



**Coleman College for Health Sciences
Nuclear Medicine Technology Program
Practicum II-Nuclear Medicine Technology
NMTT 1267**

Semester with Course Reference Number (CRN)	Spring 2013,RT CRN 30580
Instructor contact information	Vikki Davis-Littleton 713-718-7398 email: vikki.davislittleton@hccs.edu
Office Location and Hours	Coleman Campus: RM 529 Monday 9:00 am - 12:00 pm, Wednesday 1:00 pm - 4:00 pm
Course Location/Times	The student will attend clinic on Tuesdays and Thursdays from 8:00 am – 4:00 pm, except for designated school holidays.
Course Semester Credit Hours	Credit Hours: 2 External Hours: 14
Total Course Contact Hours	224.00
Course Length (number of weeks)	15 weeks
Type of Instruction	Practicum
Course Description:	Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student.
Course Prerequisite(s)	PREREQUISITE(S): <ul style="list-style-type: none">• NMTT 1266

FREQUENT REQUISITES

- Departmental approval
- College Level Reading
- College Level Mathematics

- College Level Writing

**Academic
Discipline/CTE
Program Learning
Outcomes**

1. Prepare and administer radiopharmaceuticals.
2. Correlate nuclear medicine procedures with normal anatomy/physiology and abnormal pathology.
3. Utilize proper methods of patient care.
4. Competently perform imaging and non-imaging nuclear medicine procedures.
5. Perform quality control procedures.
6. Demonstrate radiation safety techniques to minimize radiation exposure.

**Course Student
Learning
Outcomes (SLO): 4
to 7**

1. Assess the student on their knowledge of in-vivo and non-imaging procedures.
2. Assess students on their ability to perform quality control procedures on several types of equipment.
3. Assess the student of their knowledge concerning nuclear cardiology procedures.
4. Assess the student on their ability to perform routine imaging studies independently.

**Learning
Objectives
(Numbering
system should be
linked to SLO -
e.g., 1.1, 1.2, 1.3,
etc.)**

Assess the student on their knowledge of in-vivo and non-imaging procedures.

1. Discuss and describe the procedures, contraindications and normals for in-vivo non-imaging studies.

Assess students on their ability to perform quality control procedures on several types of equipment.

1. Perform field uniformity, camera resolution, and COR on cameras used in their clinic sites.
2. Perform constancy checks on dose calibrators.
3. Perform standard deviation or a chi-square test on a counting device.

Assess the student of their knowledge concerning nuclear cardiology procedures.

1. List the indications, patient preparations, and radiopharmaceuticals used for each type of nuclear cardiology study.
2. Perform independently a routine nuclear cardiology exam

Assess the student on their ability to perform routine imaging studies independently.

1. Perform independently routine imaging studies in nuclear medicine.

**SCANS and/or
Core Curriculum
Competencies: If
applicable**

SCANS

Assess the student on their knowledge of in-vivo and non-imaging procedures.

Assess students on their ability to perform quality control procedures on several types of equipment.

Assess the student of their knowledge concerning nuclear cardiology procedures.

Assess the student on their ability to perform routine imaging studies independently.

**Instructional
Methods**

Web-enhanced (49% or less)
Face to Face

**Student
Assignments**

Assess the student on their knowledge of in-vivo and non-imaging procedures.

Assess students on their ability to perform quality control on several types of equipment.

Assess the student of their knowledge concerning nuclear cardiology procedures.
Assess the student on their ability to perform routine imaging studies independently.

I. IN-VIVO NON-IMAGING PROCEDURES

A. Discuss and describe procedures, indicating contraindications and results of the following with at least 75% accuracy

1. Blood volume
 - a. Red Cell Mass
 - b. Plasma Volume
2. RBC Survival and Sequestration
3. Schilling Test

II. EQUIPMENT QUALITY CONTROL

Student should be able to:

- A. Perform constancy checks on dose calibrators with at least 80% efficiency
- B. Perform field uniformity determination on cameras used in the department with at least 90% accuracy
- C. Perform camera resolution with at least 90% accuracy
- D. Perform center of rotation determination on a SPECT camera, where available, with at least 90% accuracy.
- E. Perform standard deviation or chi-square on a counting device with at least 90% accuracy
- F. Perform SPECT phantom testing with at least 90% accuracy

III. NUCLEAR CARDIOLOGY

Student should be able to:

- A. Discuss indications for doing each type of cardiac study with at least 75% accuracy
- B. Discuss patient preparation and radiopharmaceuticals used for each type of study with at least 90% accuracy.
- C. Demonstrate knowledge of electrocardiogram tracing with at least 85%

efficiency

D. Perform various types of Nuclear Cardiology Studies with at least 90% efficiency

1. Myocardial Perfusion Studies using Tc-99m-PYP
2. Myocardial Perfusion Studies using Thallium and Sestamibi
3. Gated Wall Motion Cardiac Studies
4. First Pass Cardiac Studies

E. Perform data processing associated with Nuclear Cardiology studies with at least

90% efficiency

F. Write a research paper on the nuclear cardiology studies mentioned above

IV. INDEPENDENT PERFORMANCE OF ROUTINE IMAGING STUDIES

The student will be able to perform the following routine diagnostic procedures to

provide data for the detection or evaluation of various pathologic conditions using

knowledge of patient preparation and procedures with at least 90% proficiency, using

checklist evaluations, and including at least 70% of the available routine studies:

- A. Tagged leukocytes study
- B. Skeletal (static, whole body, three phase)
- C. Gated cardiac blood pool study
- D. Myocardial perfusion study
- E. Endocrine Studies (Thyroid U&S, Parathyroid, Adrenal)
- F. Hepatobiliary study
- G. GI bleed study
- H. Liver/Spleen study
- I. Renal study (dynamic perfusion, sequential imaging, functional computer processing)
- J. Respiratory (perfusion and ventilation)
- K. Gallium study
- L. Thyroid therapy
- M. Other imaging procedures considered to be routine at the assigned affiliate

* ALL PERFORMANCE OBJECTIVES TO MEET THE APPROVAL OF THE CLINICAL INSTRUCTOR AND/OR COORDINATOR.

**Student
Assessment(s)**

Assess the student on their knowledge of in-vivo and non-imaging procedures.

Oral and written peer-reviewed article reviews and discussions

Quizzes/Tests which may include: definitions, matching, multiple choice, true/false, short answer, brief essay

Assess students on their ability to perform quality control on several types of equipment.

Oral and written peer-reviewed article reviews and discussions

Quizzes/Tests which may include: definitions, matching, multiple choice, true/false, short answer, brief essay

Assess the student of their knowledge concerning nuclear cardiology procedures.

Oral and written peer-reviewed article reviews and discussions

Quizzes/Tests which may include: definitions, matching, multiple choice, true/false, short answer, brief essay

Assess the student on their ability to perform routine imaging studies independently.

Oral and written peer-reviewed article reviews and discussions

Quizzes/Tests which may include: definitions, matching, multiple choice, true/false, short answer, brief essay

**Instructor's
Requirements**

It is the responsibility of the student to maintain records of their progress in a practicum on clinical forms. The first is an **Accounting Form** which is filled out by the student and signed by the clinical instructor. This form is used to account of every procedure performed by a student during his/her rotation in a hospital. These forms must be turned in to the Clinical Coordinator weekly. The other form is a **Reading Session Form** used to document physician's participation in reviewing studies with the students. This form is to be signed and dated by the reading physicians. **Six (6) reading sessions** are required this semester. The student is also required to turn in **two (2) Artifacts** and **two (2) Medical History** forms. These forms should be turned in to the Clinical Coordinator bi-weekly. The Accounting Forms are totaled each semester by the student. **If accounting forms are not turned in weekly, 2 points per day will be deducted from the mid-term or final exam. Any Clinical attendance for which there is no accounting form will be considered an absence.**

**Program/Discipline
Requirements: If
applicable**

See Nuclear Medicine Student Handbook

Class Attendance

Any student who accumulates more than four absences in a clinic will be administratively withdrawn from the course without notification. All time less than four days must be made up; however all of the time missed will count off in grading. If this time is not made up by the last day of the semester, the student will receive an "I" and will not be allowed to register for the following semester until the time has been made up. The point deduction will be as follows:

- 1 day missed = - 1 point
- 2 days missed = - 2 points
- 3 days missed = - 4 points
- 4 days missed = - 6 points

If a student is absent from clinic and does not call, *not e-mail*, the clinical supervisor and Rene or Vikki, 5 points will be deducted from the final exam grade for each occurrence.

There will be no make-up examinations.

This course does include a final examination. The final examination must be taken on the day and time designated by the instructor unless there is a severe personal illness, accident, or death in the immediate family (parent, child, brother, sister, spouse, or grandparent). In the event any of these occur, the student must call and speak personally with the instructor @ 713-718-7398 or the clinical coordinator @ 713-718-7355 on the day of the examination. The student must provide documented evidence of the reason for missing the examination, i.e.: a doctor's statement in the case of personal illness, an accident report in the case of an accident or an obituary or funeral program in the case of death in the immediate family. This documentation must be provided prior to taking a make-up exam. The make-up final must be taken within seven (7) working days from the original test date or at the discretion of the instructor. In the case of severe injury or long term illness, the student will be given an "I" for incomplete until the final examination is taken, if they have not exceeded four absences. An "I" will automatically turn into an "F" if the student does not take the examination by the end of the following term (excluding Summer), see the student handbook.

If notification is not given, the student will be given a zero for the final examination grade and the final grade will be calculated as described above.

HCC Grading Scale:	A = 100- 90	4 points per semester hour
	B = 89 - 80:	3 points per semester hour
	C = 79 - 70:	2 points per semester hour
	D = 69 - 60:	1 point per semester hour
	59 and below = F	0 points per semester hour
	FX (Failure due to non-attendance)	0 points per semester hour
	IP (In Progress)	0 points per semester hour
	W (Withdrawn)	0 points per semester hour
	I (Incomplete)	0 points per semester hour
	AUD (Audit)	0 points per semester hour

IP (In Progress) is given only in certain developmental courses. The student must re-enroll to receive credit. COM (Completed) is given in non-credit and continuing education courses. To compute grade point average (GPA), divide the total grade points by the total number of semester hours attempted. The grades "IP," "COM" and "I" do not affect GPA.

See "Health Science Program/Discipline Requirements" for grading scale.

**Instructor Grading
Criteria** **Course Grading System**

Final grades will be submitted in terms of A, B, C, or F.

- 90-100 A
- 80-89 B
- 75-79 C
- Below 75 F

The final grade will be determined by average described:

Clinical evaluations by Clinical
Supervisor 50%

[Evaluations must include proficiency checklist on all positioning done independently or supervised more than five times. The student must also be evaluated on the number of studies shown on the specific clinic list. The numbers listed are minimums. The student is expected to exceed these minimum expectations. If a student does not meet minimum requirements, they will receive a failing grade, unless the clinical supervisor indicates it was not possible. You will receive a letter grade deduction from your final grade if all required competencies and projects are not completed by the last clinic day.]

Clinical evaluations and examinations by the Clinical
Coordinator..... 35%

Accounting Forms.....5%
Quizzes.....10%
Final Exam.....20%
Attendance..... 6%
Reading Sessions, Artifacts and Medical Histories 9%

**Instructional
Materials**

Nuclear Medicine Technology Program Student Handbook
Required: None
References: Nuclear Medicine Technology Student Handbook
Principles and Practice of Nuclear Medicine, D. Bruce Sodee,
Paul J. Early, Mosby, 1994

Nuclear Medicine Procedure Manual, 2009-2011, the 2012 edition on release

HCC Policy Statement:

Access Student Services Policies on their Web site: <http://hccs.edu/student-rights>

EGLS3 -- Evaluation for Greater Learning Student Survey System

At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time near the end of the term, you will be asked to answer a short online survey of research-based questions related to instruction. The anonymous results of the survey will be made available to your professors and department chairs for continual improvement of instruction. Look for the survey as part of the Houston Community College Student System online near the end of the term.

Distance Education and/or Continuing Education Policies

Access DE Policies on their Web site: http://de.hccs.edu/Distance_Ed/DE_Home/faculty_resources/PDFs/DE_Syllabus.pdf

Access CE Policies on their Web site: <http://hccs.edu/CE-student-guidelines>