and Radiologic Sciences
of
The Johns Hopkins Hospital

The Johns Hopkins Hospital Schools of Medical Imaging
Radiology Administration Blalock B179
600 North Wolfe Street
Baltimore, Maryland 21287

Phone (410) 528-8208
Web page: http://schoolsofmedicalimaging.rad.jhmi.edu
Fax: (410) 528-8308

Publish date: March 2012
Volume 1
# Table of Contents

- History ...................................................................................................................... 4
- General Information .................................................................................................... 4
- Accreditation and Approval ..................................................................................... 5
- Administration and Faculty .................................................................................... 5
- Academic Calendar .................................................................................................... 6
- Applications and Admissions ................................................................................... 6
- Transfer Credit Policy ............................................................................................ 7
- Physical Health, Background Checks and Technical Capabilities ................................ 7
- International Applicants ......................................................................................... 7
- Tuition ...................................................................................................................... 7
- Financial Aid ............................................................................................................ 7
- VA Approved Programs ........................................................................................... 8
- Payment of Tuition ................................................................................................... 8
- Refund Policy ........................................................................................................... 8
- Resources and Services ........................................................................................... 9
- Housing .................................................................................................................... 9
- Parking ..................................................................................................................... 9
- Health Services ......................................................................................................... 9
- Baccalaureate Degree Options .................................................................................. 10
- **Program in Nuclear Medicine Technology** ........................................................... 10
  - General Description .............................................................................................. 10
  - Curriculum Outline ............................................................................................... 11
  - Admission Requirements ...................................................................................... 12
  - Application ............................................................................................................ 12
  - Program Fees and Expenses ................................................................................ 12
  - Course Length ....................................................................................................... 13
  - Grading Policy ....................................................................................................... 13
  - Nuclear Medicine Technology Course Descriptions .............................................. 13
- **Administrative Policies** ........................................................................................ 15
  - Attendance Policy .................................................................................................. 15
  - Inclement Weather Policy ...................................................................................... 15
  - Leave of Absence Policy ......................................................................................... 16
  - Academic and Clinical Progress Requirements .................................................... 16
  - Grievances and Due Process ................................................................................ 16
  - Requirements for Graduation .............................................................................. 17
  - Student/Graduate Placement Assistance ............................................................... 17
  - Right to Change Rules or Program Changes ......................................................... 17
  - Drug and Alcohol Policy ....................................................................................... 17
  - Disclosure Statement for State Licensure ............................................................. 17
  - Release of Student Information Policy ................................................................. 17
  - Student Transcripts ............................................................................................... 18
  - Application Materials ............................................................................................ 18
Statement Regarding the Privacy Rights of Students

The Johns Hopkins Hospital Schools of Medical Imaging is prepared to comply with the provisions of the Families Educational Rights and Privacy Act of 1974 (Public Law 90-247, as amended) and any regulations that may be promulgated there under. Students and others who may wish specific information regarding the rights of access to institutional educational records maintained in their names are advised to contact the Director of the Programs.

Notice of Nondiscriminatory Policy as to Students

The Johns Hopkins Hospital Schools of Medical Imaging admits students of any race, color, sex, disability, and national or ethnic origin to all of the rights, privileges, program benefits and activities generally accorded or made available to students at the Schools of Medical Imaging.

Certified to be true and correct as of content:
Jay K. Rhine, BS, CNMT
Director, The Johns Hopkins Hospital Schools of Medical Imaging
History

The Johns Hopkins Medical Institutions were established through a gift of a Quaker merchant, Johns Hopkins, who wanted the Hospital and University built as a joint venture.

Johns Hopkins was born into a very poor family in southern Maryland in 1795. His first name was inherited from his great-great grandfather Richard Johns. Because of the family's financial troubles he was forced to quit school at the age of 12. He went to work for his uncle and by the age of 19 he had established himself as a respected merchant.

Eventually he went into business for himself and built a fortune of 7 million dollars before he died in 1873 at the age of 78. Hopkins never married but gave much thought to what would happen to his estate. He left 3.5 million dollars to build a hospital, for he said, “There will always be suffering.” And another 3.5 million dollars to build a joint university, “For there will always be youth.” His concept of the Hospital and University as a joint venture was a revolutionary idea at the time that set the standard for future medical education in the United States.

In his Will he specified that the Hospital was “forever to serve the sick and ill of Baltimore without regard to race, age, sex or the ability to pay”. Drs. Welch and Osler, two of the famous “Hopkins Four”, brought other philosophies into the pattern of medical education in patient centered medical training and scientific research. Before this Hospital was established, physicians trained at medical schools without ever examining a real patient. The pattern established at The Johns Hopkins Hospital changed U.S. medical education forever by bringing medical students to the bedside of patients and placing the practice of medicine on a scientific basis.

The Johns Hopkins Hospital opened on May 7, 1889 followed four years later by The Johns Hopkins University along with the School of Medicine. The opening of the University and the School of Medicine ushered in a new era in medicine. Moving from laboratory to lecture hall to the patient's bedside, students and interns brought the scientific approach to medicine and received first-hand training in diagnosis and treatment. Within two decades, the Hospital and School of Medicine were models of medical care and education for the nation. That distinction has remained intact for over 100 years.

Johns Hopkins willed 13 acres of land in the city of Baltimore to erect the Hospital and wanted it to ultimately receive 400 patients. Today, The Johns Hopkins Medical Institutions covers a 44-acre area, has more than 1,000 beds, and is recognized as one of the world's leading medical institutions.

General Information

Mission

The mission of The Johns Hopkins Hospital Schools of Medical Imaging is to train imaging specialists of the highest caliber consistent with the standards and expectations of a graduate of The Johns Hopkins Medical Institutions.

Overview

The Johns Hopkins Hospital Department of Radiology offers a comprehensive program in Nuclear Medicine Technology. The Program provides both theoretical training and practical hands-on clinical experience. The Program reflects a strong emphasis on clinical education with the aim to produce graduates for independent roles in health care. The Program strives to maintain a high caliber of professionalism, and to teach technical competence in the field. Further career advancement could include advanced clinical specialization, management, marketing and equipment sales as well as educational positions.

The Nuclear Medicine Technology Program is a full time, 18-month program (June – December). Students graduate with a certificate in Nuclear Medicine Technology and are eligible to take either national certification examination (NMTCB or ARRT). Upon earning certification in Nuclear Medicine Technology, the student is eligible to take the national certification exam in Computed Tomography as a post-primary certification.
The Schools of Medical Imaging is owned by The Johns Hopkins Hospital and administered under the direction of the Radiologist-in-Chief of the Russell H. Morgan Department of Radiology and Radiological Sciences of The Johns Hopkins Hospital. Program faculty includes a full-time Program Director as well as clinical and support staff. The professional and technical staff of the Departments of Radiology of Johns Hopkins Hospital and the clinical affiliates provide didactic and clinical instruction to the NMT students.

The didactic portion of the Program will be offered at 8 Market Place, Suite 600, Baltimore, MD 21202 and The Johns Hopkins Hospital. The clinical portions of the Program will be offered at The Johns Hopkins Hospital and the affiliates.

**Accreditation and Approval**

The program is accredited by:
The Joint Review Committee on Educational Programs in Nuclear Medicine Technology
2000 W. Danforth Rd, Ste. 103, #203
Edmond, OK  73003
(405) 285-0546 phone
(405) 285-0579 fax

The Johns Hopkins Hospital Schools of Medical Imaging are approved by:
Maryland Higher Education Commission
Office of Academic Affairs – Private Career Schools
6 N. Liberty Street, 10th Floor
Baltimore, MD  21201
Phone (410) 767 – 3301

Students and prospective students may obtain information regarding the performance of each program from the Maryland Higher Education Commission at the above address. This information includes, but is not limited to, information regarding enrollment, completion rate, placement rate, and pass rates for graduates on certification exams.

**Administration & Faculty**

Jonathan S. Lewin, MD  
Radiology Department Chairman
Martin Bledsoe, MSPH, RN  
Radiology Department Administrator
Peg Cooper, MBA, RT(R)  
Radiology Department Imaging Operations Administrator
Jay K. Rhine, BS, CNMT  
Director, Schools of Medical Imaging

**Nuclear Medicine Technology Program**

Richard L. Wahl, MD  
Medical Director
Mary McCormick, PhD, CNMT  
Program Director  
Email : mmorga25@jhmi.edu

**Student Instructor Ratio:**

<table>
<thead>
<tr>
<th></th>
<th>Lecture</th>
<th>Lab</th>
<th>Clinical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10:1</td>
<td>5:1</td>
<td>1:1</td>
</tr>
</tbody>
</table>

5
Academic Calendar
2012 - 2013

2012
New classes begin
Independence Day
Labor Day
Thanksgiving Holiday
Class of 2012 Graduation
Christmas Holiday

2013
New Years Holiday
Martin Luther King, Jr. Holiday
Memorial Day
New classes begin
Independence Day
Labor Day
Thanksgiving Holiday
Graduation

Application & Admissions

Applications must be postmarked no later than December 31 for the class that begins the following June. All supporting documents must be received no later than January 31st of the matriculation year. Application fees must be included with the application.

Applications postmarked after the deadline will be considered only on a space-available basis. Deadlines are strongly enforced and it is the responsibility of the applicant to ensure that all materials are received by the deadline. Preference will be given to those applicants who have completed all prerequisite courses at the time of application.

Complete applications include:

- Application fee of $40.00
- Completed application
- Letter of intent
- Two (2) Recommendation Forms: one from a current employer and one from a professor of science or math. Both must be completed on program forms (see Application for details)
- Transcripts from all post-secondary institutions attended
- Shadow Day form (8 hours)

All applicants meeting the qualifications specified by that Program will be notified and will be required to participate in a personal interview. The purpose of the interview is to assess the applicant’s communication skills and maturity, and to answer questions the applicant may have concerning the profession, the Program, or the Institution. In addition, at the time of the interview, a basic computer skills assessment will be administered.

This will consist of an assessment of the applicant’s ability to type a short Microsoft Word document and to navigate the Internet. These will be timed exercises that will evaluate the applicant's computer and keyboarding skills and will be used as part of the Selection Criteria.

Acceptance decisions are primarily dependent upon the following factors:
1. Overall educational attainment with completion of required prerequisites and selected GPA from the required prerequisite coursework
2. Interview process
3. TOEFL iBT scores if applicable
In cases where candidates are equally qualified, the respective Program Admissions Committee will make the final selection.

**Transfer Credit Policy**

Applicants must submit course descriptions and transcripts for all courses they wish to transfer. Applicants must have earned a grade of C or above to be considered for transfer credit. Decisions are made by the Program Director and the applicant will be advised of accepted transfer credit.

**Physical Health, Background Checks and Technical Capabilities**

Before the beginning of classes, all students receive a routine physical examination free of charge. Drug testing is performed as part of the pre-enrollment screening. The Johns Hopkins Hospital is a drug free environment and students will not be enrolled if they fail the drug screening.

Consistent with The Johns Hopkins Hospital policy of requiring a criminal background check for all new employees, this requirement will now be extended to all students accepted to the Schools of Medical Imaging. The background check will be initiated by the Hospital and will be conducted by PreCheck, Inc. at a cost of $48.50 per student. This fee will become the responsibility of the student. An acceptable credentialing and background investigation must be received prior to the student beginning their Program.

All students must also meet general physical requirements. These requirements include, at a minimum, the ability to manipulate the various controls on the equipment, the strength to physically assist patients to and from the examination tables, visual acuity adequate to assess image quality on computer displays and patient monitors, and hearing acuity adequate to detect audible patient monitoring devices and to hear instruction and requests made in a normal voice. Students must also possess the emotional stability and maturity to effectively cope in a highly stressful and sometimes emotionally charged medical environment.

**International Applicants**

Applicants with foreign academic degrees are required to take the TOEFL iBT examination within one (1) year prior to the application deadline. The minimum passing score on the Speaking portion of the Internet-based examination is 24 with an overall TOEFL iBT score of 80. These requirements apply, as well, to students whose courses may have been taught in English (in India, Pakistan, the Philippines, Hong Kong, Nigeria, etc.), but whose native language is not English. Original test results are required for all examinations. Copies of test results are unacceptable. The Admissions Committee for each Program will further evaluate the applicant's communication skills and understanding of the English language at the time of their interview.

International applicants must send required documents such as, transcripts, certificates, or other academic degrees, when they send their application. Foreign transcripts must be evaluated by one of the agencies in the United States that performs academic credential evaluations and must document completion of all prerequisite coursework at the United States college or university level.

**Tuition**

Nuclear Medicine Technology Program tuition is $10,000.
Tuition fees are subject to change. Please call the program to confirm current cost.

**Financial Aid**

The Schools of Medical Imaging is recognized as an eligible institution of higher education for purposes of state financial aid programs. These include Maryland State Scholarships but do not include Federal financial aid such as Pell Grants, Stafford Loans, or Veterans Affairs benefits. Students may apply for a low interest loan through The Johns Hopkins Federal Credit Union (JHFCU). The applicant must meet JHFCU loan requirements. The Schools of Medical Imaging do not guarantee loan approval by JHFCU. Specifics about loan policies can be addressed at the time of the applicant's interview or through the school office. All financial arrangements must be resolved before attending the program.
VA Approved Programs

The Nuclear Medicine Technology Program is approved by the Maryland State Approving Agency to offer training to veterans and other eligible dependants under the VA educational benefit programs. The Program will obtain written records on a VA beneficiary’s previous education and experience and complete an evaluation. The Program generally does not grant credit for previous Nuclear Medicine Technology training, and requests for such must be addressed to the program director. The Program will notify the VA of any change in the enrollment status of students certified to receive Veterans educational benefits. This would include when the student is placed on attendance or academic probation, changes in scheduling or termination of training. The Program will maintain grade records which are updated on a semester basis. If the student is on an official leave of absence, and fails to return to training by the end of the leave of absence, a refund due to a student shall be based on the date of withdrawal or termination and paid within 60 days of the scheduled last day of the leave of absence. Uniforms, books, lab fees, application fees and CPR fees are not refundable.

Payment of Tuition

It is the responsibility of the student to have tuition payments in the School office by the date due. Students whose tuition is in arrears will not be allowed to participate in the Program until the tuition is paid. The office does not send out an invoice for tuition.

Students receiving scholarships can defer that part of their tuition that will be covered by the scholarships. The remaining amount of the tuition must be paid by the due date detailed for the particular course of study. Students planning to obtain a loan through The Johns Hopkins Federal Credit Union must submit a minimum payment of $500.00 to the School by the due date. That payment must be accompanied by a letter stating that they will be applying for a loan to cover the balance of their tuition through the Credit Union. If approved by the Credit Union, students are able to borrow money to cover their tuition only. This does not include cost of living or room and board. More details about this process will be made available during orientation week.

Refund Policy

All fees paid by a student shall be refunded if the student chooses not to enroll in or to withdraw from the School within 7 calendar days after having signed a contract. If the student chooses not to enroll after the 7-day cancellation period but before the first day of instruction, the School may retain the application fee. If, after the 7-day cancellation period expires, a student withdraws after instruction begins, refunds shall be based on the total contract price for the course or program and shall include all fees EXCEPT the application or enrollment fee and any charges for materials, supplies, or books which have been purchased from the Hospital by, and are the property of, the student.

Percentages of refunds are based on the proportion of the Total Course or Program taught by the date of withdrawal.

| Less than 10% | 90% refund |
| 10% up to but not including 20% | 80% refund |
| 20% up to but not including 30% | 60% refund |
| 30% up to but not including 40% | 40% refund |
| 40% up to 50% | 20% refund |
| More than 50% | No refund |

A refund due a student shall be based on the date of withdrawal or termination and paid within 60 days from the date of withdrawal or termination. The date of withdrawal or termination is the last date of attendance by the student. If in the case of an official leave of absence, a student fails to return to training by the end of the leave of absence, a refund due a student shall be based on the date of withdrawal or termination and paid within 60 days of the scheduled last day of the leave of absence.

The amount charged a recipient of VA educational funds for tuition, fees and other charges for a portion of the course will not exceed the approximate prorated portion of the total charges for tuition, fees, and other charges that the length of the completed portion of the program bears to the total length. The Program may retain $10.00 for administrative costs.
If the School closes or discontinues a course or Program, the School will refund to each currently enrolled student monies paid by the student for tuition and fees.

**Resources and Services**

There are a number of resources available to the students of the Medical Imaging Programs. Students will be able to utilize them for case studies or technical papers that they will present during their course of study. They include:

- Combined medical imaging facilities of over 120 imaging suites or portable imaging devices
- The Johns Hopkins University, School of Medicine Welch Medical Library
- Research facilities of the Johns Hopkins University School of Medicine, Department of Radiologic Sciences

**Housing**

Accommodations are available for students who wish to live on the medical center campus. The Lowell J. Reed Hall residence has single rooms, suites, and has complete facilities for study and laundry. Charges vary according to the type of accommodation requested. For updated fees you may call the residence hall at 410-955-3905. Meals may be purchased at the Hospital cafeteria. Information for off campus housing is also available through the housing office and on the website: [http://www.hopkinsmedicine.org/housing](http://www.hopkinsmedicine.org/housing)

**Parking /MTA Metro Passes**

Students will have satellite parking available to them during the course of the Program while on rotation at The Johns Hopkins Hospital. There are 2 satellite lots with shuttle service back and forth to the Hospital. The monthly cost for parking is $65.00/month plus a $20.00 deposit. Daily costs are approximately $6.00 a day depending on which lot the student parks in. Free parking is available at other clinical sites. Students may access the Security office website for further information [http://www.hopkinsmedicine.org/security/parking](http://www.hopkinsmedicine.org/security/parking). Daily parking at the Power Plant Live site is approximately $7.00-$9.00 (Early Bird rates). Rates are subject to change. Free street parking is available within five blocks of the Schools main office.

Students will have the opportunity to purchase a daily, weekly or monthly MTA Metro pass through the MTA or the Schools in order to attend classes and meetings that are held off campus at the Schools of Medical Imaging. Depending upon the number of monthly passes sold, the student will be eligible to receive a reduced monthly rate. This pass enables access to bus, light rail and subway services in the city of Baltimore.

**Health Services**

The University Health Clinic provides medical services for students enrolled in the Student Health Plan. Students not enrolled may also be eligible for care, provided they have adequate comprehensive health insurance.

Before the beginning of classes, all students receive a routine physical and screening for immunity to childhood diseases, TB, and Hepatitis A & B. Hepatitis B and yearly influenza vaccines are offered free of charge to all students. It is the student’s responsibility to provide proof of immunization (MMR and Varicella) prior to beginning the Program.

Health insurance is required of all students at The Johns Hopkins Hospital. Students may elect to enroll in the Student Health Plan (SHP) or be covered as a dependent on a family member’s policy. The current individual SHP rate is $306.50 per month. This rate is subject to change. Additional information concerning the SHP will be available upon matriculation.
Baccalaureate Degree Options

The Johns Hopkins Hospital, through the Schools of Medical Imaging, has entered into affiliation agreements with two regional, four-year colleges. Students enrolled at these institutions may now obtain Bachelors of Science degrees in the Radiologic Sciences through this affiliation.

Notre Dame of Maryland University, Baltimore, Maryland

Notre Dame of Maryland University (CND), through the Weekend College, offers a program leading to a degree in Radiologic Sciences. This program is designed to accommodate part-time, weekend and full-time day students who are seeking a BS degree and certification in one or two medical imaging specialties. Students complete their prerequisite coursework at CND and then fulfill their degree requirements by completing two imaging specialties at The Johns Hopkins Hospital. Students may also choose to study only one imaging specialty at The Johns Hopkins Hospital supplemented by a concentration in organizational management or computer systems management.

Approved core imaging disciplines include:
- Radiography
- Nuclear Medicine Technology
- Diagnostic Medical Sonography

Interested applicants should contact the Academic Advisor at Notre Dame of Maryland University for more information.

Bloomsburg University, Bloomsburg, Pennsylvania

Bloomsburg University, located in central Pennsylvania approximately 60 miles north of Harrisburg, offers a BS degree option in Medical Imaging through a special affiliation with The Johns Hopkins Hospital. This program is designed as a full-time program for students interested in pursuing a career in medical imaging and wishing to obtain their general education and prerequisite coursework at Bloomsburg. The typical student completes two years of coursework on campus at Bloomsburg, and then fulfills his or her degree requirements by completing two imaging specialties at The Johns Hopkins Hospital. Students may also choose to study only one imaging specialty at The Johns Hopkins Hospital and supplement that specialty training with an additional concentration at Bloomsburg in either science, management or education.

Approved core imaging disciplines include:
- Radiography
- Nuclear Medicine Technology
- Diagnostic Medical Sonography

Interested applicants should contact the Academic Advisor at Bloomsburg University for more information.

Program in Nuclear Medicine Technology

General Description

The Nuclear Medicine Technology Program at The Johns Hopkins Hospital is a 18-month (79 week), full-time Program leading to certification in nuclear medicine technology and computed tomography. The integrated curriculum is structured to provide both theoretical training in principles of medical imaging and practical hands-on clinical experience. This Program prepares students with a strong background in math, chemistry, and other science for a rewarding career as a nuclear medicine technologist.

The Program takes advantage of the wide-ranging imaging resources available at The Johns Hopkins Hospital. The Division of Nuclear Medicine at The Johns Hopkins Hospital was recently recognized as one of the top diagnostic laboratories in the United States. The student is provided with unparalleled training on state-of-the-art equipment. Students gain competency in routine diagnostic examinations, SPECT/CT and PET/CT imaging, radiopharmacy, in-vitro procedures, and therapeutic applications. Graduates are eligible to take national certification examinations.
To facilitate the most comprehensive clinical education possible, students receive clinical training at The Johns Hopkins Hospital, Johns Hopkins Outpatient Center, Johns Hopkins Bayview Medical Center, Howard County General Hospital, Franklin Square Hospital Center, Saint Agnes Hospital, Sinai Hospital of Baltimore, Union Memorial Hospital, RadNet/American Radiology Services (ARS), and the nuclear pharmacy at Triad Isotopes, Inc.

### Curriculum Outline

<table>
<thead>
<tr>
<th></th>
<th>Lecture</th>
<th>Lab</th>
<th>Clinical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Summer</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NMED 201</td>
<td>83</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>NMED 202</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NMED 207</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NMED 203</td>
<td>18</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NMED 204</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NMED 205</td>
<td>56</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>NMED 206</td>
<td></td>
<td></td>
<td>733</td>
</tr>
<tr>
<td><strong>Winter</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NMED 208</td>
<td></td>
<td></td>
<td>428</td>
</tr>
<tr>
<td>NMED 210</td>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NMED 211</td>
<td>48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NMED 212</td>
<td></td>
<td></td>
<td>364</td>
</tr>
<tr>
<td><strong>Summer</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NMED 213</td>
<td></td>
<td></td>
<td>476</td>
</tr>
<tr>
<td>NMED 301</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NMED 302</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NMED 303</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NMED 304</td>
<td></td>
<td></td>
<td>516</td>
</tr>
<tr>
<td><strong>Total Hours of Instruction</strong></td>
<td><strong>3.024 hours</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Admission Requirements

Individuals must present a strong academic background, especially in math, chemistry and the supporting sciences. They need to demonstrate responsibility, a character of high moral integrity, good interpersonal skills and compassion. Applicants must have a minimum of a two year Associate degree with a minimum prerequisite GPA of 2.5 or be a graduate of a two year clinically related accredited school in Allied Health (RN, RT, RDMS, Respiratory Therapy, etc.) with appropriate certification in that clinical specialty and all prerequisite courses taken. All students accepted into the program must have reached the age of 18 by matriculation.

The following prerequisite courses are required for all applicants and must be completed with a grade of C or better. In addition, the combined grade point average of all prerequisite coursework must average to 2.5 or better.

- Human Anatomy & Physiology I (with laboratory)
- Human Anatomy & Physiology II (with laboratory)
- College Algebra
- College Physics (with laboratory)
- Inorganic Chemistry (with laboratory)
- Medical Terminology – This course must be taken at the college level, for credit.
- Oral Communication (speech)
- Written Communication (English comp)
- Humanities
- Social science

Organic Chemistry and Statistics are highly recommended, but not required.

A documented (8 hours) shadow experience in a Nuclear Medicine facility is required. Fill out the documented Shadow Experience Form found on the website and send it with your application.

All applicants must submit a minimum of two references on Program Forms (see Application for these Forms). Applicants with a degree must request one reference from the professor/instructor of one the prerequisite science courses and one from your current employer. The applicants that are certified in a clinical health care specialty must request a recommendation from the Program Director of your specialty-training course and a recommendation from your current employer.

Also required is a statement of intent, 200 words or less, stating why you chose a career in the health care profession and outline your specific career goals in Nuclear Medicine Technology. At the time of the interview, the candidate will be required to complete a computer competency test consisting of basic word processing skills.

Application

All applications, application fees, supporting documents and transcripts must be postmarked by December 31st for those applicants wishing to enter the Program the following June. Applications postmarked after December 31st will be considered only on a space-available basis. Applicants must know that these deadlines are strongly enforced, and it is the responsibility of the applicant to ensure that all materials are received as stated above. Preference will be given to those applicants who have completed all prerequisite courses at the time of application.

Program Fees and Expenses
*The listed fees and expenses are subject to change. Please call the Program to confirm current costs, dates, and payments.

<table>
<thead>
<tr>
<th>Tuition</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>June 1</td>
<td>$2,500.00*</td>
</tr>
<tr>
<td>October 1</td>
<td>$2,500.00*</td>
</tr>
<tr>
<td>February 1</td>
<td>$2,500.00*</td>
</tr>
<tr>
<td>May 1</td>
<td>$2,500.00*</td>
</tr>
<tr>
<td>Books and supplies</td>
<td>$600.00*</td>
</tr>
<tr>
<td>Laboratory Coats</td>
<td>$75.00*</td>
</tr>
</tbody>
</table>

*The listed fees and expenses are subject to change. Please call the Program to confirm current costs, dates, and payments.
Course Length

Classes begin in June and run continuously through December of the following year. Students are required to be in attendance Monday through Friday. Hours will vary with clinical rotations. Students will not work more than 40 hours per week. Starting hours will range from 6:30 AM to 8:00 AM. No weekends or holidays are required. The Program allows for 12 days of personal and sick time, and all holidays designated by The Johns Hopkins Hospital.

Classroom Instruction

Classes are held weekdays from 8:00 am - 4:30 pm, primarily at the Schools of Medical Imaging. Days and times may vary with each course and/or instructor. Certain classes may be conducted off-site which will require your own transportation.

Clinical Rotation Assignments

Students are expected to be in clinical assignments anytime classes are not scheduled, Monday – Friday, 8am – 4:30pm.

Grading Policy

Passing grade for any didactic course is 75% to continue in and graduate from the program. Passing grade for any clinical rotation is 84% to continue in and graduate from the program. The grading scale for all courses in this program follows:

Grading Scale for All Courses

<table>
<thead>
<tr>
<th>% Score</th>
<th>4.0 scale</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 – 92</td>
<td>3.35 - 4.00</td>
<td>A</td>
</tr>
<tr>
<td>91 – 84</td>
<td>2.70 - 3.30</td>
<td>B</td>
</tr>
<tr>
<td>83 – 75</td>
<td>2.00 - 2.65</td>
<td>C (minimum passing grade)</td>
</tr>
<tr>
<td>74 – 60</td>
<td>1.00 - 1.95</td>
<td>D (not passing, for transcripts only)</td>
</tr>
<tr>
<td>&lt; 60</td>
<td>&lt; 1.00</td>
<td>F</td>
</tr>
</tbody>
</table>

Nuclear Medicine Technology Course Descriptions

NMED 201 Introduction to Medical Imaging – Instructor: Mary McCormick, PhD
This course is an introduction to the clinical aspects of medical imaging in a hospital environment. Emphasis is on the basic orientation to the nuclear medicine division, its function, and basic patient care techniques appropriate to this function. Students will assist with routine nuclear medicine procedures in this course. This course also includes sections on:

CPR/ Orientation
Basic orientation consists of 2 days of mandatory hospital training. It also includes several days of basic orientation: a review of policies and procedures, a hospital tour, history of the hospital and school, introduction to staff, administration, and instructors. In addition all students will complete the required CPR training (American Heart Association – BLS – Healthcare Provider).

Medical Ethics
The purpose of this course is to give the medical imaging student a basic background in ethics, medical-legal issues and ethical decision-making. The field of medical imaging is one where students will be called upon to make decisions that will involve personal and professional ethics and values. This course will be taught as a combination of lecture and class discussion. Student contribution to class discussion is important to this course.

Nursing and Patient Care
Teaches the student basic radiologic nursing and patient care procedures. It emphasizes the importance of Standard Precautions, the proper use of restraints, and the appropriate methods of handling a wide array of patient age groups.
Venipuncture
Competency in venipuncture is accomplished initially by classroom instruction, which includes video, lectures, and practice on a training arm and fellow classmates. Practice continues using a variety of intravenous devices in a laboratory setting throughout the first semester. A final venipuncture competency evaluation will be performed at the end of the semester. Upon completion of the venipuncture competency, students will be permitted to administer radiopharmaceuticals under the direct supervision of our medical, technical and nursing staff. Radiopharmaceutical administration policies vary at affiliate sites.

Introduction to Instrumentation Laboratory
This portion of the course reviews basic equipment including various camera systems and hand controllers within the clinic. It also orients the student to the Hospital’s patient dosing and billing systems.

NMED 202 Radiation Protection – Instructor: Mary McCormick, PhD
This course prepares the student for practical encounters with sources of ionizing radiation usually found in the Nuclear Medicine laboratory. It includes the concepts of maximum permissible radiation dose and concentration of radionuclides in the environment.

NMED 203 Introduction to Nuclear Medicine Procedures – Instructor: Mary McCormick, PhD
This course is designed to provide the student with a basic understanding of the various procedures employed in the practice of laboratory and clinical Nuclear Medicine.

NMED 204 Nuclear Physics And Instrumentation – Instructor: Thomas Beck, Sc.D.
This course is designed to provide the student with a basic understanding of the process and products of radioactive decay, the theory of operation, practical limitations, and selection of radiation detection equipment. The application to problems in Nuclear Medicine is emphasized.

NMED 205 Radiopharmacology – Instructor: Mary McCormick, PhD
This course is designed to provide the student with an understanding of the principles and practice concerned with the use of radiopharmaceuticals.

NMED 206 Clinical Practice I
Practicum that enables the student to learn under close supervision the various procedures employed in the practice of laboratory and clinical Nuclear Medicine.

NMED 207 Radiation Biology – Instructor: Mary McCormick, PhD
This course prepares the student for practical encounters with sources of ionizing radiation usually found in the Nuclear Medicine laboratory. Biological effects of ionizing radiation on man are considered, with emphasis on the variables that affect the response to radiation exposure.

NMED 208 Clinical Practice II
Students learn under progressively diminishing supervision, to execute Nuclear Medicine procedures until capable of satisfactory independent performance.

NMED 210 Advanced Instrumentation - Instructor: Mary McCormick, PhD
This course is a continuation of the instrumentation course that enables the student to learn principles of SPECT, PET, computer applications and image processing.

NMED 211 Clinical Applications of Radionuclides, Instructor: Mary McCormick, PhD
A consideration of the rationale and technical details of the diagnostic tests performed in a Nuclear Medicine clinic. Included are descriptions of the abnormal anatomy and/or physiology that tests are designed to reveal, together with a consideration of the criteria for a technically and diagnostically satisfactory test. This course requires a highly developed research project and presentation.
NMED 212  Clinical Practice III
Extension of Clinical Practice II (NMED 208), providing experience for the student in various areas of laboratory and clinical Nuclear Medicine.

NMED 213  Clinical Practice IV
Extension of Clinical Practice III (NMED 212), providing experience for the student in various areas of laboratory and clinical Nuclear Medicine with the student working independently with staff observing.

NMED 301 – Computed Tomography Principles & Instrumentation, Instructor: TBA, registered CT technologist
This course is a thorough familiarization with the physics, image quality control factors, and equipment implementations of CT. Topics included are: historical development of CT scanners; factors affecting CT resolution and noise; CT reconstruction algorithms and filters; window width and level controls; tissue density issues; image display parameters; and radiation dose issues. Students also study dynamic CT with contrast enhancement, spiral CT, and 3D CT reconstruction. Current generation CT scanning technology is described and the relative advantages of different systems are compared.

NMED 302 – Cross-sectional Anatomy, Instructor: TBA, registered CT technologist
This course is designed as a survey of human anatomy and selected pathology from a regional rather than system perspective. Students will become accustomed to viewing anatomy of regions of the body in the different anatomical planes typically produced in cross-sectional imaging. Special emphasis will be placed upon correlating and recognizing anatomical structures as they appear on medical images produced with CT, MRI, nuclear medicine, and ultrasound. Primary regions of interest include head, thorax, abdomen, and pelvis.

NMED 303 – Computed Tomography Protocols & Applications, Instructor: TBA, registered CT technologist
This course is a survey of routine CT imaging procedures. The content is divided into three units: (1) head, neck and spine, (2) chest and abdomen, and (3) pelvis and extremities. The student also becomes familiar with contrast administration guidelines and timing issues related to dynamic imaging. Spiral CT, 3D reconstruction procedures, and vascular imaging are discussed and compared with routine imaging of the same anatomical regions.

NMED 304 – Clinical Practicum V
This is the clinical component of the training in CT. Students gain hands on experience with different types of imaging equipment and procedures typically performed on that equipment. Students are expected to master the techniques for each category of CT procedures and will be required to demonstrate competency for a range of routine procedures.

Administrative Policies

Attendance Policy

The general policy of the School regarding attendance is that, aside from scheduled holidays or vacations, students are expected to be in class or in their scheduled clinical assignment. The students are given 12 personal days during the program. In the event that a student depletes their bank of personal time, any subsequent time missed (emergency only) up to and including 40 hours must be made up. Every two tardy incidents, either at the beginning of the day or returning late from lunch, will result in the clinic grade being lowered by five (5) percentage points.

Absences on class days are handled at the discretion of the individual course instructors. Missed material must be made up, but the students are not guaranteed the opportunity to take exams or quizzes unless they have made prior arrangements with the relevant instructor.

Inclement Weather Policy

In the event of inclement weather, the Schools of Medical Imaging will remain open. If the student is unable to attend due to inclement weather, the student must use time from their bank of hours. In the event that classes are cancelled, the student is expected to report to their clinical assignment, or use time from their bank of hours.
Leave of Absence Policy

A Leave of Absence (LOA) may be granted due to illness or serious established need. The maximum LOA within the entire length of the Program may not exceed 60 days. The student must submit a written request for consideration of approval of a leave of absence to the Program Director. Final approval of the request rests with the Program Director. A student returning from LOA due to illness must have physician clearance before re-entering the Program and will be expected to resume normal duties and clinical rotations. Student's clinical skills will also be reassessed upon return from LOA, and additional time may be needed to re-establish clinical competency levels. Time lost due to LOA must be made up before the student will be eligible to graduate from the respective Program and before the student is eligible to take the national certification examinations.

Academic and Clinical Progress Requirements

Satisfactory performance in class work and clinical practice and a personal suitability for a medical imaging specialty are required for continuation in the Program. Formal progress reviews are quarterly with the Director and a copy of the report will be given to the student and filed in the Program office. Passing grades in both academic (75%) and clinical (84%) portions of the Program must be maintained to remain in the Program. In addition, poor performance in areas of professionalism relating to patient care, responsibility, attendance, etc. may also be grounds for dismissal from the Program. Three unscheduled absences (no call or leaving early without authorization) will result in dismissal from the Program. Also, multiple incidences of tardiness will result in the lowering of the student's clinical grade that could result in dismissal. A record of attendance and academic achievement is maintained for each student. This record is updated at least quarterly.

A student may be placed on probation at any time during the Program. At the time the student is placed on probation, the student will be given written notice of such probation, behaviors that need to be corrected, and the time frame that such behavior corrections must be accomplished. The possibility for dismissal will be indicated at this time. This document will be discussed and signed at a meeting with the Program Director. Before being removed from probation, the student will have a meeting with the Program Director.

Cause for probation may include, but are not limited to:
- Unsatisfactory clinical or academic grades
- Infraction of major or minor disciplinary policies.
- Unscheduled absence
- Other reasons as deemed appropriate by the Program faculty.

A student will remain on academic probation for the duration of a given semester. Depending upon the circumstances, a student will remain on clinical probation from a minimum of the end of a given semester to a maximum of the duration of the Program. A student is removed from clinical probation at the discretion of the Program Director.

A student may be dismissed from the Program at any time. A student who is being dismissed from the Program has generally been issued a written probation. If the stipulations of the written probation have not been accomplished, the student will be dismissed from the Program. Clinical dismissal is permanent, and does not allow for reapplication to the Program. Instances involving patient safety, academic integrity, ethical issues, or radiation safety, may result in immediate dismissal with no written probation. A student who is being dismissed will receive a written notice and conference with the Program Director. Students who are dismissed for academic reasons may reapply to the Program.

Grievances and Due Process

All students and faculty have the right to appeal administrative decisions made by faculty and staff of the Schools of Medical Imaging. Every attempt should be made to rectify the perceived grievance by a meeting among interested parties. If the perceived grievance is not rectified through a meeting, the formal process of appeal, as detailed in the Student Handbook, includes four levels:

1) A written statement is delivered to the Program Director for review;
2) An appeal, in writing, to the Director, Schools of Medical Imaging;
3) A final appeal, in writing, to designated representatives of the Institution outside of the Radiology Department for resolution. These persons are appointed by the respective Program’s Advisory Committee to arbitrate such matters;

4) The student also has the right to appeal to the Secretary of Higher Education at the Maryland Higher Education Commission.

Students have the right to file an appeal with all affiliated entities, which includes: the Maryland Higher Education Commission, the Joint Review Committee on Educational Programs in Nuclear Medicine Technology, the Nuclear Medicine Technology Certification Board, the American Registry of Radiologic Technologists, and the Maryland State Consumer Protection Office.

Requirements for Graduation

To graduate, students must demonstrate satisfactory completion of didactic course work (minimum grade average of 75%), clinical practicum work (84%), and attendance (cannot miss more than 136 hours with 40 of those being made up prior to the graduation date). Tuition must be paid in installments (June 1, October 1, February 1, and June 1), and must be paid in full prior to the graduation date. If the student has taken out a personal loan through the Johns Hopkins Federal Union for tuition, accrued interest must be paid prior to the graduation date.

Students who successfully complete all core Program requirements will be awarded a certificate and a pin from The Johns Hopkins Hospital.

Student/Graduate Placement Assistance

Students and graduates are not guaranteed job placement during the Program or upon graduation. The Program Director may offer assistance in job placement at any time, which may include; job links, webinars, colleague references, resume skills, or professional web sites.

Right to Change Rules or Program Changes

The Schools of Medical Imaging will continually review and update program policies in accordance with the Joint Review Committee on Educational Programs in Nuclear Medicine Technology and the Maryland Higher Education Commission. The program reserves the right to change administrative policies and other regulations at any time and with notice.

Drug & Alcohol Policy

The Johns Hopkins Hospital is a drug and alcohol free environment and students will be dismissed who are found to be in violation of this Hospital policy.

Disclosure Statement for State Licensure

Students in training programs for occupations requiring state licensing must note that criminal convictions may affect a student’s ability to be licensed.

Release of Student Information Policy

The Family Educational Rights and Privacy Act of 1974 apply to policies governing access to and release of student education records maintained by educational institutions that are recipients of federal funds. The Johns Hopkins Hospital Schools of Medical Imaging complies with this statute, which states in part:

1. Afford students access to education records directly related to them;
2. Offer students an opportunity for a hearing to challenge such records as inaccurate, misleading, or otherwise inappropriate;
3. Receive students’ written consent before releasing information from their education records to persons outside the Hospital, except for directory information as indicated below (information may be furnished to a student's parents without such written consent only upon certification of the student's financial dependency);
4. Comply with a judicial order or lawfully issued subpoena to release a student's record, notifying the student of this action.

**Student Transcripts**

Student achievement is updated quarterly on the transcript for academic, clinical, and attendance. Student transcripts are permanent record of the School. Students are provided with a hard copy of the Official Transcript upon graduation. The authorization to release additional student transcripts must be made in writing. No telephone or faxed requests will be honored. There is an $8.00 fee for transcripts, and requests should be made about a week in advance of when they will be needed. Transcripts will not be released if financial obligations have not been met.

**Application Materials**

Please contact the Program Director to obtain updated application materials and forms. Phone: 410 – 528 – 8299.