Basic Radiographic Procedures (RADR 1411)

Credit: 4 semester credit hours (3 hours lecture, 2 hours lab)

Pre-requisite: RADR 1309 Introduction to Radiography and Patient Care

Course Description

An introduction to radiographic positioning terminology, the proper manipulation of equipment, positioning and alignment of the anatomical structure and equipment, and evaluation of images for proper demonstration of basic anatomy.

Textbook and Materials

- A computer with internet access. The computer must be able to run current programs and platforms such as Windows 10 and the internet must be reliable and robust. The course has an online component and will move to a fully online format if necessary. The computer must have a camera and microphone for online conferencing.
- Bontrager, Kenneth: *Radiographic Positioning and Related Anatomy* 10th edition, C.V. Mosby, 2020, ISBN# 978-0323399661
- Bontrager, Kenneth: *Workbook for Radiographic Positioning and Related Anatomy* 10th edition, C.V. Mosby, 2020, ISBN# 978-0323694230
- #882 Scan-trons and pencils

Course Objectives

1. By the end of the semester of instruction the student will be able to:
2. Define radiographic positioning terms
3. Manipulate equipment
4. Perform basic level procedures in positioning
5. Align anatomical structures and equipment
6. Evaluate images
7. Demonstrate a basic understanding of pediatric radiography

Course Outline

By the end of the semester the student will be able to:

I. SKELETAL ANATOMY, POSITIONING NOMENCLATURE & BODY PLANES

A. Understand general, systemic, and skeletal anatomy and physiology
B. Identify the name and number of bones associated with the human body
    1. axial skeleton
    2. appendicular skeleton
C. Identify specified bones by classification
    1. long bones
    2. short bones
    3. flat bones
    4. irregular bones

5. sesamoid bones

D. Identify the layers of bone
E. Identify and explain bone development
F. Identify and give examples of the classification of joints
    1. synarthrodial
    2. amphiarthrodial
    3. diarthrodial
G. Identify and demonstrate the common principles, rules of positioning, and various body positions
H. Define and demonstrate relationship terms
I. Define terms used to describe the human body
    1. body planes
    2. four body habitus types
    3. body cavities
    4. four quadrants
    5. nine regions

II. CHEST AND ABDOMEN ANATOMY AND POSITIONING

A. Identify the anatomy landmarks of the chest and abdomen
B. Identify the anatomical structure and function of the respiratory system
C. Identify and explain the radiographic positions of the chest
    1. PA
    2. AP
    3. lateral
    4. Apical Lordotic
    5. Decubitus
D. Identify and explain the radiographic positions of the abdomen
    1. AP
    2. Upright
    3. Decubitus
E. Demonstrate the specific knowledge and skills associated with positioning of the chest and abdomen in a lab simulation
F. Discuss modifications in positioning & technique for obese patients.

III. UPPER EXTREMITIES AND SHOULDER GIRDLE

A. Identify the anatomical landmarks of the upper extremities and shoulder girdle
B. Identify and explain the radiographic positions of the upper extremities and shoulder girdle
    1. hand
    2. wrist
    3. forearm
    4. humerus
    5. shoulder
    6. clavicle
    7. scapula
C. Demonstrate the specific knowledge and skills associated with positioning of the upper extremities and shoulder girdle in a lab simulation
D. Discuss radiographic procedures for bone studies

1. Bone age
2. Bone length
3. Bone density (DEXA)

IV. LOWER EXTREMITIES AND PELVIC GIRDLE

A. Identify the anatomical landmarks of the lower extremities and pelvis

B. Identify and explain the radiographic positions of the lower extremities and pelvis

1. foot
2. calcaneus
3. ankle
4. lower leg
5. knee
6. femur
7. hip
8. pelvis
9. SI Joints

C. Demonstrate the specific knowledge and skills associated with positioning of the lower extremities and pelvis in a lab simulation

D. Discuss DEXA bone density studies, lone bone survey, and bone age studies.

E. Arthrography

1. Identify the various types of joints and their movement.
2. List the indications and contraindications for the procedure.
3. Identify the type of contrast medium used for the procedure.
4. Describe the patient preparation for the procedure.
5. List the specialized equipment necessary for the procedure.
6. Describe the patient positioning for the procedure.
7. Explain the other modalities used to evaluate the joints and muscles.

V. BONY THORAX

A. Identify the anatomical landmarks of the bony thorax

B. Identify and explain the radiographic positions of the bony thorax

1. ribs
2. sternum

C. Demonstrate the specific knowledge and skills associated with positioning of the bony thorax in a lab simulation

VI. VERTEBRAL COLUMN

A. Identify the anatomical landmarks of the vertebral column

B. Identify and explain the radiographic positions of the vertebral column

1. cervical
2. thoracic
3. lumbar
4. sacrum
5. coccyx

C. Demonstrate the specific knowledge and skills associated with positioning of the vertebral column in a lab simulation

D. Discuss lumbar puncture and myelography exams

VII. IMAGE CRITIQUE

A. Utilize critical thinking skills to critique radiograph for proper technique, patient positioning, and image appearance

B. Utilize reasoning and problem solving skills to determine what must be done to the patient, tube, or film to correct certain errors demonstrated on radiographs

VIII. ASRT Patient Centered Care for Diverse Populations videos

A. Fundamentals
B. Diverse Body Habitus
C. Elderly Patients
D. Pediatric Patients
E. Cultural Competence
F. Equitable Patient care

Grading Scale

Numeric to letter grade conversion:

A = 93 - 100
B = 84 - 92
C = 77 - 83
D = 60 - 76
F = 0 - 59

*** A minimum of 77% is required for successful completion of this course!**

Course Evaluation

Written Exams (4) 15% each =	60%
Homework & Quizzes	10%
Laboratory Performance	15%
Comprehensive Final	15%

Course Policies:

1. No food, drinks, or use of tobacco products in class.
2. Phones, headphones, and any other electronic devices must be turned off while in class.
3. Recording devices may be used except during test reviews and when otherwise stated by the instructor.
4. Lap top computers, I-pad… may be used to take notes during class but may <u>not</u> be used to "surf" the internet, look-up answers, nor anything not directly related to note taking.
5. It shall be considered a breach of academic integrity (cheating) to use or possess on your body any of the following devices during any examination unless it is required for that examination and approved by the instructor: Cell phone, smart watch/watch phone, laptop, tablet, electronic communication devices (including optical), and earphones connected to or used as electronic communication devices.

- *This is a violation of the Radiologic Technology Student Handbook and will result in dismissal from the program.*

Students with special needs and/or medical emergencies or situations should communicate with their instructor regarding individual exceptions/provisions. It is the student's responsibility to communicate such needs to the instructor.

6. Do not bring children to class.
7. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an 'F' in the course.
8. **Attendance Policy:** Class attendance is important to ensure that a student receives the knowledge and skills necessary to be successful in the Radiologic Technology program. Students are expected to be in class on time. If a student is tardy they may enter only if they do so quietly.

   When it becomes necessary to miss a session, it is the responsibility of the *student* to contact the instructor and to inquire about assignments. I will *not* distribute the PowerPoints missed. The student must get the notes from a classmate. If a major test is missed, the test will be administered at the first day the student returns to class or at a time designated by the instructor. There will be a **ten (10) point** reduction for make-up exams.
9. Any student who fails to pass a Unit test will be required to attend mandatory tutorial. This may be done before or after class or at lunch break. The tutorial may be individual or in a group session.

Technical Requirements

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:
https://help.blackboard.com/Learn/Student/Getting_Started/Browser_Support/Browser_Checker
A functional broadband internet connection, such as DSL, cable, or Wi-Fi is necessary to maximize the use of the online technology and resources.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building. You may also visit the online resource at https://www.lit.edu/student-success/special-populations

Student Code of Conduct Statement

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu or obtained in print upon request at the Student Services Office. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document

Starfish

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.