



RAD-670: RADIOGRAPHY REVIEW III

Effective Term

Fall 2024

BOT Approval Date

12/14/2023

Discipline

RAD - Radiologic Technology

Course Number

670

Course Title

Radiography Review III

Short Title

RAD Review III

Credit Status (CB 04)

D - Credit - Degree applicable

Units**Lecture Units**

1.00

Total Units

1

Hours**Lecture Contact Hours**

16-18

Out of Class Hours Lecture

32-36

Total Contact Hours

16 - 18

Total Out of Class Hours

32 - 36

Total Student Learning Hours

48 - 54

Distance Education

No

Catalog Description

This course provides a comprehensive review of selected radiologic technology topics to support the student in the clinical internship phase and to prepare for the American Registry of Radiologic Technologists examination upon graduation. Topics include radiographic positioning, fluoroscopy, resume writing, completing the American Registry of Radiologic Technologists application process, and continuing medical education requirements for licensure.

Attach Supporting Documents

LMI.pdf



Requisites

Pre or corequisite(s)

Prerequisite or corequisite(s) (must be taken simultaneously if not taken before)

RAD-655 (with a grade of C or better)

and RAD-660 (with a grade of C or better).

Codes

TOP Code (CB 03)

1225.00* - *Radiologic Technology

CIP Code

51.0911 - Radiologic Technology/Science - Radiographer.

Student Accountability Model (SAM) Priority Code (CB 09)

C - Clearly Occupational

Noncredit Category (CB 22)

Y - Credit Course

Repeatability Code

No

Grading Option

Letter grade OR P/NP

Minimum Qualifications

Minimum Qualifications	And/Or
Radiological Technology	End

CSU Area(s)

IGETC Area(s)

Learning Objectives

Learning Objectives

Learning Objective
1. Assess the basic positioning routine for radiographic procedures.
2. Evaluate the x-ray tube angulation for each radiographic position.
3. Compare and contrast routine radiographic positions with trauma positioning.
4. Compare and contrast pediatric and geriatric positioning variations to the average adult positioning.
5. Analyze radiation protection practices during mobile radiography.
6. Examine the components of the fluoroscopy system and recall the function of each.
7. Recall fluoroscopic procedures for specialized exams, such as arthrography, myelography, hysterosalpingography, digestive system, and urinary system procedures.
8. Apply effective fluoroscopic radiation protection techniques for patients across diverse demographics, encompassing considerations of gender, race, culture, and disabilities in addressing radiation exposure concerns.
9. Compose a resume for employment in an imaging department.
10. Apply for the American Registry of Radiologic Technologists licensing examination.

Learning Outcome Information

Course Learning Outcomes

Learning Outcome
1. Students will recall routine radiographic positions for all procedures.
2. Students will develop a resume that can be used to seek employment after graduation.
3. Students will list the requirements of maintaining the American Registry of Radiologic Technologists credential by obtaining continuing education units after graduation.

Program Learning Outcomes

Learning Outcome
Apply positioning skills in all required radiographic examinations.
Select appropriate technical factors for radiographic examinations.
Practice radiation protection for all radiographic examinations.
Employ proper patient care techniques and effectively provide care for patients from diverse groups/populations.
Demonstrate oral and written communication skills.
Relate to and anticipate the needs of the doctors and technologists.
Adjust to changes, situations, patient conditions, updated evidence-based practice, and deviation from the normal routine.
Demonstrate knowledge of ethical requirements for an entry level radiographer along with ethical practices in a healthcare setting.
Understand professional obligations upon gaining the ARRT status.

Institutional Learning Outcomes

Aesthetic Awareness: The student will identify and evaluate how aesthetic expression leads to an appreciation of social and cultural context as well as the values of art and nature.

Communication: The student will effectively express and exchange ideas through listening, speaking, reading, writing, visual works, and other modes of interpersonal expression.

Critical Thinking: The student will analyze problems, gather and synthesize relevant information, evaluate ideas, information, and evaluate alternative points of view to create, innovate and implement effective solutions.

Cultural Awareness and Humility: The student will demonstrate knowledge of and sensitivity toward individuals of diverse ethnicity, age, gender, sexual orientation, and religious affiliations, as well as toward those individuals with diverse abilities and socio-economic classes to respectfully interact with individuals of diverse perspectives, beliefs and values while being mindful of the limitation of their own cultural frameworks.

Information and Technology Literacy: The student will access, interpret, evaluate, and apply relevant information sources and digital media effectively, and in an ethical and legal manner.

Scientific Awareness: The student will apply the scientific method of inquiry to assess potential solutions for real-life challenges by employing science-based knowledge and methodologies in daily life.

Social Awareness: The student will recognize and analyze the interconnectedness of global, national, and local concerns, analyzing cultural, political, social, and environmental issues from multiple perspectives and appreciate similarities and differences among cultures.

Civic

Personal

and Professional Responsibility

Content

Course Lecture Content

1. Radiographic Positioning

a. Imaging Procedures

i. Chest

ii. Abdomen

iii. Extremities

iv. Skull

v. Trauma/mobile

vi. Pediatric

vii. Geriatric

b. Special imaging procedures

- i. Bone densitometry
 - ii. Mammography
- 2. Fluoroscopic procedures
 - a. Digestive system
 - b. Urinary system
 - c. Arthrography
 - d. Myelography
 - e. Hysterosalpingography
 - f. Radiation protection practices
 - g. Fluoroscopic equipment functions³
- 3. Fluoroscopic exposure and protection considerations
 - a. Technical factors and patient exposure appropriate
 - b. Technical factor adjustments and pregnancy
 - c. Communication with patients
 - i. Narrative for addressing patient's fears
 - ii. Approaches to diverse demographics
 - 1. Gender identities
 - 2. Race
 - 3. Culture
 - 4. Disabilities
- 4. Resume writing
 - a. Cover letter
 - b. Format
 - c. Objectives
 - d. Skills
 - e. Work experience
 - f. References
 - g. Online resumes
- 5. American registry of radiologic technologists application
 - a. Application
 - b. Photo identification requirements
 - c. Ethical statement
 - d. Costs
 - e. Submission
- 6. American Registry of Radiologic Technologists continuing education requirements
 - a. Biennium
 - b. Radiologic Health Branch topics
 - c. Availability
 - d. Category placement
 - e. Penalties

Methods of Instruction

Method

Lecture

Integration

Lectures will be used to review information about radiographic positioning and fluoroscopic procedures. Resume writing and American Registry of Radiologic Technologist continuing education requirements will also be covered.

Method

Discussion

Integration

Classroom discussions will provide students with the opportunity to recall concepts in radiation positioning and fluoroscopic procedures. Students will also have the chance to share their clinical experiences, highlighting how these experiences have enriched their understanding and application of these concepts.

Furthermore, students will engage in discussions with both their peers and the instructor, exploring patient challenges that may arise during the performance of fluoroscopic radiation protection procedures, all within a context that values and respects diverse perspectives related to race, culture, ethnicity, and gender identity.

Method

In-class Exercises

Integration

In-class exercises, such as review questions on patient positioning procedures and radiation protection during fluoroscopic procedures, will promote student recall of the course/lecture material and give the student an opportunity to ask questions or ask for further help in applying concepts. The students will also construct their resumes for future job opportunities.

Method

Reading

Integration

To enhance their understanding of the lecture material, students are required to read and review certain chapters in the required textbook, by J. Lampignano. Specifically, Chapters 1 through 17, as well as Chapter 19.

Methods of Evaluation**Method**

Exams/Tests

Integration

Exams and tests will be used to measure student's recall and application of all radiographic and fluoroscopic procedures in producing high quality radiographic images using the least amount of radiation necessary on a diverse population of patients. The exams will be multiple choice to help prepare the students to pass the American Registry of Radiologic Technologists exam which is also in multiple choice format. Exams and tests are graded on accuracy.

Method

Homework

Integration

Homework assignments are designed to reinforce the material covered during lectures, with a focus on radiographic positioning and fluoroscopic procedures. Additionally, these assignments provide a platform for students to delve into the impact of radiation exposure during fluoroscopic exams to patients and strategies for minimizing this exposure.

Students are presented with various questions regarding radiographic and fluoroscopic exams as part of their homework, tasking them with recalling proper patient and x-ray tube alignment and procedure protocols.

To foster collaborative learning and interaction among students, an alternative option is available where homework can be completed in small groups during class sessions, encouraging discussion and knowledge sharing.

Ultimately, these homework assignments serve as a valuable tool for assessing students' comprehension of the concepts, and they are evaluated based on both accuracy and completion.

Method

Class Participation

Integration

Assessing class participation in the context of radiographic positioning and fluoroscopic procedures, especially when dealing with patients from diverse backgrounds, is vital for fostering engagement and active learning within the classroom.

The instructor's role involves offering constructive feedback to every student, tailored to their performance in each of these criteria. This feedback aims to support improvement in areas where students may be weak. At this point in their progress in the radiologic technology program, the student has been actively imaging patients in the hospital setting and should have some level of confidence and competence in all radiographic and fluoroscopic exams and addressing patient diversity challenges in communication.

The student's grade will encompass several aspects, including attendance, active engagement, thorough preparation, respectful conduct, depth of knowledge, and overall comprehension.

Assignments**Assignment Type**

Reading

In-class and/or outside of class

In-class

Outside of class

Formative or Summative

Summative

Assignment

Prior to the class meeting, review chapters 1-17 and 19 in the required textbook by J. Lampignano and chapter 25 in S. Bushong textbook in preparation for your review of radiographic and fluoroscopic procedures, with a particular focus on patient positioning criteria and x-ray tube alignment.

You will need to take notes and be ready to respond to the instructor's questions regarding the room and patient preparation for any radiographic and fluoroscopic procedure, indications and contraindications, obtaining informed consent (if applicable), contrast media preparation (if applicable), pre-exam preparation and instructions, positioning of the patient and equipment, radiation protection procedures for radiographic and fluoroscopic exams, and post exam instructions to the patient.

At this point in your education you should be more confident in communicating with patients of diverse backgrounds. Be prepared to engage in discussions about potential obstacles in obtaining high-quality images related to a patient's race, culture, gender identity, or disability in terms of radiation protection, informed consent (if applicable), and following procedure instructions. Present one real life hospital scenario you had where you had a patient challenge and what you did to resolve it to achieve a successful exam.

Your grade for this assignment will be based on your active participation and the accuracy of the information you provide.

Assignment Type

Writing

In-class and/or outside of class

In-class

Outside of class

Formative or Summative

Formative

Assignment

Create a professional and compelling resume for a radiography position to be used after graduation in seeking employment.

Research radiographer resumes outside of class. Spend some time researching sample radiographer resumes online. Take notes of the common sections, formatting styles, and key skills emphasized in these resumes.

Reflect on your own skills, experiences, and qualifications as a radiographer. Identify your strengths, areas of expertise, relevant certifications, and any specific experiences that make you stand out.

Create the following sections for your resume:

Contact Information

Objective or Summary Statement (optional)

Education

Clinical Experience (Include details about the facilities you worked at, types of equipment used, and procedures you performed)

Certifications (CPR)

Skills (technical, interpersonal, and software) (This is an area you can expand on how your interpersonal skills contribute to the positiveness of the healthcare team.)

Patient care skills (include how you apply diversity and equity in your interactions with patients during imaging procedures. Maybe provide an example? Try to be more specific rather than general. A reminder that patient care skills and communication outweigh technical skills)

Professional Memberships (if applicable)

Awards and Achievements (if applicable)

References (optional, but you can mention "Available upon request").

Tailor your content by writing concise bullet points under each section that highlight your accomplishments and experiences relevant to the radiography field. Use action verbs to describe your contributions.

Bring your resume to class on the assigned date. Resumes will be exchanged with a classmate for feedback. They can provide valuable insights and catch errors you may have missed.

Make any necessary revisions based on feedback and your own review. Ensure that your resume is concise (usually one page) and tailored to the specific radiographer position you aspire to. Submit your completed radiographer resume in digital format (PDF or Word document) to your instructor by the specified deadline.

The resume will be evaluated based on the following criteria:

Content: The inclusion of relevant sections and detailed, well-organized information.

Clarity: Clear and concise language, free of errors.

Formatting: Consistency, readability, and professionalism in formatting.

Tailoring: Alignment of the resume with the targeted radiographer position.

Overall Impression: The overall visual appeal and impression your resume makes on the reader.

The instructor is available for any help needed.

Assignment Type

Writing

In-class and/or outside of class

In-class

Formative or Summative

Formative

Assignment

Complete the American Registry of Radiologic Technologists (ARRT) application with help from the instructor. No grade will be issued for this assignment. However, you will have the completed application to submit to take the ARRT exam immediately after completion of the program. Failure to complete the evaluation with the Program Directors approval will delay your opportunity to take the test,

receive your score, and seek employment. As a reminder, in the state of California, you cannot be employed in radiography if you do not hold a Certified Radiologic Technologist license.

Course Materials

Textbooks

1. Bushong, S., (2021) Radiologic Science for Technologists: Physics, Biology, and Protection, 12th Ed., Elsevier. ISBN#: 978-0323661348
2. Lampignano, J. (2020), Bontrager's Textbook of Radiographic Positioning and Related Anatomy, 10th Ed., Elsevier. ISBN#: 978-0323749565

Class Size Information

Class Size

40

Class Size Category

A - Lecture/discussion 40

Diversity and Inclusion

Explain how diversity and inclusion(e.g., gender, culture/race, sexuality, etc.) is infused into the course.

Discussions provide opportunities for students to share clinical experiences that contribute to producing a radiographic image using proper patient care and communication. In reviewing radiographic and fluoroscopic procedures, students recall interactions with their patients, sharing their experiences with each other in the classroom setting. This will promote collegiality and cohesiveness within the group. Additionally, the discussion will provide opportunities to hear or view different perspectives other students have when approaching or resolving a patient dilemma based on differences in race, culture, gender identities, and disabilities.

Describe how assignments, instruction, evaluation, course content, and interactions are contextualized for diverse learners promoting an equitable course.

The course employs a diverse range of instructional methods to accommodate various learning preferences. These methods encompass lectures, class discussions, and written materials. The lectures comprehensively cover radiographic and fluoroscopic procedures, utilizing verbal delivery and PowerPoint presentations to help both auditory and visual learners. In-class discussions create an interactive environment where students collaborate to explore strategies for addressing complex patient situations. Furthermore, reading assignments based on textbook chapters centered on patient positioning and x-ray tube alignment serve as supplementary resources, particularly beneficial for those who prefer visual aids to reinforce the course content. To gauge students' comprehension and application of concepts, the course incorporates exams and quizzes, offering valuable insights into their grasp of positioning criteria and overall progress.

Interactions

Explain how the course will incorporate student-to-student interaction.

Students will work together in small groups to complete in class assignments that promote discussions and interactions between them. The reading assignment with the in-class discussion provides opportunities for student ideas to be exchanged and to help each other recall important radiographic and fluoroscopic procedure aspects to prepare for the American Registry of Radiologic Technologist exam after graduation. The resume writing assignment will allow students to interact and encourage each other to bring forth their best examples to promote themselves for employment. Some students may not feel comfortable in listing their attributes so this assignment will allow students to help and encourage each other.

Explain how the course will incorporate instructor-to-student interaction.

Instructors engage with students through in-person lectures, during which students are encouraged to pose questions and seek clarification. Additionally, instructors facilitate in-class discussions related to assignments and homework, focusing on radiographic and fluoroscopic procedures. Instructors play a pivotal role in providing feedback on exams and tests, assessing students' comprehension of patient positioning and x-ray tube alignment, as well as their ability to ensure patient safety in radiation protection. In this course, instructors relate real-life experience stories during lectures to enrich student learning. Students, being actively involved in clinical training, contribute their own experiences to these discussions. Instructors actively encourage students to utilize office hours or arrange post-class meetings if they require further assistance or guidance.

Explain how the course will incorporate student-to-content interaction.

This course is well-supported by two comprehensive textbooks that complement the lecture material covering radiographic and fluoroscopic procedures. Homework reading assignments and in-class assignments enhance the student's ability to recall the information in preparation for the American Registry of Radiologic Technologists licensing exam after graduation. The resume writing assignment will provide the student with a resume they can use to seek employment.

Explain how the course will incorporate student-to-self interaction (metacognitive).

This course offers students valuable opportunities to consider how they can effectively showcase themselves to prospective employers. Throughout the course, students are tasked with crafting a resume that not only highlights but also enhances their skills and experiences. This exercise not only fosters self-reflection on personal growth but also instills the confidence needed to gain employment and embark on a successful radiography career.

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