

VANDERBILT  UNIVERSITY
MEDICAL CENTER

Center for Programs in Allied Health

Nuclear Medicine Technology

Program Handbook

2021-2022

INTRODUCTION TO PROGRAM HANDBOOK

The purpose of the Program Handbook is to serve as a reference and resource for the students in each of the respective programs in the VUMC Center for Programs in Allied Health (CPiAH). The Program Handbook is an important document that provides operational guidance to students to assist them in successful progression through their programs.

Key documents regarding policy and procedure information include:

Catalog of the VUMC Center for Programs in Allied Health

Source of important policies and other information related to VUMC, the CPiAH, and each program. The catalog is available on the VUMC CPiAH website.

Program Handbook

Each CPiAH program provides students its own Program Handbook. The policies and procedures in the Program Handbook are aligned with VUMC, CPiAH, and program policies that appear in the Catalog—as well as other locations. The purpose of the Program Handbook is to provide more specific details about each program, with a focus on operational information and procedures.

VUMC CPiAH Website and Program Website

The Center for Programs in Allied Health has its own website. From the CPiAH homepage, links to each program's website may be accessed. Important information regarding both the institution and the programs is available on these sites.

IMPORTANT NOTICE TO STUDENTS:

All students enrolled in VUMC Center for Programs in Allied Health (CPiAH) programs are bound by all VUMC, CPiAH, and Program policies. By enrolling in a CPiAH program, every student acknowledges their responsibility to abide by and adhere to all institutional and programmatic policies and procedures. Students, therefore, have the responsibility of being familiar with policies and procedures described in the following: 1) Program Handbook, 2) Catalog of the Center for Programs in Allied Health, and 3) CPiAH and respective program websites.

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IMPORTANT PROGRAM INFORMATION PROVIDED IN THE CPIAH CATALOG

The Catalog of the Center for Programs in Allied Health (CPiAH) contains important information about Vanderbilt University Medical Center, the Center for Programs in Allied Health, and this program, specifically.

Students are advised to refer to the CPiAH Catalog in order to obtain the following information about this program:

- Program Description
- Graduation Document
- Mission, Credo and Goals
- Accreditation and Approvals
- Program Staff and Faculty
- Admission Information
- Academic Program
- Course List & Descriptions
- Graduation Requirements
- Student Assessment & Grading
- Satisfactory Academic Progress Requirements
- Student Conduct Information

CONTACT INFORMATION

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Clinical Coordinator

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Clinical Rotation Sites:

- VUMC
 - Nuc Med/QC: (615) 322-0895
 - Cardiac: (615) 322-0886
 - Nursing: (615) 343-2215
 - PET: (615) 343-7512
 - Radiopharmacy: (615) 322-7117
- VHVI
 - Cardiac: (615) 936-0734
- VCH
 - Nuc Med: (615) 936-4938
- VAMC
 - Nuc Med: (615) 873-6813

PROGRAM ACADEMIC CALENDAR – 2021-22

Aug. 23, 2021	Start Date
Aug. 23 – 27, 2021	Orientation
Sep. 6, 2021	Labor Day - Off
Nov. 25 – 26, 2021	Thanksgiving Break - Off
Dec. 20 – 31, 2021	Winter Break - Off
Dec 31, 2021	New Year's Day Observed - Off
Apr. 25 – 29, 2022	Spring Break - Off
May 30, 2022	Memorial Day - Off
Jul. 4, 2022	Independence Day - Off
Aug. 19, 2022	Projected Graduation Date

PROGRAM REQUIREMENTS

In order to graduate, students must receive a passing grade of 75 or better in all didactic courses, including clinical rotations, and complete a list of clinical competency evaluations (“check-offs”). A complete list of the Clinical Competencies is included as Appendix A. Students must also complete at least 1,626 clock hours during the 12-month program. In addition to hours, total days attended are also monitored. Students are allotted a maximum of 10 personal days, in addition to the scheduled holidays.

RADIATION MONITORING

Monthly radiation monitoring is conducted on each student using a dosimeter service through the VUMC Office of Clinical and Research Safety (OCRS). A permanent dosimetry record for each student is maintained by the institution. Reports are reviewed monthly by the institution—which includes the Radiation Safety Department as well as the Program Director. Students receive a dosimetry summary, at a minimum, during quarterly evaluations and may also receive monthly reports. A cumulative dose report is available for future employers by special request made to the OCRS department. Dosimeters are to be turned in to the Radiology Department Badge Representative at the end of each month.

NMT Students who are or become pregnant while enrolled in the program may confidentially and voluntarily contact OCRS to discuss the option of fetal radiation monitoring.

Information on policies and procedures related to dosimetry monitoring may be obtained from the OCRS website (<https://www.vumc.org/safety/rad>).

STUDENT CLINICAL EVALUATION

Students receive weekly clinical rotation evaluations by their preceptors. These evaluations allow for frequent, constructive feedback to students on their professional development and are counted toward the quarterly review of Satisfactory Academic Progress. Both the Program Director and the Clinical Coordinator review these evaluations on a routine basis and may request formal meetings with students to review clinical performance deficiencies. An example of the rotation evaluation used to assess student performance is included in Appendix B.

MONITORING SATISFACTORY ACADEMIC PROGRESS

Each student's academic progress is formally evaluated quarterly. A student is considered to be maintaining satisfactory academic progress (SAP) if they maintain a 75 percent academic average in didactic coursework, which includes clinical rotations. In addition, students must maintain satisfactory attendance and behavioral conduct in order to maintain satisfactory academic progress.

Prior to the determination of SAP status, the student, the Program Director and the Clinical Coordinator meet to discuss the student's progress. These meetings include discussion of grades in didactic courses, evaluations in clinical rotations, radiation exposure reports, absences, contact hours, behavior, etc. Students are given the opportunity to discuss any questions or concerns they may have related to their progress during their SAP meeting. Following this meeting, the Program Director and the Clinical Coordinator determine whether or not the student is maintaining Satisfactory Academic Progress. Students are notified of their status in writing.

Grading System

Scale	Grade	Definition	GPA
100-95%	A	Excellent	4.0
94-90%	A-	Excellent	3.7
89-87	B+	Good	3.3
86-83%	B	Good	3.0
82-80%	B-	Good	2.7
79-75%	C	Satisfactory	2.3
74-0%	F	Inadequate	< 2.0

P	Pass: Any course with a "P" grade is not calculated into the grade point average.
F	Any course with an "F" grade is not calculated into the grade point average. However, the course must be repeated and passed to graduate. Students who do not complete required work or hours in a course will be assigned a failing grade for the course.
I	An Incomplete may be used at the discretion of the instructor in those cases in which the student is not able to complete work in the normal time. In those instances, the student and instructor develop a written plan for an extension to provide work by a specific date that falls within the period of time specified by the relevant program's requirements (but in no circumstances greater than one month). An "I" that is not replaced by a letter grade within the period of time specified by the relevant program's requirements, due to unsatisfactory completion of the student's plan, will be changed to an F after the period specified by the program (a period not to exceed one month). Any course with an "I" grade is not calculated into the grade point average. Once a grade is assigned to the course (when conditions are met that allow for the removal of the "I" and assignment of a final grade), that grade will factor into the student's GPA.
W	A Withdrawal is provided when a student leaves the course due to an approved leave-of-absence or is withdrawn from the school prior to the scheduled completion of a course. Any course with a "W" grade is not calculated into the grade point average.

ATTENDANCE

Documenting Attendance

Students are required to be on time for all required learning experiences (clinical rotations, classes, etc.). Students are required to use the designated timecard and time clock to document their attendance. Students may not, for any reason, remove their timecard from the designated area.

In some special circumstances, it may be necessary for start/stop times to be written by hand on the timecard. In these cases, students must notify the Program Director by email and have verification from

their preceptor or instructor responsible for the clinical rotation or class. Preceptors/instructors may sign next to the written time for verification.

Students must clock in/out themselves. Under no circumstances are students allowed to clock in/out, log time, or otherwise document attendance for each other. Students engaging in this behavior are subject to disciplinary action—up to and including probation, suspension, or dismissal from the program.

Lunch and Breaks

Students are allotted a 30-minute lunch break during each full day in attendance. This applies to both clinic and classroom days. Fifteen-minute breaks are scheduled between class periods—and two 15-minute breaks (one in the morning and one in the afternoon) are allotted to students while in clinical rotations. Should an incident arise where a student needs to be excused or leave the clinic, both the clinical staff and the Program Director should be notified prior to departure.

Absence Policy

In addition to scheduled holidays and breaks, students are allotted 10 personal days to use as time off throughout the academic year. Excessive absences are defined as more than 10 absences during the academic year. Excessive absences or tardiness—with tardiness being defined as reporting over 30 minutes late to any clinic assignment or class—may result in disciplinary action, up to and including probation, suspension, or dismissal from the program.

Students are required to complete 1,626 clock hours in order to complete the program, with a particular number of contact hours counted toward coursework and clinical rotations. This number may be reduced by the program due to extraordinary circumstances for which the administration deems necessary. Hours during which affiliate university and program-related activities occur are counted toward program completion.

Absence Requests

Foreseen Absences

If a student anticipates being absent from either a clinical assignment or a class period, they should notify the Program Director as soon as they are planning to be absent. At a minimum, students must send advance notification no later than 24 hours before the beginning of the shift/class. Notifications must be sent directly to the Program Director from the student via e-mail. In addition to notifying the Program Director, students should provide advance notification directly to clinical preceptors if they plan to be absent on a clinical day. Foreseen absences do not require documentation or justification if the student has not exceeded the 10 personal day allotment. If the student has exceeded 10 personal days, documentation or justification may be requested by the Program.

Unforeseen Absences

An unforeseen absence is defined as an unplanned absence—i.e., without a 24-hour advance notice. If an emergent situation arises where a student must be absent, the Program Director must be notified immediately as possible. Notifications must be sent directly from the student via e-mail or phone call. Documentation or justification for unforeseen absences may be requested by administration as it relates to compliance with the absence policy. Students in violation of this policy are subject to disciplinary action, up to and including probation and dismissal from the program.

Progressive Discipline Process for Attendance

To ensure students' progress appropriately and demonstrate an expected level of professionalism throughout the program, a progressive discipline process for unforeseen absences and tardiness is followed.

Each unforeseen absence and/or tardiness shall result in a documented occurrence. Two occurrences result in a written warning. Four occurrences result in a final written warning. Six occurrences result in probation. All written warnings will be documented in the student's file and included in quarterly evaluation determinations of satisfactory academic progress (SAP).

STUDENT CONDUCT / PROFESSIONALISM

All students are bound by several standards of conduct, as outlined in the CPiAH Catalog, including:

- VUMC Code of Conduct
- VUMC Center for Programs in Allied Health Honor Code
- Vanderbilt Nuclear Medicine Technology Program Honor Code

In order to ensure students clearly understand the behaviors that are expected, acceptable and unacceptable, the following examples are provided.

Alcohol and/or other Substance Use – The use of alcohol and/or other chemical substances during program academic and clinical activities is strictly forbidden under the policies of Vanderbilt University Medical Center. Students suspected of using alcohol and/or other chemical substances are subject to immediate evaluation in the VUMC Emergency Department. If a forbidden substance is documented, the student is subject to disciplinary action up to and including temporary suspension and dismissal from the program. Please see the VUMC Alcohol and Drug Use Policy, included as an appendix to the Catalog of the Center for Programs in Allied Health.

Patient Medical Records and Confidentiality – The privacy of medical records (paper-based, electronic, etc.) is legally protected under Federal Law through the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Patients' medical records are considered legal documents and require careful handling. Therefore, information contained in the medical record must not be discussed with anyone other than the patient, approved patient representatives and responsible health care team members for purposes directly related to patient care. Photocopying the contents of a medical record is strictly prohibited. Students violating patient confidentiality and/or HIPAA regulations are subject to immediate disciplinary action, up to and including temporary suspension and dismissal from the program.

Scope of Student Practice – Communicating with patients and other professionals regarding care is highly sensitive and requires the utmost in professional behavior. It is both inappropriate and unprofessional for NMT Program students to engage in discussions with patients concerning their clinical histories, with the exception of obtaining pertinent clinical information. NMT Program students are also strictly forbidden from engaging in discussions with patients regarding the results of studies performed, as well as speculation regarding the origin of the patient's illness. In addition, NMT Program students are expressly prohibited from performing studies, preparing, dispensing, and administering radiopharmaceuticals, and reporting results to physicians unless these actions are performed under the direct supervision of a staff nuclear medicine technologist or authorized clinical preceptor.

OTHER PROGRAM POLICIES

Students in violation of any program policy are subject to disciplinary action, up to and including probation and dismissal from the program.

Cell Phone Use

Cell phone use for any purpose (calls, texts, voice mail, web browsing, apps, etc.) is prohibited during all required learning experiences—including classroom sessions, exams, clinical rotations, etc. Cell phone use is strictly prohibited in the clinic, and devices should be silenced. Students are allowed to use their cell phones during breaks.

Textbooks

Textbooks must be purchased or obtained by the student.

Uniforms/Dress Code

Students are required to dress in an appropriate professional manner, in keeping with VUMC Policies and Center for Programs in Allied Health (CPiAH) policies which are outlined in the CPiAH Catalog. Students must wear Allied Health approved scrubs to all clinical rotations. Students may wear appropriate professional clothing to the classroom.

Personal Appearance

To convey a professional appearance to patients, visitors, and colleagues, students must adhere to the VUMC Radiology Policy “Dress Code and Personal Appearance.” In addition to these items, NMT Students are also required to meet the following standards in both classroom and clinical settings:

- Identification badges are worn in clear sight above the waist with name, title, picture, and other identifying information clearly visible. These must not be altered in such a way as to change the nature of the ID badge.
- Hair is clean and contained in such a manner that it does not come in contact with patients or visitors. Natural or neutral hair color is required.

Practice Liability Insurance

Students are covered by malpractice insurance under the blanket policy of Vanderbilt University Medical Center. The cost is included in the Program cost of attendance.

Needlestick Protocol

The needlestick protocol applies to all clinical rotation sites that NMT students are assigned—this includes the VAMC and VCH rotations. The following actions should be taken by a student in the event of a needlestick:

1. Wash affected area thoroughly with soap and water.
2. Notify clinical preceptor.
3. Record patient’s name and MRN.
4. Report to Occupational Health.
 - a. Blood samples should be taken from the student for standard testing. Essential blood tests include: Rapid HIV, Hepatitis B profile, and Hepatitis C
 - b. If after hours, student should report to the Emergency Dept. In this case, student may need to register under personal insurance.
5. Optional: After receiving permission from the patient, draw 2 RED top tubes from the patient (source of exposure) and send to lab for testing.
6. Reporting within 24 hours:
 - a. VERITAS report must be made. Clinical preceptor should assist student in filing the report.
 - b. Notify the Program Director of incident

ADA Accommodations

Students who wish to disclose a disability should do so by providing the Program Director a description of the request in writing, which will be forwarded to the Center for Programs in Allied Health. The Program Director will work with the student, the Center for Programs in Allied Health, and other necessary parties to determine and provide reasonable accommodations. Students should refer to the Catalog for further details regarding ADA accommodations.

Clinical Assignments Outside of Normal Program Hours

Students must obtain prior permission from the Program Director or the Clinical Coordinator before performing clinical assignments outside of normal program hours. Approval is only granted in necessary situations—i.e., for make-up hours/days or completion of clinical competencies. Normal program hours for didactic courses are scheduled on weekdays from 8:00 am – 3:30 pm. A detailed course and clinic schedule is provided to students during orientation. Normal program hours for each clinical rotation are defined below:

Optional clinical workshops may be offered throughout the year for students to attend after-hours in order to gain access to uninterrupted hands-on training experiences when patients are not scheduled. Students will be notified of these ahead of time and will not be required to participate or receive a grade from these experiences.

NORMAL CLINIC HOURS		
Rotation Site	Type of Day	Time
Radiopharmacy	Class	5:30 am – 8:00 am
	Clinic	5:30 am – 12:00 pm
QC Nuclear Medicine	Class	n/a
	Clinic	6:30 am – 3:30 pm
General Nuclear Medicine	Class	n/a
	Clinic	8:00 am – 3:30 pm
PET	Class	n/a
	Clinic	8:00 am – 3:30 pm
VUMC Cardiac	Class	n/a
	Clinic	8:00 am – 3:30 pm
VHVI Cardiac	Class	n/a
	Clinic	7:00 am – 2:30 pm
VCH	Class	n/a
	Clinic	8:00 am – 3:30 pm
VA	Class	n/a
	Clinic	7:00 am – 2:30 pm

Holidays and Weekends

Holidays and weekends are not considered normal program hours. Students are only allowed to come into their clinical assignment during these times if they are in need of make-up days or hours. Permission from the Program Director is required before a student attends their clinical assignments on holidays or weekend days.

Contacting PD or CC

You may e-mail or call the Program Director or Clinical Coordinator for permission to be in your clinical assignment outside of normal hours. Refer to the contact information sheet provided in this handbook.

Reporting to Clinic Following Completion of Courses

Courses in the NMT program have variable completion dates. Once courses are completed, students must report to clinical assignments during that course's scheduled time period. It is expected that students will be at clinical assignments during these times—which all occur during normal program hours. If students need to complete additional classwork during these times (i.e., make-up exams, research for project, etc.), special permission must be granted from the PD or CC to remain in the classroom.

Student Employment While Enrolled in NMT Program

Students may work while they are participating in the NMT Program, as long as work hours do not interfere with the scheduled hours in which required NMT Program activities take place. It is not permitted for students to arrive late or leave early for outside work purposes. Therefore, any employment outside of the NMT program must allow for adequate preparation and participation in required program activities.

Informing the Program Director of Employment

It is highly recommended that students who plan to be employed while enrolled in the NMT Program discuss their plans with the Program Director prior to matriculation in the program. This will help ensure the student is best positioned for successful time management while enrolled in the program.

Participation in Clinical Research Studies

Students are cautioned about volunteering for clinical research studies. Many of these studies require committed participation over time, often during normal program hours. Students are advised to not participate in these studies.

Working at VUMC or Other Hospitals/Clinics

Students with backgrounds in other imaging modalities (i.e., radiologic technology, CT, MRI or ultrasound) or in other clinical specialties (i.e., medical lab science, phlebotomy, etc.) may wish to seek employment at the medical center while enrolled in the NMT Program. This is permitted, so long as work hours do not interfere with required NMT Program hours and activities.

Working in Nuclear Medicine

While students are permitted to work in the medical center in capacities outside of nuclear medicine, students are not permitted to be employed in the field of nuclear medicine while enrolled in the NMT Program. This includes facilities outside of VUMC.

Clinical Rotation Assignments

The clinical experiences/training in the program consists of a series of overarching clinical rotation content areas. Every student rotates through a repeated sequence of scheduled clinical rotations. The rotations are established so that each student is assigned to a single independent work assignment supervised by a board-certified technologist, nuclear pharmacist, or a radiology registered nurse. VUMC staff typically rotate on a weekly basis. This enables a student to work with multiple preceptors over the course of their assigned rotation.

Students are given a detailed clinical rotation assignment schedule at the start of the program. Rotation experiences and student performances are monitored by the clinical supervisor at each institution as well as the Clinical Coordinator and Program Director. Rotation assignments may be modified as needed to address noted deficiencies of specific students. This is only done by express direction of the Program Director. Students may only move from their assigned rotation to another one, with permission from the Program Director or Clinical Coordinator, to perform a specific procedure and/or receive a clinical competency.

Clinical Performance and Evaluation

Students' clinical performance is evaluated in two primary ways:

- 1) Weekly evaluations from primary clinical preceptors (professionalism objectives)
- 2) Completion of proficiency testing (clinical performance)

The weekly clinical evaluations are averaged over the entirety of the program and serve as a course grade. A passing grade in the clinical rotations course is considered to be 75 or greater. Clinical performance that falls below this grade is subject to standard SAP disciplinary or probationary actions.

See Appendix A for a list of required clinical proficiency competencies and Appendix B for details on clinical evaluation metrics.

PROGRAM HANDBOOK APPENDICES

Appendix A

Clinical Competencies

VUMC NUCLEAR MEDICINE TECHNOLOGY PROGRAM

CLINICAL COMPETENCY EVALUATION

Students must demonstrate competency in all mandatory clinical procedures and eight elective procedures.

At least one elective *must* be from the gastrointestinal procedures list and one elective *must* be a SPECT. Up to two electives may be quality control procedures.

Note: As new procedures are instituted in clinical practice, special approval may be granted to students who wish to complete unlisted procedures as an elective check-off. Prior approval must be given by the Program Director or Clinical Coordinator for such competencies. Procedures designated as “P” may not be simulated.

GENERAL NUCLEAR MEDICINE

Procedure	Mandatory	Elective	Date Completed	Patient (P) Simulated (S)	Verified By:
Skeletal					
Whole Body #1	X			P	
Whole Body #2	X				
Planar/Static #1	X			P	
Planar/Static #2	X				
Bone SPECT		X			
Three-Phase	X			P	
Bone Densitometry		X			
Respiratory					
Ventilation (Aerosol)	X			P	
Perfusion	X			P	
Quantitative	X				
MAA Mapping - Planar & Liver SPECT		X			
Endocrine/Exocrine					
Thyroid Uptake	X			P	
Thyroid Scan	X			P	
Parathyroid	X			P	
Parathyroid SPECT		X			
Gastrointestinal – (at least one elective must be from the GI section)					
Gastric Emptying	X			P	
Hepatobiliary (HIDA)	X			P	
CCK (for HIDA)	X			P	
Morphine (for HIDA)		X		P	
Tag Red Blood Cell Kit	X				
GI Bleed		X		P	
Gastroesophageal Reflux		X		P	
Meckel’s Diverticulum		X		P	
Liver/Spleen		X		P	
Damaged RBC Spleen		X		P	
Hemangioma		X		P	

GENERAL NUCLEAR MEDICINE CONTINUED

Procedure	Mandatory	Elective	Date Completed	Patient (P) Simulated (S)	Verified By:
Genitourinary					
Renal Function (Dynamic Perfusion) w/ Lasix	X			P	
Renal Cortical Imaging (DMSA)		X			
Renal SPECT		X			
Cystogram		X			
Abscess and Infection					
Gallium		X			
WBC Imaging		X			
Central Nervous System					
Brain SPECT (DAT or Ictal)	X			P	
Planar		X			
Dynamic (Brain Death)		X			
CSF Leak		X			
Shunt Patency		X			
Tumor/Antibody					
Tumor WB (I-131 WB, I-123 WB, I-123 MIBG)	X				
I-123 NaI Dosing <i>*Technologist must assist.</i>	X				
Tumor SPECT		X			
Lymphoscintigraphy (Injection Only)	X			P	
Lymphoscintigraphy (w/ Imaging)		X			
Therapeutic Procedures – (students may not administer therapeutic doses)					
Thyroid: Ablation (High Dose)	X				
Thyroid: Hyperthyroidism (Low Dose)		X			
Palliative Bone		X			
Neuroendocrine Tumor		X			

CARDIAC

Procedure	Mandatory	Elective	Date Completed	Patient (P) Simulated (S)	Verified By:
Cardiovascular					
Myocardial Perfusion SPECT #1 (Rest & Stress)	X			P	
Myocardial Perfusion SPECT #2 (Rest & Stress)	X			P	
Gated Blood Pool Study (MUGA)	X			P	
Myocardial Perfusion – Prone		X			
Myocardial Perfusion – Pain Study		X			
Stress Testing – Exercise	X			P	
Stress Testing – Pharmaceutical	X			P	
Pyrophosphate (PYP)		X			

QUALITY ASSURANCE – GENERAL NUCLEAR MEDICINE

Procedure	Mandatory	Elective	Date Completed	Patient (P) Simulated (S)	Verified By:
General Nuc Med Quality Control					
Planar Gamma Camera: Uniformity - Extrinsic	X				
Planar Gamma Camera: Uniformity - Intrinsic	X				
Planar Gamma Camera: Resolution	X				
Planar Gamma Camera: Off-Peak Flood		X			
SPECT Gamma Camera: Center of Rotation	X				
SPECT Gamma Camera: Image Quality Phantom					
CT: Fast Calibration	X				
CT: Water Phantom Uniformity, Resolution and CT Number	X				
Dose Calibrator: Constancy	X				
Dose Calibrator: Linearity	X				
Dose Calibrator: Accuracy	X				
Dose Calibrator: Geometry		X			
Uptake Probe: Energy Calibration	X				
Uptake Probe: Chi-Square	X				

PET

Procedure	Mandatory	Elective	Date Completed	Patient (P) Simulated (S)	Verified By:
PET					
Oncology #1	X			P	
Oncology #2	X			P	
Dotatate	X			P	
Axumin		X		P	
PSMA		X		P	
Brain	X			P	
Cardiac (Rest & Stress)	X			P	
Cardiac Viability		X			
Cardiac Sarcoidosis		X			

QUALITY ASSURANCE - PET

Procedure	Mandatory	Elective	Date Completed	Patient (P) Simulated (S)	Verified By:
PET/CT Quality Control					
Daily QA	X				
CT Daily QA	X				
SUV (Quantitation) Phantom	X				
Singles		X			
Normalization		X			
Quantitation Calibration		X			
ACR Image Quality Phantom		X			

PATIENT CARE

Procedure	Mandatory	Elective	Date Completed	Patient (P) Simulated (S)	Verified By:
Patient Care Procedures					
Maintain CPR Certification	X			n/a	
Vital Signs – Manual Blood Pressure	X				
Vital Signs – Auto Blood Pressure	X				
Vital Signs – Pulse	X				
Vital Signs – Respiration	X				
Vital Signs – Oxygen Monitoring	X				
Venipuncture	X				
ECG (lead placement and recognition of common dysrhythmias)	X				
Glucometer	X				

RADIATION SAFETY

Procedure	Mandatory	Elective	Date Completed	Patient (P) Simulated (S)	Verified By:
Radiation Safety					
GM Survey Meter Operation: (Battery Check and Constancy)	X				
GM Survey Meter: Perform Daily Area Survey in NM	X				
Well Counter: Perform Weekly Wipe Test in NM	X				
Radiation Waste Disposal	X				
Therapy Patient Release: Rad Safety & Homegoing Instructions	X				
Use of Lead Syringe Shield for Injection	X				
Therapy Room Decontamination (Assist Radiation Safety Staff)	X				
Bioassay	X				

RADIOPHARMACY

Procedure	Mandatory	Elective	Date Completed	Patient (P) Simulated (S)	Verified By:
Radiopharmacy					
Aseptic Technique	X				
Sterile Hand Hygiene & Garbing	X				
Clean Room Cleaning & Disinfection	X				
Elute Generator / Mo-99 Check	X				
Draw Unit Doses	X				
Kit Prep: Cardiolite	X				
Kit Prep: Myoview	X				
Kit Prep: MDP	X				
Kit Prep: Mebrofenin	X				
Kit Prep: DTPA	X				
Kit Prep: MAA	X				
Kit Prep: Mag-3	X				
Kit Prep: Sulfur Colloid	X				
Patient Studies					
Prepare Gastric Emptying Meal	X				
GFR (Co-Assist)	X				
Plasma Volume		X			
Urea Breath Test		X			
WBC Study		X			
Radiation Surveys					
GM Survey Meter: Perform Daily Area Survey in RP	X				
Automated Well Counter: Perform Weekly Wipe Test in RP	X				
Single Well Counter: Perform Package Check-in	X				
RAM Packages					
RAM Package Receiving	X				
RAM Package Shipping	X				
Quality Control					
Kit QC: Cardiolite	X				
Kit QC: Myoview	X				
Kit QC: MDP	X				
Kit QC: Mebrofenin	X				
Kit QC: DTPA	X				
Kit QC: MAA	X				
Kit QC: Sulfur Colloid	X				
Kit QC: Mag-3	X				
Automated Well Counter: Daily Constancy, Energy, Chi-Square	X				
Single Well Counter: Daily Constancy Test	X				
Single Well Counter: Weekly Auto Cal (Gain & Energy)	X				

Appendix B

Clinical Evaluation

Weekly Clinical Evaluation

All clinical rotations share a common set of professional learning objectives. These objectives are evaluated weekly by the clinical preceptor. Students obtain one evaluation every week—with the goal of learning from previous weeks and improving professionally over time.

The following characteristics of a professional nuclear medicine technologist are used as the grading metric for professional performance of students in each clinical rotation:

1. Availability and Punctuality
2. Interpersonal Communication Skills
3. Dependability
4. Initiative
5. Judgement
6. Attitude and Reaction to Constructive Criticism
7. Self-Confidence
8. Patient Care
9. Ability to Follow Instructions and Retention
10. Use and Care of Equipment
11. Quantity of Work / Speed
12. Quality of Work

Each metric is assessed using a Likert scale of 1 – 5. All metrics within the same week are averaged resulting in the clinical evaluation grade for that weekly period. These grades are incorporated within the Clinical Rotations courses. Refer to the Student Clinical Evaluation Criteria for grading rubric details.

NMT Student Clinical Evaluation Criteria: Professional Objectives

Preceptors should refer to this detailed description of clinical professional objectives when evaluating NMT students' clinical performance. Ratings should be recorded weekly utilizing either a paper card or electronic survey by the preceptor who primarily worked with the student. Comments are helpful and should be recorded on the evaluation.

Objective	1 - Unacceptable	2 - Weak	3 - Average	4 – Very Good	5 - Mastery
Availability & Punctuality	Consistently late; Never calls; Leaves work area; Does not attend to patient.	Consistently late; Sometimes calls; Sometimes wanders from assigned area	On time to site; Notifies preceptor of whereabouts afterward	On time to site; Calls when late; Notifies preceptor as to whereabouts ahead of time	Ready to work at start time; Always notifies as to whereabouts
Interpersonal Communication Skills	No communication with staff or patients; Initiates minimal conversation with patients/staff; uncomfortable explaining portions of the procedure; Indifferent towards others.	Minimal communication with staff or patients; Initiates conversation with patient/staff but the technologist leads most of the conversation; Quiet or reserved.	Good communication with staff and patients; Initiates conversation with patient/staff with guidance from technologist; Pleasant and courteous.	Great communication with staff and patients; Initiates conversation with patients/staff with minimal guidance from technologist; Pleasant and respectful.	Outstanding communication with staff and patients; Initiates conversation with patient/staff with no guidance; Acts as a healthcare professional in all situations.
Dependability	Is not reliable; Puts forth minimum effort.	Is not reliable; Puts forth moderate effort	Often reliable; Must be frequently reminded by preceptor	Usually reliable; Must sometimes be reminded by preceptor	Always reliable; Does not have to be reminded
Initiative	Requires complete guidance; does not seek additional responsibilities; No motivation	Moderate to extensive guidance; Often must be directed; Minimal motivation	Moderate guidance; Somewhat engages with preceptor; moderately motivated	Minimal guidance; Always productive; Engages with preceptor with productive questions; highly motivated	Requires no guidance; always productive; engages all staff by asking questions; Highly motivated
Judgment	Cannot make decisions when faced with problems or responsibilities.	Requires assistance when adapting procedures.	Usually handles challenging situations well; minimal assistance is needed.	Makes decisions well in challenging situations; minimal or no assistance is needed.	Completely independent; Organized and educated thought process with clinical accuracy
Attitude & Reaction to Constructive Criticism	Poor attitude; Difficult to work with or disrespectful; Blames others; Resents constructive criticism.	Passive; Does not respond to constructive criticism and usually does not adapt.	Good attitude; Accepts constructive criticism and adapts.	Excellent attitude; Accepts and learns from constructive criticism.	Outstanding attitude; seeks constructive criticism; demonstrates continued desire to learn.
Self Confidence	Lacks self-confidence; Complete doubt; Avoids work; is not self-reliant.	Needs frequent reassurance and encouragement; Extensive doubt; is not self-reliant.	Moderate doubt/lack of confidence; Somewhat self-reliant	Minimal doubt/lack of confidence; Comfortable with different situations.	Minimal to no doubt; Great confidence; Self-reliant
Patient Care	Needs to be reminded when and how to care for patients; unable to interact as a healthcare professional	Provides adequate care; Uncomfortable interacting as a healthcare professional.	Provides good care; Steps in to help with difficult patients with technologist guidance.	Provides great care; Treats patients with dignity and respect; Little guidance from technologist	Outstanding care; Cares for patient without technologist guidance
Ability to Follow Instruction & Retention	Lacks concentration; Easily distracted from task; No retention from day-to-day.	Needs to be more focused; Eventually catches on after repeated instruction.	Often focused on tasks; Occasionally needs additional instructions.	Focused on tasks; Quick to learn and retain with minimal additional instruction	Completely focused on tasks; Learn and retain without additional instruction
Use & Care of Equipment	Constantly needs assistance with equipment; mistreats equipment.	Needs frequent help or reminders with equipment.	Competent understanding of equipment; occasionally needs help.	Great understanding of equipment; quick learner with minimal assistance	Excellent understanding of equipment; zero assistance needed
Quantity of Work/Speed	Cannot complete procedures	Completes procedures extremely slowly even with help.	Completes most procedures on time with frequent help by preceptor.	Performs procedures in a timely manner with minimal assistance.	Consistently performs procedures in a timely fashion without assistance.
Quality of Work	Confused about procedures; Makes numerous mistakes; Often must repeat.	Makes mistakes; Unsure about next steps; Requires assistance.	Minimal mistakes, but requires assistance with next steps	Produces high quality work with minimal assistance	Excellent work and technique; Produces high quality studies/work.

Clinical Evaluation Rubric Assessment Levels:

Preceptors should assign ratings based on the students' current level of experience. For example, during the first set of rotations, a students' quality of work will naturally be less than it is during their final rotations. Preceptors should adapt their expectations based on what "average" performance and behavior is of students at each level.

Scale	Rating	Definitions
5 (Pass)	Mastery	<ul style="list-style-type: none">• Reserved for exemplary set of skills that yield a particularly sophisticated approach to handling the situation or task.• Extremely effective performance which is significantly above criteria for successful completion of the task.
4 (Pass)	Very Good	<ul style="list-style-type: none">• More than adequate for effective performance.• Generally exceeds criteria relative to quality and quantity of behavior required for successful completion of the task.
3 (Pass)	Average	<ul style="list-style-type: none">• Adequate for effective performance.• Meets criteria relative to quality and quantity of behavior required for successful completion of the task.
2 (Fail)	Weak	<ul style="list-style-type: none">• Insufficient for performance requirements.• Generally does not meet criteria relative to quality and quantity of behavior required for successful completion of the task.• Some deficiencies.
1 (Fail)	Unacceptable	<ul style="list-style-type: none">• Significantly below criteria required for successful job performance.• Few or no criteria met with many deficiencies.