RADT M30: NUCLEAR MEDICINE PRACTICE I

Originator
rdarwin

College
Moorpark College

Discipline (CB01A)
RADT - Radiologic Technology

Course Number (CB01B)
M30

Course Title (CB02)
Nuclear Medicine Practice I

Banner/Short Title
Nuclear Medicine Practice I

Credit Type
Credit

Start Term
Fall 2022

Formerly
RADT M199A.

Catalog Course Description
Introduces nuclear medicine as a specialty within radiologic technology. Focuses on equipment and radiopharmaceutical agents used to perform routine procedures on the skeletal, cardiovascular, central nervous, digestive and endocrine/exocrine systems.

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)
C (Not transferable)

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
Letter Graded

Alternate grading methods
Student Option- Letter/Pass

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
Minimum Contact/In-Class Lecture Hours
52.5
Maximum Contact/In-Class Lecture Hours
52.5

Activity
Minimum Contact/In-Class Activity Hours
0
Maximum Contact/In-Class Activity Hours
0

Laboratory
Minimum Contact/In-Class Laboratory Hours
0
Maximum Contact/In-Class Laboratory Hours
0

Total in-Class

Total in-Class
Total Minimum Contact/In-Class Hours
52.5
Total Maximum Contact/In-Class Hours
52.5

Outside-of-Class

Internship/Cooperative Work Experience

Paid

Unpaid

Total Outside-of-Class

Total Outside-of-Class
Minimum Outside-of-Class Hours
105
Maximum Outside-of-Class Hours
105

Total Student Learning

Total Student Learning
Total Minimum Student Learning Hours
157.5
Total Maximum Student Learning Hours
157.5

Minimum Units (CB07)
3
Maximum Units (CB06)
3

Corequisites
RADT M32 and RADT M34A

Advisories on Recommended Preparation
MATH M15 or MATH M15H and CHEM M12

Limitations on Enrollment
Criminal background clearance
Current CPR certification for health care provider (American Heart Association) or professional rescuer (American Red Cross)
Drug and alcohol clearance
No acrylic or long nails in clinical settings
Current negative TB test or chest x-ray
Others (specify)
No visible tattoos or visible body piercings except single studs in earlobes

Other Limitations on Enrollment
Admission to the Moorpark College Nuclear Medicine program
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
Admission to the Moorpark College Nuclear Medicine Program

Requisite Justification

Requisite Type
Corequisite

Requisite
RADT M32

Requisite Description
Corequisite

Level of Scrutiny/Justification
Required by statute or regulation

Requisite Type
Corequisite

Requisite
RADT M34A

Requisite Description
Corequisite

Level of Scrutiny/Justification
Required by statute or regulation

Requisite Type
Enrollment Limitation

Requisite
Admission to the Moorpark College Nuclear Medicine Program
Proof of Health Insurance
Proof of Professional Liability Insurance
Los Angeles City Hospital Fire and Life Safety Card
CPR BLS Provider card from American Heart Association only.
No visible tattoos or visible body piercings except single studs in earlobes.
Physical examination demonstrating general good health.
Current negative TB test or chest x-ray
No acrylic or long nails in clinical settings
Proof of freedom from and immunity to communicable diseases
Drug and alcohol clearance
Criminal background clearance.

Requisite Description
Credit program requisite (credit only)

Level of Scrutiny/Justification
Required by statute or regulation

Student Learning Outcomes (CSLOs)

	Upon satisfactory completion of the course, students will be able to:
1	describe the procedures for routine imaging of the bone, cardiovascular, central nervous, digestive endocrine/exocrine systems.
2	critique exams for image quality

Course Objectives

	Upon satisfactory completion of the course, students will be able to:
1	describe the purpose of nuclear medicine in relation to health care.
2	list and explain the terms employed in nuclear medicine.

3	list the basic nuclear medicine procedures performed in the bone, cardiovascular, central nervous, digestive and endocrine/exocrine systems.
4	describe gross anatomy and function for bone, cardiovascular, central nervous, digestive, and endocrine/exocrine systems.
5	identify structures seen on nuclear medicine images.
6	describe the radiopharmaceuticals used for imaging the bone, cardiovascular, central nervous, digestive, endocrine/exocrine systems including their physical and chemical properties, biorouting, route and method of administration.
7	discuss the advantages and disadvantages of each radiopharmaceutical agent for bone, cardiovascular, central nervous, digestive, and endocrine/exocrine procedures.
8	calculate the dose range for imaging agents and discuss the effects on various organs and tissues.
9	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.
10	discuss any physical or pathological conditions, prior procedures, or medications that could contraindicate or interfere with nuclear medicine imaging.
11	describe any precautions that should be taken and any potential adverse reactions to the radiopharmaceuticals.
12	describe the preparation of the patient for each procedure.
13	list the indications for each procedure and discuss why a nuclear medicine study would be preferable or complement other diagnostic modalities in various cases.
14	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.
15	describe the appearance of various pathologies seen on nuclear medicine scans of bone, cardiovascular, central nervous, digestive, and endocrine/exocrine systems.

Course Content

Lecture/Course Content

5% Introduction to nuclear medicine
15% Nuclear medicine of the endocrine/exocrine system
20% Nuclear medicine of the digestive system
20% Nuclear medicine of the central nervous system
20% Nuclear medicine of the cardiovascular system
20% Nuclear medicine of the skeletal system

Laboratory or Activity Content

None

Methods of Evaluation

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

Problem solving exercises
Written expression

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):

Classroom Discussion
Essay exams
Group projects
Objective exams
Problem-solving exams
Participation
Quizzes
Reports/Papers/Journals

Instructional Methodology

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

Audio-visual presentations
Collaborative group work
Class discussions
Distance Education
Demonstrations
Lecture
Small group activities

Describe specific examples of the methods the instructor will use:

Instructor will use power point presentations to illustrate course content.

Representative Course Assignments

Writing Assignments

Written short essay questions on exams.
Written assignments from nuclear medicine workbook manual.
Written assignments on evaluating exams for quality

Critical Thinking Assignments

Critique and discuss a case study of the bone, cardiovascular, central nervous, digestive, endocrine/exocrine systems.
Discuss and contrast the different pharmaceuticals comparing adult and pediatric procedures.
Analyze and critique nuclear medicine exams

Reading Assignments

Read nuclear medicine journal articles.
Read California Department of Health- Radiologic Health Branch Title 17 regulations.

Outside Assignments

Representative Outside Assignments

Assigned readings from text and professional journal articles related to nuclear medicine accessed through the Library's online resources.
Online research and assignments on bone, cardiovascular, central nervous, digestive, endocrine/exocrine systems.

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

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

Radiology 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 bone, cardiovascular, central nervous, digestive, and endocrine/exocrine systems for case study examinations.

Distance Education Addendum

Definitions

Distance Education Modalities

100% online

Faculty Certifications

Faculty assigned to teach Hybrid or Fully Online sections of this course will receive training in how to satisfy the Federal and state regulations governing regular effective/substantive contact for distance education. The training will include common elements in the district-supported learning management system (LMS), online teaching methods, regular effective/substantive contact, and best practices.

Yes

Faculty assigned to teach Hybrid or Fully Online sections of this course will meet with the EAC Alternate Media Specialist to ensure that the course content meets the required Federal and state accessibility standards for access by students with disabilities. Common areas for discussion include accessibility of PDF files, images, captioning of videos, Power Point presentations, math and scientific notation, and ensuring the use of style mark-up in Word documents.

Yes

Regular Effective/Substantive Contact

100% online Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	The online instructor will provide lesson plans that require activities such as reading course material from a mandatory textbook. Additionally, the instructor may engage students using the following communication activities available in the online classroom: contact students via e-mail within the course shell, by campus e-mail, and/or MyVCCCD. Learning objectives; students may complete homework through the workbook system provided by a publishing company and use a "discussion" tool to post questions and interact with the instructor and classmates. Students may test their knowledge with interactive online quizzes provided by the publishing company. Students may engage in internet searches and library online database resources on topics corresponding to course content Students may submit questions to the instructor by email or ask in person in a virtual classroom; the instructor may create student groups or group activities using the online course. Quizzes may be issued (using a course-specific timeline) in which students will be tested on their knowledge of the material. Assignments may include exercises through which students explore course concepts using a textbook and/or additional research. Students can submit their assignments online and get feedback from the instructor and/or students as determined per assignment. This can be an interactive process in that students can receive feedback and then be able to improve their submittal if necessary.

E-mail	Contact students via e-mail within the course shell, bu campus e-mail, and/or MyVCCCD.
Other DE (e.g., recorded lectures)	The online instructor will provide lesson plans that require activities such as reading course material from a mandatory textbook and participating in discussion forums or chat room topics. The "Announcement" tool will be used to remind students of important assignments and due dates. To provide students with an online schedule of class events the "calendar" tool will be used to schedule virtual classroom sessions in the online course shell.
Synchronous Dialog (e.g., online chat)	Meet with students for study sessions and online office hours using an online communication tool. Additionally, the instructor may engage students using the following communication activities available in the online classroom. Students may view publisher based PowerPoint slides and/or text-based lessons corresponding to course content and learning objectives. Students may complete homework through the online course, and/or using the workbook provided by the publishing company; students may test their knowledge with interactive online quizzes provided by the publishing company. Students may engage in internet searches and library online database resources on topics corresponding to course content and learning objectives. Quizzes/tests may be issued (using a course-specific timeline) in which students will be tested on their knowledge of the material. Assignments may include exercises through which students explore course concepts using a textbook and/or additional research. Students can submit their assignments online and get feedback from the instructor. Students may submit questions to the instructor by email or ask in person. The instructor may create student groups or group activities using the online course.
Video Conferencing	It will include lectures and study sessions. The instructor may involve students in active learning with the following activities: Students may view instructor shared power points slides, video lessons and/or text-based lessons corresponding to course content and learning objectives. Students may complete homework through the online course. Students may use the workbook provided by the publishing company. Students may engage in internet searches and library online database resources on topics corresponding to course content. Students may test their knowledge with interactive online quizzes provided by the publishing company. Students may submit questions to the instructor via email or ask in person in a virtual classroom; the instructor may create student groups or group activities using the online course. Quizzes/tests may be issued (using a course-specific timeline) in which students will be tested on their knowledge of the material. Assignments may include exercises through which students explore course concepts using a textbook and/or additional research. Students can submit their assignments online and get feedback from the instructor. Students may submit questions to the instructor by email or ask in person and/or use "chat" to post a question(s). The instructor may create student groups or group activities using the online course.

Primary Minimum Qualification
RADIOLOGIC TECHNOLOGY

Review and Approval Dates

Department Chair
02/10/2021

Dean
02/11/2021

Technical Review
02/18/2021

Curriculum Committee
3/2/2021

DTRW-I
MM/DD/YYYY

Curriculum Committee
MM/DD/YYYY

Board
MM/DD/YYYY

CCCCO
MM/DD/YYYY

Control Number
CCC000519087

DOE/accreditation approval date
MM/DD/YYYY