

RADT M44A: NUCLEAR MEDICINE CLINICAL LAB IIA

Originator

rdarwin

College

Moorpark College

Discipline (CB01A)

RADT - Radiologic Technology

Course Number (CB01B)

M44A

Course Title (CB02)

Nuclear Medicine Clinical Lab IIA

Banner/Short Title

Nuclear Med Clinical Lab IIA

Credit Type

Credit

Start Term

Spring 2023

Formerly

RADT M44 - Nuclear Med Clinical Lab II

Catalog Course Description

Provides an opportunity for practical application of nuclear medicine procedures at a designated clinical site. Focuses on nuclear medicine imaging of the respiratory, genitourinary, hematopoietic systems, as well as inflammatory/tumor and pediatric procedures. Utilizes lab in the Nuclear Medicine department of a pre-assigned clinical affiliate.

Taxonomy of Programs (TOP) Code (CB03)

1225.00 - *Radiologic Technology

Course Credit Status (CB04)

D (Credit - Degree Applicable)

Course Transfer Status (CB05) (select one only)

B (Transferable to CSU only)

Course Basic Skills Status (CB08)

N - The Course is Not a Basic Skills Course

SAM Priority Code (CB09)

C - Clearly Occupational

Course Cooperative Work Experience Education Status (CB10)

N - Is Not Part of a Cooperative Work Experience Education Program

Course Classification Status (CB11)

Y - Credit Course

Educational Assistance Class Instruction (Approved Special Class) (CB13)

N - The Course is Not an Approved Special Class

Course Prior to Transfer Level (CB21)

Y - Not Applicable

Course Noncredit Category (CB22)

Y - Credit Course

Funding Agency Category (CB23)

Y - Not Applicable (Funding Not Used)

Course Program Status (CB24)

1 - Program Applicable

General Education Status (CB25)

Y - Not Applicable

Support Course Status (CB26)

N - Course is not a support course

Field trips

Will not be required

Grading method

(L) Letter Graded

Does this course require an instructional materials fee?

No

Repeatable for Credit

No

Is this course part of a family?

No

Units and Hours

Carnegie Unit Override

No

In-Class

Lecture

Activity

Laboratory

Minimum Contact/In-Class Laboratory Hours

236.25

Maximum Contact/In-Class Laboratory Hours

236.25

Total in-Class

Total in-Class

Total Minimum Contact/In-Class Hours

236.25

Total Maximum Contact/In-Class Hours

236.25

Outside-of-Class

Internship/Cooperative Work Experience

Paid**Unpaid****Total Outside-of-Class****Total Outside-of-Class****Total Student Learning****Total Student Learning****Total Minimum Student Learning Hours**

236.25

Total Maximum Student Learning Hours

236.25

Minimum Units (CB07)

4.5

Maximum Units (CB06)

4.5

Prerequisites

RADT M30, RADT M32 and RADT M34A

Corequisites

RADT M40, RADT M42

Limitations on Enrollment

Criminal background clearance

Current CPR certification for health care provider (American Heart Association) or professional rescuer (American Red Cross)

Current negative TB test or chest x-ray

Drug and alcohol clearance

No acrylic or long nails in clinical settings

No visible tattoos or visible body piercings except single studs in earlobes

Others (specify)

Other Limitations on Enrollment

Admission to the Moorpark College Nuclear Medicine Program

Current American Registry of Radiologic Technologists (ARRT) license

BLS CPR card from American Heart Association only

Los Angeles City Hospital Fire and Life Safety Card

Proof of Health Insurance

Proof of Professional Liability Insurance

Entrance Skills**Entrance Skills**

RADT M30

Prerequisite Course Objectives

RADT M30-describe the purpose of nuclear medicine in relation to health care.

RADT M30-list and explain the terms employed in nuclear medicine.

RADT M30-list the basic nuclear medicine procedures performed in the bone, cardiovascular, central nervous, digestive and endocrine/exocrine systems.

RADT M30-describe gross anatomy and function for bone, cardiovascular, central nervous, digestive, and endocrine/exocrine systems.

RADT M30-identify structures seen on nuclear medicine images.

RADT M30-describe the radiopharmaceuticals used for imaging the bone, cardiovascular, central nervous, digestive, endocrine/exocrine systems including their physical and chemical properties, biotransformation, route and method of administration.

RADT M30-discuss the advantages and disadvantages of each radiopharmaceutical agent for bone, cardiovascular, central nervous, digestive, and endocrine/exocrine procedures.

RADT M30-calculate the dose range for imaging agents and discuss the effects on various organs and tissues.

RADT M30-discuss dose preparation and any special precautions that should be taken to assure quality imaging agents when conducting exams of the bone, cardiovascular, central nervous, digestive, and endocrine/exocrine systems.

RADT M30-discuss any physical or pathological conditions, prior procedures, or medications that could contraindicate or interfere with nuclear medicine imaging.

RADT M30-describe any precautions that should be taken and any potential adverse reactions to the radiopharmaceuticals.

RADT M30-describe the preparation of the patient for each procedure.

RADT M30-list the indications for each procedure and discuss why a nuclear medicine study would be preferable or complement other diagnostic modalities in various cases.

RADT M30-describe the procedures for routine imaging of bone, cardiovascular, central nervous, digestive, and endocrine/exocrine systems, including equipment, protocol, dose and administration technique, administration-to-acquisition times, acquisition parameters, standard positioning and views, special imaging adaptations, image formatting and potential pitfalls.

RADT M30-describe the appearance of various pathologies seen on nuclear medicine scans of bone, cardiovascular, central nervous, digestive, and endocrine/exocrine systems.

Entrance Skills

RADT M32

Prerequisite Course Objectives

RADT M32-describe the general atomic structure of an atom and atomic response to radiation.

RADT M32-discuss dose and exposure limit recommendations and regulations for technologist, patients, and the general public.

RADT M32-describe the various types of nuclear medicine instruments used in imaging and non-imaging procedures.

RADT M32-discuss the radiation protection programs and regulations that apply to personnel, patients, radioactive materials, waste disposal, and contamination.

RADT M32-perform statistical calculations and differentiate between a Poisson and Gaussian distribution.

RADT M32-discuss use and quality control of the various types of imaging systems used for gamma and positron imaging.

RADT M32-describe the operation for non-imaging instruments including monitoring equipment, dose calibrators, well counters, uptake probes, liquid scintillation systems, and the gamma probe.

RADT M32-discuss the configuration, functions, and application of computers in nuclear medicine.

RADT M32-evaluate and discuss theories and practice of radiopharmacy, including preparation, calculations of the dose to be administered, quality control, radiation safety, and applicable regulations.

Entrance Skills

RADT M34A

Prerequisite Course Objectives

RADT M34A-evaluate the quality and accuracy of each scan as related to the skeletal, cardiovascular, central nervous, digestive, and endocrine/exocrine systems.

RADT M34A-demonstrate the appropriate method for lifting, moving, and transporting patients to and from the nuclear medicine department: A. bed to gurney and back B. gurney to table and back C. bed to wheelchair and back D. wheelchair to table and back.

RADT M34A-practice, through demonstration, acceptable radiation protection methods according to the California Radiation Health Code when scanning the skeletal, cardiovascular, central nervous, digestive and endocrine/exocrine systems for adult as well as pediatric patients.

RADT M34A-observe, assist and perform nuclear medicine scans of the bone, cardiovascular, central nervous, digestive and endocrine/exocrine systems for adult as well as pediatric patients.

Requisite Justification

Requisite Type

Corequisite

Requisite

RADT M40

Requisite Description

Course in a sequence

Level of Scrutiny/Justification

Required by statute or regulation

Requisite Type

Corequisite

Requisite

RADT M42

Requisite Description

Course in a sequence

Level of Scrutiny/Justification

Required by statute or regulation

Requisite Type

Enrollment Limitation

Requisite

Admission to the Moorpark College Nuclear Medicine Program
 Current American Registry of Radiologic Technologists (ARRT) license
 BLS CPR card from American Heart Association only
 Los Angeles City Hospital Fire and Life Safety Card
 Proof of Health Insurance
 Proof of Professional Liability Insurance

Requisite Description

Credit program requisite (credit only)

Level of Scrutiny/Justification

Required by statute or regulation

Requisite Type

Prerequisite

Requisite

RADT M30, RADT M32 and RADT M34A

Requisite Description

Course in a sequence

Level of Scrutiny/Justification

Content review

Student Learning Outcomes (CSLOs)**Upon satisfactory completion of the course, students will be able to:**

- | | |
|---|--|
| 1 | complete competency evaluations with at least 90% accuracy. |
| 2 | complete at least 5 clinical competencies by the end of this course. |

Course Objectives**Upon satisfactory completion of the course, students will be able to:**

- | | |
|---|---|
| 1 | perform all the assigned clinical lab procedures utilizing an actual patient and the clinical affiliate's routine for each procedure of the respiratory, genitourinary, and hematopoietic systems, inflammatory/tumor pathology. |
| 2 | evaluate the quality and accuracy of each scan of the respiratory, genitourinary, and hematopoietic systems, inflammatory/tumor pathology. |
| 3 | practice, through demonstration, acceptable radiation protection methods according to the California Radiation Health Code when performing procedures of the respiratory, genitourinary, and hematopoietic systems, inflammatory/tumor pathology. |
| 4 | observe, assist and perform nuclear medicine scans of the respiratory, genitourinary, hematopoietic, inflammatory systems for adult as well as pediatric patients. |

Course Content

Lecture/Course Content

None

Laboratory or Activity Content

- 20% Respiratory system nuclear medicine procedures
- 20% Pediatric nuclear medicine procedures
- 20% Inflammatory/Tumor nuclear medicine procedures, including therapeutic
- 20% Hematopoietic system nuclear medicine procedures
- 20% Genitourinary system nuclear medicine procedures

Methods of Evaluation

Which of these methods will students use to demonstrate proficiency in the subject matter of this course? (Check all that apply):

Skills demonstrations

Methods of Evaluation may include, but are not limited to, the following typical classroom assessment techniques/required assignments (check as many as are deemed appropriate):

- Clinical demonstration
- Oral analysis/critiques
- Performances
- Skills demonstrations
- Participation

Instructional Methodology

Specify the methods of instruction that may be employed in this course

- Clinical demonstrations
- Field experience/non-internship
- Instructor-guided interpretation and analysis
- Instructor-guided use of technology
- Problem-solving examples

Describe specific examples of the methods the instructor will use:

Clinical coordinator will follow up with the clinical preceptor or the nuclear medicine technologist on a consistent basis to make sure that the students are exposed to and perform the American Registry of Radiologic Technologists (ARRT) exam competencies required.

Representative Course Assignments

Writing Assignments

- Complete paperwork needed to process each nuclear medicine exam.
- Document all nuclear medicine procedures and observations in the clinical portfolio.
- Complete written assignments in lab manual.

Critical Thinking Assignments

- Evaluate the patient's condition (pathology, injury, age, physical/mental challenges) to determine proper method of completing a nuclear medicine scan.
- Analyze a completed scan for diagnostic quality.
- Select the correct instruments and radioisotopes depending on patient size, weight, age, physical condition and pathology.

Reading Assignments

- Read California Department of Health- Radiologic Health Branch Title-17 code of regulations for radiation safety.
- Read a peer reviewed article from the journal of the American Society of Radiologic Technologist (ASRT).

Skills Demonstrations

- Complete competencies in nuclear medicine imaging.
- Perform quality control procedures on nuclear medicine equipment such as that used in respiratory system procedures.

Outside Assignments

Representative Outside Assignments

Review nuclear medicine textbook for exam protocols on respiratory, genitourinary, hematopoietic system, inflammatory/tumor, and pediatric procedures.

Review nuclear medicine hospital procedure protocols before start on clinical rotation.

Complete weekly patient logs.

District General Education

A. Natural Sciences

B. Social and Behavioral Sciences

C. Humanities

D. Language and Rationality

E. Health and Physical Education/Kinesiology

F. Ethnic Studies/Gender Studies

Course is CSU transferable

Yes

CSU Baccalaureate List effective term:

F2022

CSU GE-Breadth

Area A: English Language Communication and Critical Thinking

Area B: Scientific Inquiry and Quantitative Reasoning

Area C: Arts and Humanities

Area D: Social Sciences

Area E: Lifelong Learning and Self-Development

Area F: Ethnic Studies

CSU Graduation Requirement in U.S. History, Constitution and American Ideals:

IGETC

Area 1: English Communication

Area 2A: Mathematical Concepts & Quantitative Reasoning

Area 3: Arts and Humanities

Area 4: Social and Behavioral Sciences

Area 5: Physical and Biological Sciences

Area 6: Languages Other than English (LOTE)

Textbooks and Lab Manuals

Resource Type

Textbook

Description

Gilmore, David, and Kristen Waterstram-Rich. *Nuclear Medicine and PET/CT: Technology and Techniques*. 8th ed., Mosby, 2016.

Resource Type

Textbook

Description

Shackett, Pete. *Nuclear Medicine Technology: Procedures and Quick Reference*. 3rd ed., Lippincott, Williams and Wilkins, 2019.

Library Resources

Assignments requiring library resources

Nuclear medicine journal reading assignments using the Library's print and online resources and Course Reserve materials.

Sufficient Library Resources exist

Yes

Example of Assignments Requiring Library Resources

Research professional journals for articles on nuclear medicine procedures.

Online research using the Library's health sciences databases on respiratory, genitourinary, hematopoietic, and inflammatory/tumor systems for case study examinations.

Primary Minimum Qualification

RADIOLOGIC TECHNOLOGY

Review and Approval Dates**Department Chair**

06/03/2021

Dean

09/14/2021

Technical Review

10/07/2021

Curriculum Committee

10/19/2021

DTRW-I

MM/DD/YYYY

Curriculum Committee

MM/DD/YYYY

Board

MM/DD/YYYY

CCCCO

MM/DD/YYYY

Control Number

CCC000528437

DOE/accreditation approval date

MM/DD/YYYY