Nuclear Medicine Technology

Prospective students should use this checklist (http://www.uab.edu/graduate/images/acrobat/checklist/nuclearmedtech.pdf) to obtain specific admissions requirements on how to apply to the Graduate School.

Degree Offered: M.S.
Program Director: Norman Bolus
Phone: (205) 934-3427
E-mail: bolusn@uab.edu
Website: http://www.uab.edu/shp/cds/nuclear-medicine-technology

Program Information

Program Mission
The UAB Nuclear Medicine Technology Program is dedicated to providing a quality program by offering didactic and clinical coursework in a curriculum that is designed to prepare students to become competent and productive entry level technologists. The program also serves the profession through its offering of continuing education activities and educational products.

Admission Requirements
In addition to the general Graduate School admission requirements, applicants to the M.S. program must:

- Have a BS degree in biology, physics, chemistry, biomedical sciences, bioengineering, or a related degree from an accredited college or university,
- Have a minimum undergraduate GPA of 3.0 (A= 4.0), computed from all undergraduate credits or from the last 60 semester hours of undergraduate course credit,
- Apply for admission to the UAB NMT Program,
- Complete a clinical observation and write a reflection on the observation,
- If foreign-educated, have a score of at least 550 for paper version (or 80 for Internet version; or 213 for computer version) on the TOEFL, submit a transcript evaluation from World Education Services (WES) at www.wes.org (http://www.wes.org)

The completed application and observation form must be on file with the program office by February 15th for a priority interview to be granted. All eligible applicants will be interviewed in March for admission decisions in early April. Eligible late applicants will be considered on a space-available basis during the summer term.

If accepted, students must complete the UAB medical history questionnaire and physical, provide proof of required immunizations, and receive satisfactory screening by the UAB Medical Center Student Health Service before enrollment. A background check and drug screen will be required at program admission and prior to clinical placement. Persons with a Bachelor of Science degree may be eligible to register for courses as non-degree seeking graduate students before acceptance into the M.S. program. If a non-degree seeking graduate student meets the M.S. program admission requirements, up to 12 semester hours of approved non-degree graduate coursework may be accepted for the M.S. degree.

Admission of a student to any course as a non-degree student does not constitute admission to the M.S. degree program.

Essential Functions

Essential functions are physical abilities, mental abilities, skills, attitudes, and behaviors the students must show evidence of to be able perform at each stage of their didactic and clinical education. A list of essential functions is on file in the NMT Program Office and in the NMT Program & Policy Book.

If you have a disability, but have not contacted Disability Support Services (DSS), please call (205) 934-4205 (voice) or (205) 934-4248 (TDD), or visit the DSS offices at 1701 9th Avenue South. Additional information is available at http://www.uab.edu/students/disability/.

Accreditation and Certification
Nuclear Medicine Technology academic programs are accredited by the Joint Review Committee on Nuclear Medicine Technology Programs (JRCNMT). Program graduates are eligible to apply for the certification examination offered by both the Nuclear Medicine Technology Certification Board (NMTCB) or the American Registry of Radiological Technologists (ARRT).

JRCNMT
2000 W. Danforth Road
Suite 130, #203
Edmond, OK 73003
Phone: 405.285.0546
Fax: 405.285.0579
jrcnmt@coxinet.net
http://www.jrcnmt.org/

NMTCB
3558 Habersham at Northlake
Building I
Tucker, GA 30084
Phone: 404.315.1739
Fax: 404.315.6502
board@nmtcb.org
http://www.nmtcb.org/root/default.php

ARRT
1255 Northland Drive
St. Paul, MN 55120
Phone: 651.687.0048
Fax: 651.687.3299
https://www.arrt.org/
Additional Information

Entry Term: Fall Semester
Deadline for All Application Materials to be in the Graduate School Office: Early Admission: February 15th

Entrance Tests: For international applicants from non-English speaking countries, scores for the test of English as a Foreign Language (TOEFL) and the Test of Written English (TWE)

Comments: Scholarship money is available, but is very limited; transcript evaluation by WES is required for applicants with foreign university degrees

Contact Information

For detailed information, contact the Department of Clinical and Diagnostic Sciences, Nuclear Medicine Technology Program, UAB School of Health Professions, SHPB 446, 1705 University Blvd., Birmingham, Alabama 35294-1212.
Telephone 205-934-3209.
E-mail AskCDS@uab.edu

Master of Science in Nuclear Medicine Technology

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS 501 Professional Skills I</td>
<td>0</td>
</tr>
<tr>
<td>CDS 610 Research Design and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>NMT 602 Introduction to Nuclear Medicine, Patient Care &amp; Communication Skills</td>
<td>3</td>
</tr>
<tr>
<td>NMT 610 Medical Radiation Physics</td>
<td>4</td>
</tr>
<tr>
<td>NMT 621 Nuclear Medicine Instrumentation I</td>
<td>4</td>
</tr>
<tr>
<td>NMT 631 Nuclear Medicine Anatomy &amp; Physiology - Procedure I</td>
<td>4</td>
</tr>
<tr>
<td>CDS 502 Professional Skills II</td>
<td>0</td>
</tr>
<tr>
<td>CDS 625 Analysis of Scientific Publications</td>
<td>3</td>
</tr>
<tr>
<td>NMT 623 NMT Instrumentation II</td>
<td>3</td>
</tr>
<tr>
<td>NMT 632 Nuclear Medicine Anatomy &amp; Physiology - Procedures II</td>
<td>4</td>
</tr>
<tr>
<td>NMT 641 Regulations, Radiation Protection/Biology and Lab</td>
<td>4</td>
</tr>
<tr>
<td>Clinical Practice 1</td>
<td>15</td>
</tr>
<tr>
<td>NMT 691 NMT Clinical Practice</td>
<td></td>
</tr>
<tr>
<td>CDS 503 Professional Skills III</td>
<td>1</td>
</tr>
<tr>
<td>CDS 504 Professional Skills IV</td>
<td>1</td>
</tr>
<tr>
<td>HCM 590 Leadership Skills for Health Professionals</td>
<td>3</td>
</tr>
<tr>
<td>NMT 605 Cross-Sectional Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>NMT 622 NMT Instrumentation II</td>
<td>3</td>
</tr>
<tr>
<td>NMT 623 CT Instrumentation</td>
<td>3</td>
</tr>
<tr>
<td>NMT 660 Radiopharmacy, Pharmacology &amp; Lab</td>
<td>3</td>
</tr>
<tr>
<td>NMT 698 Non-Thesis Research</td>
<td>4</td>
</tr>
<tr>
<td>Total Hours</td>
<td>65</td>
</tr>
</tbody>
</table>

1 Varies by term 3, 5, 7 (Spring, Summer, 2nd Fall)

Courses

NMT 601. Introduction to MRI Clinic. 2 Hours.
Overview of patient management, MRI screening and safety procedures, quality assurance procedures and FDA guidelines.

NMT 602. Introduction to Nuclear Medicine, Patient Care & Communication Skills. 3 Hours.
Overview of professional organizations and nuclear medicine; hospital organization; medical terminology; medical records; communication skills, health law and medical ethics; basic patient care theory.
Prerequisites: AHS 350 [Min Grade: C]

NMT 605. Cross-Sectional Anatomy. 3 Hours.
Integration of the knowledge of gross anatomy with the identification and location of structures in cross-sectional images. Computed Tomography (CT), Magnetic Resonance (MR), and Diagnostic Ultrasound (US).
Prerequisites: BY 115 [Min Grade: C] and BY 116 [Min Grade: C]

NMT 610. Medical Radiation Physics. 4 Hours.
Overview of basic medical radiation physics concepts and experiments.
Prerequisites: MA 106 [Min Grade: C] and PH 201 [Min Grade: C] and PH 202 [Min Grade: C]

NMT 621. Nuclear Medicine Instrumentation I. 4 Hours.
Theoretical principles of Computed Tomography (CT); CT instrumentation, data acquisition, data processing, and image quality.

NMT 623. CT Instrumentation. 3 Hours.
Theory and experiments on radiation detection instrumentation; calibration; maintenance standards; practical uses of gaseous detectors, scintillation detectors, and multichannel analyzers; quality assurance testing for nuclear medicine instrumentation including GM detectors, ionization chambers and scintillation detectors.
Prerequisites: MA 180 [Min Grade: C] and PH 201 [Min Grade: C] and PH 202 [Min Grade: C]

NMT 624. Physics/Instrumentation of Nuclear Magnetic Resonance. 3 Hours.
Fundamental physical principles of nuclear magnetic resonance, including structure of atom, concept of resonance, Larmor frequency, gyromagnetic ratio, T1 and T2 and methods of generating magnetic fields.
Prerequisites: PH 201 [Min Grade: C] and PH 202 [Min Grade: C]

Study of the utilization of nuclear medicine procedures including skeletal, respiratory, endocrine, gastrointestinal and genitourinary systems. Anatomy and relevant concepts in physiology are reviewed and applied to each procedure.
Prerequisites: MA 180 [Min Grade: C]

NMT 632. Nuclear Medicine Anatomy & Physiology - Procedures II. 4 Hours.
Study of the utilization of nuclear medicine procedures including nuclear cardiology, oncology, central nervous and hematopoietic systems and applications of position emission tomography. Anatomy and relevant concepts in physiology are reviewed and applied to each procedure.

NMT 633. Computed Tomography Procedures. 3 Hours.
Overview of CT positioning criteria, specific selections, and options in protocols. Understanding concepts in advanced CT including interventional imaging, positron emission tomography and special procedures.
NMT 634. MRI Scanning and Sequence. 3 Hours.
Overview of basic MRI theory; imaging sequences, parameter optimizations, and imaging procedures, flow imaging, and MR spectroscopy.

NMT 641. Regulations, Radiation Protection/Biology and Lab. 4 Hours.
Overview of principles and methods of radiation protection, radiation biology and ionizing radiation regulations.

NMT 660. Radiopharmacy, Pharmacology & Lab. 3 Hours.
Overview of fundamentals of radiopharmacy and experiments including radionuclide generator design, elution and operation, labeling and quality control of Tc-99m labeled compounds, unit dose preparation; radiopharmaceutical design, IND process, MIRD, contrast media and pharmacology.

NMT 675. Special Topics in Nuclear Medicine Technology. 1-4 Hour.
Faculty-led exploration of current topics and issues in nuclear medicine technology.

NMT 691. NMT Clinical Practice. 3-7 Hours.
Directed clinical practice: in vivo procedures; instrumentation quality control; radiopharmacy; applied radiation safety procedures.

NMT 694. Computed Tomography Clinical Practice. 10 Hours.
Directed clinical practice: CT instrumentation quality control; applied application of CT procedures.

NMT 695. MRI Clinical Practice. 10 Hours.
Directed clinical practice: MRI instrumentation quality control; applied application of MRI procedures.

Prerequisites: NMT 602 [Min Grade: C] and NMT 605 [Min Grade: C] and NMT 624 [Min Grade: C] and NMT 634 [Min Grade: C]

NMT 698. Non-Thesis Research. 4 Hours.
Directed research for a non-thesis master's degree project.