STUDENT HANDBOOK

2012 - 2013

UNC HOSPITALS
NUCLEAR MEDICINE TECHNOLOGY
CERTIFICATE PROGRAM

INTRODUCTION

The following general information regarding policies, procedures, regulations and schedules has been prepared for the student entering the Nuclear Medicine Technology Program of the Nuclear Medicine Section, Department of Radiology at UNC Hospitals.

Therefore, you, as the student, need to familiarize yourself with these policies, procedures, etc., ask questions you may need for a better understanding and abide by them to the best of your ability.

UNCH NMT PROGRAM GOALS AND OBJECTIVES

The overall objective of this program is to provide the student with the superior quality technical education necessary for becoming a well-trained, competent, certified Nuclear Medicine Technologist. The following goals and objectives are utilized to meet the overall objective:

- To provide an environment conducive to learning that will enable the student to become competent in their nuclear medicine training.
- To provide the nuclear medicine student technologist with quality educational experiences both academically and clinically.
- To strive to maintain departmental radiation, employee, and patient safety at all times.
- To constantly demonstrate outstanding patient care techniques.
- To provide continuous upgrades to the curriculum as clinical changes occur.
- Encourage students, staff, and faculty to participate in professional organizations and continuing education activities.

Certificate Program
in
Nuclear Medicine Technology and Molecular Imaging
UNC Hospitals
University of North Carolina at Chapel Hill
2012 - 2013

Nuclear Medicine is the medical specialty that utilizes the nuclear properties of radioactive nuclides to make diagnostic evaluations of the anatomic and/or physiologic conditions of the body, and to provide therapy with unsealed radioactive sources. The skills of the nuclear medicine technologist complement those of the nuclear medicine physician and of other professionals in the field. (from "Essentials").

The University of North Carolina Hospitals through the Nuclear Medicine Section of Radiology sponsors a twelve-month program in Nuclear Medicine Technology.

The Joint Review Committee on Education Programs in Nuclear Medicine Technology accredits the program. Graduates are awarded a Certificate in Nuclear Medicine Technology by the University of North Carolina Hospitals and are eligible for national certification by The American Registry of Radiologic Technologists in nuclear medicine technology and/or by The Nuclear Medicine Technology Certification Board.

ADMISSION REQUIREMENTS

Students of all backgrounds are equally welcome to the program irrespective of race, sex, or national origin. Members of the program faculty are glad to discuss career opportunities and related matters in nuclear medicine technology with all interested students.
Eligibility Requirements

In order to be eligible for admission into the UNC Hospitals School of Nuclear Medicine Technology and Molecular Imaging, you must meet the following requirements:

1) Possess the minimum of an associate's degree from an institution accredited by one of the six major accrediting bodies in the United States as approved by the U.S. Department of Education.
2) Have completed the following post-secondary prerequisite courses:
   Chemistry with Laboratory, College Algebra, General Physics, Human Anatomy and Physiology with Laboratory, At least one humanities course, Medical Terminology, Oral and Written Communication, At least one social science course

AND

Candidates for admission consideration must qualify in one (1) of the following categories:

1) Registered Radiographer (ARRT).
2) Graduate of an accredited program in radiologic science with certification eligibility.
3) Possess an earned baccalaureate degree in a natural or physical science. Earned degree must be from an accredited college or university within the United States.
4) Registered Nurse.

How to Apply

Application forms are available on request from Greg Beavers, Program Director, UNCH School of Nuclear Medicine Technology, Radiology Administration, 101 Manning Drive, Chapel Hill, N.C., 27599. Completed applications must be submitted no later than **MARCH 1** preceding fall (August) enrollment. Specific information required for a complete application includes:

1) Official transcript from high school (if less than ten (10) years since graduation).

2) Official transcripts of **all** academic work, college or other academic institutions attended.

3) As appropriate, official transcripts from Radiologic Science Program attended.

4) Three personal references using UNCH NMT Program official reference forms.

5) Additional information as requested by program admissions.

A personal interview and visit to the Nuclear Medicine facility is normally a required part of the application process. April 1 will be our target date for returning admissions committee decisions.

A maximum of ten students may be admitted into the program each year. This may vary, as program needs change. Orientation will take place usually during the last week of August and classes and clinical will begin immediately following.

Student Fees and Expenses

The UNC Hospitals Nuclear Medicine Technology Program is fully supported by the UNC Hospitals and does not require students to pay tuition.

Students will be required to purchase books, pay for SNM (Society of Nuclear Medicine) membership if required and to register for the ARRT and NMTCB Certification tests at the end of the program. Any other miscellaneous supplies will be the responsibility of the student. Scrub uniforms for the clinical area will be the responsibility of the student. The student is also responsible for his or her own health insurance.

UNC Hospitals reserves the right to change fees without prior notice.

Professional Liability Insurance coverage is taken care of by a group policy through the UNC Hospital.

NUCLEAR MEDICINE TECHNOLOGY COURSE SEQUENCE

FALL SEMESTER (AUGUST – DECEMBER)

Course #		Lecture Hours/Week	Lab Hours/Week
NMT 320	Nuclear Physics & Instrumentation 1	2.0	0.0
NMT 322	Clinical Mathematical Applications	2.0	0.0
NMT 330	Clinical Nuclear Medicine Technology	4.0	0.0
NMT 337	Cardiovascular Nuclear Medicine	2.0	0.0
NMT 340	Practicum in Nuclear Medicine Technology I	0.0	22.0
NMT 343	Sectional Anatomy I	1.0	0.0
NMT 350	Nuclear Medicine Conference I	2.0	0.0

SPRING SEMESTER (JANUARY – APRIL)

NMT 321	Nuclear Physics and Instrumentation II	2.0	0.0
NMT 321L	Nuclear Physics and Instrumentation Lab	2.0 hours per week for 16 weeks*	
NMT 331	Seminars in Nuclear Medicine Technology I	4.0	0.0**
NMT 335	Radiobiology & Radiation Protection	3.0	0.0
NMT 334	Radiopharmaceuticals	3.0	0.0
NMT 341	Practicum in Nuclear Medicine Technology II	0.0	22.0
NMT 344	Sectional Anatomy II	1.0	0.0
NMT 351	Nuclear Medicine Conference II	2.0	0.0

SUMMER SESSIONS I AND II (MAY – AUGUST)

NMT 332	Seminars in Nuclear Medicine Technology II (Comprehensive Registry Review)	28.0 hours total
NMT 342	Internship in Nuclear Medicine Technology	35.0 hours per week for 14 weeks

*** Lab experiments can be completed during the summer internship.**

**** Research projects/papers are completed during the Spring Semester and Summer Session I and can be presented during summer session II.**

CURRICULUM

COURSE AND NUMBER	TITLE AND DESCRIPTION
NMT 320 AND 321	**NUCLEAR PHYSICS AND INSTRUMENTATION I AND II** **A discussion of the basics of nuclear physics and the instrumentation used to detect the presence of radioactivity in the nuclear medicine setting.** **FALL AND SPRING (2.0 hours per week)**
NMT 321L	**NUCLEAR PHYSICS AND INSTRUMENTATION LAB** **A series of instrumentation experiments will be completed during the spring semester and summer sessions I and II and turned in for grading at the end of summer session II.** **SUMMER SESSIONS I AND II (2.0 hours per week)**
NMT 322	**CLINICAL MATHEMATICAL APPLICATIONS** **An introduction to the mathematical concepts utilized daily in the nuclear medicine clinical setting.** **FALL (2.0 hours per week)**
NMT 330	**CLINICAL NUCLEAR MEDICINE TECHNOLOGY** **An introduction to nuclear medicine technology including discussion of general imaging procedures, In Vivo lab procedures and therapeutic doses of radionuclides. Anatomy, physiology, metabolism, and pathology as related to each procedure is discussed and correlated to pertinent findings.** **FALL (4.0 hours per week)**
NMT 331	**SEMINARS IN NUCLEAR MEDICINE TECHNOLOGY I** **A continuation of NMT 330, Seminars in NMT I will continue to present the theory and application of procedures and techniques in nuclear medicine.** **SPRING (4.0 hours per week)**
NMT 332	**SEMINARS IN NUCLEAR MEDICINE TECHNOLGY II** **Prerequisite, completion of entire NMT curriculum. Final reviews to aid the student technologist in the preparation for taking the national certifying exams or registry. (Research presentation swill be made from work completed during the spring semester and summer sessions.)** **SUMMER SESSION II (37 hours)**
NMT 334	**RADIOPHARMACEUTICALS** **A study of the physical, chemical and biological characteristics of radiopharmaceutical dosage forms. Rules and regulations governing the possession and human use of these agents will be discussed. Mathematical calculations are stressed.** **SPRING (3.0 hours per week)**
NMT 335	**RADIOBIOLOGY AND RADIATION PROTECTION** **Discussion of the principles and practices of radiobiology and radiation protection as they relate to the field of Nuclear Medicine Technology.** **SPRING (3.0 hours per week)**

COURSE AND NUMBER	TITLE AND DESCRIPTION
NMT 337	**CARDIOVASCULAR NUCLEAR MEDICINE** **The course is an in-depth discussion of the patient, terminology, anatomy, physiology, pathology and procedures necessary for the acquisition and analysis of quality cardiovascular nuclear medicine studies.** **FALL (2.0 hours per week)**
NMT 340	**PRACTICUM IN NUCLEAR MEDICINE TECHNOLOGY I** **Observation, performance, and technical evaluation of diagnostic procedures using radionuclides in the clinical laboratory. Students acquire clinical skills under the direct supervision of a radiologist and certified nuclear medicine technologist.** **FALL (24.0 hours per week)**
NMT 341	**PRACTICUM IN NUCLEAR MEDICINE TECHNOLOGY II** **A continuation of NMT 340. The student is expected to exhibit initiative in the performance of procedures. An investigational project is required.** **SPRING (24.0 hours per week)**
NMT 342	**INTERNSHIP IN NUCLEAR MEDICINE TECHNOLOGY** **Prerequisite, completion of all required course work and clinical practicum in general, cardiac and PET nuclear medicine. The remainder of the time is devoted to improving clinical skills at the UNC Clinical Facility as well as nearby affiliates (if applicable). Under general supervision of the Nuclear Medicine staff technologists, the student will have increased responsibility in procedural performance and evaluation as well as overall departmental management.** **SUMMER SESSIONS I AND II (37.5 hours per week)**
NMT 343	**SECTIONAL ANATOMY 1** **This independent course allows the student to study Human Sectional Anatomy and provides the student with an introduction to basic anatomic structures and pathologies, as viewed through medical imaging. All sectional anatomy is presented using CT, MRI, and PET imaging. Proctored examinations will be given at regular intervals throughout the semester.** **FALL (1.5 hours per week)**
NMT 344	**SECTIONAL ANATOMY II** **This independent course allows the student to study Human Sectional Anatomy and provides the student with an introduction to basic anatomic structures and pathologies, as viewed through medical imaging. All sectional anatomy is presented using CT, MRI, and PET imaging. Proctored examinations will be given at regular intervals throughout the semester.** **SPRING (1.5 hours per week)**
NMT 350 AND 351	**NUCLEAR MEDICINE CONFERENCE I AND II** **This course provides discussion of nuclear images with emphasis on interpretation and correlation between image quality and technique. Review of current literature and presentation of journal articles to classmates, assures that the student will stay abreast of the ever evident changes occurring in the field. Spring semester will be a continuation of fall semester.** **FALL AND SPRING (2.0 hours per week)**

FACULTY & STAFF

William H. McCartney, MD, *Professor and Director, Division of Imaging and Medical Director of Nuclear Medicine Technology Program.*

Amir Khandani, MD, *Professor of Radiology (Attending Nuclear Medicine Physician)*

Arif Sheikh, MD, *Assistant Professor of Radiology (Attending Nuclear Medicine Physician)*

Richard J. Kowalsky, PharmD., *Associate Professor of Pharmacy/Radiology(radiopharmacist)*

Marijana Ivanovic, PhD, *Assistant Professor of Radiology, Nuclear Physicists. Adjunct Professor, Department of Biomedical Engineering*

Gregory S. Beavers, Ph.D., MBA, CNMT, RT(N) *Nuclear Medicine Technology Program Director.*

Joshua Etten, CNMT, **RT (N) (CT)** *Nuclear Medicine Technology Program Assistant Director*

Rick Lonon, MS *Computer Systems Analyst, Computer instruction.*

Jesse Thomas, RVT *Radiology Imaging Manager.*

Carol Adams, CNMT, RT (R)(CT),*Clinical Instructor, Nuclear Medicine Technology Program*

Allen Chau, CNMT, RT (R), *Clinical Instructor, Nuclear Medicine Technology Program.*

Heather Collins, CNMT, RT (R)(N), *Clinical Instructor, Nuclear Medicine Technology Program.*

Keli Drogos, CNMT, RT (R)(N),*Clinical Instructor, Nuclear Medicine Technology Program*

Art Ferguson, BSNMT, CNMT, *Clinical Instructor, Nuclear Medicine Technology Program.*

Staci Hengsterman, CNMT, RT (R)(N), *Clinical Instructor, Nuclear Medicine Technology Program.(PET)*

Cynthia Janice, CNMT, RT (R), *Clinical Instructor, Nuclear Medicine Technology Program*

Shiela Kuzmiak, CNMT, RT (R)(CT)(MR),*Clinical Instructor, Nuclear Medicine Technology Program*

Lisa Laws, CNMT, *Clinical Instructor, Nuclear Medicine Technology Program.*

Brian McLamb, CNMT, RT (R), *Clinical Instructor, Nuclear Medicine Technology Program*

Ernestina Morrisey, CNMT, RT (R)(N), *Clinical Instructor, Nuclear Medicine Technology Program*

Christine Quaranto, CNMT, RT (N), *Clinical Instructor, Nuclear Medicine Technology Program*

Krista Sherrell, CNMT, RT (N), *Clinical Instructor, Nuclear Medicine Technology Program*

Marionette Talbert, CNMT, *Clinical Instructor, Nuclear Medicine Technology Program.*

Ann Whitlow, CNMT, *Clinical Instructor, Nuclear Medicine Technology Program*

Nuclear Medicine Section: Staff and Facilities

The Nuclear Medicine Section is located in the basement of the Women's and Children's Hospital. The primary classroom, WHBO 121, is just down the hallway beyond the main patient check-in area. Students will train clinically, primarily in the Nuclear Medicine Section and the PET facility during the Fall and Spring Semesters. An internship to include increased clinical responsibilities is planned for the summer sessions I & II as well as a comprehensive review and research presentation.

Students are invited and encouraged to attend as many divisional functions as possible, such as Annual Christmas Party or other happenings.

Procedure and policy manuals are posted within the Division in their respective areas. All schedules, meeting fliers, memos, etc., are posted either on the bulletin boards located in the large central hallway, the cardiac room, just outside the lounge or on the refrigerator door.

All problems relating to the Division should be taken directly to the Program Director, Gregory S. Beavers.

Equipment

The Nuclear Medicine section is primarily equipped with the following types of equipment:

Siemens Gamma Cameras	**Cardiac equipment needs**
1. Single & Dual Head Detectors	1. Treadmill
2. Rectangular detectors	2. EKG equipment
3. 90 & 180 degree detectors	3. Gating devices
4. Coincidence capable camera	4. Blood pressure & pulse oximetry equipment
5. Siemens PET/CT Scanners	5. Stress pharmaceutical pump and IV pump
6. Siemens SPECT/CT Scanner	
Radiopharmacy equipment	**Miscellaneous equipment**
1. Radioisotope dose calibrator	1. Thyroid uptake probe & scaler
2. Laminar flow hood	2. Well counter & scaler
3. Centrifuges	3. Image formatters
4. Lab radiation monitor	4. Computers
5. GM type survey meter	5. Radiographic film processor
6. Multichannel analyzer	6. Lung ventilation system
7. Calculators	7. Instrumentation phantoms
8. Single and Multi-Channel PHA's	8. Others
9. Liquid Scintillation Counter	

Clerical Staff

Alexis Hawkins

Nursing Staff

Kate Little, RN Lead Nurse

NMT Student Technologists (Class of 2013)

Amanda Boydston
Amber Gilliland
Jessica Good
Karlie Grooms
Zeeshan Moin
Erastus Nganga
Michelle Ray
Angelina Toro
Courtney Webb

NUCLEAR MEDICINE TECHNOLOGY STUDENT - POLICIES AND PROCEDURES

Evaluations and Grading System

The University of North Carolina Hospitals School of Nuclear Medicine Technology and Molecular Imaging utilizes the following grading scale:

A	90- 100
B	80 - 89
C	70 - 79
D	60 - 69
F	59 or below

Any student making a "D" in any course will be placed on academic probation. To remove that probationary status, the student must earn a minimum of a "C" on all courses the following semester. Failure to achieve a "C" in each course the following semester will result in automatic dismissal from the NMT Program. Grades are converted to a 4.0 scale for the purpose of standardization on the final transcript. **You must make a 2.0 or higher to graduate from the program.**

Dismissal

Students are on general probation throughout the entire course of the program. If at any time during the course, the student's academic or clinical performance is considered inadequate by the Program Director in collaboration with the Advisory Committee, he/she may be put on formal probation. If after a reasonable length of time to be determined by the Program Director in conjunction with the Advisory Committee, the student's performance has not improved, he/she will be dismissed. Everything will be accomplished in writing after verbal communication.

A student may be judged unacceptable for continuation in the program when he/she has repeatedly displayed lack of professionalism with respect to patients, other students, technologists or faculty. This program reserves the right to dismiss a student from the program when the student does not, in its judgment, demonstrate sufficient promise to justify his/her continuation of study in the Nuclear Medicine Technology Curriculum regardless of his/her grades.

Any student who does not meet the attendance requirements for any class or clinical rotation without prior approval from the Program Director will be dismissed from the program.

The UNC Hospitals Nuclear Medicine Technology Program reserves the right to change the policies and procedures governing the operation of the Nuclear Medicine Technology Program without prior notification.

Any student entering the Nuclear Medicine Technology Program as a Radiologic Science graduate, who has not yet taken the ARRT examination in Radiography, must do so and make a passing score no later than October following admission. Failure to become a Certified Radiographer prior to the end of the 1st semester results in automatic dismissal from the Nuclear Medicine Technology Program.

Right to Appeal

A student may appeal any course grade, probation, dismissal or other action regarding these policies and procedures. He/she must do so in writing to the Program Director within 10 calendar days of notification.

A student, whose protest has been denied by the Program Director, has the right to appeal in writing to the Medical Director of the Nuclear Medicine Technology Program, William H. McCartney, MD.

In the event the Medical Director is part of the dismissal process, the student may appeal to Dr. Robert Adams of the Radiation Therapy School. Dr. Adams will hear from both parties and his decision will be final.

Policy and procedure acceptance is assumed at registration. The Program Director in conjunction with the Advisory Committee reserves the right to change these policies at such time that it is deemed necessary for the best interest of the students and the program.

Withdrawal from the Program

If for any reason a student wishes to withdraw from the program, he/she should do so in writing to the Program Director, stating date of withdrawal and reason(s).

Student fees assessed prior to withdrawal are not refundable.

Readmission Policy

Any student who withdraws from the program and wishes to re-enter must re-apply and be judged under the same criteria as a new applicant. The program must be completed in its entirety with no credit given for prior courses. The program is more than just the sum of its parts and must be completed in the proper series for greatest effect. Special cases will be considered at the discretion of the Program Director.

Confidentiality and Professionalism

Confidentiality in regards to all patients' diagnoses, treatment, and records must be maintained at all times.

The Radiologic Science Code of Ethics is the model by which each Nuclear Medicine Technology student is expected to conduct himself professionally at all times.

The new HIPPA regulations regarding confidentiality are in effect and must be followed by students at all times. Any breach of HIPPA regulations will result in immediate dismissal from the program.

Employment Situations

Students are not allowed to work as a nuclear medicine technologist while enrolled in the program. Any student found to be working as a nuclear medicine technologist prior to program completion will be immediately dismissed from the program and therefore not eligible for certification.

Agreement to Adhere to the Nuclear Medicine Technology Policies and Procedures

Acceptance of these policies and procedures is assumed with registration. The school reserves the right to change these regulations when, in its judgment, changes are in the best interest of the students and the program. Students will receive written notification of any addenda or changes to these policies and procedures.

Student Records

Any student that would like to have the faculty provide verbal or written recommendations must provide written and signed permission releasing your records to be used when developing the recommendation.

Policy on Illegal Drugs

Students, faculty members, administrators, and other employees of the UNC Hospitals are responsible, as citizens, for knowing about and complying with the provisions of North Carolina law that make it a crime to possess, sell, deliver, or manufacture those drugs designated collectively as "controlled substances" in Article 5 of Chapter 90 of the North Carolina General Statues. Any member of the hospital community who violates that law is subject to both prosecution and punishment by the civil authorities and to disciplinary proceedings by UNC Hospitals. Disciplinary proceedings against a student, faculty member, administrator, or other employee will be initiated when the alleged conduct is deemed to affect the interests of the hospital.

Penalties will be imposed for violation of the policies of UNC Hospitals only in accordance with procedural safeguards applicable to disciplinary actions against students, faculty members, administrators and employees. The penalties that may be imposed range from written warnings with probationary status to expulsions from enrollment and discharges from employment.

Every student, faculty member, administrator, and employee of the hospital is responsible for being familiar with and complying with the terms of the policy on illegal drugs adopted by the Board of Trustees. Copies of the full text of that policy are available from the Radiology Administration Office.

Class Schedule and Attendance

The attendance policy for the program requires each student to attend 90.0% of the total number of hours for each class per semester or session. Any un-excused absence or tardiness must be reported to the Program Director as soon as possible and before a clinical shift starts. Arrangements for contacting the Program Director or instructor for a particular class will be discussed at the beginning of each class. Any absences that would exceed the 90.0% rule must have written approval from the Program Director or the Instructor for the particular class.

Tardiness is a poor reflection on the student. It is important to be present on time for class and clinical. Three tardies will be tolerated per class per semester or session, not to exceed thirty minutes. The fourth tardy will result in a verbal warning, the fifth a written warning and the sixth will result in dismissal from the program. If you arrive more than thirty minutes late for a class or clinical rotation, you will be considered absent.

Clinical Evaluations

Clinical evaluations will be made at the end of each rotation by the technologist to whom the student is assigned in the clinic and by the Program Director.

Wearing Apparel & Appearance

Appropriate good taste, fashion, good grooming, safety and consideration for others should govern the appearance of all employees and students regardless of the type of clothing their jobs require. Attractiveness, neatness and cleanliness are evidence of concern for our patients, their families, the public and each other.

1. In the Nuclear Medicine Section, you must wear black scrub suits. Lab coats must be worn anytime you are preparing, handling, transporting, or injecting radioactive material.
2. Comfortable shoes should be worn. Athletic shoes are acceptable. Shoes should be all or mostly black, have a leather toe section, and have a non-scuffing bottom. Most tennis and running shoes are acceptable as long as the main or primary color is black.
3. Open styled sandals are not allowed for safety reasons.
4. Do not wear any kind of denim.
5. Wear nametags (name displayed) and dosimetry badges at all times (Changed out at the beginning of each month). Nametag and dosimetry badge must be worn above the xyphoid process.
6. Always strive to look your best, while at the same time maintaining utmost comfort.
7. No tattoos or other body decorations should be visible. Facial jewelry and tongue piercings must be removed prior to entering the clinical area and no more than two earrings per ear shall be worn, and earrings should be small enough that a patient could not grab them and put the student at risk.
8. Lanyards and long neck chains should not be worn in the clinical area.
9. Hair should be tied back and not allowed to fall down into the face.

Honor Code

Lying, c**heating** and **stealing** are the three major classifications of Honor Code violation. Any violation of the Honor Code may result in dismissal from the program. Be Honest.

Telephone Etiquette

Personality can be reflected over the telephone as easily as in face-to-face conversations. Correct telephone habits aid in making good impressions for the nuclear section. Calls should be answered promptly before the third ring. Identify the area as "Nuclear Medicine, Ms. Smith speaking. May I help you?" Don't leave the callers hanging on the telephone for a long period of time; offer to take a message. If holding is unavoidable, tell the caller to wait just a minute longer.

A message should be taken for calls of employees that are not in the area. The telephone message should include:

1. Name of caller
2. Business affiliation of caller
3. Telephone number of caller
4. Date and time of call
5. All pertinent information so that the person for whom the call was intended will know what action to take or what to expect when returning the call.
6. Your initials on message

Safety Rules and Regulations

It is up to each individual person involved to keep the area in which he/she works safe for himself as well as his/her patient. Observing safe practices daily and reporting unsafe situations to supervisory personnel can easily do this.

The following safety rules and regulations are intended to assist nuclear personnel in performing their divisional responsibilities in the safest and most productive manner.

A. Patient Safety.

1. The patient being imaged. All instrumentation should be in proper working order. Quality control and electrical checks should be performed before imaging procedures each day. Cameras should be operating, checked for correct collimation, movement, etc. Radiation producing and measuring instruments should be monitored and calibrated accurately.

2. Between Studies and when the patient must wait. Side rails must be up on the patient's stretcher. Use seat belts for patients being transported in wheelchairs.

3. Patient Identification: Always check the patient's wristband or medical identification card for correct name and medical record number before starting intravenous lines or injecting radiopharmaceuticals. All patients must be identified by two methods, such as date of birth, name, medical record number, etc. Refer to LMS for specific training.

4. Insertion of Intravenous Catheters: Students may only start intravenous lines under the DIRECT supervision of a nuclear medicine technologist or physician until they have been deemed competent by the nuclear medicine technology program director. At this point, the student is allowed to start an intravenous catheter without direct supervision. However, at no point during the program is the student allowed to inject any medication or radiopharmaceutical (other than normal saline) without DIRECT supervision by a nuclear medicine technologist or physician.

5. Preparation of Radiopharmaceutical: Students may only prepare, draw, transport, and inject radiopharmaceuticals under the DIRECT supervision of a nuclear medicine technologist or physician. The technologist must identify the radiopharmaceutical vial prior to the student accessing the vial. In the event the technologist does not identify the radiopharmaceutical prior to dose preparation, the dose should be discarded and a new dose prepared. With radiopharmaceutical dosages, confirm correct isotope and amount with dose calibrator. If the patient is an in-patient, the student and technologist must confirm the order for the procedure prior to beginning.

6. Injection of Radiopharmaceuticals: Students may only deliver a radiopharmaceutical to a patient, via any means (oral, IV, etc.) under the DIRECT supervision of a nuclear medicine technologist or physician. The supervising technologist or physician takes complete responsibility for the delivery of the radiopharmaceutical.

7. Infants. Infants are to be watched at all times - do not leave an infant or a small child unattended under any circumstances. One can expect an infant or child to present injection problems, so arrange for nursing to start an intravenous line prior to performing the procedure if necessary.

8. Intensive Care Patients. A nurse or physician must accompany the intensive care patient. Know the history and condition of the patient, whenever possible. These patients require special attention, so have instrumentation, pharmaceuticals and scanning area ready when the patient arrives, to decrease the time the patient is in the department. Place the emergency medical cart in the area if the patient's condition becomes critical. Have oxygen, blood pressure cuffs and tongue blades available upon request.

B. *Personnel Safety*

1. Radiation workers should wear dosimetry badges at all times.

2. Lab coats or jackets should be worn in case of biohazard exposure from patients and accidental radiation spills.

3. Wear gloves, masks and gowns when handling patients in isolation, i.e. hepatitis, TB, meningitis, etc.

4. Wash hands before and after contact with each patient and frequently during the day.

5. No food or drink is permitted in the Nuclear Medicine Scanning Area or the Radiopharmacy, so as to eliminate ingestion of radioactive materials.

6. Perform quality control checks and calibrations to verify equipment is in safe operating condition. When moving patients from bed to stretcher or vice versa, use draw sheet to eliminate injury to yourself and the patient and always get help.

7. Radiopharmaceutical injections should be performed with proper techniques, such as wearing gloves, using syringe shields and correct patient identification.

8. When helping patients from wheelchair, lock the wheelchair and spread your feet slightly to help maintain your balance when shifting or moving the patient.

9. Follow Standard Blood and Body Fluid Precautions at all times.

10. Students must review and initial dosimetry reports as they are posted each month.

C. ***Physical Requirements***

1. The physical activity of this position requires the student be able to: climb, push, talk, stand, hear, walk, reach, grasp, kneel, feel, balance, pull, stoop, lift, use fingers, crawl, crouch, and perform repetitive motion.

2. The physical requirements of this position require the student be able to perform heavy work involving the exertion of up to 100 lbs. of force occasionally and/or 50 lbs. of force frequently.

3. The visual requirements, including color, depth perception, and field of vision are that the student's visual acuity is required to determine the accuracy, neatness, and thoroughness of the work assigned (i.e., custodial, food services, general labor, etc.) or to make general observations of facilities or structures (i.e., security guard, inspection, etc.).

4. the conditions to which the student will be subject in this position include, but are not limited to:

    a. Inside environmental conditions: protection from weather conditions, but not necessarily from temperature changes.

    b. Hazards: includes physical conditions such as proximity to moving parts, moving vehicles, electrical current, working in scaffolding or high places, exposure to high heat or exposure to chemicals.

    c. He or she will be required to wear a respirator.

    d. He or she may be exposed to infectious diseases.

    e. He or she will have to interact with prisoners and mental patients.

Health Program

The Nuclear Medicine Technology Student is required to provide his/her own health insurance throughout the entire program. Proof of personal health insurance coverage will be required.

All immunization records should be forwarded to the Program Director at the time of Orientation.

Health Status

A student whose physical well-being becomes impaired due to serious illness or whose health condition changes significantly (including pregnancy) must report the fact to the Program Director immediately upon confirmation.

In the instance of serious illness or injury, permission to continue in the program is contingent upon: (a) a written statement from a qualified physician confirming the student's ability to continue clinical and didactic studies. Such a statement may be required as often as may be deemed appropriate and reasonable by the Program Director and (b) in the judgment of the clinical education responsibilities without hazard to patients, self and others. The student may not miss more time than can reasonably be made up during the same program year as they were enrolled.

All UNCH NMT students will be required to have proof that they have health insurance coverage.

Accidents or Injuries During Clinical Assignments

All accidents, injuries or hazardous incidents in which the student is personally involved, **must** be reported as soon as possible to the Program Director.

If the incident involves the student and a patient, the supervising technologist must complete a formal UNC Hospitals incident report.

If the incident involves injury directly to the student, the student should seek immediate care from the acute facility of their choice. The student will be responsible for all charges involved and related to the incident. This includes needle sticks and any other clinic exposure related health problems.

Nuclear Medicine Pregnant Student Policy

The student should notify the Program Director as soon as a pregnancy is confirmed. At that point the Director will follow the "UNC Hospitals Employee-Fetal Dose Policy for Persons Occupationally Exposed to Ionizing Radiations Procedure" (See appendix III). Throughout the document, Employee should be replaced by student and supervisor by Program Director. If any student has questions regarding the policy, she should direct them to the Program Director. Provisions will be made so that the pregnant student will not be assigned to the Radiopharmacy and will not be expected to administer diagnostic or therapeutic radiopharmaceuticals. However, prior to program completion and graduation, all clinical education requirements must be met.

Transportation and Parking

Parking is a constant problem at the hospital and may inconvenience you on occasion.

The town of Chapel Hill has a bus service, running scheduled routes to and from the hospital at no expense to the student.

Housing

It is the personal responsibility of each student to provide his/her own housing.

Permitted Leave Time

The Program Director must approve all leave.

If leave time is required for whatever reason, the student should discuss leave with the Program Director and schedule time to make up any missed work or clinical time.

Leave Time Allowed

Each student is granted (5) days personal leave per twelve-month period.
Leave time should only be used when there are no scheduled classes.

Each student will clock-in and out on the Radiopharmacy computer upon arrival and departure into the clinical area. Failure to clock-in or out will be considered as a tardy even if you arrive on time. If you realize you forgot to clock in or out, you should notify the Program Director immediately. Each student will be assigned a unique number for using the time clock. Vacation must be approved by the Program Director at least one day prior. A student must call in prior to their scheduled clinic time if they are going to be out (sick or otherwise).

Holidays

10 or 12 holidays (2 of which are floating holidays) are given to each student each year. Floating holidays can either be taken on the holiday or forfeited to make up for lost time only if the clinic is open during the holiday.

*All class or clinic work missed must be made up, prior to program completion. Clinical make-up time is not a normal part of the program, and will only be considered on a case-by-case basis by the Program Director.

Financial Aid

There is no financial aid available from the hospital, because no tuition is charged. The student should look outside of the hospital system for any financial aid they may require for fees or other living expenses.

Standards of Professional Performance

It is important that students learn the value of proper professional conduct as well as clinical competence. A professional realizes the value of having proper dress, being on time, and dealing with patients and staff in a courteous, professional manner. Therefore, these standards are designed to guide the students toward attaining a sense of professionalism. In actual practice, violation of some of these standards could result in legal complications. A list of violations of performance and their corrective actions are provided below. **The suspension days will be subtracted from your vacation days.** Any student receiving a corrective action will be placed on clinical probation. The student may continue clinical practice while under probation status. The probation period will last at least until the end of the following semester. Any student exceeding the five (5) allowed leave days will immediately be dismissed from the Nuclear Medicine Technology Program.

At the end of the probation period, the student must request in writing to the Program Director to have the probation status removed. Removal of probation will be based on the following two criteria: (1) Improvement in the areas of Clinical Competency and Professional Profile and (2) Clear violation record illustrating no program policy violations while on probation. A conference with the Program Director and the student will be held to review above criteria. If all the criteria are met the student will be removed from probation status and the violation points cleared. Any violation points become a part of the student's permanent clinical record.

If the criteria are not met, the student may request another review conference when he/she feels the criteria have been fulfilled. The conferences should be at least seven weeks apart to allow adequate time for progress evaluation. If the student wishes to appeal any decision made under this system, he/she may do so following the Right to Appeal procedure outlined below.

VIOLATION OF POLICY POINT VALUES

Action	Days Suspension
Violating dress code	1
Arriving late for clinical without notifying Program Director	2
Leaving clinical assignment early without notifying Program Director	2
Failing to notify Program Director concerning an absence or tardy (See call-in procedure)	3
Using profanity	3
Refusing to perform an examination or follow instruction	3
Endangering patient by leaving patient unattended	2
Demonstrating unprofessional conduct	4
Sleeping in class or clinic	1
Using a cell phone during clinic or class	1
Surfing the internet during clinic	1

* A second violation of any of the above rules will result in immediate dismissal from the program.

Any other actions warranting violation points may be added at a later date after notification to all faculty, clinical staff and students.

Right to Appeal

A student may appeal a course grade, dismissal or other actions related to these policies. The appeal must be presented in writing to the NMT Program Director. Such appeals must be made within 10 calendar days of notification to the student.

A student whose protest has been denied by the NMT Program Director, has the right to appeal to the Medical Director of the Program, Dr. McCartney. If Dr. McCartney is a participant in the corrective action, then the student may appeal to Dr. Robert Adams of the Radiation Therapy School. Dr. Adams' decision will be final. Acceptance of these policies and procedures is assumed with registration. The faculty reserves the right to change these regulations when, in it's judgment, changes are in the best interest of the students and the program.

Library Facilities

The NMT students have access to the Health Sciences Library located just in front of the UNC School of Medicine. We will tour the library as a part of orientation. There are some books in the Program Director's Office that the student may use at any time.

** Students are urged to make good use of these library facilities during their course of training.

Primary Textbooks Utilized by the Nuclear Medicine Technology Student

If a student wishes to purchase any of the books, he/she may do so through the bookstores on campus or through the Caduceus, on the floor beneath the Grapevine cafeteria. Inform the Program Director first, because books will have to be ordered in advance.

Students must pay the Section for any book, which is assigned him/her, which is not returned prior to being eligible to complete the program.

The following list contains some of the books used in course preparation for the Nuclear Medicine Technology Program curriculum. Most of these books can be found in the Program Director's office or the Health Sciences Library and can be signed out by the student as desired.

Subject	***Title***	***Author***
Anatomy & Physiology	Anatomy & Physiology	Thibodeau
Clinical NMT	Nuclear Medicine and Pet	Bernier, Langan, Christian
Clinical NMT	Principles & Practices of NM	Early, Sodee
Radiopharmaceuticals	Radiopharmaceuticals in Nuclear Pharmacy and Nuclear Medicine	Kowalsky & Falen
NMT	NM and PET Technologies and Techniques, 6th Edition	Christian & Waterstram-Rich
Physics	Physics in Nuclear Medicine	Sorenson and Phelps
Computer Technology	Computers in NM	Lee
SPECT	SPECT Primer	English & Brown
Nuclear Review	Review of Nuclear Medicine Tech.	Ann Steves
NMT Review	Review of Nuclear Med. Tech., Ed. 2	Ann Steves
NM Review	NM Board Review	Goldfarb, Cooper, Parmett, Zuckier
Review Questions	NMT Registry Exam Type Questions	Gallo Foss

NM Journals & NM Tech Journals and many others

UNC Hospitals Nuclear Medicine Technology School

2012 - 2013 Program Calendars

Fall Semester, 2012

August 27- August 31	Monday - Friday	Reg. & Orientation
September 3	Monday	Labor Day Holiday
September 4	Tuesday	First Day of Classes
September 5	Wednesday	First Day of Clinical
November 21 - 23	Wednesday - Friday	Thanksgiving Holiday
December 20	Thursday	Last Day of Classes
December 21	Friday	Last Day of Clinical
December 24 – January 1	Monday- Sunday	Winter Break

Spring Semester, 2013

January 7	Monday	First Day of Clinical
January 8	Tuesday	First Day of Classes
January 21	Monday	Holiday, MLK (observed)
March 11 – March 15	Monday-Friday	Spring Break
May 9	Thursday	Last Day of Classes
May 10	Friday	Last Day of Clinical

Summer Sessions I and II, 2013

May 13	Monday	First Day of Clinical (Session I)
May 27	Monday	Holiday, Memorial Day
June 21	Friday	Last Day of Clinical (Session I)
June 24	Monday	First Day of Clinical (Session II)
July 4	Thursday	Independence Day
August 9	Friday	Last Day of Clinical (Session II)
August 12	Monday	Board Review Begins
August 23	Friday	Board Review Ends
August 23	Friday	Graduation

YEARLY PROJECTS

1. During the Fall and Spring semesters, as a part of the course titled "Nuclear Medicine Conference I & II", you will be responsible for presenting Journal articles to the class, as well as having film critique/case presentation.

2. During the spring semester and summer internship you are required to do a series of lab experiments for the Instrumentation/Physics Lab. These are to be written up, made into a booklet and turned in for grading.

3. A final presentation will be assigned during the summer internship for preparation and presentation during the final two weeks of the school year. The presentation will be 2 ½ to 3 hours in length and be followed by a test consisting of at least 100 questions prepared by the student. The final presentation is a capstone activity which is a requirement for program completion.

Professional Organizations

I. Society of Nuclear Medicine

   A. Technologist Section, Society of Nuclear Medicine

      1. VOICE (Verification of Involvement in Continuing Education)

      2. Annual Meeting in June

   B. Southeastern Chapter, Society of Nuclear Medicine

      1. Annual Meeting in September or October

II. North Carolina Nuclear Medicine Technologists, Inc.

   A. Fall Seminar, September or October

   B. Annual Meeting, April or May

Membership in the Society of Nuclear Medicine entitles you to membership in the Tech Section and the regional chapter, as well as VOICE. Students receive free membership for one year.

Membership entitles you to online access to the Journal of Nuclear Medicine, published monthly, and to the Journal of Nuclear Medicine Technology, published quarterly.

You will receive all newsletters and meeting information.

You will have a voice in what happens in your profession.

Membership allows for reduced registration fees for educational meetings.

Certifying Agencies

I. NMTCB (Nuclear Medicine Technology Certification Board)

II. ARRT (American Registry of Radiologic Technologists)

Program Accreditation

The Nuclear Medicine Technology Program offered at UNC Hospitals is fully accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology, 2000 W. Danforth Rd., Ste 130 #203 Edmond, OK 73003 Tel: (405) 285-0546. Fax: (405) 285-0579. Email: jrcnmt@coxinet.net . The Nuclear Medicine Technology Master plan contains a copy of the Essentials and Guidelines of an Accredited Educational Program in Nuclear Medicine Technology. You are encouraged to read these and check with the program director regarding any questions you may have.

NUCLEAR MEDICINE TECHNOLOGY

TYPICAL WEEKLY CLASS AND CLINIC SCHEDULES

Monday	**Clinic**	**7:00 a.m. to 3:00 p.m.**
Tuesday	**Class**	**8:00 a.m. to 3:30 p.m.**
Wednesday	**Clinic**	**7:00 a.m. to 3:00 p.m.**
Thursday	**Class**	**8:00 a.m. to 3:30 p.m.**
Friday	**Clinic**	**7:00 a.m. to 3:00 p.m.**

Note: On any Tuesday or Thursday when class is not scheduled:

Students will be in clinical from 7:00 a.m. to 3:00 p.m.

Radiopharmacy rotation is from 6:30 a.m. to 2:30 p.m.

Radiation Safety rotation is from 8:00 a.m. to 3:00 p.m.

ARMC rotation is from 7:30 a.m. to 3:00 p.m.