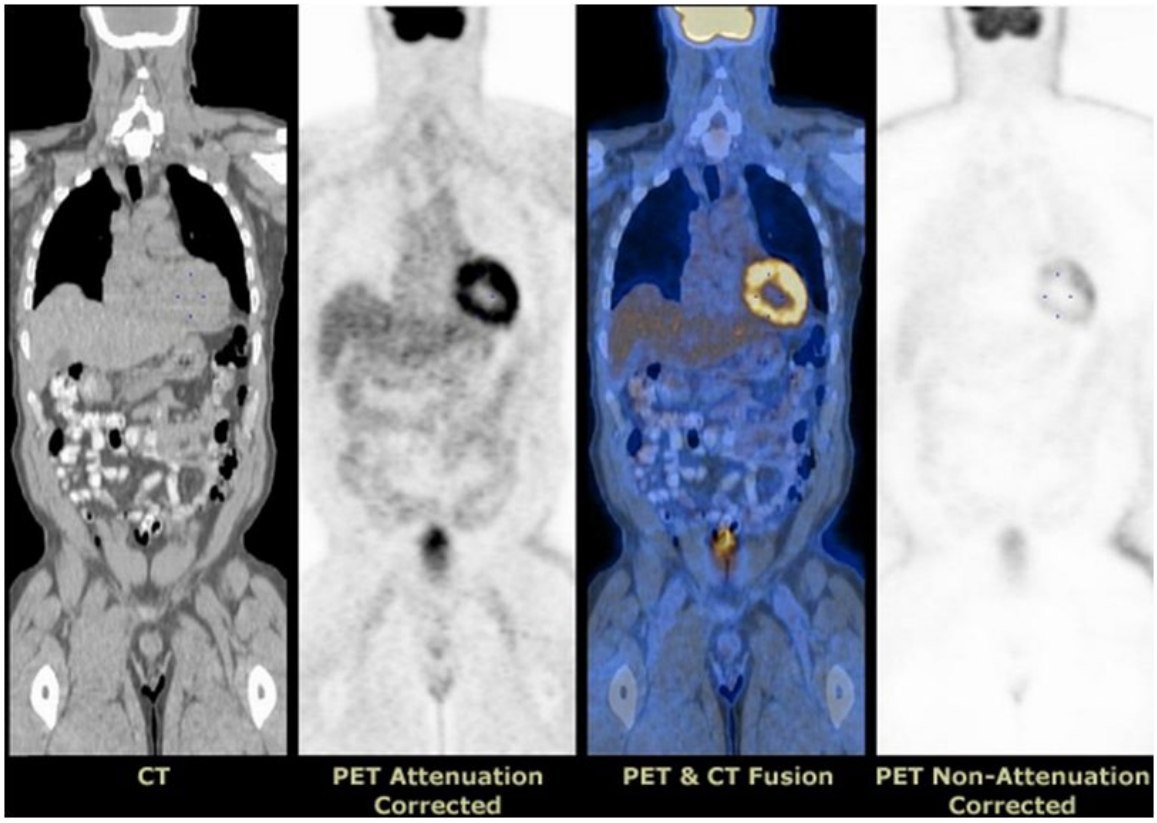
Division of
Nuclear Medicine Imaging Sciences

Clinical Handbook 2023 - 2024



UAMS®

COLLEGE OF HEALTH PROFESSIONS

UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES

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Introduction: Clinical Internships

It is during the clinical internships that student's are able to apply the knowledge and skills acquired during the academic core courses. Student's are assigned clinical experiences throughout the academic year in two clinical areas: imaging and radiopharmacy. Under the direction of nuclear medicine technologists and nuclear pharmacists, student's perform diagnostic imaging procedures and prepare radiopharmaceuticals for patient administration. Student's follow established protocols and develop organizational skills and proficiency under actual working conditions.

Student's will receive a clinical rotation schedule during the fall Orientation to Nuclear Medicine Imaging Sciences course and will be available on Blackboard. Clinical rotation schedules are set so that the student achieves the best possible clinical educational experience, covering all aspects of nuclear medicine. Rotation schedules cannot be changed without the approval of the NMIS Clinical Coordinator and/or the NMIS Program Director. The cities and their respective hospitals and affiliate education supervisor (AES) are listed in the Blackboard Student Center.

The Introduction to Nuclear Medicine course will begin on the first day of the fall semester. The first week of the two week orientation will consist of various classroom and clinical experiences designed to prepare the student for the clinical setting. The second week of orientation will be conducted in the city where the student's' clinical rotations will be conducted. During this week, the student will complete their Orientation course assignments, including attending required hospital orientations as scheduled.

The remainder of the year is divided into 9 or 10 clinical rotational units of approximately 12 to 16 clinical days each depending on geographical location. Generally speaking, student's will stay at a clinical site for the entire clinical rotation. The Radiopharmacy rotation will be split, with student's spending two weeks in the Radiopharmacy and two weeks at a hospital clinical rotation.

For course purposes, clinical rotational units are combined into three clinical internships. The first clinical internship lasts throughout the fall semester and will take place at various clinical sites, depending on student's' assignments. Student's are expected to participate at a beginning level progressing from observation only to completion of designated procedures with close supervision.

For the second clinical internship, student's will continue their clinical experiences in the spring semester at various clinical sites, working at the intermediate level. Student's are expected to progress from working under close supervision to working on a more independent basis.

The third and final clinical internship will take place during the summer session with student's continuing their clinical coursework at the advanced level. Although student's are still working under supervision, they are expected to work on an independent basis, honing their skills in preparation for entry-level work as a technologist.

The contents of the Clinical Handbook are available on Trajecsys, along with the student's log sheets and time sheets and other clinical paperwork to be entered online. However, student's should keep paper copies for their own records as backup. Refills of all forms are available on the program's web site.

NMIS 4517
Clinical Internship I

Clinical Internship

University of Arkansas for Medical Sciences
College of Health Professions

Department of Imaging and Radiation Sciences
Division of Nuclear Medicine Imaging Sciences

5 Credit Hours
320 Clinical hours

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Fall 2023

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1.0 General Information

1.1 Catalog Description

Practical application of coursework presented in the classroom. Student's are assigned educational experiences in radiopharmaceutical preparation and clinical imaging. This course is offered on a satisfactory/unsatisfactory marking basis.

1.2 Course Rationale

In the clinical internship student's are able to apply the knowledge and skills acquired during the academic core courses. Under the direction of the nuclear medicine technologist and/or nuclear pharmacists, student's will prepare radiopharmaceuticals for patient administration and student's will perform diagnostic imaging. Student's follow established protocols and develop organizational skills and proficiency under actual working conditions.

1.3 General Course Objectives

The objectives of the clinical internship are to provide learning experiences such that student's will be capable of competently completing the following tasks:

1. retrieve patient records as needed
2. after assessing proper identification, transport patients to and from the procedure room, and with assistance of the supervising technologist, to and/or from the department as necessary
3. assist with nursing care required by the patient while in the department
4. correctly position patients for all views for each assigned procedure.
5. load, process, label, and hang films according to departmental policies. For departments with PACS system, loads proper films in the PACS system for physician review.
6. locate radionuclide records kept by the department and explain the mechanism of record keeping
7. elute the generator and assay the generator eluant
8. perform routine quality control procedures on the generator eluant
9. calculate patient doses on the basis of half-life and activity
10. draw patient doses observing aseptic technique
11. using aseptic technique, administer radiopharmaceutical according to departmental policy
12. correctly dispose of radiopharmaceuticals and syringes
13. obtain serum and plasma specimens in the correct fashion
14. perform routine quality control procedures on imaging equipment, the dose calibrator, the uptake probe, and laboratory equipment
15. assist with routine cleaning of patient area, radiopharmaceutical preparation areas, labs, and so forth

16. locate the emergency equipment and supplies within the department
17. describe personnel safety regulations and emergency codes observed by the department
18. assume responsibility for personnel safety and hygiene
19. demonstrate correct professional behavior and concern for the patient
20. complete all Interprofessional Education (IPE) assignments scheduled during this semester

2.0 Instructional Methodology

2.1 General Technique

The principle form of instruction is the demonstration of procedures to student's by the clinical instructor and the nuclear medicine staff. Additional methodologies include supervised participation, in-service seminars, case studies, discussion, hand-outs, manipulative/tactile, and special projects.

2.2 Resource Based Techniques

This course will incorporate clinical experience as the resource base for student's. As directed by the JRCNMT, all technologists who work with the student's must be certified nuclear medicine technologists. Therefore, we can guarantee that the technologists who are working with the student's have passed national certification boards and must maintain continuing education credits in order to maintain their certification.

3.0 Instructional Methodology

3.1 Reference-Print Materials

The following resources will be used as reference sources and are available at the clinical sites.

1. Textbooks and references manuals used in core courses
2. Hospital and departmental policy and procedure manuals
3. Equipment manuals

3.2 Reference-Audiovisual Materials

There are no audiovisuals required for purchase by the student's for this course.

3.3 Computer Requirements

The student must have a computer that has Internet connectivity with a Web browser that is compatible with the current learning management system.

Students are responsible for hardware and software issues off-campus (home or office). Questions about the course content and assignments should be directed to the instructor.

Student's are required to clock-in and clock-out at their respective clinical site, as well as enter daily procedures and other rotation information. Most clinical sites will allow student's to use their on-site computers. When a clinical site does not allow student's to use their on-site computers, the student may use their phone. However, clock-in and clock-out MUST be done when the student is in the department. Other information can be entered when convenient. Remember, the IP address of the device used is tracked by Trajecsys.

3.4 Technical Assistance Notification

The UAMS Academic Affairs Educational and Student Success Center provides assistance with students' laptops and mobile devices. A Library and ESSC Systems Support Technician is available to assist with various technology issues, from connecting to the wireless network to troubleshooting possible software issues. The specialist is located on the 3rd floor of the Library (ED II 3/110) from Monday through Friday from 7:30 to 4:30 PM. Assistance is also available remotely. You can email him at CDWebb2@uams.edu or book an appointment at https://outlook.office365.com/owa/calendar/ITSupportCalvinWebb@uams.edu/bookings/.

4.0 General Evaluation Procedures

4.1 Student Evaluation Procedures

The Clinical Internship course is graded on a satisfactory (mark of "S") or unsatisfactory (mark of "U") basis.

Clinical competency examinations will be graded on a "S" or a "U" basis. A student must receive a satisfactory grade on all components of the clinical competency examination in order to pass that clinical competency examination. Student's must repeat all failed clinical competency examinations.

Upon completion of each rotation, student's will be evaluated by their affiliate education supervisor, using the criteria outlined in the clinical handbook, in each of the following areas:

Dependability	Integrity	Communication
Adaptability	Cooperation	Self-confidence
Initiative	Efficiency	Professionalism
Patient care	Radiation protection	

The affiliate education supervisor will score each area using the following descriptors:

- **Exceeds Expectations**: Student's performance in this area consistently exceeds expectations for his/her current stage of clinical education.

- **Meets Expectations**: Student's performance in this area meets the expectations for his/her current stage of clinical education.
- **Needs Improvement**: Student's performance in this area meets the minimum expectations of his/her current stage of clinical education; however, improvement is needed in order to establish progress.
- **Unsatisfactory**: Student's performance in this area fails to meet the minimum level expected for his/her current stage of clinical education.

Based on the clinical evaluation grades received, the following provisions will be imposed:

- Any student receiving a "Needs Improvement" or "Unsatisfactory" grade in any area will be counseled by the clinical coordinator and/or program director.
- Any student receiving two or more "Needs Improvement" grades in the same area during the academic year will be counseled by the clinical coordinator and/or program director and may be placed on academic probation.
- Any student receiving two or more "Unsatisfactory" ratings in one area during the same semester will receive an "Unsatisfactory" grade for that semester's Clinical Internship course and may be recommended for dismissal or suspension from the NMIS program.
- Each descriptor will be translated into a percentile score using the following conversion table:

Descriptor		Score
Unsatisfactory	=	60%
Needs Improvement	=	70%
Meets Expectations	=	85%
Exceeds Expectations	=	100%

Based on this conversion, student's will receive a summary score for each rotation and a cumulative semester score on the Trajecsys© Performance Evaluation Report.

PERFORMANCE EVALUATION

Report creation date:

Date range:

Evaluator:

Eval 1	Eval 2	Eval 3	Totals	Eval Items
				Dependability
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Arrives and leaves clinical site at the proper time.
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Notifies supervisor ASAP when late or absent.
Meets Expectations	Needs Improvement	Needs Improvement	**75**	Informs supervisor of whereabouts during the day.
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Takes lunch and breaks within the time limits.
96.25	**81.25**	**81.25**		
				Integrity
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Reports mistakes to supervisor.
Exceeds Expectations	Meets Expectations			
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Explains the procedure to the patietn prior to performing an exam.
100	**85**	**85**		
				Rating
3	2	3		Please rate the students performance:
99.53	**84.3**	**84.38**	**89.4**	

Rotation Score **Cumulative Score**

Note: all other numbers shown on the Performance Evaluation report are used for statistical purposes only.

Based on the clinical scores received, the following provisions will be imposed:

- Student's must achieve a minimum cumulative score of 77% in order to receive a grade of "Satisfactory" for that semester's Clinical Internship course.
- Any student receiving a rotation score of less than 77% will be counseled by the clinical coordinator and/or program director.
- Any student receiving a cumulative score less than 77% for the semester receive an "Unsatisfactory" grade for that semester's Clinical Internship course and may be recommended for dismissal or suspension from the NMIS program.

In the clinical internship student's are able to apply the knowledge and skills acquired during the academic core courses. Under the direction of the nuclear medicine technologist and/or nuclear pharmacists, student's will prepare radiopharmaceuticals for patient administration and student's will

perform diagnostic imaging. Student's follow established protocols and develop organizational skills and proficiency under actual working conditions.

As the student progresses through the clinical phases of his/her education, clinical skills acquired during the previous clinical rotations should be honed. Although the student still works under supervision, he/she is expected to evolve toward working on a more independent basis. The student should be encouraged to solve routine clinical problems autonomously.

A final rating will be assigned to the student's overall clinical proficiency by the affiliate education supervisor. (See Clinical Handbook, Section 7). Any student receiving two (2) or more overall performance evaluations at a level below his/her expected stage of performance during the fall and spring semesters will receive an "Unsatisfactory" grade for that semester's clinical rotation and may be recommended for dismissal or suspension from the NMIS program.

Student's will have seven calendar days from the last day of a scheduled clinical rotation to complete all online forms and evaluations for that rotation. Student's who submit forms and evaluations after the prescribed date will lose one accrued hour for <u>each calendar day</u> past the due date.
Upon completion of the course for the semester, the NMIS clinical coordinator and/or the NMIS program director must receive all clinical forms and clinical evaluations from the student. If all forms and evaluations are not handed in by the end of the semester the student's will receive a mark of "U" for unsatisfactory for the semester.

4.2 Instructor Evaluation Procedures

While comments regarding the course and instruction are welcomed by the instructor at any time, student's will be given the opportunity to complete CHP course and instructor evaluations. Your participation in this evaluation is appreciated.

<u>5.0 General Procedures</u>

5.1 General Remarks

As a student progresses throughout the clinical rotations, they will gain competence in each of the routine nuclear medicine technology procedures. Student's must test out of all routine procedures as outlined in the clinical handbook. When a student is deemed competent to perform a particular procedure, arrangements should be made with the affiliate education supervisor to take a clinical competency exam. At that time the affiliate education supervisor will observe the student performing the procedure and will grade him/her according to the evaluation form. Each step of the procedure is graded on a satisfactory/unsatisfactory basis.

At the discretion of the clinical coordinator and/or the program director and/or the affiliate education supervisor, a student may be required to take a

continuing competency exam that will be administered by the clinical coordinator or faculty member. The continuing competency exam will be given at the student's clinical site, and will be graded on a satisfactory/unsatisfactory basis.

A fall semester clinical comprehensive exam will be administered online during the summer semester. If the student fails to achieve a passing grade on any section of the fall semester clinical comprehensive exam, the student must take an oral exam over that section with a NMIS faculty member.

Student's are required to participate in three outside activities. At least one of the three required activities must be a continuing education (CE) meeting or article that has been approved for "Category A" CE credit by either the Society of Nuclear Medicine and Molecular Imaging (SNMMI) or the American Society of Radiologic Technologists (ASRT). These activities must be completed prior to the end of the semester as part of receiving a grade of "S" for Satisfactory in Clinical Internship I. Student's that do not complete these three outside activities prior to the end of the semester will receive an "I" for the course.

The following is a sample list of approved activities. Other activities may be submitted to the NMIS Clinical Coordinator and/or the NMIS Program Director for approval. All outside activities must be able to provide documentation and/or a certificate of participation. Student's are advised to check with the NMIS Clinical Coordinator and/or the NMIS Program Director before attending any activity to determine if that activity will meet this requirement.

Sample lists of outside activities:

Activities approved as outside Continuing Education Activities:
• Educational meeting put on by the SNMMI (national or chapter meeting) (write a 1 page summary of the meeting)
• Educational meeting put on by a radiopharmacy or equipment manufacturer company (e.g. Cardinal Health or GE / Siemens) (write a 1 page summary of the meeting)
• Educational meeting put on by a state or local radiologic science group (write a 1 page summary of the meeting)
• Continuing education article available online (must submit quiz results when required or write a 1 page summary of the article)
• Continuing education article available in professional journal (must submit quiz results when required or write a 1 page summary of the article)

The following are NOT considered Continuing Education Activities but may be considered as an outside activity
• Donating blood
• Attending hospital Grand Rounds
• Helping at a homeless shelter/kitchen

- Attending Hospital in-service programs
- Participating in Race for the Cure or other fundraisers for health care
- Volunteering at Red Cross
- Volunteering at Salvation Army (e.g. bell ringer at holidays)
- Volunteering for charitable organization

All personal electronic communication devices (i.e., cellular phones, pagers, iPads, etc…) must be turned OFF (not 'silent') while in class and in the clinical setting. At a student's discretion, the NMIS office telephone number may be provided to interested parties (i.e., child care facilities, family members, etc…) as a contact number for emergencies only. In the event of an emergency, the NMIS office must be notified first and personnel from that office will locate and communicate the information to the student. Student's may use their personal electronic communication devices when they are outside of their assigned clinical location AND on a designated break AND all facility rules and regulations pertaining to the use of personal electronic communication devices are followed. If a student is found using a personal electronic communication device while in the clinical setting, the occurrence will be documented in the student file and the student will be subject to the following:

First offense: Written warning
Second offense: Deduction of two (2) accrued hours from the accrued hour bank.
Subsequent offenses: Deduction of four (4) accrued hours from the accrued hour bank.

Because attendance in the clinical rotations is crucial to the learning process, student's must complete the required number of clinic hours. Student's are required to make requests for time off to their affiliate education supervisor for purposes of vacation, personal days, or any scheduled absence. Such requests must be made at least 48 hours in advance of the requested day off.

Student's who fail to report to their clinical site according to the rotation schedule or who fail to provide an advanced leave request will be charged with an unscheduled absence and will result in a deduction of two (2) hours from accrued time off in addition to any time missed at the clinical rotation.

Any clinical time taken off within sixteen (16) working hours of the fall semester clinical comprehensive examination scheduled in the summer will be deducted from the student's accrued hours at a ratio of two accrued hours for every one hour taken off from clinic. If a student must miss clinical time within sixteen (16) hours of the fall semester clinical comprehensive examinations scheduled in the summer due to an illness, a doctor's excuse

must be submitted to the NMIS Program Director and/or the NMIS Clinical Coordinator before this examination can be scheduled. All information regarding the attendance policy can be found in the Student Handbook Student's will be expected to display maturity and professionalism in daily contacts with faculty, hospital staff, fellow student's, patients, and visitors.

6.0 Class Attendance/Conduct/Dress Policy

6.1 General Remarks

In order to maximize learning opportunities, attendance will be taken at all class sessions.

Students are expected to actively engage in their education by attending and/or participating in class activities (face-to-face or at a distance). Faculty are expected to monitor their students' active participation and make contact by phone and UAMS email with those who have not initiated or maintained active participation in their course(s) for a period of one week. If a satisfactory reason is not presented to the faculty, the student does not actively engage in learning activities and/or the faculty member is unable to get in contact with the student, the faculty member should report this to the Associate Dean for Academic Affairs (ADAA). The ADAA will attempt to contact the student to learn the reason for his/her lack of participation. If a satisfactory reason is not presented, the student does not actively engage in learning activities and/or the ADAA is unable to get in contact with the student in a one- week period, the ADAA will notify the Registrar and the student will be administratively dropped from the class(es). If all classes are dropped, the student is administratively withdrawn from the CHP program.

Student's will receive a clinical rotation schedule during fall Orientation to Nuclear Medicine Imaging Sciences. Clinical rotation schedules are set so that the student achieves the best possible clinical educational experience, covering all aspects of nuclear medicine. Rotation schedules cannot be changed without the approval of the NMIS Clinical Coordinator and/or the NMIS Program Director. Clinical experiences are predominately in two areas: imaging and radiopharmacy. Imaging and radiopharmacy competencies and activities and evaluation procedures are listed in their respective objectives section of the clinical handbook.

Clinical internship I lasts throughout the fall semester and will be conducted at various clinical sites. Student's are expected to participate at a beginning level, progressing from observation only to completion of designated procedures with close supervision.

The starting time for the first day of each clinical site is 7:30 am. A clinical site may require the student to start at a different time. The affiliate education supervisor will notify the student of the required starting time.

No matter the starting time, student's are required to have eight (8) contact hours per day. Student's are allowed a 15 minute break in the morning and in the afternoon and a required 30 minute lunch break. The break and lunch times will be designated by the affiliate education supervisor. The two 15 minute breaks are counted as part of the student's contact hours. Student's are not allowed to work through lunch in order to leave early for the day. The clinical day consists of 8½ hours reported on the time sheet, with 30 minutes of that being lunch. 08:00 to 16:00 is 8 hours total, but only 7 ½ contact hours. 08:00 to 16:30 is eight (8) contact hours.

Student's will be allowed to be sent home after a minimum of six (6) hours of work and get credit "Finished Early" (8 hours) as long as the following criteria have been met:

1. There are no more patients on the clinical schedule for the day or remaining patients are scheduled after the scheduled time to leave;
2. Being sent home early must be initiated by the affiliate education supervisor, not by the student;
3. Clinical paperwork, patient paperwork, and all appropriate documentation has been completed for the day;
4. Clinical duties (area is clean and neat, etc.) are completed.

Student's who ask to go home early will receive credit only for the actual time worked.

In order for a student to receive credit for working extra hours, student's **must** work a minimum of one (1) clinical hour beyond the day's regularly scheduled eight (8) clinical hours. Any hours that a student works in order to make up time for time missed, is made up on a one (1) hour worked to one (1) extra credit hour basis. Partial hour credit (15 minutes, 30 minutes) are not allowed. During the make-up hours, student's are **not** allowed to:

1. Be sent home "Finished Early" and receive eight (8) hours of credit.
2. File "Time Exceptions" in the online system.

Student's who wish to make-up missed clinical time on a Saturday or on another day where class(es) or clinical times are not scheduled, must have prior approval from the NMIS Clinical Coordinator and/or NMIS Program Director and the affiliate education supervisor of the clinical site the student wants to attend. Clinical time worked without prior approval will not be allowed and will not be counted as make up time.

All clinical times must be logged using the Trajecsys clock in/out function.

6.2 Session Absence Grading Effects

If an emergency situation arises (i.e. illness) that prevents a student from participating in a scheduled clinical rotation, that student must contact the clinical site's affiliate education supervisor by phone and the NMIS Clinical Coordinator and/or NMIS Program Director by e-mail **prior** to the regularly

scheduled starting time for that clinical day. Failure to follow this procedure will result in a deduction of two hours from the student's accrued time.

6.3 Session Tardiness Grading Effects

If student's will be late for clinic or must leave clinic during the day, the affiliate education supervisor must be notified. Student's will be evaluated on punctuality. (See also the rule on tardiness located in the student handbook)

6.4 Conduct/Dress Code

Student's are to adhere to the dress code as outlined in the Nuclear Medicine Imaging Sciences Student Handbook. At all times during their clinical rotation student's are to wear their UAMS ID badge (and any other ID badges as required by the clinical site), their personal dosimeters and a lab coat (as required by the clinical site). Student's will be evaluated on their professionalism, their overall conduct and appearance in the clinical rotation.

7.0 Due Dates/Deadlines

Student's are to check the online system to verify that their time has been entered. If a student has not entered time into the system for a day that has been worked, when times are reviewed by the Clinical Coordinator, the time will be deducted. If the student did work that day and did not enter their time, it is the responsibility of the student to contact the affiliate education supervisor. The affiliate education supervisor must e-mail or call the NMIS Clinical Coordinator and/ or the NMIS Program Director to verify the day was actually worked. At that time, the NMIS Clinical Coordinator and/ or the NMIS Program Director will give the time back to the student. This must be done within the time frame listed below.

Affiliate education supervisors cannot be expected to remember the times student's have attended clinic. All clinical times for a clinical rotation must be approved by the affiliate education supervisor or the NMIS Clinical Coordinator within ten (10) calendar days from the end of the clinical rotation. If the clinical times are not approved within this time frame, the clinical times will not be approved. It is the responsibility of the student to verify that their clinical time has been entered.

8.0 Session Schedules

8.1 General Remarks

Student's will receive a clinical rotation schedule during fall Orientation to Nuclear Medicine Imaging Sciences. Clinical rotation schedules are set so that the student achieves the best possible clinical educational experience, covering all aspects of nuclear medicine. Rotation schedules cannot be changed without the approval of the NMIS Clinical Coordinator and/or the NMIS Program Director. Clinical experiences are predominately in two areas: imaging and radiopharmacy. Imaging and radiopharmacy competencies, activities and evaluation procedures are listed in their respective objectives section of the clinical handbook.

8.2 Tentative Session Schedule

The fall semester consists of three five week "blocks" of class/clinical time.

Block 1 – August 28 – September 29
Block 2 – October 2 – November 3
Block 3 – November 6 – December 8

For each block:

- During weeks 1 – 4, student's will have class on Monday and attend a clinical rotation Tuesday through Friday.
- During week 5, student's will have class on Monday, Tuesday is a study day and Wednesday is the block examination day.
- During week 5, Thursday and Friday after the block exam, student's will be preparing for the next block.

Occasionally a UAMS Holiday falls on a Monday. When this occurs, student's will have class on Tuesday and attend a clinical rotation Wednesday through Friday

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	**Class Meeting**	Clinical Day	Clinical Day	Clinical Day	Clinical Day
Week 2	**Class Meeting**	Clinical Day	Clinical Day	Clinical Day	Clinical Day
Week 3	**Class Meeting**	Clinical Day	Clinical Day	Clinical Day	Clinical Day
Week 4	**Class Meeting**	Clinical Day	Clinical Day	Clinical Day	Clinical Day
Week 5	**Class Meeting**	**Block Exam Study Day**	**BLOCK EXAM**	**Study Day**	**Study Day**

9.0 Instructional Staff

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Office Hours: By appointment

10.0 CHP Policies

COPYRIGHT POLICY - The materials used in this course may include copyright protected materials provided for the personal educational use of the enrolled student's and may not be further redistributed.

INTELLECTUAL PROPERTY POLICY - Lecture, lab and other presentations are the intellectual property of the faculty and faculty must give their written permission for their lecture, lab, and other presentations to be recorded.

Recorded lectures/labs/presentations may only be posted on websites or other locations approved by the College of Health Professions and are provided for the personal educational use of student's enrolled in the course. Student's are prohibited from providing or distributing any course materials in any manner – print, electronic, or any other media – or providing links to any course materials to anyone outside of their UAMS classes.

Failure to abide by this policy may result in disciplinary action including dismissal.

Failure to abide by this policy may constitute a copyright infringement which may have the following legal consequences:

Summary of Civil and Criminal Penalties for Violating Federal Copyright Laws

Copyright infringement is the act of exercising, without permission or legal authority, one or more of the exclusive rights granted to the copyright owner under section 106 of the Copyright Act (Title 17 of the United States Code). These rights include the right to reproduce or distribute a copyrighted work. In the

file-sharing context, downloading or uploading substantial parts of a copyrighted work without authority constitutes an infringement.
Penalties for copyright infringement include civil and criminal penalties. In general, anyone found liable for civil copyright infringement may be ordered to pay either actual damages or "statutory" damages affixed at not less than $750 and not more than $30,000 per work infringed. For "willful" infringement, a court may award up to $150,000 per work infringed. A court can, in its discretion, also assess costs and attorneys' fees. For details, see Title 17, United States Code, Sections 504, 505.

Willful copyright infringement can also result in criminal penalties, including imprisonment of up to five years and fines of up to $250,000 per offense.
For more information, see the web site of the U.S. Copyright Office at www.copyright.gov, and especially their FAQs at www.copyright.gov/help/faq

Title IX - The University of Arkansas for Medical Sciences (UAMS) does not discriminate on the basis of sex, gender, or sexual orientation in its education programs or activities. Title IX of the Education Amendments of 1972, and certain other federal and state laws, prohibit discrimination on the basis of sex in all education programs and activities operated by UAMS (both on and off campus). Title IX protects all people regardless of their gender or gender identity from sex discrimination, which includes sexual harassment and sexual violence. The UAMS Title IX Coordinator can be contacted at (501) 526-5641. She is available to explain and discuss: your right to file a criminal complaint (sexual assault and violence); the university's complaint process, including the investigation process; how confidentiality is handled; available resources (both on and off campus); and other related matters**. You may also contact the UAMS Police Department, 501-686-7777 (non-emergency) or 911 (emergency). If you are in the midst of an emergency, please call the police immediately by dialing 9-1-1.**

The United States Department of Education's Office of Civil Rights ("OCR") is responsible for enforcing Title IX, as well as other federal civil rights laws that prohibit discrimination in programs or activities that receive federal financial aid. Inquiries and complaints may also be directed to OCR at 1-800-421-3481 or ocr@ed.gov

DISABILITY POLICY - UAMS is committed to providing equal access to learning opportunities to student's with disabilities. To ensure access to any class or program, please contact the ADA Coordinator to engage in a confidential conversation about the process of requesting accommodations in the classroom and clinical settings. Accommodations are not applied retroactively. Student's are encouraged to register with the ADA Coordinator's office as soon as they begin their program or as soon as the student recognizes their need for an adjustment.

UAMS encourages student's to access all resources available through the ADA Office for consistent support and access to their programs. More information can be found online at http://student's.uams.edu/ada-disability-services/ or by the contacting the disability services office at (501) 526-5641.

11.0 SCHOLASTIC MISCONDUCT AND PLAGIARISM

Scholastic dishonesty is defined as an act contrary to academic and/or professional ethics. Examples of scholastic dishonesty include, but are not limited to, cheating, plagiarism, collusion, submission for credit of any work or materials that are attributable in whole or part to another person or an artificial intelligence third-party service or site, taking an examination or submitting work or materials for another person, any act designed to give unfair advantage to a student, or the attempt to commit such acts. Additionally, submitting an assignment that was previously submitted in another course constitutes scholastic dishonesty, unless the resubmission was approved by the course director. The sanctions for scholastic dishonesty may include, but are not limited to, a failing grade on the test/assignment, failing grade for the course, probation, suspension, or dismissal from the college. Refer to CHP's Student Conduct and Discipline Policy, 02.15.01, located in the UAMS Academic Catalog, for details on matters related to scholastic dishonesty and other non-academic disciplinary matters.

Students are expected to submit original work for all assignments and exams. The CHP subscribes to a Web-based plagiarism detection and prevention system that has the ability to compare written work to a database of texts, journals, electronic and web sources, including web sites that provide pre-written essays or term papers. If a student is suspected of submitting work copied from another source, CHP reserves the right to use this plagiarism detection system, with or without the student's knowledge.

While Artificial Intelligence (AI) may serve as a learning resource for students, AI-generated content should not be submitted by students for assignments or exams, unless expressly permitted and approved by the course director. Doing so would constitute plagiarism, and disciplinary action outlined in the CHP Student Conduct and Discipline Policy, 02.15.01, would be enforced.

As your course instructor, I am informing you via this syllabus that I reserve the right, at my discretion, to use this plagiarism detection system for this course by submitting student's' written work to the system for the purpose of determining if a document has been plagiarized.

Note: All work submitted for this course is required to be original work developed for class assignments and should not have been submitted for assignments made as part of previous and/or concurrent courses without the instructors' prior knowledge and approval; to do otherwise constitutes scholastic dishonesty and will be addressed as such in this course.

12.0 PATIENT PRIVACY AND CONFIDENTIALITY

this information.

The standards for protecting patient health information are described in the federal law known as the Health Insurance Portability and Accountability Act (HIPAA). HIPAA limits access to medical records to authorized individuals and for specific purposes. It is not possible to summarize HIPAA here; however, you will have received HIPAA training prior to being granted access to patient information. Additional information and training on HIPAA, including UAMS HIPAA policies, are available on the HIPPA Office web page HIPAA.uams.edu.

Please keep in mind that there are sanctions for inappropriate access to patient records. These include criminal penalties of up to one (1) year imprisonment and a $50,000 fine; as well as, disciplinary action up to and including dismissal from your program.

If you have any questions pertaining to HIPPA, you may direct them to the UAMS HIPAA office at 501-603-1379.

While the provisions of this syllabus are as accurate and complete as possible, the instructor reserves the right to change any provision herein. Student's will be notified of any changes and it is the responsibility of each student to know what changes, if any, have been made to the provisions of this syllabus and to successfully complete the requirements of this course.

NMIS 4524
Clinical Internship II

Clinical Internship

University of Arkansas for Medical Sciences
College of Health Professions

Department of Imaging and Radiation Sciences
Division of Nuclear Medicine Imaging Sciences

5 Credit Hours
320 Clinical hours

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Spring 2023

Revised Spring 2023

1.0 General Information

1.1 Catalog Description

Continuation of clinical internship at the intermediate level. Prerequisite: NMIS 4517 Clinical Internship I. This course is offered on a satisfactory/unsatisfactory basis.

1.2 Course Rationale

In the clinical internship student's are able to apply the knowledge and skills acquired during the academic core courses. Under the direction of the nuclear medicine technologist and/or nuclear pharmacists, student's will prepare radiopharmaceuticals for patient administration and student's will perform diagnostic imaging. Student's follow established protocols and develop organizational skills and proficiency under actual working conditions.

1.3 General Course Objectives

The objectives of this internship are in addition to those objectives identified in NMIS 4517 Clinical Internship I.
The objectives of this internship are to provide learning experiences such that student's should be capable of completing the following tasks:

1. perform routine imaging procedures as outlined in the Evaluation Guide, consistently following departmental protocols
2. correctly set up the computer for acquisition of studies and process studies upon completion of the acquisition
3. evaluation studies for abnormalities
4. perform routine *in vitro* procedures as outlined in the evaluation guide
5. compound radiopharmaceutical kits and perform quality control procedures on the compounded kits
6. perform all instrumentation quality control procedures within the department
7. perform periodic contamination surveys to include wipe tests and surveys with meters, recording results in the appropriate record books
8. perform quality assurance procedures within the department and on radiation detection instruments, recording data in the appropriate record books;
9. assist with administrative processes such as scheduling of patients and charting patient results and procedures, according to departmental policy

10. complete all Interprofessional Education (IPE) assignments scheduled during this semester

2.0 Instructional Methodology

2.1 General Technique

The principle form of instruction is the demonstration of procedures to student's by the clinical instructor and the nuclear medicine staff. Additional methodologies include supervised participation, in-service seminars, case studies, discussion, hand-outs, manipulative/tactile, and special projects.

2.2 Resource Based Techniques

This course will incorporate clinical experience as the resource base for student's. As directed by the JRCNMT, all technologists who work with the student's must be certified nuclear medicine technologists. Therefore, we can guarantee that the technologists who are working with the student's have passed national certification boards and must maintain continuing education credits in order to maintain their certification.

3.0 Instructional Methodology

3.1 Reference-Print Materials

The following resources will be used as reference sources and are available at the clinical sites.

1. Textbooks and references manuals used in core courses
2. Hospital and departmental policy and procedure manuals
3. Equipment manuals

3.2 Reference-Audiovisual Materials

There are no audiovisuals required for purchase by the student's for this course.

3.3 Computer Requirements

The student must have a computer that has Internet connectivity with a Web browser that is compatible with the current learning management system.

Students are responsible for hardware and software issues off-campus (home or office). Questions about the course content and assignments should be directed to the instructor.

Student's are required to clock-in and clock-out at their respective clinical site, as well as enter daily procedures and other rotation information. Most clinical sites will allow student's to use their on-site computers. When a

clinical site does not allow student's to use their on-site computers, the student may use their phone. However, clock-in and clock-out MUST be done when the student is in the department. Other information can be entered when convenient. Remember, the IP address of the device used is tracked by Trajecsys.

3.4 Technical Assistance Notification

The UAMS Academic Affairs Educational and Student Success Center provides assistance with students' laptops and mobile devices. A Library and ESSC Systems Support Technician is available to assist with various technology issues, from connecting to the wireless network to troubleshooting possible software issues. The specialist is located on the 3rd floor of the Library (ED II 3/110) from Monday through Friday from 7:30 to 4:30 PM. Assistance is also available remotely. You can email him at CDWebb2@uams.edu or book an appointment at https://outlook.office365.com/owa/calendar/ITSupportCalvinWebb@uams.edu/bookings/.

4.0 General Evaluation Procedures

4.1 Student Evaluation Procedures

The Clinical Internship course is graded on a satisfactory (mark of "S") or unsatisfactory (mark of "U") basis.

Clinical competency examinations will be graded on a "S" or a "U" basis. A student must receive a satisfactory grade on all components of the clinical competency examination in order to pass that clinical competency examination. Student's must repeat all failed clinical competency examinations.

Upon completion of each rotation, student's will be evaluated by their affiliate education supervisor, using the criteria outlined in the clinical handbook, in each of the following areas:

Dependability	Integrity	Communication
Adaptability	Cooperation	Self-confidence
Initiative	Efficiency	Professionalism
Patient care	Radiation protection	

The affiliate education supervisor will score each area using the following descriptors:

- **Exceeds Expectations**: Student's performance in this area is consistently exceeds expectations for his/her current stage of clinical education.

- **Meets Expectations**: Student's performance in this area meets the expectations for his/her current stage of clinical education.
- **Needs Improvement**: Student's performance in this area meets the minimum expectations of his/her current stage of clinical education; however, improvement is needed in order to establish progress.
- **Unsatisfactory**: Student's performance in this area fails to meet the minimum level expected for his/her current stage of clinical education.

Based on the clinical evaluation grades received, the following provisions will be imposed:

- Any student receiving a "Needs Improvement" or "Unsatisfactory" grade in any area will be counseled by the clinical coordinator and/or program director.
- Any student receiving two or more "Needs Improvement" grades in the same area during the academic year will be counseled by the clinical coordinator and/or program director and may be placed on academic probation.

Any student receiving two or more "Unsatisfactory" ratings in one area during the same semester will receive an "Unsatisfactory" grade for that semester's Clinical Internship course and may be recommended for dismissal or suspension from the NMIS program.

Each descriptor will be translated into a percentile score using the following conversion table:

Descriptor		Score
Unsatisfactory	=	60%
Needs Improvement	=	70%
Meets Expectations	=	85%
Exceeds Expectations	=	100%

Based on this conversion, student's will receive a summary score for each rotation and a cumulative semester score on the Trajecsys© Performance Evaluation Report.

PERFORMANCE EVALUATION

Report creation date:

Date range:

Evaluator:

Eval 1	Eval 2	Eval 3	Totals	Eval Items
				Dependability
Exceeds Expectations	Meets Expectations	Meets Expectations	90	Arrives and leaves clinical site at the proper time.
Exceeds Expectations	Meets Expectations	Meets Expectations	90	Notifies supervisor ASAP when late or absent.
Meets Expectations	Needs Improvement	Needs Improvement	75	Informs supervisor of whereabouts during the day.
Exceeds Expectations	Meets Expectations	Meets Expectations	90	Takes lunch and breaks within the time limits.
96.25	**81.25**	**81.25**		
				Integrity
Exceeds Expectations	Meets Expectations	Meets Expectations	90	Reports mistakes to supervisor.
Exceeds Expectations	Meets Expectations			
Exceeds Expectations	Meets Expectations	Meets Expectations	90	Explains the procedure to the patietn prior to performing an exam.
100	**85**	**85**		
				Rating
3	2	3		Please rate the students performance:
99.53	**84.3**	**84.38**	**89.4**	

Rotation Score **Cumulative Score**

Note: all other numbers shown on the Performance Evaluation report are used for statistical purposes only.

Based on the clinical scores received, the following provisions will be imposed:

- Student's must achieve a minimum cumulative score of 77% in order to receive a grade of "Satisfactory" for that semester's Clinical Internship course.
- Any student receiving a rotation score of less than 77% will be counseled by the by the clinical coordinator and/or program director.
- Any student receiving a cumulative score less than 77% for the semester receive an "Unsatisfactory" grade for that semester's Clinical Internship course and may be recommended for dismissal or suspension from the NMIS program.

In the clinical internship student's are able to apply the knowledge and skills acquired during the academic core courses. Under the direction of the nuclear medicine technologist and/or nuclear pharmacists,

student's will prepare radiopharmaceuticals for patient administration and student's will perform diagnostic imaging. Student's follow established protocols and develop organizational skills and proficiency under actual working conditions.

As the student progresses through the clinical phases of his/her education, clinical skills acquired during the previous clinical rotations should be honed. Although the student still works under supervision, he/she is expected to evolve toward working on a more independent basis. The student should be encouraged to solve routine clinical problems autonomously.

A final rating will be assigned to the student's overall clinical proficiency by the affiliate education supervisor. (See Clinical Handbook, Section 7). Any student receiving two (2) or more overall performance evaluations at a level below his/her expected stage of performance during the fall and spring semesters will receive an "Unsatisfactory" grade for that semester's clinical rotation and may be recommended for dismissal or suspension from the NMIS program.

Student's will have seven calendar days from the last day of a scheduled clinical rotation to complete all online forms and evaluations for that rotation. Student's who submit forms and evaluations after the prescribed date will lose one accrued hour for each calendar day past the due date.

Upon completion of the course for the semester, the NMIS clinical coordinator and/or the NMIS program director must receive all clinical forms and clinical evaluations from the student. If all forms and evaluations are not handed in by the end of the semester the student's will receive a mark of "U" for unsatisfactory for the semester.

4.2 Instructor Evaluation Procedures

While comments regarding the course and instruction are welcomed by the instructor at any time, student's will be given the opportunity to complete CHP course and instructor evaluations. Your participation in this evaluation is appreciated.

5.0 General Procedures

5.1 General Remarks

As a student progresses throughout the clinical rotations, they will gain competence in each of the routine nuclear medicine technology procedures. Student's must test out of all routine procedures as outlined in the clinical handbook. When a student is deemed competent to perform a particular procedure, arrangements should be made with the affiliate education supervisor to take a clinical

competency exam. At that time the affiliate education supervisor will observe the student performing the procedure and will grade him/her according to the evaluation form. Each step of the procedure is graded on a satisfactory/unsatisfactory basis.

At the discretion of the clinical coordinator and/or the program director and/or the affiliate education supervisor, a student may be required to take a continuing competency exam that will be administered by the clinical coordinator or faculty member. The continuing competency exam will be given at the student's clinical site, and will be graded on a satisfactory/unsatisfactory basis.
A spring semester clinical comprehensive exam will be administered online during the summer semester. If the student fails to achieve a passing grade on any section of the fall semester clinical comprehensive exam, the student must take an oral exam over that section with a NMIS faculty member.

Student's are required to participate in three outside activities. At least one of the three required activities must be a continuing education (CE) meeting or article that has been approved for "Category A" CE credit by either the Society of Nuclear Medicine and Molecular Imaging (SNMMI) or the American Society of Radiologic Technologists (ASRT). These activities must be completed prior to the end of the semester as part of receiving a grade of "S" for Satisfactory in Clinical Internship I. Student's that do not complete these three outside activities prior to the end of the semester will receive an "I" for the course.

The following is a sample list of approved activities. Other activities may be submitted to the NMIS Clinical Coordinator and/or the NMIS Program Director for approval. All outside activities must be able to provide documentation and/or a certificate of participation. Student's are advised to check with the NMIS Clinical Coordinator and/or the NMIS Program Director before attending any activity to determine if that activity will meet this requirement.

Sample lists of outside activities:

Activities approved as outside Continuing Education Activities:

- Educational meeting put on by the SNMMI (national or chapter meeting) (write a 1 page summary of the meeting)
- Educational meeting put on by a radiopharmacy or equipment manufacturer company (e.g. Cardinal Health or GE / Siemens) (write a 1 page summary of the meeting)
- Educational meeting put on by a state or local radiologic science group (write a 1 page summary of the meeting)
- Continuing education article available online (must submit quiz results when required or write a 1 page summary of the article)

- Continuing education article available in professional journal (must submit quiz results when required or write a 1 page summary of the article)

The following are NOT considered Continuing Education Activities but may be considered as an outside activity

- Donating blood
- Attending hospital Grand Rounds
- Helping at a homeless shelter/kitchen
- Attending Hospital in-service programs
- Participating in Race for the Cure or other fundraisers for health care
- Volunteering at Red Cross
- Volunteering at Salvation Army (e.g. bell ringer at holidays)
- Volunteering for charitable organization

All personal electronic communication devices (i.e., cellular phones, pagers, iPads, etc…) must be turned OFF (not 'silent') while in class and in the clinical setting. At a student's discretion, the NMIS office telephone number may be provided to interested parties (i.e., child care facilities, family members, etc…) as a contact number for emergencies only. In the event of an emergency, the NMIS office must be notified first and personnel from that office will locate and communicate the information to the student. Student's may use their personal electronic communication devices when they are outside of their assigned clinical location AND on a designated break AND all facility rules and regulations pertaining to the use of personal electronic communication devices are followed. If a student is found using a personal electronic communication device while in class and/or in the clinical setting, the occurrence will be documented in the student file and the student will be subject to the following:

First offense: Written warning
Second offense: Deduction of two (2) accrued hours from the accrued hour bank.
Subsequent offenses: Deduction of four (4) accrued hours from the accrued hour bank.

Because attendance in the clinical rotations is crucial to the learning process, student's must complete the required number of clinic hours. Student's are required to make requests for time off to their affiliate education supervisor for purposes of vacation, personal days, or any

scheduled absence. Such requests must be made at least 48 hours in advance of the requested day off.

Student's who fail to report to their clinical site according to the rotation schedule or who fail to provide an advanced leave request will be charged with an unscheduled absence and will result in a deduction of two (2) hours from accrued time off in addition to any time missed at the clinical rotation.

Any clinical time taken off within sixteen (16) working hours of the spring semester clinical comprehensive examinations scheduled in the summer will be deducted from the student's accrued hours at a ratio of two accrued hours for every one hour taken off from clinic. If a student must miss clinical time within sixteen (16) hours of the spring semester clinical comprehensive examination scheduled in the summer due to an illness, a doctor's excuse must be submitted to the NMIS Program Director and/or the NMIS Clinical Coordinator before this examination can be scheduled. All information regarding the attendance policy can be found in the Student Handbook

Student's will be expected to display maturity and professionalism in daily contacts with faculty, hospital staff, fellow student's, patients, and visitors.

6.0 Class Attendance/Conduct/Dress Policy

6.1 General Remarks

In order to maximize learning opportunities, attendance will be taken at all class sessions.

Students are expected to actively engage in their education by attending and/or participating in class activities (face-to-face or at a distance). Faculty are expected to monitor their students' active participation and make contact by phone and UAMS email with those who have not initiated or maintained active participation in their course(s) for a period of one week. If a satisfactory reason is not presented to the faculty, the student does not actively engage in learning activities and/or the faculty member is unable to get in contact with the student, the faculty member should report this to the Associate Dean for Academic Affairs (ADAA). The ADAA will attempt to contact the student to learn the reason for his/her lack of participation. If a satisfactory reason is not presented, the student does not actively engage in learning activities and/or the ADAA is unable to get in contact with the student in a one- week period, the ADAA will notify the Registrar and the student will be administratively dropped from the class(es). If all classes are dropped, the student is administratively withdrawn from the CHP program.

Student's will receive a clinical rotation schedule during fall Orientation to Nuclear Medicine Imaging Sciences. Clinical rotation schedules are set so that the student achieves the best possible clinical educational experience, covering all aspects of nuclear medicine. Rotation schedules cannot be changed without the approval of the NMIS Clinical Coordinator and/or the NMIS Program Director. Clinical experiences are predominately in two areas: imaging and radiopharmacy. Imaging and radiopharmacy competencies and activities and evaluation procedures are listed in their respective objectives section of the clinical handbook.

Clinical internship I lasts throughout the fall semester and will be conducted at various clinical sites. Student's are expected to participate at a beginning level, progressing from observation only to completion of designated procedures with close supervision.

The starting time for the first day of each clinical site is 7:30 am. A clinical site may require the student to start at a different time. The affiliate education supervisor will notify the student of the required starting time.

No matter the starting time, student's are required to have eight (8) contact hours per day. Student's are allowed a 15 minute break in the morning and in the afternoon and a required 30 minute lunch break. The break and lunch times will be designated by the affiliate education supervisor. The two 15 minute breaks are counted as part of the student's contact hours. Student's are not allowed to work through lunch in order to leave early for the day. The clinical day consists of 8½ hours reported on the time sheet, with 30 minutes of that being lunch. 08:00 to 16:00 is 8 hours total, but only 7 ½ contact hours. 08:00 to 16:30 is eight (8) contact hours.

Student's will be allowed to be sent home after a minimum of six (6) hours of work and get credit "Finished Early" (8 hours) as long as the following criteria have been met:

1. There are no more patients on the clinical schedule for the day or remaining patients are scheduled after the scheduled time to leave;
2. Being sent home early must be initiated by the affiliate education supervisor, not by the student;
3. Clinical paperwork, patient paperwork, and all appropriate documentation has been completed for the day;
4. Clinical duties (area is clean and neat, etc.) are completed.

Student's who ask to go home early will receive credit only for the actual time worked.

In order for a student to receive credit for working extra hours, student's **must** work a minimum of one (1) clinical hour beyond the day's regularly scheduled eight (8) clinical hours. Any hours that a student works in order to make up time for time missed, is made up on a one (1) hour worked to one

(1) extra credit hour basis. Partial hour credit (15 minutes, 30 minutes) are not allowed. During the make-up hours, student's are **not** allowed to:

1. Be sent home "Finished Early" and receive eight (8) hours of credit.
2. File "Time Exceptions" in the online system.

Student's who wish to make-up missed clinical time on a Saturday or on another day where class(es) or clinical times are not scheduled, must have prior approval from the NMIS Clinical Coordinator and/or NMIS Program Director and the affiliate education supervisor of the clinical site the student wants to attend. Clinical time worked without prior approval will not be allowed and will not be counted as make up time.

All clinical times must be logged using the Trajecsys clock in/out function.

6.2 Session Absence Grading Effects

If an emergency situation arises (i.e. illness) that prevents a student from participating in a scheduled clinical rotation, that student must contact the clinical site's affiliate education supervisor by phone and the NMIS Clinical Coordinator and/or NMIS Program Director by e-mail **prior** to the regularly scheduled starting time for that clinical day. Failure to follow this procedure will result in a deduction of two hours from the student's accrued time.

6.3 Session Tardiness Grading Effects

If student's will be late for clinic or must leave clinic during the day, the affiliate education supervisor must be notified. Student's will be evaluated on punctuality. (See also the rule on tardiness located in the student handbook)

6.4 Conduct/Dress Code

Student's are to adhere to the dress code as outlined in the Nuclear Medicine Imaging Sciences Student Handbook. At all times during their clinical rotation student's are to wear their UAMS ID badge (and other ID badges as required by the clinical site), their personal dosimeters and a lab coat (as required by the clinical site). Student's will be evaluated on their professionalism, their overall conduct and appearance in the clinical rotation.

7.0 Due Dates/Deadlines

Student's are to check the online system to verify that their time has been entered. If a student has not entered time into the system for a day that has been worked, when times are reviewed by the Clinical Coordinator, the time will be deducted. If the student did work that day and did not enter their time, it is the responsibility of the student to contact the affiliate education supervisor. The affiliate education supervisor must e-mail or call the NMIS Clinical Coordinator and/ or the NMIS Program Director to verify the day was actually worked. At that time, the NMIS Clinical Coordinator and/ or the NMIS Program

Director will give the time back to the student. This must be done within the time frame listed below.

Affiliate education supervisors cannot be expected to remember the times student's have attended clinic. All clinical times for a clinical rotation must be approved by the affiliate education supervisor or the NMIS Clinical Coordinator within ten (10) calendar days from the end of the clinical rotation. If the clinical times are not approved within this time frame, the clinical times will not be approved. It is the responsibility of the student to verify that their clinical time has been entered.

8.0 Session Schedules

8.1 General Remarks

Student's will receive a clinical rotation schedule during fall Orientation to Nuclear Medicine Imaging Sciences. Clinical rotation schedules are set so that the student achieves the best possible clinical educational experience, covering all aspects of nuclear medicine. Rotation schedules cannot be changed without the approval of the NMIS Clinical Coordinator and/or the NMIS Program Director. Clinical experiences are predominately in two areas: imaging and radiopharmacy. Imaging and radiopharmacy competencies, activities and evaluation procedures are listed in their respective objectives section of the clinical handbook.

8.2 Tentative Session Schedule

The spring semester consists of three five week "blocks" of class/clinical time.

Block 1 – January 8 – February 9
Block 2 – February 12 – March 16
UAMS NMIS Spring Break March 26– March 30
Block 3 – April 9 – May 11

For each block:

- During weeks 1 – 4, student's will have class on Monday and attend a clinical rotation Tuesday through Friday.
- During week 5, student's will have class on Monday, Tuesday is a study day and Wednesday is the block examination day.
- During week 5, Thursday and Friday after the block exam, student's will be preparing for the next block.

Occasionally a UAMS Holiday falls on a Monday. When this occurs, student's will have class on Tuesday and attend a clinical rotation Wednesday through Friday

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	**Class Meeting**	Clinical Day	Clinical Day	Clinical Day	Clinical Day
Week 2	**Class Meeting**	Clinical Day	Clinical Day	Clinical Day	Clinical Day
Week 3	**Class Meeting**	Clinical Day	Clinical Day	Clinical Day	Clinical Day
Week 4	**Class Meeting**	Clinical Day	Clinical Day	Clinical Day	Clinical Day
Week 5	**Class Meeting**	**Block Exam Study Day**	**BLOCK EXAM**	**Study Day**	**Study Day**

9.0 Instructional Staff

Thomas Cunningham, CNMT, NMTCB(CT)
Summer Khairi, MBA, CNMT, NMTCB(CT)
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Mailing Address:
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Office Fax: 501.686.8770
E-mail: TCunningham2@uams.edu
Office Hours: By appointment

10.0 CHP Policies

COPYRIGHT POLICY - The materials used in this course may include copyright protected materials provided for the personal educational use of the enrolled student's and may not be further redistributed.

INTELLECTUAL PROPERTY POLICY - Lecture, lab and other presentations are the intellectual property of the faculty and faculty must give their written permission for their lecture, lab, and other presentations to be recorded.

Recorded lectures/labs/presentations may only be posted on websites or other locations approved by the College of Health Professions and are provided for the personal educational use of student's enrolled in the course. Student's are prohibited from providing or distributing any course materials in any manner – print, electronic, or any other media – or providing links to any course materials to anyone outside of their UAMS classes.

Failure to abide by this policy may result in disciplinary action including dismissal.

Failure to abide by this policy may constitute a copyright infringement which may have the following legal consequences:

Summary of Civil and Criminal Penalties for Violating Federal Copyright Laws

Copyright infringement is the act of exercising, without permission or legal authority, one or more of the exclusive rights granted to the copyright owner under section 106 of the Copyright Act (Title 17 of the United States Code). These rights include the right to reproduce or distribute a copyrighted work. In the file-sharing context, downloading or uploading substantial parts of a copyrighted work without authority constitutes an infringement.

Penalties for copyright infringement include civil and criminal penalties. In general, anyone found liable for civil copyright infringement may be ordered to pay either actual damages or "statutory" damages affixed at not less than $750 and not more than $30,000 per work infringed. For "willful" infringement, a court may award up to $150,000 per work infringed. A court can, in its discretion, also assess costs and attorneys' fees. For details, see Title 17, United States Code, Sections 504, 505.

Willful copyright infringement can also result in criminal penalties, including imprisonment of up to five years and fines of up to $250,000 per offense.

For more information, see the web site of the U.S. Copyright Office at www.copyright.gov, and especially their FAQs at www.copyright.gov/help/faq

Title IX - The University of Arkansas for Medical Sciences (UAMS) does not discriminate on the basis of sex, gender, or sexual orientation in its education programs or activities. Title IX of the Education Amendments of 1972, and certain other federal and state laws, prohibit discrimination on the basis of sex in all education programs and activities operated by UAMS (both on and off campus). Title IX protects all people regardless of their gender or gender identity from sex discrimination, which includes sexual harassment and sexual violence. The UAMS Title IX Coordinator can be contacted at (501) 526-5641. She is available to explain and discuss: your right to file a criminal complaint (sexual

assault and violence); the university's complaint process, including the investigation process; how confidentiality is handled; available resources (both on and off campus); and other related matters**. You may also contact the UAMS Police Department, 501-686-7777 (non-emergency) or 911 (emergency). If you are in the midst of an emergency, please call the police immediately by dialing 9-1-1.**

The United States Department of Education's Office of Civil Rights ("OCR") is responsible for enforcing Title IX, as well as other federal civil rights laws that prohibit discrimination in programs or activities that receive federal financial aid. Inquiries and complaints may also be directed to OCR at 1-800-421-3481 or ocr@ed.gov

DISABILITY POLICY - UAMS is committed to providing equal access to learning opportunities to student's with disabilities. To ensure access to any class or program, please contact the ADA Coordinator to engage in a confidential conversation about the process of requesting accommodations in the classroom and clinical settings. Accommodations are not applied retroactively. Student's are encouraged to register with the ADA Coordinator's office as soon as they begin their program or as soon as the student recognizes their need for an adjustment.

UAMS encourages student's to access all resources available through the ADA Office for consistent support and access to their programs. More information can be found online at http://student's.uams.edu/ada-disability-services/ or by the contacting the disability services office at (501) 526-5641.

11.0 SCHOLASTIC MISCONDUCT AND PLAGIARISM

Scholastic dishonesty is defined as an act contrary to academic and/or professional ethics. Examples of scholastic dishonesty include, but are not limited to, cheating, plagiarism, collusion, submission for credit of any work or materials that are attributable in whole or part to another person or an artificial intelligence third-party service or site, taking an examination or submitting work or materials for another person, any act designed to give unfair advantage to a student, or the attempt to commit such acts. Additionally, submitting an assignment that was previously submitted in another course constitutes scholastic dishonesty, unless the resubmission was approved by the course director. The sanctions for scholastic dishonesty may include, but are not limited to, a failing grade on the test/assignment, failing grade for the course, probation, suspension, or dismissal from the college. Refer to CHP's Student Conduct and Discipline Policy, 02.15.01, located in the UAMS Academic Catalog, for details on matters related to scholastic dishonesty and other non-academic disciplinary matters.

Students are expected to submit original work for all assignments and exams. The CHP subscribes to a Web-based plagiarism detection and prevention system that has the ability to compare written work to a database of texts, journals, electronic and web sources, including web sites that provide pre-written essays or term papers. If a student is suspected of submitting work copied from another source, CHP reserves the right to use this plagiarism detection system, with or without the student's knowledge.

While Artificial Intelligence (AI) may serve as a learning resource for students, AI-generated content should not be submitted by students for assignments or exams, unless expressly permitted and approved by the course director. Doing so would constitute plagiarism, and disciplinary action outlined in the CHP Student Conduct and Discipline Policy, 02.15.01, would be enforced.

As your course instructor, I am informing you via this syllabus that I reserve the right, at my discretion, to use this plagiarism detection system for this course by submitting student's' written work to the system for the purpose of determining if a document has been plagiarized.

Note: All work submitted for this course is required to be original work developed for class assignments and should not have been submitted for assignments made as part of previous and/or concurrent courses without the instructors' prior knowledge and approval; to do otherwise constitutes scholastic dishonesty and will be addressed as such in this course.

12.0 PATIENT PRIVACY AND CONFIDENTIALITY

UAMS is committed to protecting the privacy of our patients' information. While privacy and confidentiality have always been a priority for health care providers, it has heightened importance in this era of electronic information due to the increased speed of information flow and the risks associated with protecting this information.

The standards for protecting patient health information are described in the federal law known as the Health Insurance Portability and Accountability Act (HIPAA). HIPAA limits access to medical records to authorized individuals and for specific purposes. It is not possible to summarize HIPAA here; however, you will have received HIPAA training prior to being granted access to patient information. Additional information and training on HIPAA, including UAMS HIPAA policies, are available on the HIPPA Office web page HIPAA.uams.edu.

Please keep in mind that there are sanctions for inappropriate access to patient records. These include criminal penalties of up to one (1) year imprisonment and a $50,000 fine; as well as, disciplinary action up to and including dismissal from your program.

If you have any questions pertaining to HIPPA, you may direct them to the UAMS HIPAA office at 501-603-1379.

While the provisions of this syllabus are as accurate and complete as possible, the instructor reserves the right to change any provision herein. Student's will be notified of any changes and it is the responsibility of each student to know what changes, if any, have been made to the provisions of this syllabus and to successfully complete the requirements of this course.

NMIS 4431
Clinical Internship III

Clinical Internship

University of Arkansas for Medical Sciences
College of Health Professions

Department of Imaging and Radiation Sciences
Division of Nuclear Medicine Imaging Sciences

4 Credit Hours
256 Clinical hours

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Summer 2023

Revised Spring 2023

1.0 General Information

1.1 Catalog Description

Continuation of clinical coursework at the advanced level. Prerequisite: NMIS 4524 Clinical Internship II. This course is offered on a satisfactory/unsatisfactory marking basis.

1.2 Course Rationale

In the clinical internship student's are able to apply the knowledge and skills acquired during the academic core courses. Under the direction of the nuclear medicine technologist and/or nuclear pharmacists, student's will prepare radiopharmaceuticals for patient administration and student's will perform diagnostic imaging. Student's follow established protocols and develop organizational skills and proficiency under actual working conditions.

1.3 General Course Objectives

The objectives of this internship are in addition to those objectives identified in NMIS 4517 Clinical Internship I and NMIS 4525 Clinical Internship II.
The objectives of this internship are to provide learning experiences such that student's should be capable of completing the following tasks:

1. demonstrate proficiency in performing all routine imaging procedures within the department
2. demonstrate competency in performing non-routine procedures with the use of the departmental protocol manual
3. demonstrate knowledge of counting statistics
4. perform and evaluate all quality control procedures in equipment, radiopharmaceuticals, and in vitro procedures, recording data the appropriate record book
5. perform and evaluate quality assurance procedures within a department
6. correctly operate all ancillary equipment within the department
7. correctly sequence multiple studies
8. demonstrate the correct method of disposing of waste products, both radioactive and non-radioactive
9. determine the need for supplies within the department
10. maintain all records as required by JCAHO and the State Health Department
11. given a contaminated surface or area in the department, demonstrate correct decontamination procedures
12. adequately prepare a patient room for a radionuclide therapy procedure, assembly the dose and other material, and be familiar

with how to inform the patient, the patient's family, and nursing staff of protection precautions to be taken during the therapy procedure

13. complete all Interprofessional Education (IPE) assignments scheduled during this semester

2.0 Instructional Methodology

2.1 General Technique

The principle form of instruction is the demonstration of procedures to student's by the clinical instructor and the nuclear medicine staff. Additional methodologies include supervised participation, in-service seminars, case studies, discussion, hand-outs, manipulative/tactile, and special projects.

2.2 Resource Based Techniques

This course will incorporate clinical experience as the resource base for student's. As directed by the JRCNMT, all technologists who work with the student's must be certified nuclear medicine technologists. Therefore, we can guarantee that the technologists who are working with the student's have passed national certification boards and must maintain continuing education credits in order to maintain their certification.

3.0 Instructional Methodology

3.1 Reference-Print Materials

The following resources will be used as reference sources and are available at the clinical sites.

1. Textbooks and references manuals used in core courses
2. Hospital and departmental policy and procedure manuals
3. Equipment manuals

3.2 Reference-Audiovisual Materials

There are no audiovisuals required for purchase by the student's for this course.

3.3 Computer Requirements

The student must have a computer that has Internet connectivity with a Web browser that is compatible with the current learning management system.

Students are responsible for hardware and software issues off-campus (home or office). Questions about the course content and assignments should be directed to the instructor.

Student's are required to clock-in and clock-out at their respective clinical site, as well as enter daily procedures and other rotation information. Most clinical sites will allow student's to use their on-site computers. When a clinical site does not allow student's to use their on-site computers, the student may use their phone. However, clock-in and clock-out MUST be done when the student is in the department. Other information can be entered when convenient. Remember, the IP address of the device used is tracked by Trajecsys.

3.4 Technical Assistance Notification

The UAMS Academic Affairs Educational and Student Success Center provides assistance with students' laptops and mobile devices. A Library and ESSC Systems Support Technician is available to assist with various technology issues, from connecting to the wireless network to troubleshooting possible software issues. The specialist is located on the 3rd floor of the Library (ED II 3/110) from Monday through Friday from 7:30 to 4:30 PM. Assistance is also available remotely. You can email him at CDWebb2@uams.edu or book an appointment at https://outlook.office365.com/owa/calendar/ITSupportCalvinWebb@uams.edu/bookings/.

4.0 General Evaluation Procedures

4.1 Student Evaluation Procedures

The Clinical Internship course is graded on a satisfactory (mark of "S") or unsatisfactory (mark of "U") basis.

Clinical competency examinations will be graded on a "s" or a "U" basis. A student must receive a satisfactory grade on all components of the clinical competency examination in order to pass that clinical competency examination. Student's must repeat all failed clinical competency examinations.

Upon completion of each rotation, student's will be evaluated by their affiliate education supervisor, using the criteria outlined in the clinical handbook, in each of the following areas:

Dependability	Integrity	Communication
Adaptability	Cooperation	Self-confidence
Initiative	Efficiency	Professionalism
Patient care	Radiation protection	

The affiliate education supervisor will score each area using the following descriptors:

- **Exceeds Expectations**: Student's performance in this area is consistently exceeds expectations for his/her current stage of clinical education.
- **Meets Expectations**: Student's performance in this area meets the expectations for his/her current stage of clinical education.
- **Needs Improvement**: Student's performance in this area meets the minimum expectations of his/her current stage of clinical education; however, improvement is needed in order to establish progress.
- **Unsatisfactory**: Student's performance in this area fails to meet the minimum level expected for his/her current stage of clinical education.

Based on the clinical evaluation grades received, the following provisions will be imposed:

- Any student receiving a "Needs Improvement" or "Unsatisfactory" grade in any area will be counseled by the clinical coordinator and/or program director.
- Any student receiving two or more "Needs Improvement" grades in the same area during the academic year will be counseled by the clinical coordinator and/or program director and may be placed on academic probation.

Any student receiving two or more "Unsatisfactory" ratings in one area during the same semester will receive an "Unsatisfactory" grade for that semester's Clinical Internship course and may be recommended for dismissal or suspension from the NMIS program.

Each descriptor will be translated into a percentile score using the following conversion table:

Descriptor		Score
Unsatisfactory	=	60%
Needs Improvement	=	70%
Meets Expectations	=	85%
Exceeds Expectations	=	100%

Based on this conversion, student's will receive a summary score for each rotation and a cumulative semester score on the Trajecsys© Performance Evaluation Report.

PERFORMANCE EVALUATION

Report creation date:

Date range:

Evaluator:

Eval 1	Eval 2	Eval 3	Totals	Eval Items
				Dependability
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Arrives and leaves clinical site at the proper time.
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Notifies supervisor ASAP when late or absent.
Meets Expectations	Needs Improvement	Needs Improvement	**75**	Informs supervisor of whereabouts during the day.
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Takes lunch and breaks within the time limits.
96.25	**81.25**	**81.25**		
				Integrity
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Reports mistakes to supervisor.
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	[illegible]
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Explains the procedure to the patietn prior to performing an exam.
100	**85**	**85**		
				Rating
3	2	3		Please rate the students performance:
99.53	**84.3**	**84.38**	**89.4**	

Rotation Score **Cumulative Score**

Note: all other numbers shown on the Performance Evaluation report are used for statistical purposes only.

Based on the clinical scores received, the following provisions will be imposed:

- Student's must achieve a minimum cumulative score of 77% in order to receive a grade of "Satisfactory" for that semester's Clinical Internship course.
- Any student receiving a rotation score of less than 77% will be counseled by the clinical coordinator or program director.
- Any student receiving a cumulative score less than 77% for the semester receive an "Unsatisfactory" grade for that semester's Clinical Internship course and may be recommended for dismissal or suspension from the NMIS program.

In the clinical internship student's are able to apply the knowledge and skills acquired during the academic core courses. Under the direction

of the nuclear medicine technologist and/or nuclear pharmacists, student's will prepare radiopharmaceuticals for patient administration and student's will perform diagnostic imaging. Student's follow established protocols and develop organizational skills and proficiency under actual working conditions.

As the student progresses through the clinical phases of his/her education, clinical skills acquired during the previous clinical rotations should be honed. Although the student still works under supervision, he/she is expected to evolve toward working on a more independent basis. The student should be encouraged to solve routine clinical problems autonomously.

A final rating will be assigned to the student's overall clinical proficiency by the affiliate education supervisor. (See Clinical Handbook, Section 7). Any student receiving two (2) or more overall performance evaluations at a level below his/her expected stage of performance during the fall and spring semesters will receive an "Unsatisfactory" grade for that semester's clinical rotation and may be recommended for dismissal or suspension from the NMIS program.

Student's will have seven calendar days from the last day of a scheduled clinical rotation to complete all online forms and evaluations for that rotation. Student's who submit forms and evaluations after the prescribed date will lose one accrued hour for each calendar day past the due date.

Upon completion of the course for the semester, the NMIS clinical coordinator and/or the NMIS program director must receive all clinical forms and clinical evaluations from the student. If all forms and evaluations are not handed in by the end of the semester the student's will receive a mark of "U" for unsatisfactory for the semester.

4.2 Instructor Evaluation Procedures

While comments regarding the course and instruction are welcomed by the instructor at any time, student's will be given the opportunity to complete CHP course and instructor evaluations. Your participation in this evaluation is appreciated.

5.0 General Procedures

5.1 General Remarks

As a student progresses throughout the clinical rotations, they will gain competence in each of the routine nuclear medicine technology procedures. Student's must test out of all routine procedures as outlined in the clinical handbook. When a student is deemed competent to perform a particular procedure, arrangements should be made with the affiliate education supervisor to take a clinical competency exam. At that time the affiliate education supervisor will

observe the student performing the procedure and will grade him/her according to the evaluation form. Each step of the procedure is graded on a satisfactory/unsatisfactory basis.

At the discretion of the clinical coordinator and/or the program director and/or the affiliate education supervisor, a student may be required to take a continuing competency exam that will be administered by the clinical coordinator or faculty member. The continuing competency exam will be given at the student's clinical site, and will be graded on a satisfactory/unsatisfactory basis.

A final comprehensive exam will be administered online at the end of the summer semester. If the student fails to achieve a passing grade on the final comprehensive exam, the student will be allowed one retake of the final comprehensive exam, which will be scheduled 3 to 4 days following the first attempt. Failure to pass the second attempt of the final comprehensive examination will require an additional semester of clinical work to be completed. Student's who have to take an additional semester of clinical work will be subject to availability in their current city and may need to relocate in order to do their remedial semester.

Student's are required to participate in two outside activities. At least one of the two required activities must be a continuing education (CE) meeting or article that has been approved for "Category A" CE credit by either the Society of Nuclear Medicine and Molecular Imaging (SNMMI) or the American Society of Radiologic Technologists (ASRT). These activities must be completed prior to the end of the semester as part of receiving a grade of "S" for Satisfactory in Clinical Internship III. Student's that do not complete these two outside activities prior to the end of the semester will receive an "I" for the course.

The following is a sample list of approved activities. Other activities may be submitted to the NMIS Clinical Coordinator and/or the NMIS Program Director for approval. All outside activities must be able to provide documentation and/or a certificate of participation. Student's are advised to check with the NMIS Clinical Coordinator and/or the NMIS Program Director before attending any activity to determine if that activity will meet this requirement.

Sample lists of outside activities:

Activities approved as outside Continuing Education Activities:

- Educational meeting put on by the SNMMI (national or chapter meeting) (write a 1 page summary of the meeting)
- Educational meeting put on by a radiopharmacy or equipment manufacturer company (e.g. Cardinal Health or GE / Siemens) (write a 1 page summary of the meeting)

- Educational meeting put on by a state or local radiologic science group (write a 1 page summary of the meeting)
- Continuing education article available online (must submit quiz results when required or write a 1 page summary of the article)
- Continuing education article available in professional journal (must submit quiz results when required or write a 1 page summary of the article)

The following are NOT considered Continuing Education Activities but may be considered as an outside activity

- Donating blood
- Attending hospital Grand Rounds
- Helping at a homeless shelter/kitchen
- Attending Hospital in-service programs
- Participating in Race for the Cure or other fundraisers for health care
- Volunteering at Red Cross
- Volunteering at Salvation Army (e.g. bell ringer at holidays)
- Volunteering for charitable organization

All personal electronic communication devices (i.e., cellular phones, pagers, iPads, etc…) must be turned OFF (not 'silent') while in class and in the clinical setting. At a student's discretion, the NMIS office telephone number may be provided to interested parties (i.e., child care facilities, family members, etc…) as a contact number for emergencies only. In the event of an emergency, the NMIS office must be notified first and personnel from that office will locate and communicate the information to the student. Student's may use their personal electronic communication devices when they are outside of their assigned clinical location AND on a designated break AND all facility rules and regulations pertaining to the use of personal electronic communication devices are followed. If a student is found using a personal electronic communication device while in class and/or in the clinical setting, the occurrence will be documented in the student file and the student will be subject to the following:

First offense: Written warning
Second offense: Deduction of two (2) accrued hours from the accrued hour bank.
Subsequent offenses: Deduction of four (4) accrued hours from the accrued hour bank.

Because attendance in the clinical rotations is crucial to the learning process, student's must complete the required number of clinic hours. Student's are required to make requests for time off to their affiliate education supervisor for purposes of vacation, personal days, or any scheduled absence. Such requests must be made at least 48 hours in advance of the requested day off.

Student's who fail to report to their clinical site according to the rotation schedule or who fail to provide an advanced leave request will be charged with an unscheduled absence and will result in a deduction of two (2) hours from accrued time off in addition to any time missed at the clinical rotation.

Any clinical time taken off within sixteen (16) working hours of the final comprehensive examination scheduled at the end of the summer will be deducted from the student's accrued hours at a ratio of two accrued hours for every one hour taken off from clinic. If a student must miss clinical time within sixteen (16) hours of the final comprehensive examination scheduled at the end of the summer due to an illness, a doctor's excuse must be submitted to the NMIS Program Director and/or the NMIS Clinical Coordinator before this examinations can be scheduled. All information regarding the attendance policy can be found in the Student Handbook

Student's will be expected to display maturity and professionalism in daily contacts with faculty, hospital staff, fellow student's, patients, and visitors.

6.0 Class Attendance/Conduct/Dress Policy

6.1 General Remarks

In order to maximize learning opportunities, attendance will be taken at all class sessions.

Students are expected to actively engage in their education by attending and/or participating in class activities (face-to-face or at a distance). Faculty are expected to monitor their students' active participation and make contact by phone and UAMS email with those who have not initiated or maintained active participation in their course(s) for a period of one week. If a satisfactory reason is not presented to the faculty, the student does not actively engage in learning activities and/or the faculty member is unable to get in contact with the student, the faculty member should report this to the Associate Dean for Academic Affairs (ADAA). The ADAA will attempt to contact the student to learn the reason for his/her lack of participation. If a satisfactory reason is not presented, the student does not actively engage in learning activities and/or the ADAA is unable to get in contact with the student in a one- week period, the ADAA will notify the Registrar and the student will be administratively dropped from the class(es).

If all classes are dropped, the student is administratively withdrawn from the CHP program.

Student's will receive a clinical rotation schedule during fall Orientation to Nuclear Medicine Imaging Sciences. Clinical rotation schedules are set so that the student achieves the best possible clinical educational experience, covering all aspects of nuclear medicine. Rotation schedules cannot be changed without the approval of the NMIS Clinical Coordinator and/or the NMIS Program Director. Clinical experiences are predominately in two areas: imaging and radiopharmacy. Imaging and radiopharmacy competencies and activities and evaluation procedures are listed in their respective objectives section of the clinical handbook.

Clinical internship I lasts throughout the fall semester and will be conducted at various clinical sites. Student's are expected to participate at a beginning level, progressing from observation only to completion of designated procedures with close supervision.

The starting time for the first day of each clinical site is 7:30 am. A clinical site may require the student to start at a different time. The affiliate education supervisor will notify the student of the required starting time.

No matter the starting time, student's are required to have eight (8) contact hours per day. Student's are allowed a 15 minute break in the morning and in the afternoon and a required 30 minute lunch break. The break and lunch times will be designated by the affiliate education supervisor. The two 15 minute breaks are counted as part of the student's contact hours. Student's are not allowed to work through lunch in order to leave early for the day. The clinical day consists of 8½ hours reported on the time sheet, with 30 minutes of that being lunch. 08:00 to 16:00 is 8 hours total, but only 7 ½ contact hours. 08:00 to 16:30 is eight (8) contact hours.

Student's will be allowed to be sent home after a minimum of six (6) hours of work and get credit "Finished Early" (8 hours) as long as the following criteria have been met:

1. There are no more patients on the clinical schedule for the day or remaining patients are scheduled after the scheduled time to leave;
2. Being sent home early must be initiated by the affiliate education supervisor, not by the student;
3. Clinical paperwork, patient paperwork, and all appropriate documentation has been completed for the day;
4. Clinical duties (area is clean and neat, etc.) are completed.

Student's who ask to go home early will receive credit only for the actual time worked.

In order for a student to receive credit for working extra hours, student's **must** work a minimum of one (1) clinical hour beyond the day's regularly scheduled eight (8) clinical hours. Any hours that a student works in order to make up time for time missed, is made up on a one (1) hour worked to one (1) extra credit hour basis. Partial hour credit (15 minutes, 30 minutes) are not allowed. During the make-up hours, student's are **not** allowed to:

1. Be sent home "Finished Early" and receive eight (8) hours of credit.
2. File "Time Exceptions" in the online system.

Student's who wish to make-up missed clinical time on a Saturday or on another day where class(es) or clinical times are not scheduled, must have prior approval from the NMIS Clinical Coordinator and/or NMIS Program Director and the affiliate education supervisor of the clinical site the student wants to attend. Clinical time worked without prior approval will not be allowed and will not be counted as make up time.

All clinical times must be logged using the Trajecsys clock in/out function.

6.2 Session Absence Grading Effects

If an emergency situation arises (i.e. illness) that prevents a student from participating in a scheduled clinical rotation, that student must contact the clinical site's affiliate education supervisor by phone and the NMIS Clinical Coordinator and/or NMIS Program Director by e-mail **prior** to the regularly scheduled starting time for that clinical day. Failure to follow this procedure will result in a deduction of two hours from the student's accrued time.

6.3 Session Tardiness Grading Effects

If student's will be late for clinic or must leave clinic during the day, the affiliate education supervisor must be notified. Student's will be evaluated on punctuality. (See also the rule on tardiness located in the student handbook)

6.4 Conduct/Dress Code

Student's are to adhere to the dress code as outlined in the Nuclear Medicine Imaging Sciences Student Handbook. At all times during their clinical rotation student's are to wear their UAMS ID badge (and other ID badges as required by the clinical site), their personal dosimeters and a lab coat (as required by the clinical site). Student's will be evaluated on their professionalism, their overall conduct and appearance in the clinical rotation.

7.0 Due Dates/Deadlines

Student's are to check the online system to verify that their time has been entered. If a student has not entered time into the system for a day that has been worked, when times are reviewed by the Clinical Coordinator, the time will be deducted. If the student did work that day and did not enter their time, it is the responsibility of the student to contact the affiliate education supervisor. The affiliate education supervisor must e-mail or call the NMIS Clinical Coordinator and/ or the NMIS Program Director to verify the day was actually worked. At that time, the NMIS Clinical Coordinator and/ or the NMIS Program Director will give the time back to the student. This must be done within the time frame listed below.

Affiliate education supervisors cannot be expected to remember the times student's have attended clinic. All clinical times for a clinical rotation must be approved by the affiliate education supervisor or the NMIS Clinical Coordinator within ten (10) calendar days from the end of the clinical rotation. If the clinical times are not approved within this time frame, the clinical times will not be approved. It is the responsibility of the student to verify that their clinical time has been entered.

8.0 Session Schedules

8.1 General Remarks

Student's will receive a clinical rotation schedule during fall Orientation to Nuclear Medicine Imaging Sciences. Clinical rotation schedules are set so that the student achieves the best possible clinical educational experience, covering all aspects of nuclear medicine. Rotation schedules cannot be changed without the approval of the NMIS Clinical Coordinator and/or the NMIS Program Director. Clinical experiences are predominately in two areas: imaging and radiopharmacy. Imaging and radiopharmacy competencies, activities and evaluation procedures are listed in their respective objectives section of the clinical handbook.

8.2 Tentative Session Schedule

The summer semester consists of three "blocks" of class/clinical time.

Block 1 – May 29 – June 15
Block 2 – June 18 – July 6
Fall Semester Comprehensive Examination – June 11
Block 3 – July 9 – July 27
Spring Semester Comprehensive Examination – July 9
Final Comprehensive Examination – July 30

For each block:

Student's that are enrolled in the CT Physics and Instrumentation course will have class on Monday during the summer semester. Student's are **not** allowed to go to clinic on Mondays to make up or to gain extra clinical hours. These student's will attend a clinical rotation Tuesday through Friday.

Student's who are not enrolled in the CT Physics and Instrumentation course during the summer semester are required to attend a clinic Monday through Friday.

Occasionally a UAMS Holiday falls on a Monday. When this occurs, student's enrolled in the CT Physics and Instrumentation course will have class on Tuesday and attend a clinical rotation Wednesday through Friday.

9.0 Instructional Staff

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Office Hours: By appointment

10.0 CHP Policies

COPYRIGHT POLICY - The materials used in this course may include copyright protected materials provided for the personal educational use of the enrolled student's and may not be further redistributed.

INTELLECTUAL PROPERTY POLICY - Lecture, lab and other presentations are the intellectual property of the faculty and faculty must give their written permission for their lecture, lab, and other presentations to be recorded.

Recorded lectures/labs/presentations may only be posted on websites or other locations approved by the College of Health Professions and are provided for the personal educational use of student's enrolled in the course. Student's are prohibited from providing or distributing any course materials in any manner –

print, electronic, or any other media – or providing links to any course materials to anyone outside of their UAMS classes.

Failure to abide by this policy may result in disciplinary action including dismissal.

Failure to abide by this policy may constitute a copyright infringement which may have the following legal consequences:

Summary of Civil and Criminal Penalties for Violating Federal Copyright Laws

Copyright infringement is the act of exercising, without permission or legal authority, one or more of the exclusive rights granted to the copyright owner under section 106 of the Copyright Act (Title 17 of the United States Code). These rights include the right to reproduce or distribute a copyrighted work. In the file-sharing context, downloading or uploading substantial parts of a copyrighted work without authority constitutes an infringement.

Penalties for copyright infringement include civil and criminal penalties. In general, anyone found liable for civil copyright infringement may be ordered to pay either actual damages or "statutory" damages affixed at not less than $750 and not more than $30,000 per work infringed. For "willful" infringement, a court may award up to $150,000 per work infringed. A court can, in its discretion, also assess costs and attorneys' fees. For details, see Title 17, United States Code, Sections 504, 505.

Willful copyright infringement can also result in criminal penalties, including imprisonment of up to five years and fines of up to $250,000 per offense.

For more information, see the web site of the U.S. Copyright Office at www.copyright.gov, and especially their FAQs at www.copyright.gov/help/faq

Title IX - The University of Arkansas for Medical Sciences (UAMS) does not discriminate on the basis of sex, gender, or sexual orientation in its education programs or activities. Title IX of the Education Amendments of 1972, and certain other federal and state laws, prohibit discrimination on the basis of sex in all education programs and activities operated by UAMS (both on and off campus). Title IX protects all people regardless of their gender or gender identity from sex discrimination, which includes sexual harassment and sexual violence. The UAMS Title IX Coordinator can be contacted at (501) 526-5641. She is available to explain and discuss: your right to file a criminal complaint (sexual assault and violence); the university's complaint process, including the investigation process; how confidentiality is handled; available resources (both on and off campus); and other related matters**. You may also contact the UAMS Police Department, 501-686-7777 (non-emergency) or 911 (emergency). If you are in the midst of an emergency, please call the police immediately by dialing 9-1-1.**

The United States Department of Education's Office of Civil Rights ("OCR") is responsible for enforcing Title IX, as well as other federal civil rights laws that prohibit discrimination in programs or activities that receive federal financial aid. Inquiries and complaints may also be directed to OCR at 1-800-421-3481 or ocr@ed.gov

DISABILITY POLICY - UAMS is committed to providing equal access to learning opportunities to student's with disabilities. To ensure access to any class or program, please contact the ADA Coordinator to engage in a confidential conversation about the process of requesting accommodations in the classroom and clinical settings. Accommodations are not applied retroactively. Student's are encouraged to register with the ADA Coordinator's office as soon as they begin their program or as soon as the student recognizes their need for an adjustment.

UAMS encourages student's to access all resources available through the ADA Office for consistent support and access to their programs. More information can be found online at http://student's.uams.edu/ada-disability-services/ or by the contacting the disability services office at (501) 526-5641.

11.0 SCHOLASTIC MISCONDUCT AND PLAGIARISM

Scholastic dishonesty is defined as an act contrary to academic and/or professional ethics. Examples of scholastic dishonesty include, but are not limited to, cheating, plagiarism, collusion, submission for credit of any work or materials that are attributable in whole or part to another person or an artificial intelligence third-party service or site, taking an examination or submitting work or materials for another person, any act designed to give unfair advantage to a student, or the attempt to commit such acts. Additionally, submitting an assignment that was previously submitted in another course constitutes scholastic dishonesty, unless the resubmission was approved by the course director. The sanctions for scholastic dishonesty may include, but are not limited to, a failing grade on the test/assignment, failing grade for the course, probation, suspension, or dismissal from the college. Refer to CHP's Student Conduct and Discipline Policy, 02.15.01, located in the UAMS Academic Catalog, for details on matters related to scholastic dishonesty and other non-academic disciplinary matters.

Students are expected to submit original work for all assignments and exams. The CHP subscribes to a Web-based plagiarism detection and prevention system that has the ability to compare written work to a database of texts, journals, electronic and web sources, including web sites that provide pre-written essays or term papers. If a student is suspected of submitting work copied from another source, CHP reserves the right to use this plagiarism detection system, with or without the student's knowledge.

While Artificial Intelligence (AI) may serve as a learning resource for students, AI-generated content should not be submitted by students for assignments or exams, unless expressly permitted and approved by the course director. Doing so would constitute plagiarism, and disciplinary action outlined in the CHP Student Conduct and Discipline Policy, 02.15.01, would be enforced.

Note: All work submitted for this course is required to be original work developed for class assignments and should not have been submitted for assignments made as part of previous and/or concurrent courses without the instructors' prior knowledge and approval; to do otherwise constitutes scholastic dishonesty and will be addressed as such in this course.

12.0 PATIENT PRIVACY AND CONFIDENTIALITY

UAMS is committed to protecting the privacy of our patients' information. While privacy and confidentiality have always been a priority for health care providers, it has heightened importance in this era of electronic information due to the increased speed of information flow and the risks associated with protecting this information.

The standards for protecting patient health information are described in the federal law known as the Health Insurance Portability and Accountability Act (HIPAA). HIPAA limits access to medical records to authorized individuals and for specific purposes. It is not possible to summarize HIPAA here; however, you will have received HIPAA training prior to being granted access to patient information. Additional information and training on HIPAA, including UAMS HIPAA policies, are available on the HIPPA Office web page HIPAA.uams.edu.

Please keep in mind that there are sanctions for inappropriate access to patient records. These include criminal penalties of up to one (1) year imprisonment and a $50,000 fine; as well as, disciplinary action up to and including dismissal from your program.

If you have any questions pertaining to HIPPA, you may direct them to the UAMS HIPAA office at 501-603-1379.

While the provisions of this syllabus are as accurate and complete as possible, the instructor reserves the right to change any provision herein. Student's will be notified of any changes and it is the responsibility of each student to know what changes, if any, have been made to the provisions of this syllabus and to successfully complete the requirements of this course.

NMIS 4V41
Clinical Internship IV

Clinical Internship

University of Arkansas for Medical Sciences
College of Health Professions

Department of Imaging and Radiation Sciences
Division of Nuclear Medicine Imaging Sciences

Variable Credit Hours
Variable Clinical hours

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TBA

Revised Spring 2023

1.0 General Information

1.1 Catalog Description

Continuation of clinical coursework at the advanced level.
Prerequisite: This course is required only of a student that receives a "U" Unsatisfactory in NMIS 4525 Clinical Internship III.
This course is offered on a satisfactory/unsatisfactory marking basis.

1.2 Course Rationale

In the clinical internship student's are able to apply the knowledge and skills acquired during the academic core courses. Under the direction of the nuclear medicine technologist and/or nuclear pharmacists, student's will prepare radiopharmaceuticals for patient administration and student's will perform diagnostic imaging. Student's follow established protocols and develop organizational skills and proficiency under actual working conditions.

1.3 General Course Objectives

The objectives of this internship are in addition to those objectives identified in NMIS 4517 Clinical Internship I and NMIS 4525 Clinical Internship II and NMIS 4431 Clinical Internship III.
The objectives of this internship are to provide learning experiences such that student's should be capable of completing the following tasks:

1. demonstrate proficiency in performing all routine imaging procedures within the department
2. demonstrate competency in performing non-routine procedures with the use of the departmental protocol manual
3. demonstrate knowledge of counting statistics
4. perform and evaluate all quality control procedures in equipment, radiopharmaceuticals, and in vitro procedures, recording data the appropriate record book
5. perform and evaluate quality assurance procedures within a department
6. correctly operate all ancillary equipment within the department
7. correctly sequence multiple studies
8. demonstrate the correct method of disposing of waste products, both radioactive and non-radioactive
9. determine the need for supplies within the department
10. maintain all records as required by JCAHO and the State Health Department
11. given a contaminated surface or area in the department, demonstrate correct decontamination procedures

12. adequately prepare a patient room for a radionuclide therapy procedure, assemble the dose and other material, and be familiar with how to inform the patient, the patient's family, and nursing staff of protection precautions to be taken during the therapy procedure.

2.0 Instructional Methodology

2.1 General Technique

The principle form of instruction is the demonstration of procedures to student's by the clinical instructor and the nuclear medicine staff. Additional methodologies include supervised participation, in-service seminars, case studies, discussion, hand-outs, manipulative/tactile, and special projects.

2.2 Resource Based Techniques

This course will incorporate clinical experience as the resource base for student's. As directed by the JRCNMT, all technologists who work with the student's must be certified nuclear medicine technologists. Therefore, we can guarantee that the technologists who are working with the student's have passed national certification boards and must maintain continuing education credits in order to maintain their certification.

3.0 Instructional Methodology

3.1 Reference-Print Materials

The following resources will be used as reference sources and are available at the clinical sites.

1. Textbooks and references manuals used in core courses
2. Hospital and departmental policy and procedure manuals
3. Equipment manuals

3.2 Reference-Audiovisual Materials

There are no audiovisuals required for purchase by the student's for this course.

3.3 Computer Requirements

The student must have a computer that has Internet connectivity with a Web browser that is compatible with the current learning management system.

Students are responsible for hardware and software issues off-campus (home or office). Questions about the course content and assignments should be directed to the instructor.

Student's are required to clock-in and clock-out at their respective clinical site, as well as enter daily procedures and other rotation information. Most clinical sites will allow student's to use their on-site computers. When a clinical site does not allow student's to use their on-site computers, the student may use their phone. However, clock-in and clock-out MUST be done when the student is in the department. Other information can be entered when convenient. Remember, the IP address of the device used is tracked by Trajecsys.

3.4 Technical Assistance Notification

The UAMS Academic Affairs Educational and Student Success Center provides assistance with students' laptops and mobile devices. A Library and ESSC Systems Support Technician is available to assist with various technology issues, from connecting to the wireless network to troubleshooting possible software issues. The specialist is located on the 3rd floor of the Library (ED II 3/110) from Monday through Friday from 7:30 to 4:30 PM. Assistance is also available remotely. You can email him at CDWebb2@uams.edu or book an appointment at https://outlook.office365.com/owa/calendar/ITSupportCalvinWebb@uams.edu/bookings/.

4.0 General Evaluation Procedures

4.1 Student Evaluation Procedures

The Clinical Internship course is graded on a satisfactory (mark of "S") or unsatisfactory (mark of "U") basis.

Clinical competency examinations will be graded on a "s" or a "U" basis. A student must receive a satisfactory grade on all components of the clinical competency examination in order to pass that clinical competency examination. Student's must repeat all failed clinical competency examinations.

Upon completion of each rotation, student's will be evaluated by their affiliate education supervisor, using the criteria outlined in the clinical handbook, in each of the following areas:

Dependability	Integrity	Communication
Adaptability	Cooperation	Self-confidence
Initiative	Efficiency	Professionalism
Patient care	Radiation protection	

The affiliate education supervisor will score each area using the following descriptors:

- **Exceeds Expectations**: Student's performance in this area is consistently exceeds expectations for his/her current stage of clinical education.
- **Meets Expectations**: Student's performance in this area meets the expectations for his/her current stage of clinical education.
- **Needs Improvement**: Student's performance in this area meets the minimum expectations of his/her current stage of clinical education; however, improvement is needed in order to establish progress.
- **Unsatisfactory**: Student's performance in this area fails to meet the minimum level expected for his/her current stage of clinical education.

Based on the clinical evaluation grades received, the following provisions will be imposed:

- Any student receiving a "Needs Improvement" or "Unsatisfactory" grade in any area will be counseled by the clinical coordinator or program director.
- Any student receiving two or more "Needs Improvement" grades in the same area during the academic year will be counseled and may be placed on academic probation.
- Any student receiving two or more "Unsatisfactory" ratings in one area during the same semester will receive an "Unsatisfactory" grade for that semester's Clinical Internship course and may be recommended for dismissal or suspension from the NMIS program.

Each descriptor will be translated into a percentile score using the following conversion table:

Descriptor		Score
Unsatisfactory	=	60%
Needs Improvement	=	70%
Meets Expectations	=	85%
Exceeds Expectations	=	100%

Based on this conversion, student's will receive a summary score for each rotation and a cumulative semester score on the Trajecsys© Performance Evaluation Report.

PERFORMANCE EVALUATION

Report creation date:

Date range:

Evaluator:

Eval 1	Eval 2	Eval 3	Totals	Eval Items
				Dependability
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Arrives and leaves clinical site at the proper time.
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Notifies supervisor ASAP when late or absent.
Meets Expectations	Needs Improvement	Needs Improvement	**75**	Informs supervisor of whereabouts during the day.
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Takes lunch and breaks within the time limits.
96.25	**81.25**	**81.25**		
				Integrity
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Reports mistakes to supervisor.
Exceeds Expectations	Meets Expectations			
Exceeds Expectations	Meets Expectations	Meets Expectations	**90**	Explains the procedure to the patietn prior to performing an exam.
100	**85**	**85**		
				Rating
3	2	3		Please rate the students performance:
99.53	**84.3**	**84.38**	**89.4**	

Rotation Score **Cumulative Score**

Note: all other numbers shown on the Performance Evaluation report are used for statistical purposes only.

Based on the clinical scores received, the following provisions will be imposed:

- Student's must achieve a minimum cumulative score of 77% in order to receive a grade of "Satisfactory" for that semester's Clinical Internship course.
- Any student receiving a rotation score of less than 77% will be counseled by the clinical coordinator or program director.
- Any student receiving a cumulative score less than 77% for the semester receive an "Unsatisfactory" grade for that semester's Clinical Internship course and may be recommended for dismissal or suspension from the NMIS program.

In the clinical internship student's are able to apply the knowledge and skills acquired during the academic core courses. Under the direction of the nuclear medicine technologist and/or nuclear pharmacists, student's will prepare radiopharmaceuticals for patient administration

and student's will perform diagnostic imaging. Student's follow established protocols and develop organizational skills and proficiency under actual working conditions.

As the student progresses through the clinical phases of his/her education, clinical skills acquired during the previous clinical rotations should be honed. Although the student still works under supervision, he/she is expected to evolve toward working on a more independent basis. The student should be encouraged to solve routine clinical problems autonomously.

A final rating will be assigned to the student's overall clinical proficiency by the affiliate education supervisor. (See Clinical Handbook, Section 7). Any student receiving two (2) or more overall performance evaluations at a level below his/her expected stage of performance during the fall and spring semesters will receive an "Unsatisfactory" grade for that semester's clinical rotation and may be recommended for dismissal or suspension from the NMIS program.

Student's will have seven calendar days from the last day of a scheduled clinical rotation to complete all online forms and evaluations for that rotation. Student's who submit forms and evaluations after the prescribed date will lose one accrued hour for each calendar day past the due date.

Upon completion of the course for the semester, the NMIS clinical coordinator and/or the NMIS program director must receive all clinical forms and clinical evaluations from the student. If all forms and evaluations are not handed in by the end of the semester the student's will receive a mark of "U" for unsatisfactory for the semester.

4.2 Instructor Evaluation Procedures

While comments regarding the course and instruction are welcomed by the instructor at any time, student's will be given the opportunity to complete CHP course and instructor evaluations. Your participation in this evaluation is appreciated.

5.0 General Procedures

5.1 General Remarks

As a student progresses throughout the clinical rotations, they will gain competence in each of the routine nuclear medicine technology procedures. Student's must test out of all routine procedures as outlined in the clinical handbook. When a student is deemed competent to perform a particular procedure, arrangements should be made with the affiliate education supervisor to take a clinical competency exam. At that time the affiliate education supervisor will

observe the student performing the procedure and will grade him/her according to the evaluation form. Each step of the procedure is graded on a satisfactory/unsatisfactory basis.
At the discretion of the clinical coordinator and/or the program director and/or the affiliate education supervisor, a student may be required to take a continuing competency exam that will be administered by the clinical coordinator or faculty member. The continuing competency exam will be given at the student's clinical site, and will be graded on a satisfactory/unsatisfactory basis.

Student's required to complete an extra semester of clinical rotations for any reason, will also be required to take a fall semester comprehensive examination, a spring semester comprehensive examination and a final comprehensive exam. These examinations will be scheduled at approximately four week intervals after the start of the extra semester. The information found in the Clinical Handbook in the section titled *Comprehensive Clinical Procedure Examinations* will pertain to the semester comprehensive examinations taken during this extra semester with the exception of the reward/penalty for pig hours.

If the student fails to achieve a passing grade on the fall semester comprehensive examination or the spring semester comprehensive examination, they will be required to take and pass an oral comprehensive examination over all the material covered during the respective semester. If the student fails to pass the final comprehensive exam, the student will be allowed one retake of the final comprehensive exam, which will be scheduled 3 to 4 days following the first attempt. Failure of the second attempt will result in recommendation of dismissal from the NMIS program.

Student's are required to participate in three outside activities. At least one of the three required activities must be a continuing education (CE) meeting or article that has been approved for "Category A" CE credit by either the Society of Nuclear Medicine and Molecular Imaging (SNMMI) or the American Society of Radiologic Technologists (ASRT). These activities must be completed prior to the end of the semester as part of receiving a grade of "S" for Satisfactory in Clinical Internship I. Student's that do not complete these three outside activities prior to the end of the semester will receive an "I" for the course.

The following is a sample list of approved activities. Other activities may be submitted to the NMIS Clinical Coordinator and/or the NMIS Program Director for approval. All outside activities must be able to provide documentation and/or a certificate of participation. Student's are advised to check with the NMIS Clinical Coordinator and/or the NMIS Program Director before attending any activity to determine if that activity will meet this requirement.

Sample lists of outside activities:

Activities approved as outside Continuing Education Activities:

- Educational meeting put on by the SNMMI (national or chapter meeting) (write a 1 page summary of the meeting)
- Educational meeting put on by a radiopharmacy or equipment manufacturer company (e.g. Cardinal Health or GE / Siemens) (write a 1 page summary of the meeting)
- Educational meeting put on by a state or local radiologic science group (write a 1 page summary of the meeting)
- Continuing education article available online (must submit quiz results when required or write a 1 page summary of the article)
- Continuing education article available in professional journal (must submit quiz results when required or write a 1 page summary of the article)

The following are NOT considered Continuing Education Activities but may be considered as an outside activity

- Donating blood
- Attending hospital Grand Rounds
- Helping at a homeless shelter/kitchen
- Attending Hospital in-service programs
- Participating in Race for the Cure or other fundraisers for health care
- Volunteering at Red Cross
- Volunteering at Salvation Army (e.g. bell ringer at holidays)
- Volunteering for charitable organization

All personal electronic communication devices (i.e., cellular phones, pagers, iPads, etc…) must be turned OFF (not 'silent') while in class and in the clinical setting. At a student's discretion, the NMIS office telephone number may be provided to interested parties (i.e., child care facilities, family members, etc…) as a contact number for emergencies only. In the event of an emergency, the NMIS office must be notified first and personnel from that office will locate and communicate the information to the student. Student's may use their personal electronic communication devices when they are outside of their assigned clinical location AND on a designated break AND all facility rules and regulations pertaining to the use of personal electronic communication devices are followed. If a student is found using a personal electronic communication device while in class and in the clinical setting, the occurrence will be documented, in the student file and the student will be subject to the following:

First offense: Written warning
Second offense: Deduction of two (2) accrued hours from the

accrued hour bank.
Subsequent offenses: Deduction of four (4) accrued hours from the accrued hour bank.

Because attendance in the clinical rotations is crucial to the learning process, student's must complete the required number of clinic hours. Student's are required to make requests for time off to their affiliate education supervisor for purposes of vacation, personal days, or any scheduled absence. Such requests must be made at least 48 hours in advance of the requested day off.

Student's who fail to report to their clinical site according to the rotation schedule or who fail to provide an advanced leave request will be charged with an unscheduled absence and will result in a deduction of two (2) hours from accrued time off in addition to any time missed at the clinical rotation.

Any clinical time off taken within sixteen (16) working hours of the final comprehensive examination scheduled at the end of the summer will be deducted from the student's accrued hours at a ratio of two accrued hours for every one hour taken off from clinic. If a student must miss clinical time within sixteen (16) hours of the final comprehensive examination scheduled at the end of the summer due to an illness, a doctor's excuse must be submitted to the NMIS Program Director and/or the NMIS Clinical Coordinator before this examination can be scheduled. All information regarding the attendance policy can be found in the Student Handbook

Student's will be expected to display maturity and professionalism in daily contacts with faculty, hospital staff, fellow student's, patients, and visitors.

6.0 Class Attendance/Conduct/Dress Policy

6.1 General Remarks

In order to maximize learning opportunities, attendance will be taken at all class sessions.

Students are expected to actively engage in their education by attending and/or participating in class activities (face-to-face or at a distance). Faculty are expected to monitor their students' active participation and make contact by phone and UAMS email with those who have not initiated or maintained active participation in their course(s) for a period of one week. If a satisfactory reason is not presented to the faculty, the student does not actively engage in learning activities and/or the faculty member is unable to get in contact with the student, the faculty member should report this to the Associate Dean for Academic Affairs (ADAA). The ADAA will attempt to contact the student to learn the reason for his/her lack of participation. If a satisfactory reason is not presented, the student does

not actively engage in learning activities and/or the ADAA is unable to get in contact with the student in a one- week period, the ADAA will notify the Registrar and the student will be administratively dropped from the class(es). If all classes are dropped, the student is administratively withdrawn from the CHP program.

Student's will receive a clinical rotation schedule during fall Orientation to Nuclear Medicine Imaging Sciences. Clinical rotation schedules are set so that the student achieves the best possible clinical educational experience, covering all aspects of nuclear medicine. Rotation schedules cannot be changed without the approval of the NMIS Clinical Coordinator and/or the NMIS Program Director. Clinical experiences are predominately in two areas: imaging and radiopharmacy. Imaging and radiopharmacy competencies and activities and evaluation procedures are listed in their respective objectives section of the clinical handbook.

Clinical internship I lasts throughout the fall semester and will be conducted at various clinical sites. Student's are expected to participate at a beginning level, progressing from observation only to completion of designated procedures with close supervision.

The starting time for the first day of each clinical site is 7:30 am. A clinical site may require the student to start at a different time. The affiliate education supervisor will notify the student of the required starting time.

No matter the starting time, student's are required to have eight (8) contact hours per day. Student's are allowed a 15 minute break in the morning and in the afternoon and a required 30 minute lunch break. The break and lunch times will be designated by the affiliate education supervisor. The two 15 minute breaks are counted as part of the student's contact hours. Student's are not allowed to work through lunch in order to leave early for the day. The clinical day consists of 8½ hours reported on the time sheet, with 30 minutes of that being lunch. 08:00 to 16:00 is 8 hours total, but only 7 ½ contact hours. 08:00 to 16:30 is eight (8) contact hours.

Student's will be allowed to be sent home after a minimum of six (6) hours of work and get credit "Finished Early" (8 hours) as long as the following criteria have been met:

1. There are no more patients on the clinical schedule for the day or remaining patients are scheduled after the scheduled time to leave;
2. Being sent home early must be initiated by the affiliate education supervisor, not by the student;
3. Clinical paperwork, patient paperwork, and all appropriate documentation has been completed for the day;
4. Clinical duties (area is clean and neat, etc.) are completed.

Student's who ask to go home early will receive credit only for the actual time worked.

In order for a student to receive credit for working extra hours, student's **must** work a minimum of one (1) clinical hour beyond the day's regularly scheduled eight (8) clinical hours. Any hours that a student works in order to make up time for time missed, is made up on a one (1) hour worked to one (1) extra credit hour basis. Partial hour credit (15 minutes, 30 minutes) are not allowed. During the make-up hours, student's are **not** allowed to:

1. Be sent home "Finished Early" and receive eight (8) hours of credit.
2. File "Time Exceptions" in the online system.

Student's who wish to make-up missed clinical time on a Saturday or on another day where class(es) or clinical times are not scheduled, must have prior approval from the NMIS Clinical Coordinator and/or NMIS Program Director and the affiliate education supervisor of the clinical site the student wants to attend. Clinical time worked without prior approval will not be allowed and will not be counted as make up time.

All clinical times must be logged using the Trajecsys clock in/out function.

6.2 Session Absence Grading Effects

If an emergency situation arises (i.e. illness) that prevents a student from participating in a scheduled clinical rotation, that student must contact the clinical site's affiliate education supervisor by phone and the NMIS Clinical Coordinator and/or NMIS Program Director by e-mail **prior** to the regularly scheduled starting time for that clinical day. Failure to follow this procedure will result in a deduction of two hours from the student's accrued time.

6.3 Session Tardiness Grading Effects

If student's will be late for clinic or must leave clinic during the day, the affiliate education supervisor must be notified. Student's will be evaluated on punctuality. (See also the rule on tardiness located in the student handbook)

6.4 Conduct/Dress Code

Student's are to adhere to the dress code as outlined in the Nuclear Medicine Imaging Sciences Student Handbook. At all times during their clinical rotation student's are to wear their UAMS ID badge (and other ID badges as required by the clinical site), their personal dosimeters and a lab coat (as required by the clinical site). Student's will be evaluated on their professionalism, their overall conduct and appearance in the clinical rotation.

7.0 Due Dates/Deadlines

Student's are to check the online system to verify that their time has been entered. If a student has not entered time into the system for a day that has been worked, when times are reviewed by the Clinical Coordinator, the time will be deducted. If the student did work that day and did not enter their time, it is the responsibility of the student to contact the affiliate education supervisor. The affiliate education supervisor must e-mail or call the NMIS Clinical Coordinator and/ or the NMIS Program Director to verify the day was actually worked. At that time, the NMIS Clinical Coordinator and/ or the NMIS Program Director will give the time back to the student. This must be done within the time frame listed below.

Affiliate education supervisors cannot be expected to remember the times student's have attended clinic. All clinical times for a clinical rotation must be approved by the affiliate education supervisor or the NMIS Clinical Coordinator within ten (10) calendar days from the end of the clinical rotation. If the clinical times are not approved within this time frame, the clinical times will not be approved. It is the responsibility of the student to verify that their clinical time has been entered.

8.0 Session Schedules

8.1 General Remarks

Student's in Clinical Internship IV, will receive a clinical rotation schedule at the beginning of the extra semester. Student's may rotate through clinical sites within their geographic area or may be required to move to another geographic location based on the availability or lack of availability of clinical rotation sites. Clinical rotation schedules are set so that the student achieves the best possible clinical educational experience, covering all aspects of nuclear medicine. Rotation schedules cannot be changed without the approval of the Clinical Coordinator or the Program Director. Clinical experiences are predominately in two areas: imaging and radiopharmacy. Imaging and radiopharmacy competencies, activities and evaluation procedures are listed in their respective objectives section of the clinical handbook.

8.2 Tentative Session Schedule

TBD

9.0 Instructional Staff

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Summer Khairi, MBA, CNMT, NMTCB(CT)
Physical Location:
CHP Campus, Building 5, Room 5.103
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Office Fax: 501.686.8770
E-mail: TCunningham2@uams.edu
Office Hours: By appointment

10.0 CHP Policies

COPYRIGHT POLICY - The materials used in this course may include copyright protected materials provided for the personal educational use of the enrolled student's and may not be further redistributed.

INTELLECTUAL PROPERTY POLICY - Lecture, lab and other presentations are the intellectual property of the faculty and faculty must give their written permission for their lecture, lab, and other presentations to be recorded.

Recorded lectures/labs/presentations may only be posted on websites or other locations approved by the College of Health Professions and are provided for the personal educational use of student's enrolled in the course. Student's are prohibited from providing or distributing any course materials in any manner – print, electronic, or any other media – or providing links to any course materials to anyone outside of their UAMS classes.

Failure to abide by this policy may result in disciplinary action including dismissal.

Failure to abide by this policy may constitute a copyright infringement which may have the following legal consequences:

Summary of Civil and Criminal Penalties for Violating Federal Copyright Laws

Copyright infringement is the act of exercising, without permission or legal authority, one or more of the exclusive rights granted to the copyright owner under section 106 of the Copyright Act (Title 17 of the United States Code). These rights include the right to reproduce or distribute a copyrighted work. In the

file-sharing context, downloading or uploading substantial parts of a copyrighted work without authority constitutes an infringement.
Penalties for copyright infringement include civil and criminal penalties. In general, anyone found liable for civil copyright infringement may be ordered to pay either actual damages or "statutory" damages affixed at not less than $750 and not more than $30,000 per work infringed. For "willful" infringement, a court may award up to $150,000 per work infringed. A court can, in its discretion, also assess costs and attorneys' fees. For details, see Title 17, United States Code, Sections 504, 505.

Willful copyright infringement can also result in criminal penalties, including imprisonment of up to five years and fines of up to $250,000 per offense.
For more information, see the web site of the U.S. Copyright Office at www.copyright.gov, and especially their FAQs at www.copyright.gov/help/faq

Title IX - The University of Arkansas for Medical Sciences (UAMS) does not discriminate on the basis of sex, gender, or sexual orientation in its education programs or activities. Title IX of the Education Amendments of 1972, and certain other federal and state laws, prohibit discrimination on the basis of sex in all education programs and activities operated by UAMS (both on and off campus). Title IX protects all people regardless of their gender or gender identity from sex discrimination, which includes sexual harassment and sexual violence. The UAMS Title IX Coordinator can be contacted at (501) 526-5641. She is available to explain and discuss: your right to file a criminal complaint (sexual assault and violence); the university's complaint process, including the investigation process; how confidentiality is handled; available resources (both on and off campus); and other related matters**. You may also contact the UAMS Police Department, 501-686-7777 (non-emergency) or 911 (emergency). If you are in the midst of an emergency, please call the police immediately by dialing 9-1-1.**

The United States Department of Education's Office of Civil Rights ("OCR") is responsible for enforcing Title IX, as well as other federal civil rights laws that prohibit discrimination in programs or activities that receive federal financial aid. Inquiries and complaints may also be directed to OCR at 1-800-421-3481 or ocr@ed.gov

DISABILITY POLICY - UAMS is committed to providing equal access to learning opportunities to student's with disabilities. To ensure access to any class or program, please contact the ADA Coordinator to engage in a confidential conversation about the process of requesting accommodations in the classroom and clinical settings. Accommodations are not applied retroactively. Student's are encouraged to register with the ADA Coordinator's office as soon as they begin their program or as soon as the student recognizes their need for an adjustment.

UAMS encourages student's to access all resources available through the ADA Office for consistent support and access to their programs. More information can be found online at http://student's.uams.edu/ada-disability-services/ or by the contacting the disability services office at (501) 526-5641.

11.0 SCHOLASTIC MISCONDUCT AND PLAGIARISM

Scholastic dishonesty is defined as an act contrary to academic and/or professional ethics. Examples of scholastic dishonesty include, but are not limited to, cheating, plagiarism, collusion, submission for credit of any work or materials that are attributable in whole or part to another person or an artificial intelligence third-party service or site, taking an examination or submitting work or materials for another person, any act designed to give unfair advantage to a student, or the attempt to commit such acts. Additionally, submitting an assignment that was previously submitted in another course constitutes scholastic dishonesty, unless the resubmission was approved by the course director. The sanctions for scholastic dishonesty may include, but are not limited to, a failing grade on the test/assignment, failing grade for the course, probation, suspension, or dismissal from the college. Refer to CHP's Student Conduct and Discipline Policy, 02.15.01, located in the UAMS Academic Catalog, for details on matters related to scholastic dishonesty and other non-academic disciplinary matters.

Students are expected to submit original work for all assignments and exams. The CHP subscribes to a Web-based plagiarism detection and prevention system that has the ability to compare written work to a database of texts, journals, electronic and web sources, including web sites that provide pre-written essays or term papers. If a student is suspected of submitting work copied from another source, CHP reserves the right to use this plagiarism detection system, with or without the student's knowledge.

While Artificial Intelligence (AI) may serve as a learning resource for students, AI-generated content should not be submitted by students for assignments or exams, unless expressly permitted and approved by the course director. Doing so would constitute plagiarism, and disciplinary action outlined in the CHP Student Conduct and Discipline Policy, 02.15.01, would be enforced.

As your course instructor, I am informing you via this syllabus that I reserve the right, at my discretion, to use this plagiarism detection system for this course by submitting student's' written work to the system for the purpose of determining if a document has been plagiarized.

Note: All work submitted for this course is required to be original work developed for class assignments and should not have been submitted for assignments made as part of previous and/or concurrent courses without the instructors' prior knowledge and approval; to do otherwise constitutes scholastic dishonesty and will be addressed as such in this course.

12.0 PATIENT PRIVACY AND CONFIDENTIALITY

UAMS is committed to protecting the privacy of our patients' information. While privacy and confidentiality have always been a priority for health care providers, it

(HIPAA). HIPAA limits access to medical records to authorized individuals and for specific purposes. It is not possible to summarize HIPAA here; however, you will have received HIPAA training prior to being granted access to patient information. Additional information and training on HIPAA, including UAMS HIPAA policies, are available on the HIPPA Office web page HIPAA.uams.edu.

Please keep in mind that there are sanctions for inappropriate access to patient records. These include criminal penalties of up to one (1) year imprisonment and a $50,000 fine; as well as, disciplinary action up to and including dismissal from your program.

If you have any questions pertaining to HIPPA, you may direct them to the UAMS HIPAA office at 501-603-1379.

While the provisions of this syllabus are as accurate and complete as possible, the instructor reserves the right to change any provision herein. Student's will be notified of any changes and it is the responsibility of each student to know what changes, if any, have been made to the provisions of this syllabus and to successfully complete the requirements of this course.

CRITERIA FOR EVALUATION OF IMAGING PROCEDURES:

Specific Objectives for Clinical Imaging

Competency for clinical internships will be evaluated by performing the following list of tasks for the instructors.

I. CLINICAL PROCEDURES

A. IMAGING

1. Imaging for a given routine study
   a. Locate and review requisition.
   b. Retrieve and/or prepare patient file.
   c. Obtain positive patient identification conduct patient interviews, and explain study. Obtain formal consent when necessary.
   d. Establish whether the patient has undergone the necessary pre-examination procedures as appropriate.
   e. Determine whether the patient has received any medication or had any examination that would interfere with or contraindicate the nuclear medicine study.
   f. Take appropriate corrective action or make appropriate notation or requisition if patient has either not undergone necessary pre-examination procedures or has had any medication or examination that would interfere with the nuclear medicine study.
   g. Prepare patient with premedication and instruct patient as to any particular preparation necessary for the imaging procedure.
   h. State the correct dose.
   i. Identify localization time and determine Injection time and time at which imaging should be performed
   j. Correctly administer radiopharmaceutical according to procedure protocol:
      (1) Assemble injection tray with all necessary materials for venipuncture, including shielded syringe of radioactive material.
      (2) Position patient appropriately for dynamic studies.
      (3) Correctly inject radiopharmaceutical using aseptic technique.
      (4) Correctly dispose of used syringes and material, both radioactive and non-radioactive.
   k. Select proper instrument, collimator, and auxiliary equipment for study.
   l. Correctly select and adjust instrument parameters for the images as each view is performed.
   m. At time of imaging use correct body mechanics to move patient on and off table as well as during study.
   n. Correctly position the patient for all views normally performed with the study, including delayed time images.

o. Objectively evaluate a study for technical mistakes and repeat any necessary views.
p. Correctly label and retrieve all films for presentation to the physician or chief technologist as needed. This includes notation of anatomical landmarks, as appropriate.
q. Correctly complete all department forms.
r. Conduct study in an ethical and professional manner.

2. Given a set of marked images from a routine study, describe the image and identify any regions of abnormality. Determine whether the abnormality is attributable to artifacts from radiopharmaceutical problems, imager malfunction, incorrect administration of the radiopharmaceutical, positioning of the patient himself.
3. Demonstrate routine acquisition of data on the computer for cardiac studies and other organ flow studies as follows:
   a. Perform start-up procedure of computer.
   b. Select or enter appropriate program for acquisition.
   c. Enter appropriate patient date.
   d. Acquire study.
   e. Verify the study has been stored on the computer.
4. Demonstrate routine computer analysis of dynamic data received from the first pass or gated blood pool studies. To be acceptable:
   a. Select the appropriate study for analysis.
   b. Select appropriate images for requisite regions of interest for type of analysis to be done.
   c. Generate output study as necessary.
5. For cardiac stress imaging using ^{201}Thallium or ^{99m}Technetium products, correctly use and calibrate as necessary the auxiliary equipment including ECG machines and exercise/stress equipment and recognize and correctly react to signs and symptoms of patient stress.
6. Demonstrate routine acquisition of data on an emission computed tomography (ECT) camera by:
   a. Correct positioning of the patient for the procedure
   b. Correct selection of acquisition parameters
   c. Correct acquisition and storage of data for purpose of analysis
7. Demonstrate routine analysis of ECT data by:
   a. Correct selection of data for analysis
   b. Correct selection of parameters for data analysis according to departmental protocol
   c. Correct analysis and evaluation of results
8. When preparing for a cisternography, set up the injection tray and assist in preparing and maintaining a sterile field for intrathecal injection by the physician.

9. Given a request for more than one radiopharmaceutical study, correctly sequence the injection for the studies and perform the studies according to departmental protocol.

B. RADIONUCLIDE THERAPY PROCEDURES

1. Determine therapeutic rationale from requisition and patient chart.
2. Check with nuclear medicine physicians regarding procedure and appropriate dose.
3. Calculate and assemble dose and necessary materials.
4. Determine whether patient is required to be hospitalized.
5. Inform patient, patient's family, and staff of protection precautions to be taken.
6. Administer dose to the patient.

C. PATIENT CARE/PROFESSIONALISM

1. Welcome the patient to the department, introducing yourself and addressing the patient by name.
2. Address patients, families, co-workers, and the clinical instructors by the appropriate name.
3. Refrain from ridiculing the patient's, faculty, peers, and staff.
4. Demonstrate no discriminatory attitudes, comments, or behaviors to anyone in the clinical facility, regardless of his/her age, sex, illness, ethnic color, creed, nationality, or lifestyle.
5. Avoid the display of emotional reactions such as distaste, disgust, and/or surprise.
6. Eliminate from technical conversation anything potentially alarming to the patient.
7. Take care with any words spoken within the patient's hearing range; e.g. "Send in the next bone."
8. Refrain from any discussion of patients with colleagues in patient areas and/or in any way that is not pertinent or relevant to the procedure or patient care.
9. Prevent unnecessary exposure of the patient's body.
10. Make the patient's wait as brief and pleasant as possible and ensure minimum discomfort and waiting periods consistent with the requirements for valid information from the study.
11. Provide an explanation and apology if the patient must be kept awaiting and assurance that the patient is not forgotten.
12. Make certain that the patient is comfortable, warm and not exposed to drafts.
13. Assist with nursing care while the patient is in the department.
14. Provide support for various parts of the patients' body by using pillows in order to position the patient as comfortably as possible.

15. Provide for patient comfort before, during, and after performing the nuclear medicine procedure.
16. Display understanding, cheerfulness, and interest in the patient.
17. Reassure and comfort the patient.
18. Hold in confidence any information offered by the patient, unless considered important to the physician's diagnosis.
19. Provide safe storage for patient's personal belongings during the examination.
20. Report any changes in the patient's condition to the appropriate person.
21. Relate to the patient before the examination begins as to what the examination involves, what the patient will feel, and what is required of the patient.
22. Adapt the explanation to the age, degree of illness, intelligence, and possible language consistent with the patient's ability to understand.
23. Continue the explanation and communication of what is expected of the patient throughout the examination.
24. Seek to comfort the patient who is easily upset by using the specific actions of therapeutic touch, calm approach, silent presence, and allowing the patient to talk.
25. Be sensitive to fears, doubts, and embarrassment of the patient.
26. Work in an orderly fashion.
27. Think before acting.
28. Observe the rules and regulations of the department.
29. Recognize which decisions require approval.
30. Recognize your own limits and responsibilities in the work situation.
31. Report accurately.
32. Use medical terminology appropriately.

II. QUALITY ASSURANCE/INSTRUMENTATION

A. GENERAL

When assigned to complete quality control procedures on the departmental camera, demonstrate an appreciation for the importance of quality functioning by maintaining to include:

1. Performing each QC procedures with the accepted frequency
2. Using standardized protocols for each procedure
3. Recording in the specified book the results of each procedure
4. Comparing each result with a series of previous results to determine whether significant variation occurs
5. Contacting the supervising technologist if any questionable results are obtained

B. GAMMA CAMERA

1. *Uniformity*: For a given scintillation camera, perform and analyze a field uniformity check to include:
   a. Selection of a radionuclide source of appropriate quantity and energy
   b. Selection of correct collimator
   c. Correct photopeak adjustment
   d. Obtaining uniformity images using identical standardized imaging parameters, including counts, image size, and intensity
   e. Comparison of current field uniformity with previous images and identification of any nonuniformities.
2. *Resolution*: For a given scintillation camera, perform and analyze a spatial resolution check to include:
   a. Use of field uniformity check source and high-resolution phantom compatible with the specified resolution of the camera
   b. Obtaining resolution images orienting 90 or 45 degrees to each other using standardized imaging parameters according to departmental protocol
   c. Comparison and evaluation of images with prior resolution images and determination of unacceptable changes in resolution
   d. As appropriate contacting the chief technologist for determination if service is needed
3. *SPECT*: For given SPECT camera system, perform and analyze routine checks to include:
   a. Use of field uniformity source to acquire a field flood for storage to use with any of commonly used radiopharmaceuticals
   b. Obtaining a center of rotation
   c. Perform pixel sizing
   d. Properly storing the acquired information for use with patient studies
   e. Comparison and evaluation of images to determine acceptability
   f. As appropriate contacting the chief technologist for determination if service is needed
4. *Evaluation of results*: Given that scintillation camera QC results are abnormal:
   a. Evaluate the results and determine where service is necessary or adjustments can be made to correct for the abnormality.
   b. Identify any source of instrument contamination such as contamination of floods, hot spots, or high background counting.
   c. Given a contaminated detector, demonstrate an appreciation for the effect of contamination of the function of the instrument and correctly decontaminate the instrument.

C. DOSE CALIBRATOR

Given a dose calibrator, perform and analyze quality control procedures to include:

1. Background checks
2. Energy level checks (constancy)
3. Activity linearity checks
4. Geometry checks

D. UPTAKE PROBE

Given an uptake probe, perform and analyze daily and monthly check as follows:

1. Daily background check
2. Daily high voltage check
3. Daily energy level check
4. Chi square check
5. Resolution check
6. Spectrum check

E. GAS-FILLED DETECTORS

Given a G-M survey meter, periodically:

1. Calibrate it according to Nuclear Regulatory Commission (NRC) specifications.
2. Perform a reference check-source test.
3. Compare results with those previously obtained.
4. Maintain records of calibration and testing for each G-M survey meter.
5. Change batteries as appropriate for continued function.

F. XENON TRAP

1. Demonstrate the monitoring system xenon trap to ensure an excess amount of xenon has not accumulated in the trap.
2. Describe how the desiccant is used in the trap and when the desiccant must be changed.
3. Using an air flow meter, monitor the airflow of a room in which xenon studies are performed.

III. DEPARTMENTAL/ADMINISTRATIVE DUTIES

A. Retrieve patient records as needed.

B. Describe the procedure that takes place from the time the completed study is turned in to the physician until the time it is returned to the file room.

C. Describe the departmental procedures for patient scheduling, dose administration, room assignments, image data or report processing, patient record filing system, and retrieval of previous reports/films.

D. Determine the need for supplies for the nuclear medicine laboratory, including radiopharmaceuticals and film.

E. Initiate purchase orders and maintain adequate supplies to ensure that patient studies are performed as necessary.

F. Interact with hospital and departmental staff to schedule patient studies effectively to include the determination of the correct sequence for multiple procedures, both in nuclear medicine and in radiology.

G. Locate and demonstrate the operation of emergency equipment within the nuclear medicine department.

Student Assessment

Student's are to record their daily activities online. Student's should keep a paper backup copy in the case that the online system is down. The level of participation score is based on how much the student actually contributed toward the completion of a procedure using the following scale:

1. Student observed the procedure.
2. Student provided minimal assistance: such as, retrieved paperwork, retrieved patient, helped patient onto and/or off the imaging table, changed linens, etc.
3. Student provided partial assistance: such as, set up imaging parameters on equipment, positioned patient for several views, injected doses, some computer operations.
4. Student completed study with minimal assistance, including computer processing or SPECT imaging.
5. Student completed study without assistance including computer processing or SPECT imaging.

Procedure Competency Examinations – This is an assessment of a student's ability to perform selected procedures in the clinical setting. The examinations are administered and evaluated by the affiliate education supervisor. Student's *may* not allowed to attempt a procedure competency until the procedure content has been covered in the appropriate classes. Exceptions will be made on a case by case basis. Student's are required to perform a procedure at a Level 5 before attempting the clinical competency exam in that procedure. Student's should understand that proficiency, and not just competency, is gained only through experience.

Student's take the procedure competency examinations at their own pace and should schedule them with the affiliate education supervisor. Once completed, the affiliate education supervisors will input the competency attempt into the Trajecsys Report System. Student's are required to send representative images and the physician report of the patient scanned and complete the Competency Procedural Report on the Trajecsys Report System.

In order to pass a procedure competency examination, a student must receive a "Satisfactory" grade on all components of the examination. See the Clinical Internship syllabi for further information pertaining to the procedure competency examinations.

One of the four Therapeutic Procedures clinical competencies may be simulated:

Thyroid: Ablation
Thyroid: Hyperthyroidism (preferred)
Palliative Bone
Non-Hodgkin's Lymphoma

Once completed, the affiliate education supervisors will input the competency attempt into the Trajecsys Report System. Student's are required to submit the physician report of the patient treated and complete the Competency Procedural Report on the Trajecsys Report System.

Practical and Oral Clinical Competency Imaging Examinations

The following is a list of the fifteen (15) clinical competency imaging examinations that must be successfully completed in order for students to graduate from the program. The faculty will ensure that students have the opportunity to obtain the fifteen (15) required competencies. Students may choose to complete more than fifteen (15) competency examinations; however, no additional competency examinations will be administered by the program after a student graduates. Thus, it is the student's responsibility to obtain additional competencies prior to graduation if they choose to do so. Paper copies are located in this handbook for reference purposes only. Student's may use the space provided on this list to track their progress. Please see Section 8 for information about online documentation of these procedures.

Earliest Comp Date	Comp Date	Actual Date Completed	Procedure
Start of Block 2	End of Fall		Bone imaging – 3-phase scans
Start of Block 2	End of Fall		Bone imaging – spot imaging
Start of Block 2	End of Fall		Bone imaging – whole body scans
See Below	End of Spring and See Notes below		Cardiac imaging – gated acquisition (MUGA)
See Below	End of Spring and See Notes below		Myocardial Perfusion Imaging (MPI) with SPECT Gated EF & includes Cardiac MPI SPECT
Start of Block 3	End of Spring		GI - Gastric emptying
Start of Block 3	End of Spring		GI - Hepatobiliary imaging
Start of Block 4	End of Summer		WBC imaging – infection
Start of Block 2	End of Spring		Lung Ventilation(aerosol or Xenon gas/Lung Perfusion Imaging
See Below	See Notes Below		PET/CT Oncology imaging
Start of Block 2	End of Spring		Renal imaging – renogram (renal dynamic)
See Below	End of Spring		Thyroid Uptake and Thyroid Scan
Start of Block 4	End of Summer		Therapy Simulation

Important Clinical Competency Examinations Notes

1. Student's in Dallas, Little Rock,Tulsa and Tyler are scheduled at a stand-alone Cardiac clinic during their clinical rotations and are required to complete the Myocardial Perfusion Imaging (MPI) with SPECT Gated EF and Cardiac MPI SPECT (complete this competency and you get credit for both) competency examination during their Cardiac clinic rotation. Based on the Cardiac clinic workload, the Cardiac – gated acquisition (MUGA) competency examination may also be completed during the Cardiac clinic rotation, If the Cardiac – gated acquisition (MUGA) competency examination is not completed during the Cardiac clinic rotation, it must be completed at a hospital clinical rotation by the end of the spring semester.

2. Student's in Fayetteville and Jonesboro are not scheduled at a stand-alone Cardiac clinic during their clinical rotations and will complete the Myocardial Perfusion Imaging (MPI) with SPECT Gated EF and Cardiac MPI SPECT (complete this competency and you get credit for both) competency examinations at a hospital clinical rotation. In this case, both of the Cardiac competency examinations may be completed beginning in the third fall semester class block. In this case, the student is required to have completed both of the Cardiac imaging competency examinations by the end of the spring semester.

3. The only exception is in Little Rock where there may be more than six (6) student's and a stand-alone Cardiac clinic rotation is scheduled during the summer semester for one or more student's. In this case, the student will complete the Myocardial Perfusion Imaging (MPI) with SPECT Gated EF and Cardiac MPI SPECT (complete this competency and you get credit for both) competency examination during their summer semester Cardiac clinic rotation. In this case, the student may complete the Cardiac – gated acquisition (MUGA) competency examination at either the stand alone Cardiac clinic rotation or at a hospital clinical rotation.

4. By the end of the fall semester and based on the student's clinical rotation schedule, a student may be able to complete one or more Bone competency examinations, both of the Lung competency examinations, the one Renal competency examination and both of the GI competency examinations.

5. By the end of the spring semester and based on the student's clinical rotation schedule, a student should be able to complete the two Lung competency examinations, the one Renal competency examination, the two GI competency examinations and the two Thyroid competency examinations. The student must check with the NMIS Clinical Coordinator and/or the NMIS Program Director if these competency requirements will not be completed by the end of the spring semester.

6. Student's are required to complete all of the Radiopharmacy competency requirements during their two week Nuclear Pharmacy clinical rotation. The student will be penalized 2 PIGS per Radiopharmacy competency examination not completed during their Nuclear Pharmacy clinical rotation.

7. Student's are required to complete the PET/CT Oncology imaging competency requirements during their PET clinical rotation. The student will be penalized 4 PIGS for not completing this competency during their PET clinical rotation.

Comprehensive Clinical Procedure Examinations – The summer comprehensive clinical examinations are very important and should not be taken lightly. Not only are they an assessment of your current knowledge, but they also help to prepare you for the NMIS Final Comprehensive Examination and the Nuclear Medicine Technology Certification Board (NMTCB) and American Registry of Radiologic Technologist (ARRT) Registry Examinations. All student's must take the comprehensive clinical procedure examinations on the dates listed in the student handbook and Blackboard.

Each semester comprehensive clinical procedure examination is broken down into five exams. There is a penalty system for either failing the individual comprehensive clinical procedure examination. **Passing grade is 80%**. Pigs are lost as a penalty for not studying and failing the comprehensive clinical procedure examination. The penalty pig hours are outlined as follows:

If student fails all five exams	-8	pigs
If student fails four exams	-6	pigs
If student fails three exams	-4	pigs
If student fails two exams	-2	pigs
If student fails one exam	0	pigs

Student's are also be penalized for not putting forth maximum effort on each of the five clinical examinations. Penalties per clinical examination are as follows:

Scores >40% but <50%	-2	Pigs
Scores >30% but <40%	-4	Pigs
Scores >20% but <30%	-6	Pigs
Scores <20%	-8	Pigs

In addition to the above reward/penalty system, the following rules apply to the clinical examinations:

- If a student scores less than 55% on any individual clinical examination, that student must complete the oral exam face-to-face. The location of this oral exam will be at the discretion of the faculty.
- There will be a limited oral exam schedule posted prior to the fall clinical examination.
- Student's may not request oral exam times prior to the release of the clinical competency examination grades. Clinical examination grades will not be released until all the clinical examinations have been graded.
- Fall clinical oral examinations must be completed prior to the date of the spring clinical examination. Any required fall clinical oral examinations not successfully completed prior to the date of the spring clinical examination will be scheduled after the date of the final comprehensive examination.

- Spring clinical oral examinations must be completed prior to the date of the final comprehensive examination. Any required spring clinical oral examinations not successfully completed prior to the date of the final comprehensive examination will be scheduled after the date of the final comprehensive examination.
- Special circumstances will be evaluated by the faculty on a case-by-case basis.

Fall Clinical Procedure Comprehensive Examination – This examination is designed to assess a student's ability to apply the knowledge gained during the fall semester. The examination will be administered at a proctored testing center, approximately on the third Monday in June. The fall semester clinical procedure comprehensive examination is broken down into five exams and will cover the following procedures:

Lung V/Q Imaging
Hepatobiliary and Liver/Spleen and Hemangioma and GE imaging
Skeletal Imaging
Renal imaging

This examination will be composed of short answer (≈80%), multiple choice (≈10%), and calculated questions (≈10%). Student's that score above 80% on **each** of the clinical competency examinations will not be required to take the individual oral examinations on these procedures. If a student scores below 80% on any clinical competency examination, he/she must successfully pass the individual oral examinations on the failed procedure(s). A complete list of the individual oral examinations is presented later in this section.

Spring Clinical Procedure Comprehensive Examination - This examination is designed to assess a student's ability to apply the knowledge gained during the spring semester. The examination will be administered at a proctored testing center, approximately on the second Monday in July. The spring semester procedure clinical comprehensive examination is broken down into five exams and will cover the following procedures:

Brain imaging PET imaging
Cardiac MUGA/First Pass and Myocardial Perfusion Imaging
Infection, Oncology, Therapy Thyroid studies

This examination will be composed of short answer (≈75%), multiple choice, matching and calculated questions (≈25%). Student's that score above 80% on **each** of the clinical competency examinations will not be required to take the individual oral examinations on these procedures. If a student scores below 80% on any clinical competency examination, he/she must successfully pass the individual oral examinations on the failed procedure(s).

Oral Examinations – Student's that do not achieve an 80% or better on an individual clinical procedure examination will be required to take the individual oral examinations on the failed clinical procedure(s).

The following information will be covered on the semester clinical comprehensive examinations and the individual oral examinations:

(1) Primary indications, contraindications, radiopharmaceuticals, dose calculations, route of dose administration
(2) Dose to scan time and patient prep, including consequences of not properly prepping the patient.
(3) Imaging and auxiliary equipment needed to complete the procedure, appropriate settings for acquisition, and correct collimators.
(4) Correct views, patient position during image acquisition, and other information needed to complete a study.
(5) Interventional drugs, their intended effects and possible side effects, time of administration, dose (calculations), and how they will alter an image on a normal and abnormal patient.
(6) Alternative procedures or 'gold standards' for nuclear medicine procedures.
(7) When presented with an image, properly identify all views, landmarks, normal and abnormal distribution, and artifacts.
(8) When presented with quantitative data, calculate patient results (i.e. ejection fractions, gastric emptying half-time) and be able to relate the calculated results to normal or expected values.
(9) When presented with SPECT images, properly identify all slices and orientation (i.e. anterior, posterior, right, left)

Individual oral examinations will be administered by the instructional faculty at UAMS. An oral examination calendar will be provided in Blackboard. Student's must contact the faculty via e-mail to schedule an oral examination.

Student's that score 80% or better on the Fall Clinical Procedure Comp Examination are not required to take the following oral examinations*:	Student's that score 80% or better on the Spring Clinical Procedure Comp Examination are not required to take the following oral examinations*:
Skeletal imaging	Brain imaging
Lung imaging	Cardiac – MUGA/1st Pass
Renal imaging	Cardiac - perfusion
Gastrointestinal imaging	Infection/Oncology imaging and Blood
	PET imaging
	Thyroid studies

*Review the following list for each comprehensive examinations specific content

The following oral examinations must be completed prior to graduation by either passing the respective clinical procedure comprehensive examination OR by passing an actual oral examination:

		Oral Examination Title	Content
1	_____	Brain imaging	Brain SPECT, brain death imaging, cisternograms
2	_____	Cardiac – MUGA/ 1st Pass	MUGA, First pass
3	_____	Cardiac - perfusion	MPI SPECT/Gated SPECT The oral examination will cover all myocardial perfusion radiopharmaceuticals and stress techniques (treadmill and pharmacologic)
4	_____	GI studies	GI bleed, Meckel's diverticulum, LeVeen Shunt, hepatic pump, gastric emptying/reflux
5	_____	Health Physics/ Instrumentation*	Radiation safety procedures Radiation monitoring equipment Camera quality control NRC requirements Questions on instrumentation and radiation safety may also be included in all other oral examinations where appropriate.
6	_____	Hepatobiliary/ Liver/spleen imaging/Hemangioma	Hepatobiliary imaging (routine, interventional & GBEF) Liver/spleen imaging (planar/SPECT) Hemangioma
7	_____	Infection & Oncology imaging	^{99m}Tc-HM-PAO leukocyte imaging ^{111}In leukocyte imaging ^{67}Ga imaging Scintimammography Lymphoscintigraphy Octreoscan Student's must complete the leukocyte imaging procedure competency examination; however, the oral examination will cover ^{99m}Tc-HM-PAO WBC, ^{111}In WBC, and ^{67}Ga scans
8	_____	Lung imaging	Perfusion lung imaging Ventilation lung imaging (gas & aerosol) Quantitative lung imaging
9	_____	PET imaging	PET imaging (Oncology, Cardiac and Neurology) and PET Instrumentation
10	_____	Radiopharmacy*	See study guide in Section 5.2 of this handbook. Therapy procedures

11	_____	Renal imaging	Renograms, Renal scans, VCU (cystograms)
12	_____	Skeletal imaging	Whole body bone scans Bone spots 3-phase and 4-phase bone scans SPECT scans
13	_____	Thyroid studies	Thyroid imaging, Thyroid uptakes, Parathyroid

All student's are required to take and pass the Radiopharmacy and the Health Physics/Instrumentation oral examinations prior to the date of the Fall Clinical Procedure Comprehensive Examination.

An oral examination calendar will be posted in the Radiopharmacy and Health Physics/Instrumentation classes. Student's must contact the faculty via e-mail to schedule these oral examinations.

Continuing Competency Examination - At the discretion of the clinical coordinator and the affiliate education supervisor, a student may be required to take a continuing competency examination that will be administered by the clinical coordinator. The continuing competency examination will be given at the student's clinical site, and will be graded on a satisfactory/unsatisfactory basis.

On the day of the examination, one procedure on the clinic schedule will be randomly selected for the student to perform. Student's will be expected to complete the procedure and answer clinically oriented questions at the highest level (1-5) to which they have previously performed the same examination.

Additional ARRT Requirements for the Certification Examination*

These are required ONLY if the student wishes to sit for the ARRT Board Certification Examination.

1 - Introduction - Candidates for certification and registration are required to meet the Professional Education Requirements specified in the ARRT Rules and Regulations. ARRT's Nuclear Medicine Technology Didactic and Clinical Competency Requirements are one component of the Professional Education Requirements. The requirements are periodically updated based upon a practice analysis which is a systematic process to delineate the job responsibilities typically required of staff nuclear medicine technologists. The result of this process is a task inventory which is used to develop the clinical competency requirements (see section 4 below) and the content specifications which serve as the foundation for the didactic competency requirements (see section 3 below) and the examination.

2 - Documentation of Compliance - To document that the Didactic and Clinical Competency Requirements have been satisfied by a candidate, the program director (and authorized faculty member if required) must sign the ENDORSEMENT SECTION of the Application for Certification and Registration included in the Certification and Registration Handbook.

3 - Didactic Competency Requirements - The purpose of the didactic competency requirements is to verify that individuals had the opportunity to develop fundamental knowledge, integrate theory into practice and hone affective and critical thinking skills required to demonstrate professional competency. Candidates must successfully complete coursework addressing the topics listed in the ARRT Content Specifications for the Nuclear Medicine Technology Examination. These topics would typically be covered in a nationally-recognized curriculum such as the SNMMI Curriculum Guide for Educational Programs in Nuclear Medicine Technology. Educational programs accredited by a mechanism acceptable to ARRT generally offer education and experience beyond the minimum requirements specified here.

4 - Clinical Requirements - The purpose of the clinical competency requirements is to verify that individuals certified and registered by the ARRT have demonstrated competency performing the clinical activities fundamental to a particular discipline. Competent performance of these fundamental activities, in conjunction with mastery of the cognitive knowledge and skills covered by the nuclear medicine technology examination, provides the basis for the acquisition of the full range of procedures typically required in a variety of settings. Demonstration of clinical competence means that the candidate has performed the procedure independently, consistently, and effectively during the course of his or her formal education.

The specific procedures for the clinical competency requirements can be found at

https://www.arrt.org/docs/default-source/discipline-documents/nuclear-medicine-technology/nmt-competency-requirements.pdf?sfvrsn=12

***Effective Summer 2017 - This information is copied from the ARRT website - www.arrt.org . Student's should check for periodic updates to this information.**

ARRT Nuclear Medicine Technology Clinical Competency Requirements

The clinical competency requirements include the patient care activities, quality control procedures, and diagnostic and therapeutic procedures identified below. Demonstration of competence should include variations in patient characteristics (e.g., age, gender, medical condition).

As part of the education program, candidates must demonstrate competence in the clinical activities identified below.

1. General Patient Care

Requirement: Candidates must demonstrate competence in all four patient care activities listed below. The activities should be performed on patients; however, simulation is acceptable (see endnote) if state or institutional regulations prohibit candidates from performing the procedures on patients.

Patient Care Activity
CPR
Vital Signs (BP, pulse, respiration, temperature)
Venipuncture
ECG (lead placement; recognition of common dysrhythmias)

2. Quality Control Procedures

Requirement: Candidates must demonstrate competence in all five quality control activities listed below.

Quality Control Procedure
Gamma Camera or SPECT (uniformity, resolution, center of rotation)
Dose Calibrator (constancy, linearity)
Well Counter/Uptake Probe (energy calibration)
Survey Meter (daily check)
PET or PET/CT (reference scan)

3. Diagnostic and Therapeutic Procedures

Requirement*:* Candidates must demonstrate competence in 25 different nuclear medicine procedures. Candidates should demonstrate the following skills when performing the procedures: evaluation of requisition; patient instructions, preparation, and care; selection, handling, and administration of radiopharmaceutical; equipment configuration and patient positioning; radiation safety; and image processing and evaluation.

All procedures must be performed on patients, with the exception of therapeutic procedures which may be simulated.

The 25 procedures to be performed are selected from the categories (cardiovascular, endocrine, etc.) listed in the table below. Candidates must select 16 of the 25 procedures from the categories as specified in the table. The remaining 9 procedures may be chosen from any category. The table indicates the procedures in each category, and specifies the minimum number of procedures that must be performed in each category.

Nuclear Medicine Technology
ARRT Clinical Competency Requirements

Category*	# Procedures in Category	# That Must Be Performed
Cardiovascular	4	2
Central Nervous System	4	0
Endocrine/Exocrine	4	2
Infection	2	0
Gastrointestinal	7	3
Genitourinary	2	1
Lymphatics	3	0
PET or PET/CT	7	1
Respiratory	3	2
Skeletal	3	2
SPECT or SPECT/CT	8	2
Tumor	3	0
Therapeutic Procedures	5	1
Subtotal		**16**
		+ 9 electives from any category
Total	**55**	**25**

Example: Assume a candidate demonstrates competence in 3 cardiovascular procedures (myocardial perfusion, gated blood pool, and PET or PET/CT). This means that the candidate has fulfilled the cardiovascular requirement of 2 procedures, and has also completed 1 elective.

ARRT Nuclear Medicine Procedure
(# of required procedures in parentheses)

Abscess and Infection (0 – procedures are elective)
- Other (Ga-67 citrate, F-18 FDG)
- WBC Imaging

Skeletal (2)
- Planar/Static
- Three-Phase
- Total/Whole Body

Cardiovascular (2)
- Gated Blood Pool
- Myocardial Perfusion –Rest
- Myocardial Perfusion-Stress
- Amyloid Imaging

Endocrine/Exocrine (2)
- Thyroid Uptake
- Thyroid Scan
- Thyroid Metastatic Survey
- Parathyroid

Gastrointestinal (3)
- Hepatobiliary
- Gastroesophageal Reflux
- Gastric Emptying
- GI Bleeding
- Meckel's Diverticulum
- Liver/Spleen
- Hemangioma

Genitourinary (1)
- Renal Function
- Renal Cortical

Respiratory (2)
- Perfusion
- Ventilation (Gas or Aerosol)
- Quantitative

Tumor (2)
- Adrenal
- Neuroendocrine
- Other (e.g., Ga-67 citrate)

SPECT or SPECT/CT (2)
- Bone
- Brain
- Liver
- Lung
- Parathyroid

Tumor (Neuroendocrine)
Tumor (Other)
Renal

Therapeutic Procedures (1) (all may be simulated)

Thyroid: Ablation
Thyroid: Hyperthyroidism
Palliative Bone
Other (e.g. Endocrine)
Selective Internal Radiation Therapy (SIRT)

Central Nervous System (0 – procedures are elective)

Brain: Dynamic (Brain Death)
Cisternography: Routine
Cisternography: CSF leak
Shunt Patency

Lymphatics (0-procedures are elective)

Lymphoscintigraphy: Breast
Lymphoscintigraphy: Skin Lesion
Lymphangiography

PET or PET/CT (1)

Bone
Brain (F-18 FDG)
Brain (Other)
Cardiac (Myocardial Perfusion Imaging)
Cardiac (Other)
Tumor (F-18 FDG)
Tumor (Other)

Demonstration of competence should include variations in patient characteristics such as age, gender, and medical condition

The ARRT requirements specify that certain clinical procedures may be simulated as designated in the specific requirements below. Simulations must meet the following criteria: • The candidate must competently demonstrate skills as similar as circumstances permit to the cognitive, psychomotor, and affective skills required for performing the procedures on patients; • The program director must be confident that the skills required to competently perform the simulated task will generalize or transfer to the clinical setting, and, if applicable, the candidate must evaluate related images. Examples of acceptable simulation include: demonstrating CPR on a mannequin; performing venipuncture by demonstrating aseptic technique on another person, but then inserting the needle into an artificial forearm or grapefruit.

Demonstration of clinical competence requires that the program director or the program director's designee has observed the candidate performing the procedure independently, consistently, and effectively during the course of the candidate's formal educational program.

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CRITERIA FOR EVALUATION OF RADIOPHARMACY PROCEDURES

Specific Objectives for Radiopharmacy

Competency for clinical internships will be evaluated by performing the following list of tasks for the instructors.

I. RADIOPHARMACY

A. RADIONUCLIDE GENERATOR SYSTEMS

1. Given a $^{99}Mo/^{99m}Tc$ generator, demonstrate the correct procedure for elution to include:
   a. Assembly of shield, vials, and all materials necessary for aseptic elution of the generator.
   b. Performance of complete procedure behind a lead shield using gloves.
   c. Attachment of vials to correct input and output needles.
   d. Use of shield on vial that will contain elute.
   e. Assay of elute in the dose calibrator and recording of elute activity in appropriate radiopharmaceutical accountability log.
   f. Mental check to determine if volume and activity eluted are appropriate to volume and activity expected for that day.
   g. Labeling the vial shield with the appropriate information to include activity, volume, concentration, date, and time of assay, and radiopharmaceutical.
2. Given a $^{99}Mo/^{99m}Tc$ generator eluate, correctly perform a moly breakthrough test to include:
   a. Determination of ^{99m}Tc activity per volume using the appropriate dose calibrator setting.
   b. Determination of ^{99}Mo activity per volume using the appropriate dose calibrator setting.
   c. Calculation of ^{99}Mo activity per mCi of ^{99m}Tc.
   d. Determination as to whether this concentration is acceptable for use.
   e. In the event that this concentration is unacceptable for use, determine why this occurred and take appropriate measures.
   f. Record results in log book.

B. RADIOPHARMACEUTICAL PREPARATION

1. For each of the technetium based radiopharmaceuticals correctly compound the radiopharmaceutical using a kit and ^{99m}Tc pertechnetate to include:
   a. Determination of the amount and volume of radioactivity to be added to the kit with special attention to any limitation for level of activity or volume.

b. Recording radioactivity dose and volume used in the log under daily elution of ^{99m}Tc pertechnetate
c. Preparing the radiopharmaceutical with strict adherence to manufacturer's directions on heating, sequence of addition, and mixing.
d. Check total activity in radiopharmaceutical vial with dose calibrator.
e. Calculating and recording the concentration of radioactivity of the compound, time, and date of preparation, total activity, and volume.
f. Labeling the vial with time and date of preparation, lot number, radiopharmaceutical form, concentration, and total volume.

2. For each radiopharmaceutical prepared, check for proper pH, color, clarity, and particle size as appropriate. Record result on radiopharmaceutical assay form.
3. Given radiopharmaceutical QC data, determine whether the material can be used or if the preparation must be repeated.
4. Given an imaging procedure which demonstrates a radiopharmaceutical biological distribution different than expected, evaluate all data available to determine the probable cause for such distribution.
5. Perform chromatography for the determination of radiochemical purity to include:
   a. Assembly of all materials for procedure.
   b. Expediency in performing all tasks due to great instability of some radiopharmaceuticals.
   c. Adherence to specified department protocol throughout procedure.
   d. Appropriate separation of finished chromatogram to allow for accurate determination of various forms of ^{99m}Tc.
   e. Appropriate use of counting instrumentation in the determination of percent free, percent hydrolyzed, and percent bound.
   f. Recording of data for each radiopharmaceutical on the appropriate radiopharmaceutical assay form.

C. DOSE CALCULATION

1. Given a request to calculate the exact dose for a specific ^{99m}Tc labeled radiopharmaceutical for a certain study, a calculator, and decay chart for ^{99m}Tc:
   a. Verify patient name and the study requested from the requisition.
   b. Identify from the label on the radiopharmaceutical vial the following information: concentration, total activity, total volume, assay time, and date of assay.
   c. Determine actual elapsed time between assay calibration and required dose calculation time.
   d. Calculate activity remaining, using the appropriate decay factor for the time elapsed.
   e. Calculate the activity needed for the procedure.

f. Determine the volume of the radiopharmaceutical required for the patient dose.
g. Log appropriate data into radiopharmaceutical dispensing record for the radiopharmaceutical assay.

2. Given a patient requisition for a study using a radiopharmaceutical other than ^{99m}Tc plus a calculator and necessary decay charts:
   a. Verify patient name, study requested, and dose range required of the radiopharmaceutical.
   b. From the label on the radiopharmaceutical container identify and cross check with the radiopharmaceutical accountability log the following: concentration at assay time/date. Specific activity, lot number, assay time, assay date, total activity, and total volume.
   c. Determine the actual elapsed time between assay calibration and required dose calculation time.
   d. Calculate the activity remaining using the appropriate decay factor (pre or post) for time elapsed and the appropriate equation.
   e. Calculate the activity needed for the procedure.
   f. Determine the volume of the radiopharmaceutical required for the patient dose.
3. Demonstrate concern for accuracy by consistently double checking:
   a. Radiopharmaceutical dose calculation.
   b. Radiopharmaceutical dose withdrawal.
   c. Labels on all radiopharmaceutical vials.
4. Demonstrate the correct methods for dispensing a liquid radiopharmaceutical to include:
   a. Use of aseptic technique throughout the procedure.
   b. Use gloves to minimize self-contamination.
   c. Drawing up the radiopharmaceutical behind a lead shield to within 0.5 calibrated units on the syringe of the volume identified in the initial calculation.
5. Demonstrate the correct methods for calculating doses, dispensing and administering capsules of radioactivity to include:
   a. Verifying patient name, study requested, and dose range to be given.
   b. From the label on the container, identifying the following: activity per capsule at assay time/date, specific activity, lot number, assay time, assay date, total number of capsules, and total activity.
   c. Determining the actual time elapsed between assay calibrations and required dose calculation time.
   d. Calculating the activity remaining in each capsule using the appropriate decay factor (pre or post) for the time elapsed and the appropriate equation.
   e. Calculating the activity needed for the procedure.
   f. Determining the number of capsules required to for the patient dose.

II. RADIATION SAFETY

A. DEPARTMENTAL

1. Describe the departmental and NRC regulations for daily area survey routines and regulation for storage, waste disposal, and general supplies access regulations.
2. In the clinical setting demonstrate an appreciation for radiation safety procedures by consistently
   a. Logging in all radiopharmaceutical doses
   b. Correctly disposing all materials used in dose administration
   c. Making sure all radiopharmaceuticals and syringes are properly labeled, stored, administered and disposed of.
3. Consistently wear whole body and ring badges.
4. Keep exposure as low as is reasonably achievable by using appropriate protection parameters on a continuous basis by using time/distance/shielding to include:
   a. Keeping radioactive syringes in lead pigs
   b. Using syringe shields with doses
5. Maintain appropriate records of patient doses, QC procedures, radioactive waste disposal, patient records required by the hospital, JCAHO, or the state health department.

B. INVENTORY MANAGEMENT

1. Receive and process radioactivity shipments, include the generator, in the laboratory as follows:
   a. Logging in the receipt of radioactive shipments.
   b. Visually determining damaged packaging and taking appropriate precautions.
   c. Contacting the Radiation Safety Officer (RSO) in the event of receipt of contaminated material.
   d. Performing wipe test, as appropriate, on exterior packaging of radioactive material containers.
   e. Defacing the radiation signs on all discarded packaging.
   f. Storage of the radioactivity in the appropriate area according to the storage needs and activity level of the material.
   g. Notification of manufacturer in the event of receipt of damaged goods.
2. Consistently use the correct waste disposal methods for syringes, vials, needles, contaminated articles, and radioactive waste as defined by the radioactive materials license and departmental design and protocol.
3. Monitor the stored radioactive materials including generators on a routine basis to determine if the level of activity is acceptable for discarding. This will include routine hospital waste disposal of nonradioactive waste disposal through a particular contracted agency.

C. PERSONNEL MONITORING DEVICES

1. Regularly review the monthly and cumulative personnel exposure records with regard to maximum possible dose limits.
2. Recognize and take appropriate measures to reduce exposure.

D. SURVEYS

1. Perform area survey of the hot lab and nuclear medicine department to include:
   a. Calibration and check of survey instruments.
   b. Use of departmental protocol to determine areas for survey.
   c. Use of the correct survey instrument for each type and level of radiation.
   d. Interpretation of results and notification of personnel as appropriate.
   e. Wipe tests and decontamination procedures as appropriate.
2. Perform periodic leak tests on sealed sources as appropriate.
3. Record all data from various surveys, wipe tests, and leak tests in the appropriate record book and when applicable, notify the RSO of abnormal results.

E. DECONTAMINATION PROCEDURES

Given a contaminated surface or area in the department, demonstrate correct decontamination procedures to include:

1. Reduction of access to area and confining spill as indicated.
2. Use of protective clothing as appropriate.
3. Removal and/or decontamination of non-disposable articles.
4. Storage of contaminated articles as appropriate.
5. Decontamination or reduction of activity to acceptable levels on immovable materials or equipment including porous or nonporous areas, repeating as necessary.
6. Record cleanup and final survey results after decontamination.

F. LICENSING REQUIREMENTS

1. Identify the location and parameters of the department's radioactive materials license.
2. Demonstrate an appreciation of the license and federal requirements and parameters by consistently performing all the following tasks:
   a. Disposing of radioactive waste in the appropriate manner.
   b. Maintaining records of radioactive materials use and disposal (accountability)
   c. Administering of radiopharmaceutical.
   d. Maintaining levels of radiation to within the limits identified by the radiation signs in all areas.
   e. Decontaminating and/or reorganizing storage areas as appropriate.

Radiopharmacy Rotation Checklist

During their radiopharmacy rotation, NMIS student's should at a minimum work on the following items.

1. Generators – student's should participate in a Mo/Tc generator elution process including appropriate record completion.

2. Mo^{99} Breakthrough Test – student's should participate in a Mo99 breakthrough test including calculations and record completion.

3. Radiopharmaceutical Kit Preparation – student's should participate in radiopharmaceutical kit preparation including calculations and record completion for various radiopharmaceuticals.

4. Radiopharmaceutical Kit Radiochromatography – student's should participate in radiochromatography for various radiopharmaceuticals including radiopharmaceuticals that require particle sizing. Student's should verify quality control results through manual calculation.

5. Dose Preparation/Calculation – student's should participate in dose preparation/calculation (for both Tc99m and other radionuclides) by completing necessary calculations, preparing patient doses, and completing appropriate records.

6. Decontamination – student's should participate in decontamination procedures as needed.

7. Inventory Management – student's should participate in package receipt and preparation/shipping of outgoing packages. Student's should also participate in waste disposal.

8. Surveys – student's should participate in area surveys, calibration and/or daily checks of survey instruments, wipe tests, sealed source leak tests, and record keeping accompanying these tests.

9. Bioassay – student's should discuss bioassay requirements and limits with faculty and complete a bioassay procedure.

Practical and Oral Radiopharmaceutical Exams

Student's are to record their daily activities online in the Trajecsys Reporting System. Radiopharmacy procedures are documented online.

1. PRACTICAL EXAMS: (Completed at the radiopharmacy during the rotation)

Student's will take a practical exam on the radiopharmacy procedures as follows:

-elute generator / perform moly check
-perform kit preparation
-perform kit quality control to include particle sizing where appropriate
-perform dose calibration and preparation
-perform package receiving.

White cell labeling with ^{99m}Tc-HM-PAO or ^{111}In will be discussed in detail but, due to policies in many commercial labs as well as clinical departments, student's may not be permitted to label white cells. White cell labeling should be observed when possible.

Practical exams can be done at any time during the rotation.

Please see Section on Evaluations for information about online documentation of these procedures.

2. Radiopharmacy Oral Exam: (Completed during the summer by conference call and Blackboard Collaborate with Radiopharmacy Faculty)

Student's are required to take and pass a comprehensive radiopharmacy oral exam. The oral exam will be completed during the summer semester, before the date of the Fall Clinical Procedures Competency examination.The scheduling calendar will be posted in the Radiopharmacy class.

CRITERIA FOR EVALUATION OF PET PROCEDURES:

Specific Objectives for PET

Competency for clinical internships will be evaluated by performing the following list of tasks for the instructors.

IV.CLINICAL PROCEDURES

A. IMAGING

1. Imaging for PET for a specific diagnosis
   a. Locate and review requisition.
   b. Retrieve and/or prepare patient file.
   c. Obtain positive patient identification, conduct patient interviews, explain study, and explain radiation precautions that will be involved.
   d. Establish whether the patient has undergone the necessary pre-examination procedures as appropriate and has been properly diagnosed.
   e. Determine whether the patient has had proper pre-examination procedures to perform and analyze blood sugar check.
   f. Take appropriate corrective action or make appropriate notation on requisition if patient has not undergone necessary pre-examination procedures
   g. Instruct patient as to any particular preparation necessary for the imaging procedure.
   h. State the correct dose.
   i. Identify localization time and determine injection time and time at which imaging should be performed due to radioactive decay.
   j. Correctly administer radiopharmaceutical according to procedure protocol:
      (1) Assemble injection tray with all necessary materials for venipuncture, including shielded syringe of radioactive material.
      (2) Correctly inject radiopharmaceutical using aseptic technique.
      (3) Correctly dispose of used syringes and material, both radioactive and non-radioactive.
   k. Perform and analyze PET camera quality control.
   l. Determine if parameters and photopeak have been set correctly for imaging
   m. At time of imaging use correct body mechanics to move patient on and off table as well as during study.
   n. Correctly position the patient for each transmission scan.
   o. Evaluate a study for technical mistakes and repeat any necessary views.

p. Correctly label and assemble or prepare all films for presentation to the physician or chief technologist. Notate anatomical landmarks as appropriate.
q. Correctly complete all department forms.
r. Conduct study in an ethical and professional manner.

2. Given a set of marked images from different PET scans for each diagnosis, describe the image and identify normal distribution of the radiopharmaceutical and identify any regions of abnormality. Identify poor quality films and the possible causes.
3. Demonstrate routine acquisition of data on the computer for PE scans.
   a. Perform start-up procedure of computer.
   b. Select or enter appropriate program for acquisition.
   c. Enter appropriate patient date.
   d. Acquire study.
   e. Verify the study has been stored on the computer.
4. Demonstrate routine computer analysis of PET scan data for processing. To be acceptable:
   a. Select the appropriate study for analysis.
   b. Select appropriate images for requisite regions of interest for type of analysis to be done.
   c. Generate output study as necessary.

B. PATIENT CARE/PROFESSIONALISM

1. Demonstrate proper patient interaction and professionalism as expressed in the general Nuclear Medicine Clinical Objectives, Section 4.1 of the clinical handbook.
2. Explain exam thoroughly and all precautions that will be taken.

V. QUALITY ASSURANCE/INSTRUMENTATION

A. Quality Control

When assigned to complete quality control procedures on the PET scanner, demonstrate an appreciation for the importance of quality functioning by maintaining to include:

1. Performing necessary QC procedures with the accepted frequency
2. Using standardized protocols
3. Recording in the specified book the results of the quality control
4. Comparing each result with a series of previous results to determine whether significant variation occurs
5. Contacting the supervising technologist if any questionable results are obtained

VI. DEPARTMENTAL/ADMINISTRATIVE DUTIES

A. Retrieve patient records from the files and re-file the records upon completion of the study.
B. Describe the procedure that takes place from the time the completed study is turned in to the physician until the time it is returned to the file room.
C. Describe the departmental procedures for patient scheduling, dose administration, room assignments, image data or report processing, patient record filing system, and retrieval of previous reports/films.
D. Determine the need for supplies for the nuclear medicine laboratory, including radiopharmaceuticals.
E. Initiate purchase orders and maintain adequate supplies to ensure that patient studies are performed as necessary.
F. Locate and demonstrate the operation of emergency equipment within the nuclear medicine department.

VII. RADIOPHARMACY

A. Radioisotope Production
    1. Describe basic cyclotron operation and process for production of radiopharmaceuticals.
    2. Describe the method of localization of PET radiopharmaceuticals in normal and abnormal body tissue.
B. Radiation Safety
    1. Demonstrate precautions for handling PET radiopharmaceuticals.
    2. Describe the specific precautions for the technologist.
    3. Describe the specific precautions for the patient.

Nuclear Medicine Technology
Student Evaluation Form:

Performance Evaluation: General

Student's will be evaluated upon completion of a rotation at each clinical site. Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicates that the student demonstrates unacceptable professional behavior. Marks of "S+" or "S-" may be given if so desired. The instructor should note WHY a mark of "S-" or "U" was given.

DEPENDABILITY

_____ a. Arrives and leaves clinical site at the proper time.
_____ b. Notifies supervisor ASAP when late or absent.
_____ c. Informs supervisor of whereabouts during the day.
_____ d. Takes lunch and breaks within the time limits.

INTEGRITY

_____ a. Reports mistakes to supervisor.
_____ b. Accepts responsibility for mistakes.
_____ c. Accepts criticism and makes an effort to improve.
_____ d. Maintains confidentiality of patient reports.

COMMUNICATION

_____ a. Appropriately follows oral and written directions.
_____ b. Asks appropriate questions.
_____ c. Responds appropriately to questions.
_____ d. Expresses ideas and concepts to patients and staff members.
_____ e. Maintains composure in all situations.
_____ f. Refrains from negative conversations
_____ g. Refrains from personal conversation that excludes the patient.

ADAPTABILITY

_____ a. Changes existing protocols to meet patient's needs.
_____ b. Is able to think through new procedures.
_____ c. Incorporates new procedures and methods.
_____ d. Prioritizes patient scheduling.
_____ e. Performs multiple tasks when necessary.
_____ f. Responds effectively to interruptions.

COOPERATION

_____ a. Is courteous to staff, physicians, and fellow student's.
_____ b. Willingly performs assigned tasks.
_____ c. Follows the flow of work in the department.
_____ d. Performs work in a non-disruptive manner.
_____ e. Follows rules and regulations of the department and school.
_____ f. Helps transport patients as needed.
_____ g. Cleans laboratory and patient areas as needed.
_____ h. Follows a constructive process of conflict resolution.

SELF CONFIDENCE

_____ a. Does not unnecessarily repeat tasks.
_____ b. Does not require an inappropriate amount of supervision.
_____ c. Is not overly confident.
_____ d. Recognizes when test results or situations in department should be brought to the attention of the supervisor.

INITIATIVE

_____ a. Comes prepared for clinical activities.
_____ b. Seldom complains.
_____ c. Demonstrate eagerness to learn and work.
_____ d. Begins activities on his own initiative.
_____ e. Assist others when own work load is complete.
_____ f. Makes constructive use of downtime in assigned area.

EFFICIENCY

_____ a. Completes assignments in the designated time frame.
_____ b. Works systematically.
_____ c. Follows through on assigned tasks.
_____ d. Concentrates on tasks at hand.
_____ e. Retains information regarding procedures from one day to the next.

PROFESSIONALISM

_____ a. Is appropriately attired.

_____ b. Speech and actions are appropriate for the clinical setting.

_____ c. Treats patients with respect and courtesy.

_____ d. Attends to the comfort and modesty of the patient.

_____ e. In emergency situations considers patient priority over breaks, lunch, etc.

PATIENT CARE

a. Attends to safety of patient throughout the procedure, e.g. does not leave patients unattended, guard rails raised, etc.

b. Cares appropriately for IV's.

c. Cares appropriately for Foley catheters.

d. Cares appropriately for oxygen equipment.

e. Cares appropriately for Heart monitors.

f. Assesses proper patient identification prior to performing a procedure.

g. Explains the procedure to the patient prior to performing an exam.

RADIATION PROTECTION

_____ a. Wears whole body badge.

_____ b. Wears ring badge.

_____ c. Keeps radioactive syringes in lead pigs.

_____ d. Consistently uses syringes shields.

_____ e. Consistently uses gloves when injecting.

_____ f. Logs in all radiopharmaceutical doses.

_____ g. Ensures all radioactive syringes are properly labeled.

_____ h. Correctly disposes of all materials used in dose administration.

Overall Evaluation of the Student's Clinical Skills

During the clinical internship student's are able to apply the knowledge and skills acquired during the academic core courses. Under the direction of the nuclear medicine technologist and/or nuclear pharmacists, student's will prepare radiopharmaceuticals for patient administration and student's will perform diagnostic imaging. Student's follow established protocols and develop organizational skills and proficiency under actual working conditions.

As the student progresses through the clinical phases of their education, clinical skills acquired during the previous clinical rotations should be honed. Although the student still works under supervision, he/she is expected to evolve toward working on a more independent basis. The student should be encouraged to solve routine clinical problems autonomously.

Using the information provided above, assess the student's overall clinical proficiency during the clinical rotation at your facility. You should evaluate the student's performance using the following list of attributes:

- ✓ **QUALITY OF WORK** - *accurate, thorough and neat. Meets highest standards of accuracy and thoroughness*.
- ✓ **COMPREHENSION OF EXAMINATIONS** - *understanding of information, responsibilities, procedures, materials, equipment, and techniques required to do the job.*
- ✓ **ORGANIZATION** - *the ability to use time constructively and productively*.
- ✓ **QUANTITY OF WORK** - *the volume of work accomplished.*
- ✓ **COMMUNICATION** - *the ability to interact with patients, family, and other professionals*
- ✓ **ATTENDANCE/PUNCTUALITY** - *the overall attendance/promptness record.*
- ✓ **PERSONAL APPEARANCE** - *grooming, cleanliness and appropriateness of dress*.
- ✓ **PROFESSIONAL ETHICS** - integrity, loyalty and impressions the student makes on professional judgment
- ✓ **INTERPERSONAL RELATIONSHIPS** - *the ability to communicate, interact and deal effectively with supervisors, peers, patients and other employees.*
- ✓ **INITIATIVE** - *the energy and motivation displayed in starting and completing tasks*.

On the scale below, circle the number that represents the student's current level of performance as demonstrated at your facility.

Beginning			Intermediate			Advanced		
0 1	2	3	4	5	6	7	8	9

0 Student is not able to perform in the clinical setting.
1 – 3 The student can perform with maximum assistance
4 – 6 The student can perform with minimum assistance
7 – 9 Mastery (no supervision/assistance needed)

The student should progress through the "Beginning" phase during fall semester, the "Intermediate" phase during spring semester, and the "Advanced" phase during the summer semester.

There are three or four clinical rotations scheduled during each of the semesters. **Any student receiving two (2) or more overall performance evaluations at a level below his expected stage of performance during the fall and spring semesters will receive an "Unsatisfactory" grade for that semester's clinical rotations.** For example, during the spring semester, student's should be functioning at a level Four (4) or above. **Any student receiving one (1) or more overall performance evaluations at a level below their expected stage of performance during the summer semester will receive an "Unsatisfactory" grade for that semester's clinical rotations.**

Remark _____

_____

_____

Affiliate education supervisor's Signature: _____

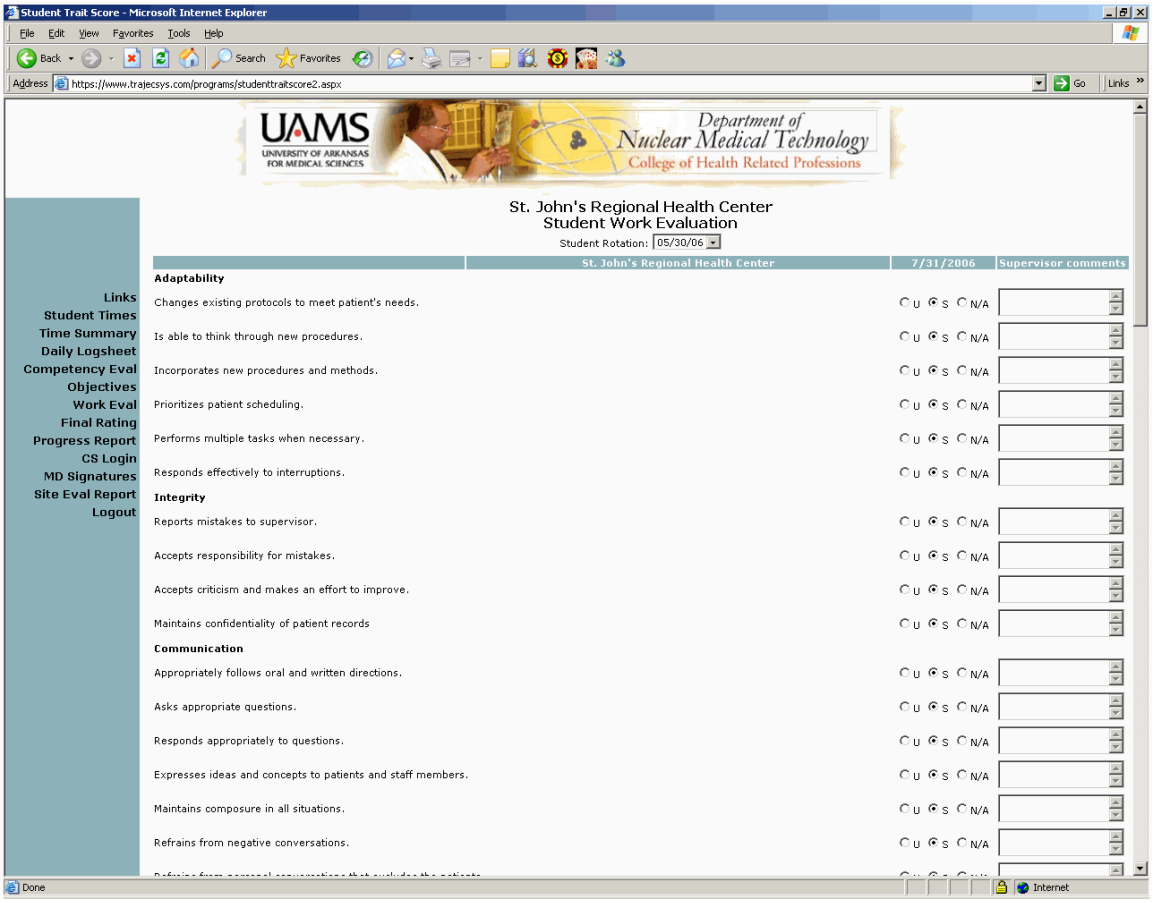
Student's Signature: _____

Date _____ Clinical Rotation _____

UAMS – CHP - NMIS
Clinical Coordinator's
Signature: _____

Performance Evaluation: Trajecsys

The following is a screenshot of the Performance Evaluation that the affiliate education supervisors will complete on each student. Affiliate education supervisors should complete this form online at the end of each rotation. This form can be accessed only by affiliate education supervisors and is located in the Evals Beta menu item. This evaluation will become available three days before the end of the student's scheduled rotation.



This form is identical to the form on the previous three pages. Affiliate education supervisors should select the appropriate rotation date from the drop down box located just under the clinical site name. Sections are broken out into 11 different categories and questions about the student's performance are under each category. Student's may receive a "U", "S" or "N/A" for each question. Any rating below an "S" will require a comment. Comments may be added to any item regardless of the score assigned.

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

BONE IMAGING

Please evaluate the student's performance as "S" for satisfactory of "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior.

The student may test out of whole body imaging, spot imaging, and triple phase imaging separately, but must test out of all three sections prior to taking the oral exam. The student must have completed these procedures on his/her own prior to taking the practical exam.

TRIPLE PHASE BONE IMAGING

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. The correct dose was stated.	_____	☐
6. Radiopharmaceutical was correctly drawn up using aseptic technique.	_____	☐
7. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
8. Correct imaging equipment was selected.	_____	☐
9. Correct collimator was selected.	_____	☐
10. Correct imaging parameters for dynamic imaging were selected.	_____	☐
11. Patient was properly positioned for dynamic imaging.	_____	☐
12. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
13. Image acquisition onto film for dynamic phase was correctly performed.	_____	☐
14. Image acquisition for immediate images was correctly performed.	_____	☐
	Score	*N/A*

15. Films were correctly developed and labeled. _____ □
16. Used syringes and other materials were correctly disposed. _____ □
17. Correct return time for third phase was correctly stated. _____ □
18. Upon return of the patient, prep was established as being correctly done. _____ □
19. Correct imaging equipment was selected. _____ □
20. Correct collimator was selected. _____ □
21. Correct imaging parameters were selected. _____ □
22. Patient was correctly positioned for spot and/or whole body views. _____ □
23. Image acquisition onto film was correctly performed. _____ □
24. Films were correctly developed and labeled. _____ □
25. Films were correctly assembled for reading. _____ □
26. Departmental forms were completed in a correct manner. _____ □
27. The procedure was completed in a timely manner. _____ □
28. The student understands the rationale behind each step of the procedure. _____ □

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

BONE IMAGING

Please evaluate the student's performance as "S" for satisfactory of "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior.

The student may test out of whole body imaging, spot imaging, and triple phase imaging separately, but must test out of all three sections prior to taking the oral exam. The student must have completed these procedures on his/her own prior to taking the practical exam.

SPOT BONE IMAGING

	SCORE	*N/A*
1. The purpose of the spot was explained to the patient.	_____	☐
2. Correct imaging equipment was selected	_____	☐
3. Correct collimator was selected.	_____	☐
4. Correct imaging parameters were selected.	_____	☐
5. Patient was correctly positioned for spot view.	_____	☐
6. Image acquisition onto film was correctly.	_____	☐
7. Films were correctly developed and labeled.	_____	☐
8. Films were correctly assembled for reading.	_____	☐
9. The procedure was completed in a timely manner.	_____	☐
10. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

BONE IMAGING

Please evaluate the student's performance as "S" for satisfactory of "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior.

The student may test out of whole body imaging, spot imaging, and triple phase imaging separately, but must test out of all three sections prior to taking the oral exam. The student must have completed these procedures on his/her own prior to taking the practical exam.

WHOLE BODY BONE IMAGING

	SCORE	N/A
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. The correct dose was stated.	_____	☐
6. Radiopharmaceutical was correctly drawn up using aseptic technique.	_____	☐
7. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
8. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
9. Used syringes and other materials were correctly disposed.	_____	☐
10. Correct return time for imaging was correctly stated.	_____	☐
11. Patient prep was established as being correctly done.	_____	☐
12. Correct imaging equipment was selected.	_____	☐
13. Correct collimator was selected.	_____	☐
14. Correct imaging parameters were selected.	_____	☐
15. Patient was correctly positioned for anterior and posterior whole body views.	_____	☐
16. Image acquisition onto film was correctly performed.	_____	☐

17. Films were correctly developed and labeled. _____ □
18. Films were correctly assembled for reading. _____ □
19. Departmental forms were completed in a correct manner. _____ □
20. The procedure was completed in a timely manner. _____ □
21. The student understands the rationale behind each step of the procedure. _____ □

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

BRAIN SPECT IMAGING

Please evaluate the student's performance as "S" for satisfactory or "U" unsatisfactory. A grade of "S" indicates that a student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed	_____	☐
2. Patient was positively identified	_____	☐
3. Orders were found in chart	_____	☐
4. The purpose of the ECT images was explained to the patient	_____	☐
5. Correct imaging equipment was selected	_____	☐
6. Correct collimator was selected	_____	☐
7. Correct ECT acquisition parameters were selected	_____	☐
8. Patient was correctly positioned	_____	☐
9. The correct dose was stated	_____	☐
10. Radiopharmaceutical was correctly drawn up using aseptic technique	_____	☐
11. Radiopharmaceutical was measured in the dose calibrator	_____	☐
12. Radiopharmaceutical was correctly administered according to protocol	_____	☐
13. Used syringes and other materials were correctly disposed	_____	☐
14. Acquisition and storage of data for purposes of analysis was correctly performed	_____	☐
15. Correct analysis of ECT data by was correctly performed by:		
a) Correct selection of data for analysis	_____	☐
b) Correct selection of parameters for data analysis according to departmental protocol	_____	☐
c) Correct analysis and evaluation of results	_____	☐
16. Image acquisition onto film was correctly performed.	_____	☐
17. Films were correctly developed and labeled	_____	☐

	SCORE	*N/A*
18. Films were correctly assembled for reading		☐
19. The procedure was completed in a timely manner		☐
20. The student understands the rationale behind each step of the procedure		☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

HEPATOBILIARY IMAGING

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed	_____	☐
2. Patient was positively identified	_____	☐
3. Orders were found in the chart	_____	☐
4. Patient prep was correctly established	_____	☐
5. Study was explained to the patient	_____	☐
6. Correct imaging equipment was selected	_____	☐
7. Correct collimator was selected	_____	☐
8. Correct imaging parameters were selected	_____	☐
9. The correct dose was stated	_____	☐
10. Radiopharmaceutical was correctly drawn up using aseptic technique	_____	☐
11. Radiopharmaceutical was measured in the dose calibrator	_____	☐
12. Radiopharmaceutical was correctly administered according to protocol	_____	☐
13. Used syringes and other materials were correctly disposed	_____	☐
14. Patient was correctly positioned for routine views		
a) Anterior	_____	☐
b) Right lateral	_____	☐
c) Other _____	_____	☐
15. Images were taken in the correct sequence	_____	☐
16. Any delayed images were taken at the appropriate time		☐

17. Interventional drugs were administered at the appropriate time _____ ☐
18. Image acquisition onto film for all the above views was correctly performed _____ ☐
19. Films were correctly developed and labeled _____ ☐
20. Films were correctly assembled for reading _____ ☐
21. Departmental forms were completed in a correct manner _____ ☐
22. The procedure was completed in a timely manner _____ ☐
23. The student understands the rationale behind each step of the procedure _____ ☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

^{99m}Tc-HM-PAO™ / INDIUM-111 WBC IMAGING

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	N/A
1. The requisition was retrieved and properly reviewed	_____	☐
2. Patient was positively identified	_____	☐
3. Orders were found in the chart	_____	☐
4. Study was explained to the patient	_____	☐
5. Radiopharmaceutical was correctly prepared	_____	☐
6. Radiopharmaceutical was measured in the dose calibrator	_____	☐
7. Radiopharmaceutical was correctly administered according to protocol	_____	☐
8. Used syringes and other materials were correctly disposed	_____	☐
9. Return time for imaging was correctly stated.	_____	☐
10. Patient prep was established as being correctly done.	_____	☐
11. Correct imaging equipment was selected	_____	☐
12. Correct collimator was selected	_____	☐
13. Correct imaging parameters were selected	_____	☐
14. Patient was correctly positioned for:		
a) Anterior and posterior views	_____	☐
b) Whole body views	_____	☐
c) Spot shots of areas of interest	_____	☐
15. Image acquisition onto film was correctly performed.	_____	☐
16. Films were correctly developed and labeled	_____	☐

17. Films were correctly assembled for reading _____ ☐
18. Departmental forms were completed in a correct manner _____ ☐
19. The procedure was completed in a timely manner _____ ☐
20. The student understands the rationale behind each step of the procedure _____ ☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

VENTILATION/PERFUSION LUNG IMAGING; Aerosol or Gas

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. Correct imaging equipment was selected.	_____	☐
6. Correct collimator was selected.	_____	☐
7. Correct imaging parameters for the ventilation portion were selected.	_____	☐
8. ☐ Xenon trap and breathing apparatus ☐ Aerosol breathing apparatus was correctly set up for the ventilation study.	_____	☐
9. The correct dose and radiopharmaceutical for the ventilation portion was stated.	_____	☐
10. Radiopharmaceutical was correctly prepared.	_____	☐
11. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
12. Patient was correctly positioned for the ventilation portion of the study.	_____	☐
13. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
14. Three phases of gas ventilation study were correctly acquired:		
a) Breathhold	_____	☐
b) Equilibrium or rebreathing	_____	☐
c) Washout	_____	☐
15. Image acquisition onto film for was correctly performed.	_____	☐

	SCORE	N/A
16. Used materials were correctly disposed.		☐
17. Correct imaging parameters for the perfusion portion were selected.		☐
18. The correct dose and radiopharmaceutical for the perfusion was stated.		☐
19. Radiopharmaceutical was correctly drawn up using aseptic technique.		☐
20. Radiopharmaceutical was measured in the dose calibrator.		☐
21. Patient was correctly positioned for the dose administration		☐
22. Radiopharmaceutical was correctly administered according to protocol.		☐
23. Patient was correctly positioned for all routine views:		☐
24. Image acquisition onto film for all the above views was correctly performed.		☐
25. Films were correctly developed and labeled.		☐
26. Films were correctly assembled for reading.		☐
27. Appropriate chest films were assembled with the V/Q study.		☐
28. Departmental forms were completed in a correct manner.		☐
29. The procedure was completed in a timely manner.		☐
30. The student understands the rationale behind each step of the procedure.		☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

MYOCARDIAL PERFUSION IMAGING SPECT and GATED EF

Please evaluate the student's performance as "S" for satisfactory or "U" unsatisfactory. A grade of "S" indicates that a student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed	_____	☐
2. Patient was positively identified	_____	☐
3. Orders were found in chart	_____	☐
4. Study was explained to the patient	_____	☐
5. Correct patient prep, e.g. NPO. milk, water, established	_____	☐
6. Informed consent form completed	_____	☐
7. Patient correctly attached to EKG machine and blood pressure cuff	_____	☐
8. Exercise/stress equipment was properly set up	_____	☐
9. Correct imaging equipment was selected	_____	☐
10. Correct collimator was selected	_____	☐
11. Correct parameters were set to collect information on the computer	_____	☐
12. Radiopharmaceutical(s) being used:		
☐ ^{201}Tl		
☐ ^{99m}Tc-Myoview™		
☐ ^{99m}Tc-Cardiolite™		
☐ ^{99m}Tc/^{201}Tl dual isotope		
13. The correct dose and radiopharmaceutical was stated	_____	☐
14. Radiopharmaceutical was correctly prepared	_____	☐
15. Patient was stressed correctly, either by exercise or with interventional drugs	_____	☐
16. Radiopharmaceutical was correctly administered according to protocol	_____	☐

17. Used syringes and other materials were correctly disposed _____ ☐
18. Patient was correctly positioned for stress phase using SPECT _____ ☐
19. Patient was correctly positioned for rest phase _____ ☐
20. Correct ECT acquisition parameters were selected _____ ☐
21. Acquisition onto film was correctly performed _____ ☐
22. Acquisition onto the computer was correctly performed _____ ☐
23a. Computer analysis was correctly performed to include: _____ ☐
    a) Selection of appropriate images for requisite regions of interest _____ ☐
    b) Positioning of ROI's _____ ☐
    c) Generating appropriate information _____ ☐

AND/OR

23b. Correct analysis of ECT data by was performed by:

    a) Correct selection data for analysis _____ ☐
    b) Correct selection of parameters for data analysis according to departmental protocol _____ ☐
    c) Correct analysis and evaluation of results _____ ☐
24. Films were correctly developed and labeled _____ ☐
25. Films were correctly assembled for reading _____ ☐
26. The procedure was completed in a timely manner _____ ☐
27. The student understands the rationale behind each step of the procedure _____ ☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

CARDIAC GATED IMAGING (MUGA); Rest or Rest/Stress

Please evaluate the student's performance as "S" for satisfactory or "U" unsatisfactory. A grade of "S" indicates that a student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed	_____	☐
2. Patient was positively identified	_____	☐
3. Orders were found in the chart	_____	☐
4. Study was explained to the patient	_____	☐
5. The correct dose and radiopharmaceutical was stated.	_____	☐
6. Radiopharmaceutical was correctly prepared	_____	☐
7. Method used to label RBC's:		
☐ *in vivo* tagging		
☐ *in vitro* tagging		
☐ modified *in vitro* tagging		
8. Correct imaging equipment was selected	_____	☐
9. Correct collimator was selected	_____	☐
10. Correct imaging parameters were selected	_____	☐
11. Correct parameters were set to collect information on the computer	_____	☐
12. Radiopharmaceutical was correctly administered according to protocol	_____	☐
13. Materials were correctly disposed	_____	☐
14. Patients was correctly attached to EKG leads	_____	☐
15. Patient was correctly positioned	_____	☐
16. Acquisition onto the computer was correctly performed	_____	☐

17. Computer analysis was correctly performed to include:
    a) Selection of appropriate images for requisite regions of interest ☐
    b) Positioning of ROI's ☐
    c) Generating ejection fraction and other appropriate information ☐
    d) Generating CINE's ☐
18. Films were correctly developed and labeled ☐
19. Films were correctly assembled for reading ☐
20. Departmental forms were completed in a correct manner ☐
21. The procedure was completed in a timely manner ☐
22. The student understand the rationale behind each step of the procedure ☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

PET IMAGING - Oncology

Please evaluate the student's performance as "S" for satisfactory of "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	N/A
1. Quality control was performed correctly and met acceptable standards.	_____	☐
2. The requisition was retrieved and properly reviewed.	_____	☐
3. Patient was properly evaluated for prep, history, and pre-exams, including blood sugar levels.	_____	☐
4. Orders were found in the chart.	_____	☐
5. Study and radiation precautions were correctly explained to the patient.	_____	☐
6. The correct dose was stated.	_____	☐
7. Radiopharmaceutical was handled with correct radiation safety precautions while drawing and administering dose.	_____	☐
8. Used syringes and other materials were correctly disposed.	_____	☐
9. Correct return time for imaging was correctly stated.	_____	☐
10. Correct imaging parameters were selected (including photopeaks if necessary).	_____	☐
11. Patient was correctly positioned for the proper diagnosis.	_____	☐
12. Acquisition was performed properly for the correct diagnosis.	_____	☐

	SCORE	N/A
13. Images were checked for quality.	_____	☐
14. Acquisition data was processed adequately.	_____	☐
15. Films were correctly developed and labeled.	_____	☐
16. Films were assembled correctly for reading.	_____	☐
17. The procedure was completed in a timely manner.	_____	☐
18. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

PET IMAGING – NaF Bone

Please evaluate the student's performance as "S" for satisfactory of "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	N/A
19. Quality control was performed correctly and met acceptable standards.	_____	☐
20. The requisition was retrieved and properly reviewed.	_____	☐
21. Patient was properly evaluated for prep, history, and pre-exams, including blood sugar levels.	_____	☐
22. Orders were found in the chart.	_____	☐
23. Study and radiation precautions were correctly explained to the patient.	_____	☐
24. The correct dose was stated.	_____	☐
25. Radiopharmaceutical was handled with correct radiation safety precautions while drawing and administering dose.	_____	☐
26. Used syringes and other materials were correctly disposed.	_____	☐
27. Correct return time for imaging was correctly stated.	_____	☐
28. Correct imaging parameters were selected (including photopeaks if necessary).	_____	☐
29. Patient was correctly positioned for the proper diagnosis.	_____	☐
30. Acquisition was performed properly for the correct diagnosis.	_____	☐

	SCORE	N/A
31. Images were checked for quality.	_____	☐
32. Acquisition data was processed adequately.	_____	☐
33. Films were correctly developed and labeled.	_____	☐
34. Films were assembled correctly for reading.	_____	☐
35. The procedure was completed in a timely manner.	_____	☐
36. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

RENOGRAM / ERPF, GFR, Lasix, ACEI

Please evaluate the student's performance as "S" for satisfactory or "U" unsatisfactory. A grade of "S" indicates that a student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. Patient prep, i.e. hydration, Lugol's, captopril, was established as being correctly done.	_____	☐
6. The correct dose was stated.	_____	☐
7. Radiopharmaceutical was correctly drawn up using aseptic technique.	_____	☐
8. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
9. Correct imaging equipment was selected.	_____	☐
10. Correct imaging collimator was selected.	_____	☐
11. Correct imaging parameters were selected.	_____	☐
12. Correct parameters were set to collect information on the computer.	_____	☐
13. Correct precount of dose for GFR or ERPF.	_____	☐
14. Patient was correctly positioned.	_____	☐
15. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
16. Used syringes and other materials were correctly disposed.	_____	☐
17. Image acquisition onto film was correctly performed.	_____	☐
18. Acquisition onto the computer was correctly	_____	☐

performed. _____

19. Patient received lasix at the appropriate time. _____ ☐
20. Films were correctly developed and labeled. _____ ☐
21. Computer analysis was correctly performed to include:
    a) Selection of appropriate images for requisite regions of interest _____ ☐
    b) Positioning of ROI's _____ ☐
    c) Generating histogram and other appropriate information _____ ☐
22. Films were correctly assembled for reading. _____ ☐
23. Departmental forms were completed in a correct manner _____ ☐
24. The procedure was completed in a timely manner. _____ ☐
25. The student understands the rationale behind each step of the procedure. _____ ☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

THYROID SCAN

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior.

The student may test out of thyroid uptakes and thyroid scans separately but must test out of both sections prior to taking the oral exam. The student must have completed these procedures on his own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Patient interviewed by NM physician where appropriate.	_____	☐
5. It was established that there were no contraindications for performing the procedure.	_____	☐
6. Study was explained to the patient.	_____	☐
7. The correct dose and radiopharmaceutical was stated.	_____	☐
8. Radiopharmaceutical was correctly prepared.	_____	☐
9. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
10. Radiopharmaceutical was correctly administered to protocol.	_____	☐
11. Patient was told to return for imaging at the appropriate time.	_____	☐
12. Correct imaging equipment was selected.	_____	☐
13. Correct collimator was selected.	_____	☐
14. Correct imaging parameters were selected.	_____	☐

15. Patient was correctly positioned for all images:
    a) Anterior with markers _____ ☐
    b) Anterior _____ ☐
    c) RAO _____ ☐
    d) LAO _____ ☐
    e) Markers on nodules _____ ☐
16. Image acquisition onto film was correctly performed. _____ ☐
17. Films were correctly developed and labeled. _____ ☐
18. Films were correctly assembled for reading. _____ ☐
19. Departmental forms were completed in a correct manner. _____ ☐
20. The procedure was a completed in a timely manner. _____ ☐
21. The student understands the rationale behind each step of the procedure. _____ ☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

THYROID UPTAKE

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior.

The student may test out of thyroid uptakes and thyroid scans separately but must test out of both sections prior to taking the oral exam. The student must have completed these procedures on his own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Patient interviewed by NM physician where appropriate.	_____	☐
5. It was established that there were no contraindications for performing the procedure.	_____	☐
6. Study was explained to the patient.	_____	☐
7. The correct dose and radiopharmaceutical was stated.	_____	☐
8. Radiopharmaceutical was correctly prepared.	_____	☐
9. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
10. Radiopharmaceutical was counted in the neck phantom.	_____	☐
11. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
12. Patient was told to return for the uptake at the appropriate time.	_____	☐
13. Correct equipment was selected for the uptake.	_____	☐
14. Correct counting parameters were selected.	_____	☐
15. Patient was correctly positioned for uptake		
a) Anterior neck	_____	☐

b) Background thigh ☐

16. Acquisition of counts was correctly performed. ☐
17. Uptake was correctly calculated. ☐
18. All materials were correctly assembled for reading. ☐
19. Departmental forms were completed in a correct manner. ☐
20. The procedure was completed in a timely manner. ☐
21. The student understands the rationale behind each step of the procedure. ☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

Voiding Cystogram, Direct Method

Please evaluate the student's performance as "S" for satisfactory or "U" unsatisfactory. A grade of "S" indicates that a student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. The correct patient dose was calculated/stated.	_____	☐
6. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
7. The radiopharmaceutical was correctly prepared.	_____	☐
8. Correct imaging equipment was selected.	_____	☐
9. Correct imaging collimator was selected.	_____	☐
10. Correct imaging parameters were selected.	_____	☐
11. Correct parameters were set to collect information on the computer.	_____	☐
12. Patient was correctly positioned.	_____	☐
13. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
14. Used syringes and other materials were correctly disposed.	_____	☐
15. Image acquisition onto film was correctly performed.	_____	☐
16. Acquisition onto the computer was correctly performed.	_____	☐
17. Films were correctly developed and labeled.	_____	☐
18. Computer analysis was correctly performed to include:		
a) Selection of appropriate images for requisite regions of interest	_____	☐

b) Positioning of ROI's _____ _____ ☐

	SCORE	N/A
19. Films were correctly assembled for reading.	_____	☐
20. Departmental forms were completed in a correct manner	_____	☐
21. The procedure was completed in a timely manner.	_____	☐
22. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

Thyroid Therapy: Ablation

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior. This competency exam may be simulated.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. The patient room was correctly prepared for in-house stay.	_____	☐
3. Patient was positively identified.	_____	☐
4. TSH level checked for verification.	_____	☐
5. Patient prep verified.	_____	☐
6. Patient had conference with treating physician.	_____	☐
7. Written directive was signed by authorized user.	_____	☐
8. Dose was correctly measured and verified with written directive.	_____	☐
9. Dose was shielded correctly before administration.	_____	☐
10. Patient was given post-dosing instructions.	_____	☐
11. Dose was administered to patient correctly.	_____	☐
12. Dose was disposed of properly.	_____	☐
13. Patient was measured over time period for exposure rate.	_____	☐
14. Room cleanup was done correctly after patient was dismissed from in-house stay.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

BONE SPECT IMAGING

Please evaluate the student's performance as "S" for satisfactory of "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior.

The practical for bone SPECT is optional if planning to take the ARRT exam. The oral exam for bone SPECT will be mandatory for all student's. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	N/A
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. The correct dose was stated.	_____	☐
6. Radiopharmaceutical was correctly drawn up using aseptic technique.	_____	☐
7. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
8. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
9. Used syringes and other materials were correctly disposed.	_____	☐
10. Correct return time for imaging was correctly stated.	_____	☐
11. Patient prep was established as being correctly done.	_____	☐
12. Correct imaging equipment was selected.	_____	☐

13. Correct collimator was selected. _____ ☐

14. Correct imaging parameters were selected. _____ ☐

15. Patient was correctly positioned for anterior and posterior whole body views. _____ ☐

16. Image acquisition onto film was correctly performed. _____ ☐

17. Films were correctly developed and labeled. _____ ☐

18. Films were correctly assembled for reading. _____ ☐

19. Departmental forms were completed in a correct manner. _____ ☐

20. The procedure was completed in a timely manner. _____ ☐

21. The student understands the rationale behind each step of the procedure. _____ ☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

PALLIATIVE BONE THERAPY

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior. This competency may be simulated.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Positive bone metastasis was verified.	_____	☐
4. Patient had conference with treating physician.	_____	☐
5. Written directive was signed by authorized user.	_____	☐
6. IV was started with saline bag running.	_____	☐
7. Dose was correctly measured and verified with written directive.	_____	☐
8. Dose was shielded correctly before administration.	_____	☐
9. Patient was given post-dosing instructions.	_____	☐
10. Dose was administered to patient correctly.	_____	☐
11. Dose was disposed of properly.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

CISTERNOGRAM: ROUTINE, SHUNT PATENCY, or LEAKS

May be demonstrated on patients or phantoms or as simulations (non-patients)

Please evaluate the student's performance as "S" for satisfactory of "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. The correct dose was stated.	_____	☐
6. Radiopharmaceutical was correctly drawn up using aseptic technique.	_____	☐
7. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
8. Correct consent was obtained from the patient.	_____	☐
9. Injection tray assembled correctly for NM physician.	_____	☐
10. Patient positioned correctly for injection.	_____	☐
11. Dosing materials were disposed of properly.	_____	☐
12. Patient was given correct instruction after injection.	_____	☐
13. Correct imaging equipment was selected.	_____	☐
14. Correct collimator was selected.	_____	☐
15. Correct parameters for immediate images were selected.	_____	☐
16. Patient was properly positioned for immediate images.	_____	☐
17. Upon return the patient prep was established as being correctly done.		☐

	SCORE	N/A
18. Patient was properly positioned for delay imaging.	_____	☐
19. Correct parameters for delay images were selected.	_____	☐
20. Image acquisition onto film for immediate and delay images was correctly performed.	_____	☐
21. Films were assessed to see if further delay images were needed.	_____	☐
22. Films were correctly developed and labeled.	_____	☐
23. Films were correctly assembled for reading.	_____	☐
24. Departmental forms were completed in a correct manner.	_____	☐
25. The procedure was completed in a timely manner.	_____	☐
26. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

Please evaluate the student's performance as "S" for satisfactory or "U" unsatisfactory. A grade of "S" indicates that a student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

CARDIAC FIRST PASS; Rest or Rest/Stress

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. The correct dose was stated.	_____	☐
6. Radiopharmaceutical was correctly drawn up using aseptic technique.	_____	☐
7. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
8. Correct imaging equipment was selected.	_____	☐
9. Correct imaging collimator was selected.	_____	☐
10. Correct imaging parameters were selected.	_____	☐
11. Correct parameters were set to collect information on the computer.	_____	☐
12. Patient was correctly positioned.	_____	☐
13. Correct injection materials were assembled.	_____	☐
14. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
15. Used syringes and other materials were correctly disposed.	_____	☐
16. Image acquisition onto film was correctly performed.	_____	☐
17. Acquisition onto the computer was correctly performed.	_____	☐
18. Films were correctly developed and labeled.	_____	☐

	SCORE	N/A
19. Computer analysis was correctly performed to include:		
a) Selection of appropriate images for requisite regions of interest.	_____	☐
b) Positioning of ROI's.	_____	☐
c) Generating histogram and other appropriate information.	_____	☐
20. Films were correctly assembled for reading.	_____	☐
21. Departmental forms were completed in a correct manner.	_____	☐
21. The procedure was completed in a timely manner.	_____	☐
22. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

GASTRIC EMPTYING

Please evaluate the student's performance as "S" for satisfactory or "U" unsatisfactory. A grade of "S" indicates that a student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed	_____	☐
2. Patient was positively identified	_____	☐
3. Orders were found in the chart	_____	☐
4. Study was explained to the patient	_____	☐
5. Patient prep, i.e. NPO, was correctly established	_____	☐
6. The correct dose and radiopharmaceutical was stated.	_____	☐
7. Radiopharmaceutical was correctly prepared	_____	☐
8. Correct imaging equipment was selected	_____	☐
9. Correct collimator was selected	_____	☐
10. Correct imaging parameters were selected	_____	☐
11. Correct parameters were set to collect information on the computer	_____	☐
12. Radiopharmaceutical was correctly administered according to protocol	_____	☐
13. Materials were correctly disposed	_____	☐
14. Patient was correctly positioned	_____	☐
15. Image acquisition onto film was correctly performed	_____	☐
16. Acquisition onto the computer was correctly performed	_____	☐
17. Patient was correctly positioned for reflux where appropriate	_____	☐
18. Films where correctly developed and labeled	_____	☐
19. Computer analysis was correctly performed to include:		
a) Selection of appropriate images for requisite regions of interest	_____	☐
b) Positioning of ROI's	_____	☐
c) Generating histogram and other appropriate information	_____	☐

	SCORE	N/A
20. Films were correctly assembled for reading	_____	☐
21. Departmental forms were completed in a correct manner	_____	☐
22. The procedure was completed in a timely manner	_____	☐
23. The student understands the rationale behind each step of the procedure	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

GASTRIC REFLUX

Please evaluate the student's performance as "S" for satisfactory or "U" unsatisfactory. A grade of "S" indicates that a student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
20. The requisition was retrieved and properly reviewed	_____	☐
21. Patient was positively identified	_____	☐
22. Orders were found in the chart	_____	☐
23. Study was explained to the patient	_____	☐
24. Patient prep, i.e. NPO, was correctly established	_____	☐
25. The correct dose and radiopharmaceutical was stated.	_____	☐
26. Radiopharmaceutical was correctly prepared	_____	☐
27. Correct imaging equipment was selected	_____	☐
28. Correct collimator was selected	_____	☐
29. Correct imaging parameters were selected	_____	☐
30. Correct parameters were set to collect information on the computer	_____	☐
31. Radiopharmaceutical was correctly administered according to protocol	_____	☐
32. Materials were correctly disposed	_____	☐
33. Patient was correctly positioned	_____	☐
34. Image acquisition onto film was correctly performed	_____	☐
35. Acquisition onto the computer was correctly performed	_____	☐
36. Patient was correctly positioned for reflux where appropriate	_____	☐
37. Films where correctly developed and labeled	_____	☐
38. Computer analysis was correctly performed to include:		
a) Selection of appropriate images for requisite regions of interest	_____	☐
b) Positioning of ROI's	_____	☐
c) Generating histogram and other appropriate information	_____	☐

	SCORE	N/A
24. Films were correctly assembled for reading	_____	☐
25. Departmental forms were completed in a correct manner	_____	☐
26. The procedure was completed in a timely manner	_____	☐
27. The student understands the rationale behind each step of the procedure	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

GASTROINTESTINAL BLEED; RBC or SC

Please evaluate the student's performance as "S" for satisfactory or "U" unsatisfactory. A grade of "S" indicates that a student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. The correct dose and radiopharmaceutical was stated.	_____	☐
6. Radiopharmaceutical was correctly prepared.	_____	☐
7. Method used to label RBC's: ☐ *in vivo* tagging ☐ *in vitro* tagging ☐ modified *in vitro* tagging		
8. Correct imaging equipment was selected.	_____	☐
9. Correct collimator was selected.	_____	☐
10. Correct imaging parameters were selected.	_____	☐
11. Correct parameters were set to collect information on the computer.	_____	☐
12. Patient was positioned correctly for imaging.	_____	☐
13. Radiopharmaceutical was administered correctly.	_____	☐
14. Dosing materials were correctly disposed.	_____	☐
15. Patient was imaged for proper amount of time or until bleed was visualized.	_____	☐

	SCORE	N/A
16. Films were correctly developed and labeled.	_____	☐
17. Films were correctly assembled for reading.	_____	☐
18. Departmental forms were completed in a correct manner.	_____	☐
19. The procedure was completed in a timely manner.	_____	☐
20. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

LIVER IMAGING: RBC HEMANGIOMA

May be demonstrated on patients or phantoms or as simulations (non-patients)

Please evaluate the student's performance as "S" for satisfactory or "U" unsatisfactory. A grade of "S" indicates that a student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. The correct dose and radiopharmaceutical was stated.	_____	☐
6. Radiopharmaceutical was correctly prepared.	_____	☐
7. Method used to label RBC's:	_____	☐
☐ *in vivo* tagging	_____	☐
☐ *in vitro* tagging	_____	☐
☐ modified *in vitro* tagging	_____	☐
8. Radiopharmaceutical was correctly drawn up using aseptic technique.	_____	☐
9. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
10. Correct imaging equipment was selected.	_____	☐
11. Correct collimator was selected.	_____	☐
12. Correct imaging parameters for dynamic imaging were selected.	_____	☐
13. Patient was properly positioned for dynamic imaging.	_____	☐
14. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
15. Image acquisition onto film for dynamic phase was correctly performed.	_____	☐
16. Image acquisition for immediate images was correctly performed.		☐

	SCORE	N/A
17. Films were correctly developed and labeled.		☐
18. Used syringes and other materials were correctly disposed.		☐
19. Correct return time for delay was stated.		☐
20. Correct imaging equipment was selected.		☐
21. Correct collimator was selected.		☐
22. Correct imaging parameters were selected for spot and/or SPECT.		☐
23. Patient was correctly positioned for spot and/or SPECT.		☐
24. Image acquisition onto film was correctly performed.		☐
25. Correct analysis of SPECT data was performed:		☐
a) Correct selection of data for analysis		☐
b) Correct selection of parameters for data analysis according to department protocol		☐
c) Correct analysis and evaluation of results		
26. Films were correctly developed and labeled.		☐
27. Films were correctly assembled for reading.		☐
28. Departmental forms were completed in a correct manner.		☐
29. The procedure was completed in a timely manner.		☐
30. The student understands the rationale behind each step of the procedure.		☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

THYROID THERAPY: HYPERTHYROIDISM

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior. This competency examination may be simulated.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. The patient room was correctly prepared for in-house stay.	_____	☐
3. Patient was positively identified.	_____	☐
4. TSH level checked for verification.	_____	☐
5. Patient prep verified.	_____	☐
6. Patient had conference with treating physician.	_____	☐
7. Written directive was signed by authorized user.	_____	☐
8. Dose was correctly measured and verified with written directive.	_____	☐
9. Dose was shielded correctly before administration.	_____	☐
10. Patient was given post-dosing instructions.	_____	☐
11. Dose was administered to patient correctly.	_____	☐
12. Dose was disposed of properly.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

LIVER-SPLEEN PLANAR IMAGING

May be demonstrated on patients or phantoms or as simulations (non-patient)

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicated that the student is meeting expectations while a grade of "U" indicates that the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. The patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Patients had no previous barium studies that would interfere with the procedure.	_____	☐
5. Study was explained to the patient.	_____	☐
6. Correct imaging equipment was selected.	_____	☐
7. Correct collimator was selected.	_____	☐
8. Correct imaging parameters were selected.	_____	☐
9. The correct dose was stated.	_____	☐
10. The radiopharmaceutical was correctly drawn using aseptic technique.	_____	☐
11. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
12. Patient was correctly positioned for the dynamic portion of the study.	_____	☐
13. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
14. Used syringes and other materials were correctly disposed.	_____	☐

	SCORE	N/A
15. Image acquisition onto film for liver flow was correctly performed.	_____	☐
16. Image acquisition onto film for immediate images was correctly performed.	_____	☐
17. Patient was correctly positioned for all routine views:		
a) Anterior	_____	☐
b) Anterior with markers	_____	☐
c) Right lateral	_____	☐
d) Left lateral	_____	☐
e) Posterior	_____	☐
f) Other	_____	☐
18. Image acquisition onto film for all the above views was correctly performed.	_____	☐
19. Films were correctly developed and labeled.	_____	☐
20. Films were correctly assembled for reading.	_____	☐
21. Departmental forms were completed in a correct manner.	_____	☐
22. The procedure was completed in a timely manner.	_____	☐
23. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

LIVER-SPLEEN SPECT IMAGING

May be demonstrated on patients or phantoms or as simulations (non-patients)

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicated that the student is meeting expectations while a grade of "U" indicates that the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. The patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Patients had no previous barium studies that would interfere with the procedure.	_____	☐
5. Study was explained to the patient.	_____	☐
6. Correct imaging equipment was selected.	_____	☐
7. Correct collimator was selected.	_____	☐
8. Correct imaging parameters were selected.	_____	☐
9. The correct dose was stated.	_____	☐
10. The radiopharmaceutical was correctly drawn using aseptic technique.	_____	☐
11. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
12. Patient was correctly positioned for the ECT portion of the study.	_____	☐
13. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
14. Used syringes and other materials were correctly disposed.		☐
	_____	

	SCORE	N/A
15. Image acquisition onto film for ECT was correctly performed.	_____	☐
16. Correct analysis of ECT data was performed by:		☐
a) Correct selection of data for analysis.	_____	☐
b) Correct selection of parameters for data analysis according to department protocol.	_____	☐
c) Correct analysis and evaluation of results.	_____	
17. Films were correctly developed and labeled.	_____	☐
18. Films were correctly assembled for reading.	_____	☐
19. Departmental forms were completed in a correct manner.	_____	☐
20. The procedure was completed in a timely manner.	_____	☐
21. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

LYMPHOSCINTIGRAPHY

Please evaluate the student's performance as "S" for satisfactory of "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	N/A
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. The correct dose was stated.	_____	☐
6. Radiopharmaceutical was correctly drawn up using aseptic technique.	_____	☐
7. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
8. Dosing tray was assembled correctly for NM physician to inject.	_____	☐
9. Assess for proper patient prep if surgery is to follow procedure.	_____	☐
10. The location of biopsies were correctly noted.	_____	☐
11. Patient was positioned correctly for injection and dynamic imaging.	_____	☐
12. Proper imaging equipment was selected.	_____	☐
13. Correct collimator was selected.	_____	☐
14. Correct dynamic imaging parameters were selected.	_____	☐
15. Correct static imaging parameters were selected.	_____	☐
16. Dosing materials were disposed of properly.	_____	☐
17. Image acquisition onto film was correctly performed.	_____	☐

	SCORE	N/A
18. Films were correctly developed and labeled.	_____	☐
22. Films were correctly assembled for reading.		☐
23. Departmental forms were completed in a correct manner.	_____	☐
24. The procedure was completed in a timely manner.	_____	☐
25. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

MECKEL'S SCAN

Please evaluate the student's performance as "S" for satisfactory or "U" unsatisfactory. A grade of "S" indicates that a student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. Patient prep, i.e. NPO, was correctly established.	_____	☐
6. The correct dose and radiopharmaceutical was stated.	_____	☐
7. Radiopharmaceutical was handled using correct technique.	_____	☐
8. Radiopharmaceutical was measured in dose calibrator.	_____	☐
9. Correct imaging equipment was selected.	_____	☐
10. Correct collimator was selected.	_____	☐
11. Correct imaging parameters were selected.	_____	☐
12. Correct parameters were set to collect information on the computer.	_____	☐
13. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
14. Materials were correctly disposed.	_____	☐
15. Patient was correctly positioned.	_____	☐
16. Image acquisition onto film was correctly performed.	_____	☐
17. Acquisition onto the computer was correctly performed.	_____	☐
18. Films where correctly developed and labeled.	_____	☐
19. Films were correctly assembled for reading.		☐

	SCORE	N/A
20. Departmental forms were completed in a correct manner.		☐
21. The procedure was completed in a timely manner.		☐
22. The student understands the rationale behind each step of the procedure.		☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

MONOCLONAL IMAGING

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	N/A
1. The requisition was retrieved and properly reviewed	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. Radiopharmaceutical was correctly prepared.	_____	☐
6. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
7. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
8. Used syringes and other materials were correctly disposed.	_____	☐
9. Return time for imaging was correctly stated.	_____	☐
10. Patient prep was established as being correctly done.	_____	☐
11. Correct imaging equipment was selected.	_____	☐
12. Correct collimator was selected.	_____	☐
13. Correct imaging parameters were selected for:		☐
a) Whole body views		
b) Static views		
c) ECT images	_____	
14. Patient was correctly positioned for:	_____	☐
a) Whole body views	_____	☐
b) Static views	_____	☐
c) ECT images	_____	☐
15. Image acquisition onto film was correctly performed.	_____	☐
16. Films were correctly developed and labeled.	_____	☐
17. Films were correctly assembled for reading.	_____	☐

	SCORE	N/A
18. Departmental forms were completed in a correct manner.	_____	☐
19. Patient was given correct return time if more delays were necessary.	_____	☐
20. The procedure was completed in a timely manner.	_____	☐
21. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

GALLIUM ONCOLOGY

Please evaluate the student's performance as "S" for satisfactory of "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	N/A
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. The correct dose was stated.	_____	☐
6. Radiopharmaceutical was correctly drawn up using aseptic technique.	_____	☐
7. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
8. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
9. Used syringes and other materials were correctly disposed.	_____	☐
10. Correct return time for imaging was correctly stated.	_____	☐
11. Patient prep was established as being correctly done.	_____	☐
12. Correct imaging equipment was selected.	_____	☐
13. Correct collimator was selected.	_____	☐
14. Correct imaging parameters were selected for:		
a) Whole body views (anterior and posterior)	_____	☐
b) Spot views	_____	☐
c) ECT images	_____	☐

	SCORE	N/A
15. Patient was correctly positioned for:		
a) Whole body views (anterior and posterior)	_____	☐
b) Spot views	_____	☐
c) ECT images	_____	☐
16. Image acquisition onto film was correctly performed for all views.	_____	☐
17. Films were correctly developed and labeled.	_____	☐
18. Films were correctly assembled for reading.	_____	☐
19. Films were assessed for need for further images.	_____	☐
20. Departmental forms were completed in a correct manner.	_____	☐
21. The procedure was completed in a timely manner.	_____	☐
22. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

GALLIUM INFECTION

Please evaluate the student's performance as "S" for satisfactory of "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	N/A
17. The requisition was retrieved and properly reviewed.	_____	☐
18. Patient was positively identified.	_____	☐
19. Orders were found in the chart.	_____	☐
20. Study was explained to the patient.	_____	☐
21. The correct dose was stated.	_____	☐
22. Radiopharmaceutical was correctly drawn up using aseptic technique.	_____	☐
23. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
24. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
25. Used syringes and other materials were correctly disposed.	_____	☐
26. Correct return time for imaging was correctly stated.	_____	☐
27. Patient prep was established as being correctly done.	_____	☐
28. Correct imaging equipment was selected.	_____	☐
29. Correct collimator was selected.	_____	☐
30. Correct imaging parameters were selected for:		
a) Whole body views (anterior and posterior)	_____	☐
b) Spot views	_____	☐
c) ECT images	_____	☐

	SCORE	N/A
31. Patient was correctly positioned for:		
a) Whole body views (anterior and posterior)	_____	☐
b) Spot views	_____	☐
c) ECT images	_____	☐
32. Image acquisition onto film was correctly performed for all views.	_____	☐
23. Films were correctly developed and labeled.	_____	☐
24. Films were correctly assembled for reading.	_____	☐
25. Films were assessed for need for further images.	_____	☐
26. Departmental forms were completed in a correct manner.	_____	☐
27. The procedure was completed in a timely manner.	_____	☐
28. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

PARATHYROID IMAGING

Please evaluate the student's performance as "S" for satisfactory of "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	N/A
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. The correct dose was stated.	_____	☐
6. Radiopharmaceutical was correctly drawn up using aseptic technique.	_____	☐
7. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
8. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
9. Used syringes and other materials were correctly disposed.	_____	☐
10. Correct return time for imaging was correctly stated.	_____	☐
11. Patient prep was established as being correctly done.	_____	☐
12. Correct imaging equipment was selected.	_____	☐
13. Correct collimator was selected.	_____	☐
14. Correct imaging parameters were selected.	_____	☐
15. Patient was correctly positioned for images	_____	☐
16. Image acquisition onto film was correctly performed.	_____	☐
17. Films were correctly developed and labeled.	_____	☐
18. Films were correctly assembled for reading.	_____	☐
19. Departmental forms were completed in a correct manner.		☐

20. The procedure was completed in a timely manner. _____ □

21. The student understands the rationale behind each step of the procedure. _____ □

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

QUANTITATIVE LUNG IMAGING

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U: indicates the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart.	_____	☐
4. Study was explained to the patient.	_____	☐
5. Correct imaging equipment was selected.	_____	☐
6. Correct collimator was selected.	_____	☐
7. Correct imaging parameters for the perfusion portion were selected.	_____	☐
8. The correct dose and radiopharmaceutical for the perfusion was stated.	_____	☐
9. Radiopharmaceutical was correctly drawn up using aseptic technique.	_____	☐
10. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
11. Patient was correctly positioned for the dose administration	_____	☐
12. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
13. Correct dose to scan time was stated.	_____	☐
14. Patient was correctly positioned for all routine views:	_____	☐

	SCORE	*N/A*
15. Computer analysis for quantitative data was correctly performed:		
16. Selection of appropriate data for requisite regions of interest	_____	☐
a) Correct positioning of ROI's	_____	☐
c) Generate correct percentage for each quadrant	_____	☐
e) Image acquisition onto film for all the above views was correctly performed.	_____	☐
17. Films were correctly developed and labeled.	_____	☐
18. Films were correctly assembled for reading.	_____	☐
19. Appropriate chest films were assembled with the study.	_____	☐
20. Departmental forms were completed in a correct manner.	_____	☐
21. The procedure was completed in a timely manner.	_____	☐
22. The student understands the rationale behind each step of the procedure.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

SCINTIMAMMOGRAPHY

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	*N/A*
1. The requisition was retrieved and properly reviewed.	_____	☐
2. Patient was positively identified.	_____	☐
3. Orders were found in the chart	_____	☐
4. Patient prep was correctly established.	_____	☐
5. Study was explained to the patient.	_____	☐
6. Correct imaging equipment was selected.	_____	☐
7. Correct collimator was selected.	_____	☐
8. Correct imaging parameters were selected.	_____	☐
9. The correct dose was stated.	_____	☐
10. Radiopharmaceutical was correctly drawn up using aseptic technique.	_____	☐
11. Radiopharmaceutical was measured in the dose calibrator.	_____	☐
12. Radiopharmaceutical was correctly administered according to protocol.	_____	☐
13. Correct dose to scan time was stated.	_____	☐
14. Used syringes and other materials were correctly disposed.	_____	☐
15. Patient was correctly positioned for each view:		
a) Lateral	_____	☐
b) Anterior	_____	☐
c) Anterior for deep lesions	_____	☐

	Score	*N/A*
16. Image acquisition onto film for all the above views was correctly performed	_____	☐
17. Films were correctly developed and labeled	_____	☐
18. Films were correctly assembled for reading	_____	☐
19. Departmental forms were completed in a correct manner	_____	☐
20. The procedure was completed in a timely manner	_____	☐
21. The student understands the rationale behind each step of the procedure	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

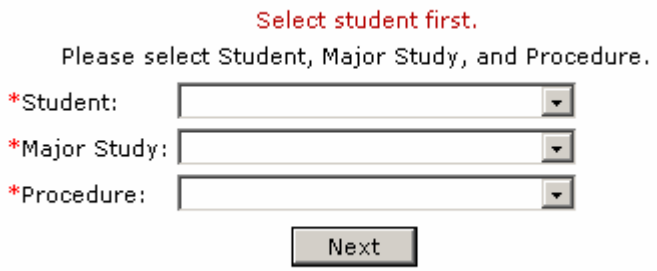
Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

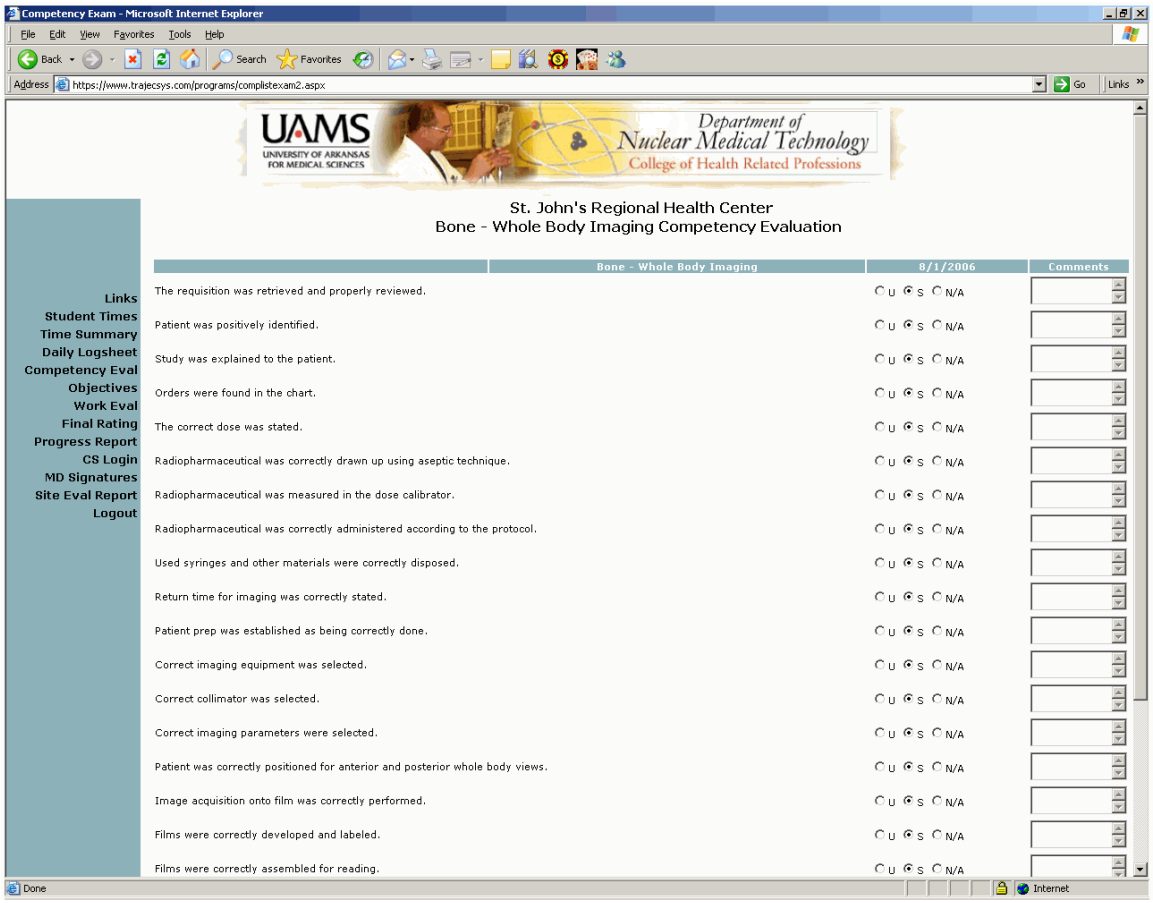
Imaging Competency Evaluations: Trajecsys

The following is a screenshot of a competency evaluation. **Only affiliate education supervisors have access to these forms.** As a student feels competent in the procedure, they should perform a procedure for the affiliate education supervisor. If the affiliate education supervisor feels that the student understands not only the procedure, but also the rationale behind the exam, then the affiliate education supervisor may fill out the competency form on the student. By filling out this form, the affiliate education supervisor is confirming that the student is competent to perform this exam without any supervision, and would feel comfortable telling other affiliate education supervisors that the student could perform this procedure at other clinical sites with minimal supervision.

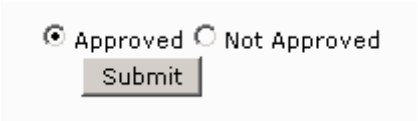
The affiliate education supervisor should select “Competency Eval” from the main menu. Choose the student, major skill and procedure.



Once the criteria above has been selected, the affiliate education supervisor will get the competency form: (Screenshot example of a Bone – Whole Body Imaging)



Each competency form has specific questions related to that procedure. Student's are graded on a "U", "S", "N/A" scale. Any "U" on the competency form requires a comment in the comment box. At the end of each competency form, there are "Approved" and "Not Approved" selection buttons.



Any "U" constitutes an unsatisfactory performance and the affiliate education supervisor should choose "Not Approved". If there are no "U's" reported on the competency form, then the "Approved" button should be selected.

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

RADIOPHARMACY DOSE CALCULATION COMPETENCY

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	N/A
1. Patient name and study were verified from the requisition.	_____	☐
2. The correct radiopharmaceutical was selected.	_____	☐
3. The elapsed time between assay calibration and dose calculation was correctly determined.	_____	☐
4. The remaining activity in the vial was correctly determined.	_____	☐
5. The activity required for the dose was correctly determined.	_____	☐
6. The volume was correctly determined.	_____	☐
7. The dose was correctly drawn up using sterile technique and appropriate shielding.	_____	☐
8. The appropriate data was entered into the log book.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

RADIOPHARMACY GENERATOR ELUTION AND ASSAY AND Mo-99 ASSAY COMPETENCY

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

ELUTING $^{99}Mo/^{99m}Tc$ GENERATOR

	SCORE	N/A
1. Accessories were correctly assembled to elute the generator to include:		
a) Vial shield	_____	☐
b) Vials	_____	☐
c) Materials for aseptic technique	_____	☐
2. The procedure was correctly performed		
a) using lead shield	_____	☐
b) using gloves	_____	☐
3. The vials were attached to the correct input and output needles.	_____	☐
4. The eluate was assayed in the dose calibrator	_____	☐
5. The assay results were correctly entered in the log books with the following information: activity, volume, concentration, date, time of assay, and radiopharmaceutical.	_____	☐

MOLYBDENUM-99 ASSAY

	SCORE	N/A
1. Pertechnetate concentration was properly assayed using appropriate dose calibrator settings.	_____	☐
2. The ^{99}Mo concentration was properly assayed using the appropriate dose calibrator settings.	_____	☐
3. The ^{99}Mo activity per mCi of ^{99m}Tc was		
a) properly calculated	_____	☐
b) determined acceptable	_____	☐
4. Results were correctly recorded in the appropriate log book.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

RADIOPHARMACY KIT PREPARATION COMPETENCY

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	N/A
1. The activity and volume of radioactivity to be added to the kit was properly determined.	_____	☐
2. The radioactive dose and volume was recorded in the daily log book for pertechnetate.	_____	☐
3. The kit was prepared according to the manufacturer's directions.	_____	☐
4. The total activity of the kit was confirmed in the dose calibrator.	_____	☐
5. The concentration was properly calculated and recorded in the log book.	_____	☐
6. All necessary entries were made in the appropriate log book.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

RADIOPHARMACEUTICAL KIT QUALITY CONTROL COMPETENCY

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

	SCORE	N/A
1. For the radiopharmaceutical prepared, the particle sizing was checked as appropriate and correctly determined to be usable.	_____	☐
2. Chromatography was properly performed as follows:		
a) All materials were correctly assembled.	_____	☐
b) Expediency was used when the radiopharmaceutical is unstable.	_____	☐
c) Protocol was strictly adhered to.	_____	☐
d) Finished chromatogram was properly separated to accurately determine the various forms of ^{99m}Tc.	_____	☐
e) Counting equipment for analyzation was properly used.	_____	☐
f) Determination of percent hydrolyzed was correctly calculated.	_____	☐
g) Determination of percent bound was correctly calculated.	_____	☐
h) Data was properly recorded in the appropriate log book.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

RADIOPHARMACY PACKAGE RECEIVING COMPETENCY

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

When receiving and processing radioactive shipments, the following procedures were observed:	SCORE	N/A
1. Package was visually inspected for damage.	_____	☐
2. Wipe tests were performed on the exterior packaging.	_____	☐
3. Survey meter readings were made at the surface and one meter away.	_____	☐
4. Radioactive signs were defaced.	_____	☐
5. The radioactive material was properly stored.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

Nuclear Medicine Imaging Sciences
Student Evaluation Form: Competency Exam
Imaging Internship

RADIOPHARMACY PACKAGING AND SHIPPING COMPETENCY

Please evaluate the student's performance as "S" for satisfactory or "U" for unsatisfactory. A grade of "S" indicates that the student is meeting expectations while a grade of "U" indicated the student demonstrates unacceptable clinical behavior. The student must have completed these procedures on his/her own prior to taking the practical exam.

When shipping radioactive materials, the following procedures were observed:	SCORE	N/A
1. PIGS used for shipment were properly wiped and sealed.	_____	☐
2. PIGS were placed in the proper shipping container.	_____	☐
3. Wipes were performed and survey meter readings were made at the surface and one meter away.	_____	☐
4. Radioactive labels contained the correct information.	_____	☐
5. Radioactive labels were properly placed on the package.	_____	☐

Remarks: _____

_____

Affiliate education supervisors Signature: _____

Student's Signature: _____

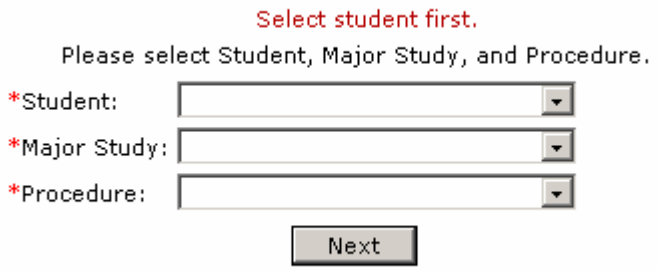
Date: _____ Clinical Rotation: _____

UAMS-CHP-NMIS Clinical Coordinator Signature: _____

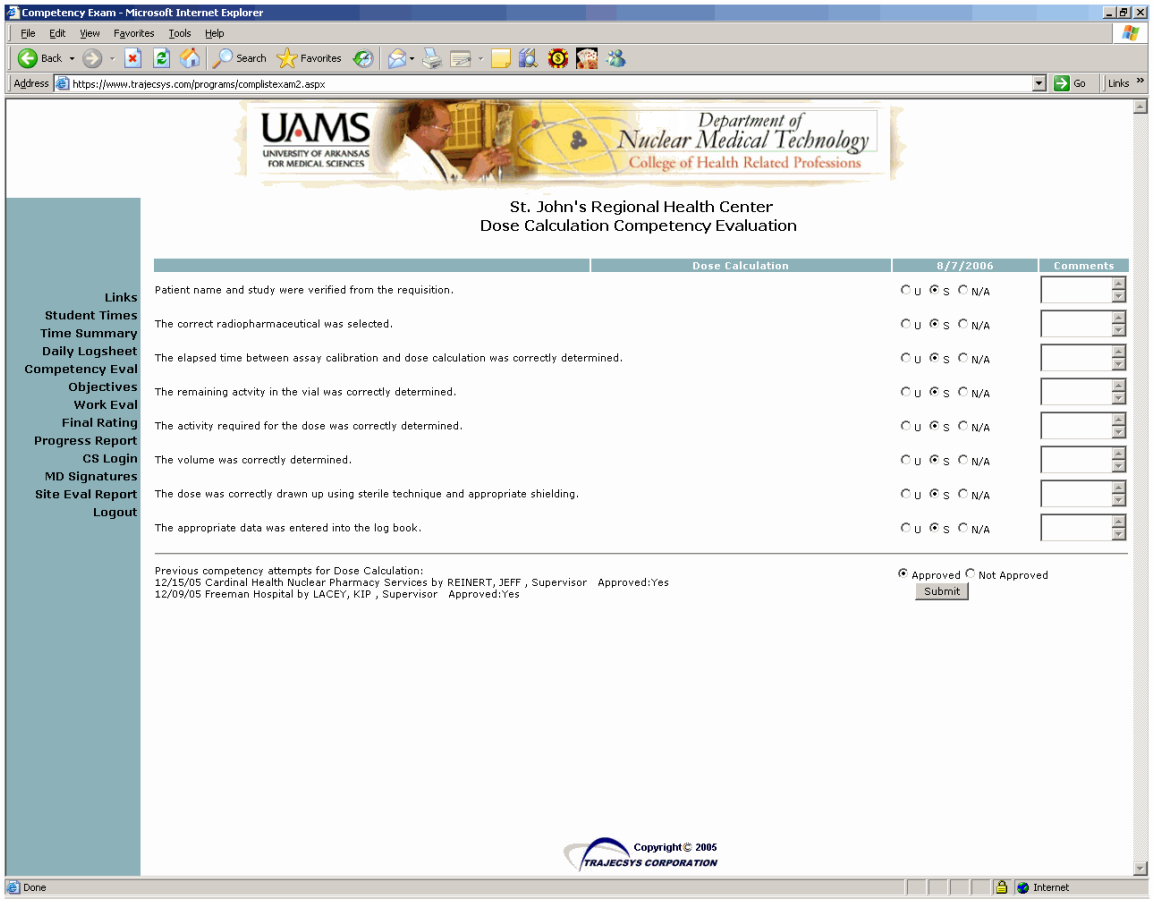
Radiopharmacy Competency Evaluations: Trajecsys

The following is a screenshot of a radiopharmacy competency evaluation. **Only affiliate education supervisors have access to these forms.** As a student feels competent in the procedure, they should perform a procedure for the affiliate education supervisor. If the affiliate education supervisor feels that the student understands not only the procedure, but also the rationale behind the exam, then the affiliate education supervisor may fill out the competency form on the student. By filling out this form, the affiliate education supervisor is confirming that the student is competent to perform this exam without any supervision, and would feel comfortable telling other affiliate education supervisors that the student could perform this procedure at other clinical sites with minimal supervision.

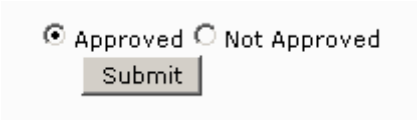
The affiliate education supervisor should select “Competency Eval” from the main menu. Choose the student, major skill and procedure.



Once the criteria above has been selected, the affiliate education supervisor will get the competency form: (Screenshot example of a Dose Calculation)



Each competency form has specific questions related to that procedure. Student's are graded on a "U", "S" "N/A" scale. Any "U" on the competency form requires a comment in the comment box. At the end of each competency form, there are "Approved" and "Not Approved" selection buttons.



Any "U" constitutes an unsatisfactory performance and the affiliate education supervisor should choose "Not Approved". If there are no "U's" reported on the competency form, then the "Approved" button should be selected.

Nuclear Medicine Imaging Sciences

Daily Imaging Log Sheet

Date	Procedure	*Level of participation	Technologist[1]

***Enter the level of participation for each procedure as indicated below**

1. Student observed the procedure.
2. Student provided minimal assistance: retrieved paperwork, retrieved patient, helped patient onto and/or off the imaging table, changed linens, ran film, labeled film.
3. Student provided partial assistance: set up imaging parameters on equipment, positioned patient for several views, injected doses, and some computer operations.
4. Student completed study with minimal assistance, including computer processing or ECT imaging.
5. Student completed study without assistance including computer processing or ECT imaging.

[1] The clinical instructor or other designated technologist must initial each procedure.

Nuclear Medicine Imaging Sciences

Quality Control Log Sheet
Procedures

Date ⇐						
Initials[2] ⇐						
Procedure						
Camera - Field flood						
Camera - Resolution						
Dose calibrator - Accuracy						
Dose calibrator - Constancy						
Dose calibrator - Geometry						
Dose calibrator - Linearity						
Room survey						
SPECT - Uniformity						
SPECT - COR						
Room Wipe Test						

Enter the number of QC procedures accomplished on each day at the clinical site. Student's are required to perform a minimum number of quality control procedures each clinical rotation and each semester. The numbers are as follows:

Procedure Type	Camera Field Flood	Camera Resolution	Dose Calibrator Constancy	Room Surveys	SPECT COR	Room Wipe Test
Minimum Required	15/ semester 5/clinic rotation	3/semester 1/clinic rotation	15/semester 5/clinic rotation	15/semester 5/clinic rotation	3/semester 1/clinic rotation	3/semester 1/clinic rotation

[2] The supervising technologist must initial each date.

Nuclear Medicine Imaging Sciences

Radiopharmacy Log Sheet

Date ⇐						
Initials[3] ⇐						
Procedure						
^{99m}Tc-HM-PAO™/ Indium-111 WBC labeling[4]						
Assay - Moly						
Bioassay						
Decontamination						
Dose calculation/prep						
Generator elution						
Kit prep						
Kit QC						
Multichannel QC						
Package receiving						
Particle check						
Room survey - meter						
Sealed source wipe test						
Wipe test						

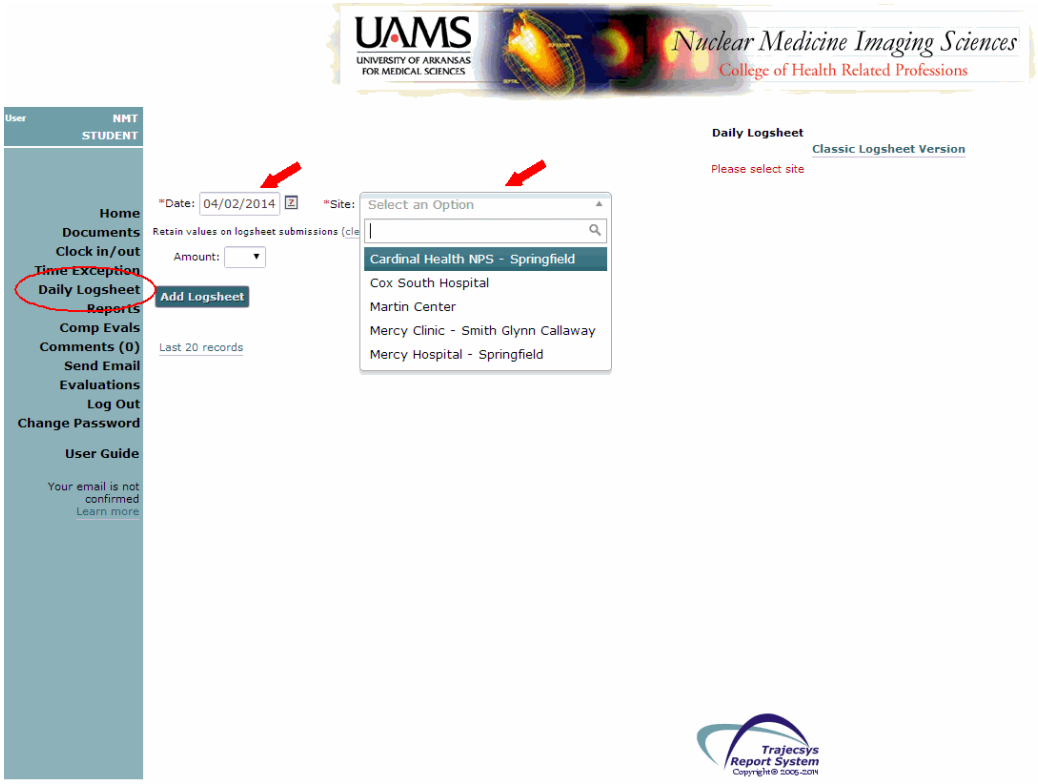
NOTE: Enter the number of procedures accomplished for each day at the clinical site.

[3] The supervising pharmacist/technologist must initial each date.
[4] Due to regulations, student's may only be able to observe this procedure.

Daily Imaging/Quality Control/Radiopharmacy Log Sheet: Trajecsys

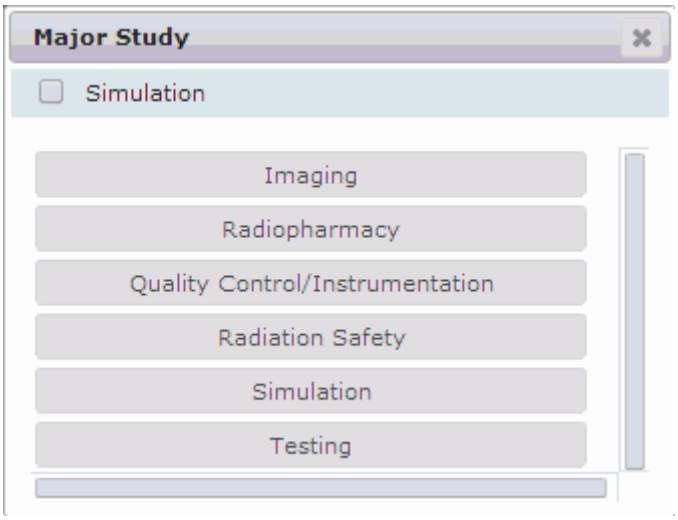
The following is a screenshot of the Daily Log Sheet that the student's and Affiliate education supervisors should complete this form online every day. The menu item for this item is "Daily Log Sheet". This procedure should be as follows:

1. Student should fill this form out on a daily basis. Once submitted, the affiliate education supervisor must approve before procedures will show up on the student skill summary. Start by choosing "Daily Logsheet" on the menu to the left of the page. Make sure to choose the correct date and facility that the procedure was performed at.

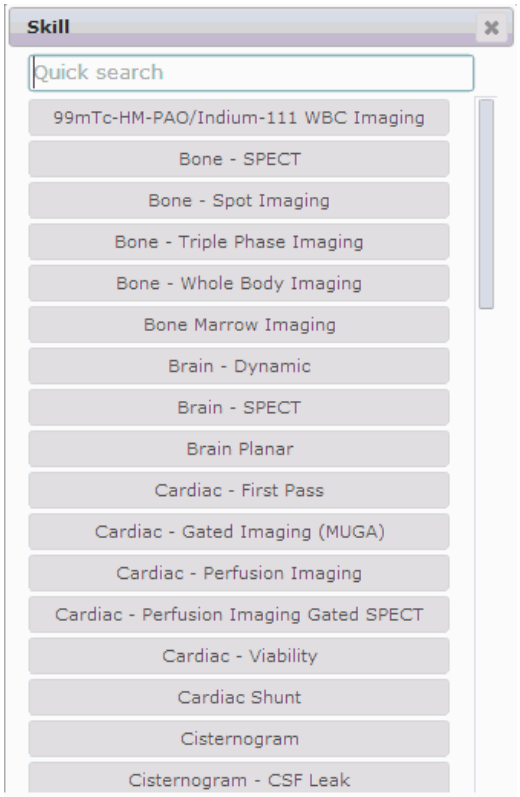


Click on the "Add Logsheet" button

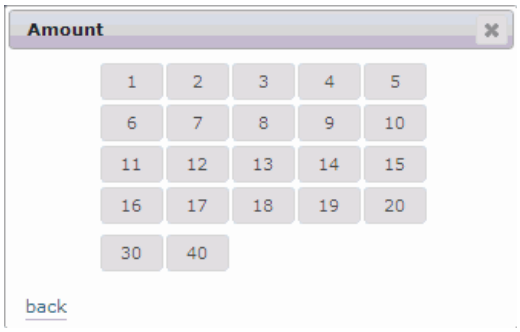
You will get the following screenshots. Complete them in order to log your procedures on a daily basis.



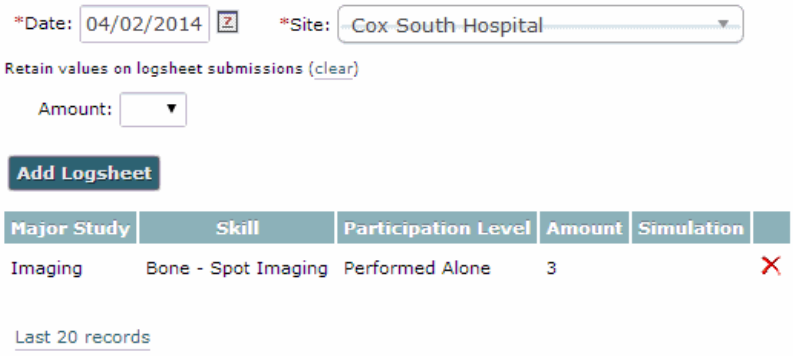
Choose what type of procedure you are wanting to log. E.g. Bone scan would be under imaging, Kit quality control would be under Radiopharmacy.



Choose the procedure that you are actually logging. This list comes from the “Imaging” major study and is only a partial list.



You may log more than one of the same number of procedures at the same time. Choose the number of procedures that you did. (e.g. 3 bone scans)

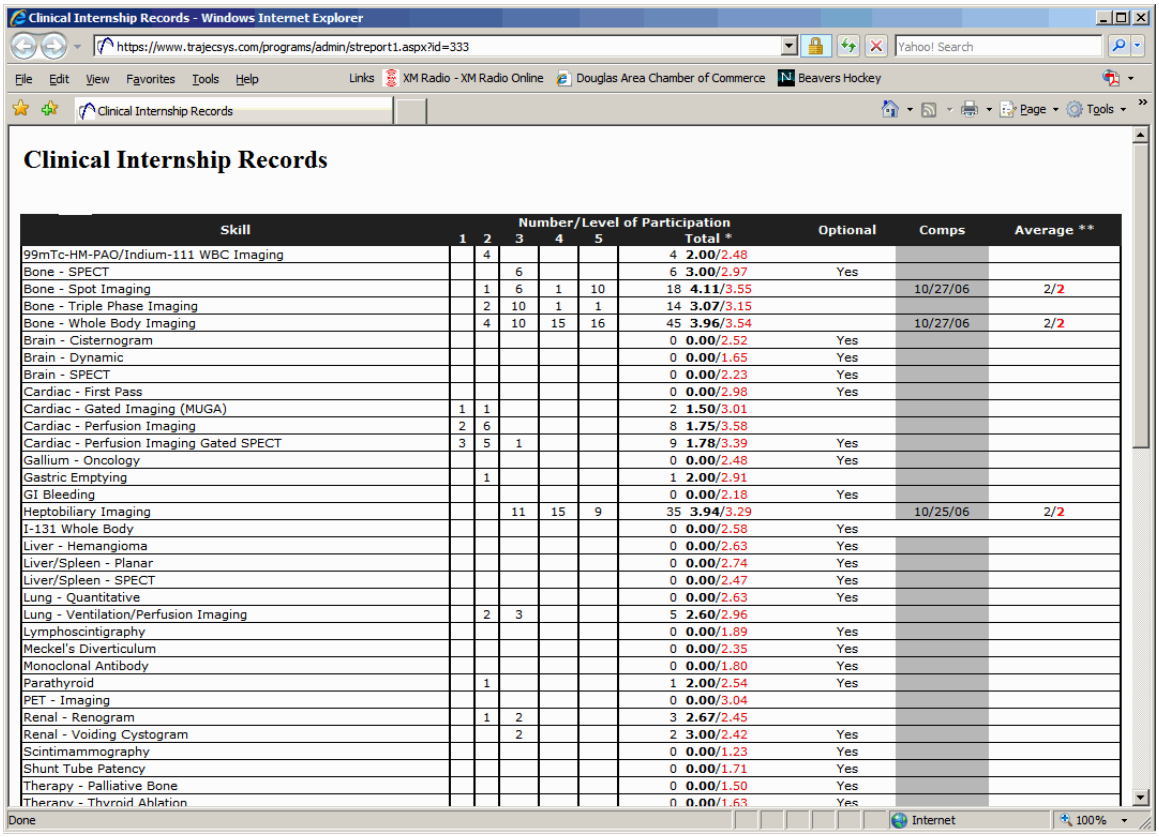


Once completed, you should be returned to the main screen where you should see the procedures you just entered similar to that above.

2. The affiliate education supervisor should review all the procedures listed on the daily log sheet. If there are errors, the affiliate education supervisor is to review any information on the procedure. If all procedures look OK, then nothing needs to be done by the affiliate education supervisor. If any problems are noticed, an e-mail should be sent to the clinical coordinator noting these errors. Procedures will show up on the student's skill summary immediately.

Skill Summary: Trajecsys

The skill summary report contains not only the imaging skills, but also the quality control instrumentation and radiopharmacy skills. This report is the same for both the student and the affiliate education supervisor. However, the affiliate education supervisor can only see student's reports that have rotated through their clinical site.



Skill	Number/Level of Participation 1	2	3	4	5	Total *	Optional	Comps	Average **
99mTc-HM-PAO/Indium-111 WBC Imaging		4				4 **2.00**/2.48			
Bone - SPECT			6			6 **3.00**/2.97	Yes		
Bone - Spot Imaging		1	6	1	10	18 **4.11**/3.55		10/27/06	2/2
Bone - Triple Phase Imaging		2	10	1	1	14 **3.07**/3.15			
Bone - Whole Body Imaging		4	10	15	16	45 **3.96**/3.54		10/27/06	2/2
Brain - Cisternogram						0 **0.00**/2.52	Yes		
Brain - Dynamic						0 **0.00**/1.65	Yes		
Brain - SPECT						0 **0.00**/2.23	Yes		
Cardiac - First Pass						0 **0.00**/2.98	Yes		
Cardiac - Gated Imaging (MUGA)	1	1				2 **1.50**/3.01			
Cardiac - Perfusion Imaging	2	6				8 **1.75**/3.58			
Cardiac - Perfusion Imaging Gated SPECT	3	5	1			9 **1.78**/3.39	Yes		
Gallium - Oncology						0 **0.00**/2.48	Yes		
Gastric Emptying		1				1 **2.00**/2.91			
GI Bleeding						0 **0.00**/2.18	Yes		
Heptobiliary Imaging			11	15	9	35 **3.94**/3.29		10/25/06	2/2
I-131 Whole Body						0 **0.00**/2.58	Yes		
Liver - Hemangioma						0 **0.00**/2.63	Yes		
Liver/Spleen - Planar						0 **0.00**/2.74	Yes		
Liver/Spleen - SPECT						0 **0.00**/2.47	Yes		
Lung - Quantitative						0 **0.00**/2.63	Yes		
Lung - Ventilation/Perfusion Imaging		2	3			5 **2.60**/2.96			
Lymphoscintigraphy						0 **0.00**/1.89	Yes		
Meckel's Diverticulum						0 **0.00**/2.35	Yes		
Monoclonal Antibody						0 **0.00**/1.80	Yes		
Parathyroid		1				1 **2.00**/2.54	Yes		
PET - Imaging						0 **0.00**/3.04			
Renal - Renogram		1	2			3 **2.67**/2.45			
Renal - Voiding Cystogram			2			2 **3.00**/2.42	Yes		
Scintimammography						0 **0.00**/1.23	Yes		
Shunt Tube Patency						0 **0.00**/1.71	Yes		
Therapy - Palliative Bone						0 **0.00**/1.50	Yes		
Therapy - Thyroid Ablation						0 **0.00**/1.63	Yes		

On this report, the procedures are listed and the number of procedures at each level of participation. Under the "Total*" column, the 1st number represents the total number of procedures for all participation levels. The bold number represents the student's average participation level for that procedure. The red number represents the class average for that procedure. The student and affiliate education supervisor can then compare their performance to the class average.

Nuclear Medicine Imaging Sciences

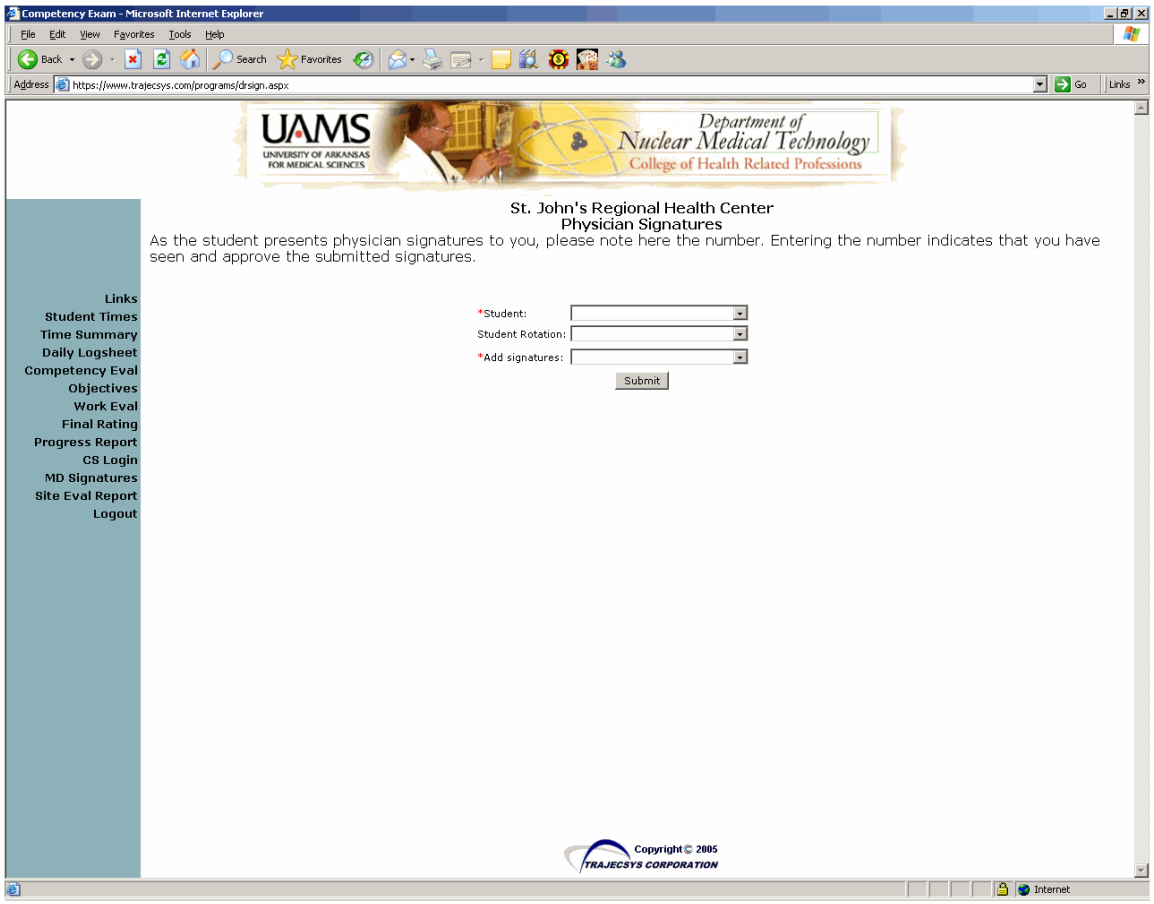
Reading with the Physician: Log Sheet

Date	Procedure	Diagnosis/Findings	MD Initials[5]

Student's are to spend time in the reading room with the physician at each clinical imaging rotation. The student is expected to remain in the room throughout the time the study is being read and to ask and answer questions of the physician. This experience will provide more insight as to the kinds of things that physicians find important when making a diagnosis. A log sheet is to be maintained by the student that indicates the date, the procedure, the impression/findings, and the signature of the physician. Student's are to participate in at least 10 cases/rotation.

Reading with the Physician: Trajecsys:
Student's are expected to sit and read with the physicians. Student's should keep a log of the times and procedures that they have sat and read films with the physicians. This log should be given to the affiliate education supervisor to enter in the system.

The affiliate education supervisor will then enter the data into the system on the menu item "MD Signatures":



Nuclear Medicine Imaging Sciences

Student Daily Attendance Record

DATE	*STUDENT NAME*	*TIME IN*	*TECH*♦	*TIME OUT*	*TECH*♦	NOTE D	NOTE S
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐
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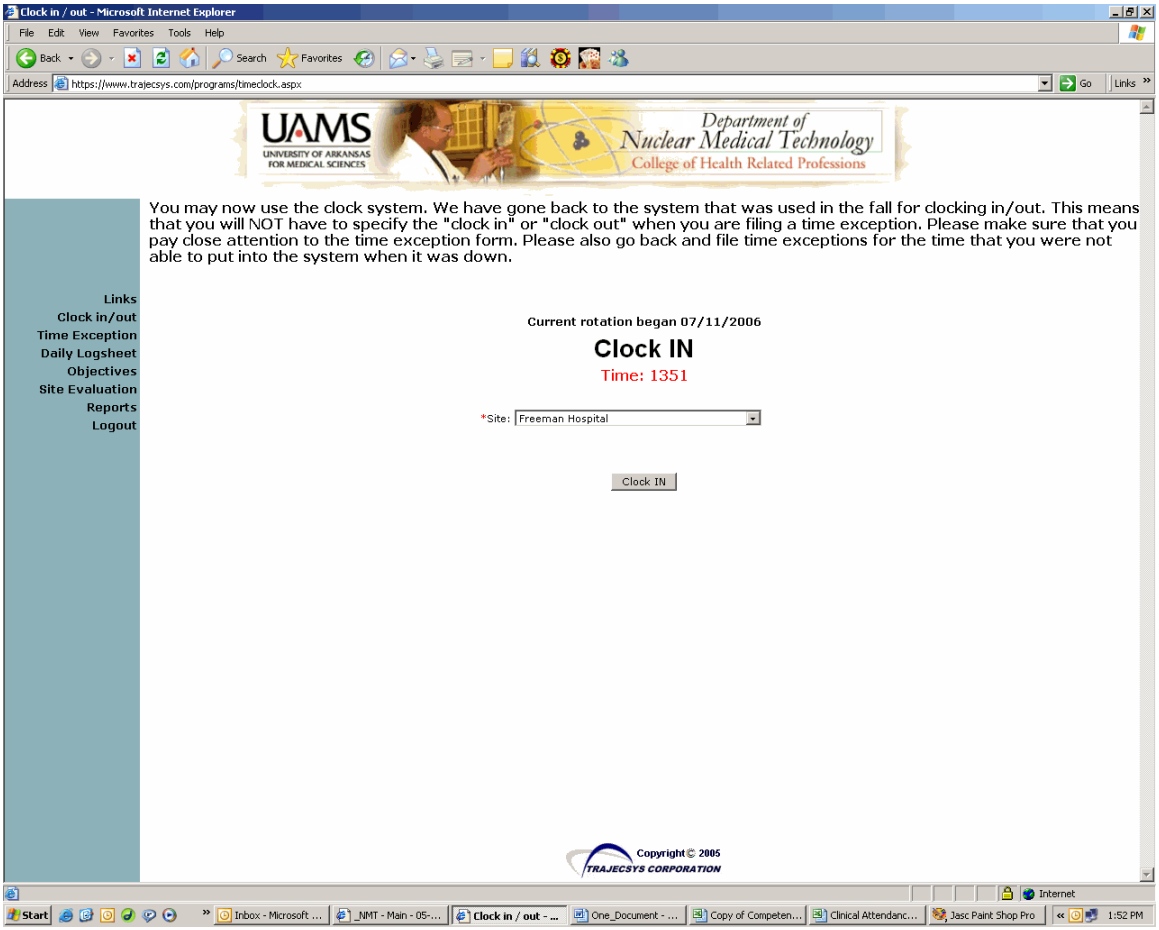
						☐	☐
						☐	☐
						☐	☐
						☐	☐

♦ The clinical instructor or other designated technologist must initial the student's start and end time for each day.

NOTE: If the student leaves the clinical site early (less than 8 hours on a scheduled clinical day), the affiliate education supervisor should check the box in the column under the "D" for *done for the day* (at the affiliate education supervisor's discretion) or the box in the column under the "S" if the student requests to leave early. Time missed due to a "D" selection is not required to be made up by the student; however, time missed due to an "S" selection must be made up prior to graduation.

Student Daily Attendance Record: Trajecsys

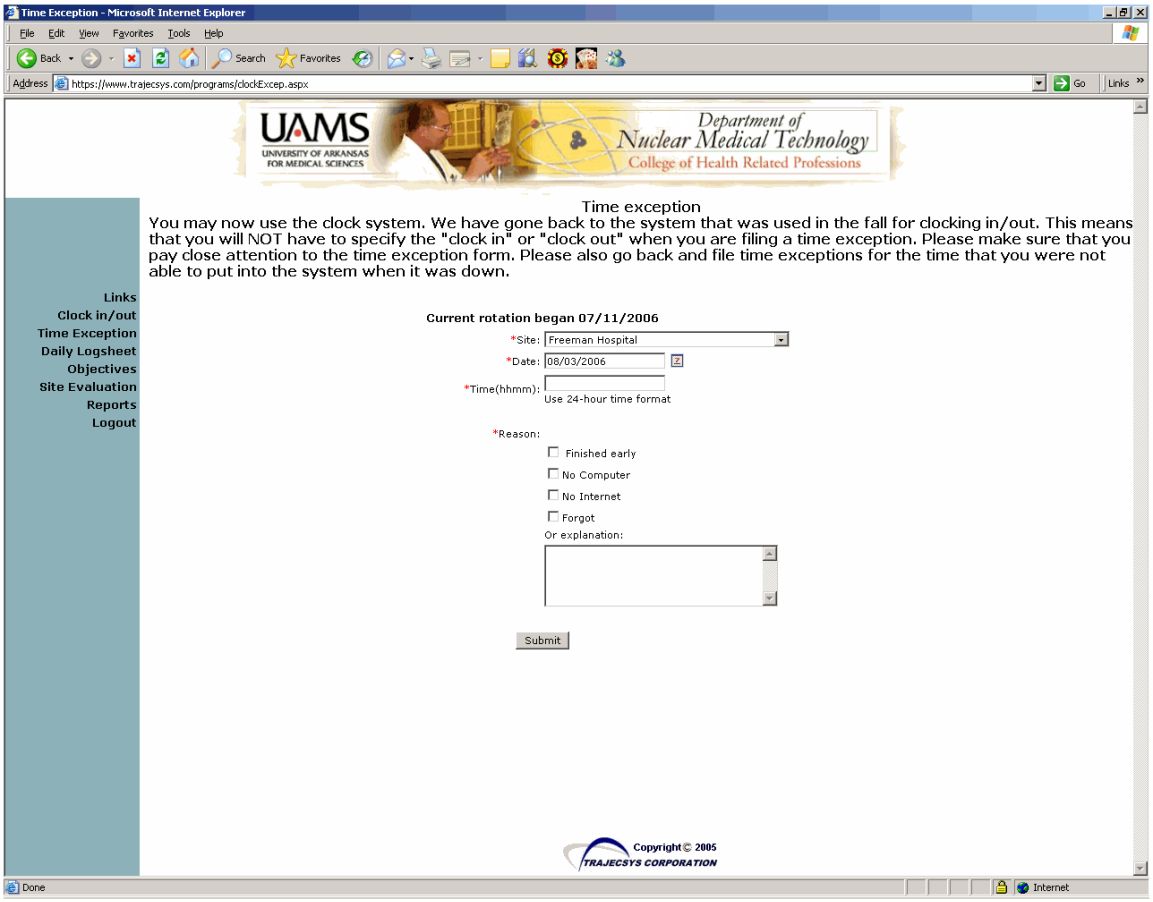
Student's - Clock-ins and Clock-outs are to be done on a daily basis at your clinical site. Trajecsys Corporation tracks the IP address to verify that the student is clocking in/out at the clinical site. Student's should gain access to the Internet and use this system to verify attendance at the clinical site. Once the student logs into the Trajecsys system, they should click on the "Clock in/out" menu item. The system will know if the student is currently clocked in/out and will default to the other. Student's will then choose their clinical site from the drop down menu and then submit the form.



There may be situations where the student may not be able to log into the computer at the time that they are to clock in or possibly clock out. In the event that Trajecsys cannot be accessed, student's are able to enter their times manually. This is done by the menu item "Time Exception". Student's should realize that this method should only be used if the Clock in/out is not available for them at the time needed. Trajecsys tracks the amount of time that is entered via this method and is reported to the clinical coordinator and program director.

Student's must clock in and out of their clinical site using the computers located in that clinical site. Student's clocking in or out by any other means (home computer, cell phone, etc) will be counseled and two (2) hours will be deducted from their accrued hour bank for the first occurrence. Subsequent occurrences will result in a loss of all clinical hours for each day in question.

Student's who cannot access a computer at the clinical site must notify the clinical coordinator of the situation.

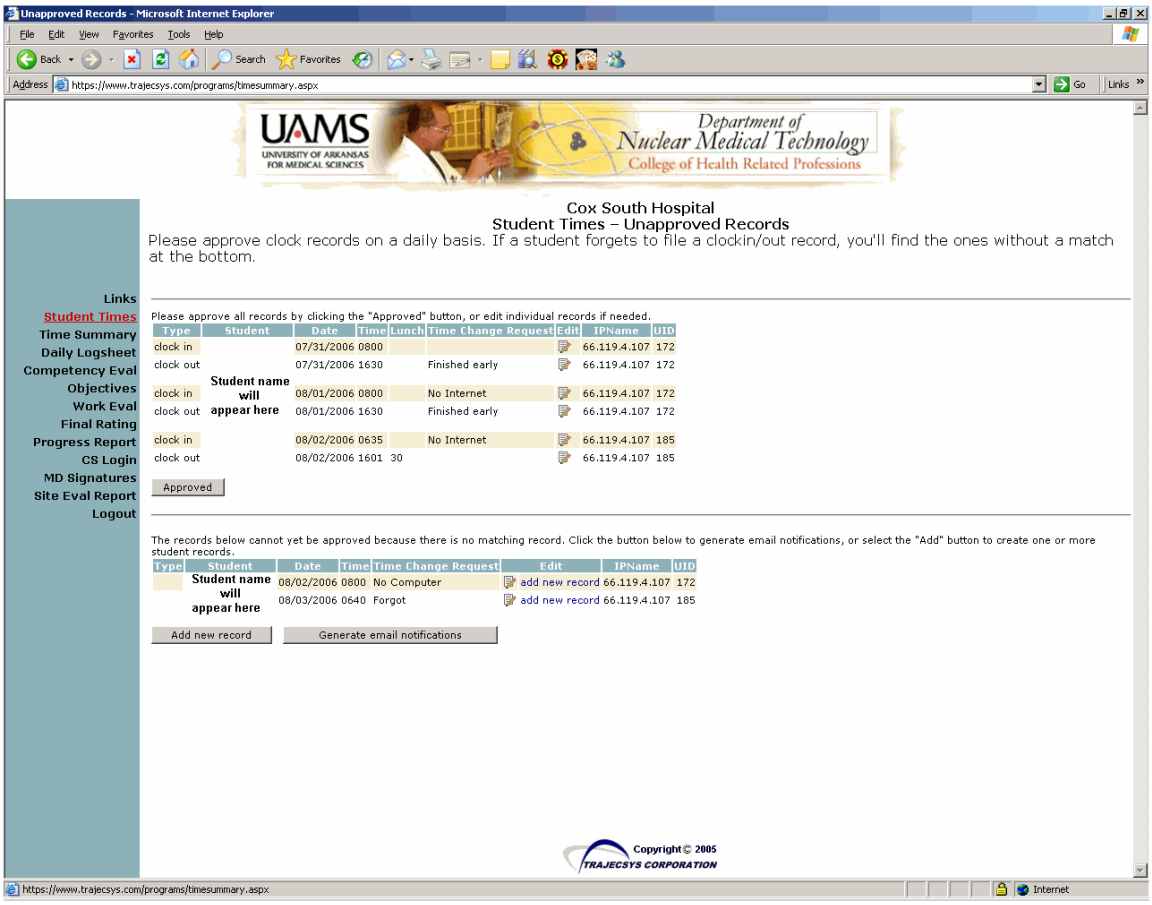


All fields on this form are required. Default check boxes are provided for the convenience of the student. If the reason for filling out this form is not a default checkbox, there is a comment box that needs to be filled out.

Student's who are released from clinic as "done for the day" should fill out this form and put the time that they were supposed to leave their clinical rotation for the day.

Affiliate education supervisors:

Once the student has put their times into the Trajecsys system, times should be approved on a daily basis. To approve the times, access the menu item “Student Times”:



Matching records will appear in the top section. Affiliate education supervisors should review the times for accuracy. If the times are correct, the supervisor can click the “Approved” button. If the times are not correct, the time can be edited by clicking on the edit icon next to the incorrect time.

The bottom section is for times that do not have a matching record. There are two options for the affiliate education supervisor for these records. By clicking on the “Generate email notifications” button, the system will send an automated e-mail to the student telling them that there is a missing record, giving them the time and the date, asking the student to file a time exception to correct the mismatched record. The affiliate education supervisor may also correct this time themselves, but clicking the “add new record” button next to the mismatched time. This will bring up a form to enter the new time. Once submitted, there will be a matched record and the two matched records will be moved to the top section for approval.

INSTRUCTIONS FOR USING THE LEAVE OF ABSENCE FORM

Student's must make requests for time off for purposes of vacation, personal days, and military leave, as well as for jury leave and medical leave where scheduling is possible.

Such requests should be made using the online request form located in the **Blackboard NMIS – Student Center.** The student should fill out this form including the number hours of leave requested and the dates involved. Click on the submit button to send the form to the clinical coordinator. The number of hours accrued will be verified and checked against the number of hours requested. If approval is granted, the form will be e-mailed to student and the affiliate education supervisor.

Example:
Student Request for Leave of Absence from Clinic

Student Name: _____

Clinical Rotation Site: _____

I hereby request _____ hours of leave from my current clinical rotation site starting _____ and ending _____ both dates inclusive.

I ☐ do ☐ do not have enough time accrued to compensate this leave request.

If you do not have enough time accrued, please state the reason(s) for this request for leave. (i.e. family emergency, job interview, etc.)

_____

_____

_____

Student signature: _____ Date: _____

(NOTE: Time off from clinic must be scheduled at least 48 hours in advance in order to not constitute an occurrence. See: *Student Handbook*)

Fill in the information above and submit to the clinical coordinator for approval.
Please do not write below this line.

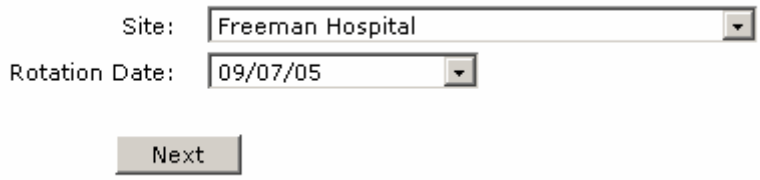
Clinical Coordinator/Program Chairman:
The above named student:

- ☐ Has accrued enough hours to compensate for the time off requested and has been approved to take the specified time away from clinic.
- ☐ Does not have enough time accrued for this leave request and has been denied approval for the requested time off from clinic.
- ☐ Does not have enough time accrued for this leave request, however, he/she has been approved to take the specified time off from clinic.

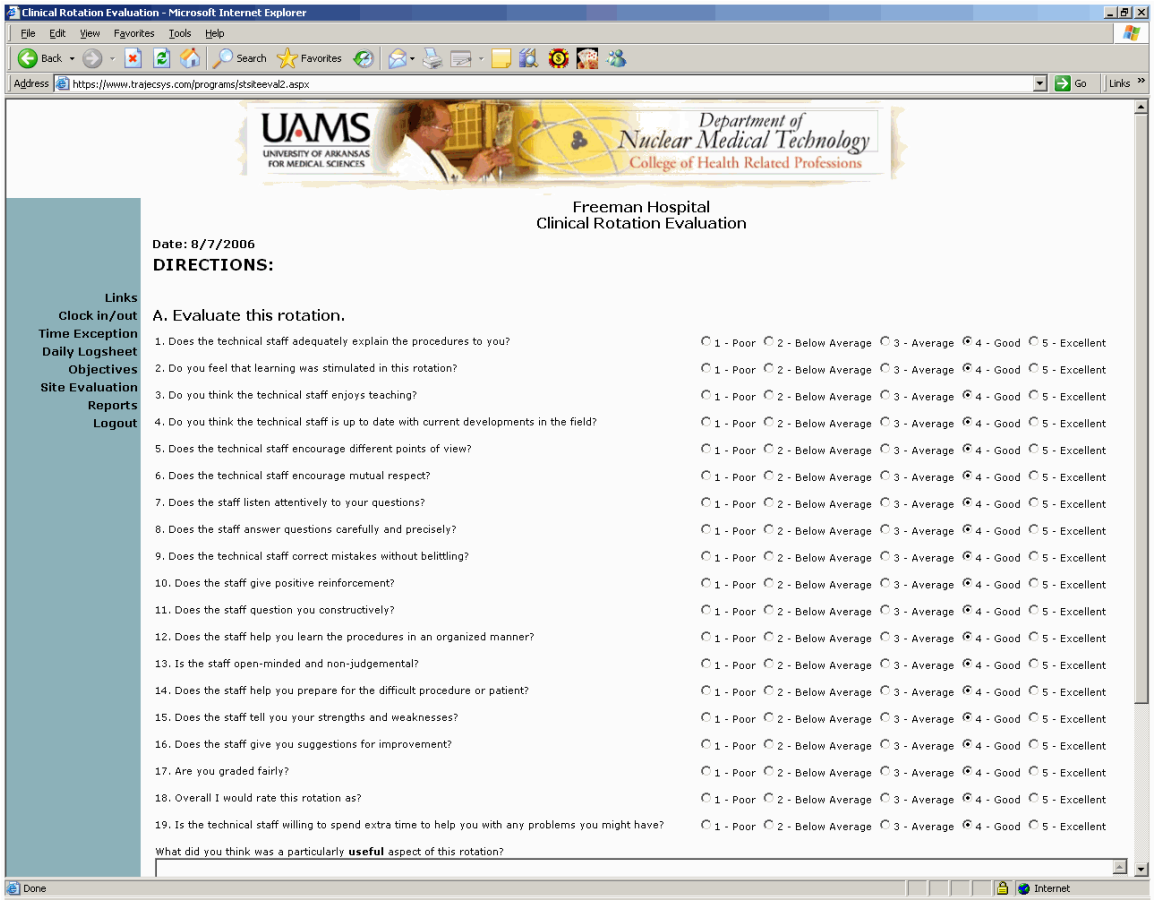
Signature: _____ Date: _____

Site Evaluation: Trajecsys

At the end of each rotation, student's need to fill out the site evaluation for that clinical site. Student's should access the menu item: "Evaluations". Student's will then choose the clinical site and the beginning date of the rotation.



Once the "Next" button has been pressed, the following form will appear:



The default value for all Likert scale questions is 4-Good. If the student feels that the question needs a higher value or lower value, the appropriate radio button should be selected. At the bottom of the form, there are two questions that the student will need to complete manually. Once the form is complete, please submit the evaluation by selecting the submit button at the bottom of the form.

Disclaimer:

While the provisions of this handbook are as accurate and complete as possible, the instructor reserves the right to change any provision herein. Student's will be notified of any changes and it is the responsibility of each student to know what changes, if any, have been made to the provisions of this handbook and to successfully complete the requirements of this course.

The materials used in this course may include copyright protected materials provided for the personal educational use of the enrolled student's and may not be further distributed.

		Task ⇨	Clock in/out	Complete Procedure log sheet	Complete QC log sheet	MD Reading Signatures (10/rotation)	Site Evaluation	
		When ⇨	Daily	Daily	Daily	End	End	
Rotation #	Location	Rotation Start Date						Rotation End Date
1								
2								
3								
4								
5								
6								
7								
8								
9								

1) Fill in your clinical rotation location.

2) Fill in your rotation start and end date

3) Clock in / clock out or file time exceptions DAILY

4) Complete your Procedure log sheet and QC log sheet DAILY.

5) Put the date in that you gave your MD readings sheet to your affiliate education supervisor to put into the Trajecsys reporting system.

6) Fill in the date that you completed your site evaluation. Remember, the affiliate education supervisor must also complete the performance evaluation.