Advanced Radiographic Procedures

Class
RADR 2331

Positioning and alignment of anatomic structures and equipment, evaluation of images for demonstration of anatomy and related pathology.

Course Learning Objectives

Perform advanced level procedures in positioning; align anatomic structures and equipment; and evaluate images.

At the completion of this course, the student will be able to demonstrate understanding of and proficiency in the following material: (* = Laboratory)

1. Sterile tray, patient preparation, and room set-up for physician assisted procedures.
2. Selection and use of x-ray equipment in the examination room for fluoroscopic exams.
3. Anatomy and projections of the various body systems.
4. Procedures performed in other common department modalities.
5. Rare and specialized procedures and modalities in radiography.
6. * Demonstration of proper radiographic positioning and exam room procedures.
7. * Evaluate and analyze images of physician assisted procedures.
8. * Group dynamics and collaborative/cooperative learning.

Student Learning Objectives: *(Cognitive)*

1. Sterile tray, patient preparation, and room set-up for physician assisted procedures. (***F –*** I ABD, II BDF, ***C-*** 3B, 4A)

1. Distinguish between the different contrast media preparations available for each examination.

2. Explain the various patient preps and medical requirements for each exam.

3. List the required x-ray equipment and medical supplies needed for each procedure.

2. Selection and use of x-ray equipment in the examination room for fluoroscopic exams. (***F –*** I ABD, II DF, ***C –*** 3B, 4A, 5A)

1. Describe the proper use of the bucky, lead skirt, and cassette loading system (where applicable) for specific exams.

2. Identify the locks and buttons on the fluoro tower and for x-ray beam exposure.

3. Explain the purpose for, and method of, entering accurate patient demographic information.

4. Describe various types of image processing.

3. Anatomy and projections of the various body systems. (***F –*** I ABD, II BDF***, C –*** 3B)

1. Identify projections and anatomic structures on x-ray images, scans, and diagrams.

2. Explain the need for the special patient care that often accompanies physician assisted procedures.

3. Describe the purpose of obtaining various views of the anatomy.

4. Procedures performed in other common department modalities. (***F –*** IABD, II BDF, ***C –*** 3B, 4A, 5A)

1. Explain the efficacy of PET and its unique method of imaging anatomy.

2. List nuclear imaging exams and recognize images of each.

3. Compare and contrast PET and nuclear imaging.

4. Describe how PET and CT fusion studies are acquired.

5. Recognize various angiographic procedures and describe the purpose of each.

6. Distinguish between the different procedures performed in the cardiac cath lab and interventional lab and recognize the equipment used in each.

5. Rare and specialized procedures and modalities in radiography. (***F –*** I ABD, II CDF, ***C-*** 3B, 4A, 5A)

1. Discuss the impact of CT scanning on the performance of headwork studies and various other radiographic exams.

2. Recognize radiographic images and identify the anatomy on special/rare exams.

3. Discuss the practical applications for the various special/rare exams.

4. Identify the advantages and disadvantages of each special/rare exam.

5. Identify contraindications that effect student and patient safety in MRI exams.

6. Identify the differences between ferromagnetic and nonferrous material.

7. Recognize the different applications for various MRI magnet strengths.

8. Discuss how MRI images are obtained.

Student Learning Objectives: LAB *(Psychomotor)*

6. * Demonstration of proper radiographic positioning and exam room procedures. (***F –*** IE, II ABCF, III BE, ***C –*** 1C, 2C, 3BC, 4A, 5ABC)

1. Perform routine views for all diagnostic radiographic procedures in this course.

2. Perform room and supplies set-up for diagnostic radiographic physician assisted exams.

3. Demonstrate manipulation of the x-ray system and all x-ray equipment.

4. Utilize radiation protection and methods of ensuring patient comfort and safety.

7. * Evaluate and analyze images of physician assisted procedures. (***F –*** I E, II BF, III BC, ***C –*** 1D, 2E, 3CD, 4A, 5BC)

1. Critique images for accuracy of positioning, centering of part, and anatomy visualized.

2. Evaluate images for evidence of voluntary and involuntary motion.

3. Appraise images for correct exposure factors and evidence of collimation.

Student Learning Objectives: LAB *(Affective)*

8. * Group dynamics and collaborative/cooperative learning. (***F –*** I ABDE, II D, III ABCE, ***C –*** 1D, 2ADEF)

1. Speak, listen, and accept feedback from others appropriately.

2. Encourage others' performance by using non-judgmental vocabulary and behavior.

3. Function as a team player by helping others and participating in class exercises

Required Textbooks

Merrill's Atlas of Radiographic Positions and Radiologic Procedures, Vol. I, II, & III; Long, Rollins, Smith; 14th Edition

Evaluation Standards

Evaluation of the lecture portion of the class will be made up of three parts: 5 sectional written examinations, a comprehensive written final examination, and a project. The written exams will consist of a variety of question types. Points will be accumulated for each test. At the end of the semester, the points are then calculated into percentages and letter grades will be assigned. Only 1 make-up exam will be allowed during the semester, and it must be taken immediately upon return to class. The make-up test will begin with a score of 90. Subsequent missed exams will result in a point score of 0 (zero).

Laboratory evaluation will make up twenty-percent (20%) of the course grade. The laboratory portion of the grade will be based upon workbook and classroom assignments, sectional competencies, and a final "pick-it" competency.

Students MUST have a passing grade (78%) in both lecture and laboratory individually in order to pass the course.

Sectional written exams	40%
Final written exam	25%
Lab assignments	10%
Lab sectional competencies	15%
Lab final competency	10%
Total	**100%**

A = 91 – 100%

B = 83 – 90%

C = 78 – 82%

D = 72 – 77%

F = 0 – 71%

Demerits and Classroom Etiquette:

- Your instructor reserves the right to make modifications in content and schedules as necessary to promote the best possible educational experience.
- Cell phones are prohibited in class. If a student's cell phone goes off in class the student will be required to silence or turn the phone off unanswered. If there is an emergency, the student should notify the instructor ASAP.
- Demerits may be given for unprofessional classroom conduct and includes the list in Student Handbook.

Absences

Students are strongly encouraged to attend all lecture and laboratory classes. It is the student's responsibility to discuss any missed material with the instructor and schedule any necessary make-up time for lab assignments. Students who arrive between 1 (one) and 15 (fifteen) minutes after the start of class will receive a "T" tardy for that class period. An accumulation of 4 (four) tardies will constitute 1 (one) absence. Students who arrive more than 15 (fifteen) minutes late will be counted absent for that class. A maximum of four (4) absences are allowed per class. Any additional absences will result in a 10% reduction in the final grade for each additional absence.

Instructional Methods

Lecture, work groups, laboratory simulations and testing with phantoms, audio/visual media (Anatomage table), handouts, written assignments, and student research and presentations.

Disabilities

ADA Statement:

Any student with a documented disability (e.g. learning, psychiatric, vision, hearing, etc.) may contact the Office on the Weatherford College Weatherford Campus to request reasonable accommodations. *Phone:* 817-598-6350 *Office Location:* Office Number 118 in the Student Services Building, upper floor. *Physical Address:* Weatherford College 225 College Park Drive Weatherford, TX.

Academic Integrity
Academic Integrity is fundamental to the educational mission of Weatherford College, and the College expects its students to maintain high standards of personal and scholarly conduct. Academic dishonesty of any kind will not be tolerated. Academic dishonesty includes, but is not limited to, cheating on an examination or other academic work, plagiarism, collusion, and the abuse of resource materials including unauthorized use of Generative AI. Departments may adopt discipline specific guidelines on Generative AI usage approved by the instructional dean. Any student who is demonstrated to have engaged in any of these activities will be subject to immediate disciplinary action in accordance with institutional procedures.
SCANS

This course continues the program's attention to the Secretary's Commission on Achieving Necessary Skills (SCANS) for the workforce. The 3 ***F***oundation skills are labeled with Roman numerals and alpha item signifiers. The 5 ***C***ompetencies are labeled 1 – 5, with alpha item signifiers (see attachment).