Intermediate Radiographic Procedures (RADR 2401 – 3A1)

LAMAR INSTITUTE OF TECHNOLOGY

INSTRUCTOR CONTACT INFORMATION

Instructor:	Brenda A. Barrow, M.Ed., R.T.
Email:	babarrow@lit.edu
Office Phone:	409-241-9829
Office Location:	232 Multipurpose Center
Office Hours:	office hours posted outside door and in Starfish

CREDIT

4 Semester Credit Hours (3 hours lecture, 2 hours lab)

MODE OF INSTRUCTION

This course will be taught face-to-face in a multimedia format. Lectures, demonstrations, lab experiments and discussion will be utilized to enhance the cognitive learning process. Students will have outside reading and out of class homework assignments periodically in the semester. The student will be required to utilize both reading and listening skills.

PREREQUISITE/CO-REQUISITE

RADR 1411 Basic Radiographic Procedures

COURSE DESCRIPTION

This course is a continuation of the study of the proper manipulation of radiographic equipment, positioning and alignment of the anatomical structure and equipment, and evaluation of images for proper demonstration of anatomy.

COURSE OBJECTIVES

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

1. Manipulate equipment
2. Perform intermediate level procedures in positioning lab
3. Align anatomical structures and equipment
4. Evaluate images
5. Correctly define and demonstrate common positioning and terminology
6. Discuss the different types of contrast media and their use
7. Discuss Radiation Therapy basics
8. Discuss the steps for pediatric radiography
9. Discuss characteristics of trauma radiography
10. Understand the basics of pharmacology and how it relates to patient's in the radiology suite

REQUIRED 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 REQUIREMENTS

- There will be four (4) major tests
- The numerical grade for the lab will be determined by averaging the three (3) lab practical exams
- BlackBoard will be utilized for all quiz/homework assignments. If a student misses an assignment i**t may not** be made up. Quiz/homework grades will be averaged for one (1) test grade. Students will be allowed to drop their **lowest** quiz grade at the end of the semester. If more than one quiz is missed a zero (0) will be given. This is already configured in Black Board gradebook.
- Assignments will be made from the Workbook and will count as homework grades**.**
- There will be a **ten (10) point** reduction for make-up exams.

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

TEST I, II, & III (20% each)	60%
Quiz Average	10%
Final Exam	15%
Laboratory Performance	15%

GRADING SCALE

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!**

LIT does not use +/- grading scales

ATTENDANCE and 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.

4. Lap top computers, I-pad… may be used to take notes during class but may not 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.
6. 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.
7. Do not bring children to class.
8. 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.
9. **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.
10. BlackBoard will be utilized for all quiz/homework assignments. If a student misses an assignment i**t may not** be made up. Quiz/homework grades will be averaged for one (1) test grade. Students will be allowed to drop their **lowest** quiz grade at the end of the semester. If more than one quiz is missed a zero (0) will be given. This is already configured in Black Board gradebook.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified drop date as listed on the Academic Calendar. If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

STUDENT EXPECTED TIME REQUIREMENT

For every hour in class (or unit of credit), students should expect to spend at least two to three hours per week studying and completing assignments. For a 3-credit-hour class, students should prepare to allocate approximately six to nine hours per week outside of class in a 16-week session OR approximately twelve to eighteen hours in an 8-week session. Online/Hybrid students should expect to spend at least as much time in this course as in the traditional, face-to-face class.

COURSE CALENDAR

DATE	TOPIC	READINGS (Due on this Date)	ASSIGNMENTS (Due on this Date)
Jan 17	Course Introduction & Pharmacology	Read the chapter before each class it is discussed in so you are prepared	
Jan 19	Contrast Media		
Jan 24	Anatomy of Upper Gastrointestinal System		
Jan 26	Positioning of the Upper Gastrointestinal System		
Jan 31	Anatomy of the Lower Gastrointestinal System		
Feb 2	Positioning of the Lower GI System & GI System Review		**Unit I QUIZ #1 - gastrointestinal**
Feb 7	Anatomy of the Gallbladder and Biliary System		
Feb 9	Positioning of the Gallbladder and Biliary System		
Feb 14	Anatomy of the Urinary System		
Feb 16	Positioning of the Urinary System		**Unit I QUIZ #2 - urinary**
Feb 21	Review, Film Critique, & Body Worlds DVD -- *Digestion*		**Unit 1 Workbook due 8:00 pm** & **Unit I QUIZ #3 - prefix**
Feb 23	***TEST I***		
Feb 28	Go over test		
Mar 2	Anatomy of the Cranium		
Mar 7	Positioning of the Cranium		**Unit II HOMEWORK #1**
Mar 9	Anatomy & Positioning of the Sinuses		**Unit II HOMEWORK #2**

Mar14&16	**SPRING BREAK**		
Mar 21	Anatomy of the Facial Bones & Orbits		
Mar 23	Positioning of the Facial Bones & Orbits		**Unit II QUIZ**
Mar 28	Review & Film Critique of Skull		**Unit II Workbook due 8:00 pm**
Mar 30	***TEST II***		
Apr 4	Go over test & Review		
Apr 6	***Comprehensive Unit I & II***		
Apr 11	Go over test & Sialography & Sensory organs		
Apr 13	Reproductive Procedures		
Apr18	Radiation Therapy		
Apr 20	Pediatrics		**Unit III HOMEWORK**
Apr 25	Trauma		
Apr 27	Surgery & Review		
May 2	***TEST III***		
May 4	Go over test & *Pathology presentations*		
May 9	*Pathology presentations*		

ACADEMIC DISHONESTY

Students found to be committing academic dishonesty (cheating, plagiarism, or collusion) may receive disciplinary action. Students need to familiarize themselves with the institution's Academic Dishonesty Policy available in the Student Catalog & Handbook at http://catalog.lit.edu/content.php?catoid=3&navoid=80#academic-dishonesty.

ADDITIONAL COURSE POLICIES/INFORMATION

Course Outline:

I. CONTRAST MEDIA

A. Classify different contrast medias

1. radiolucent
2. radiopaque
    a. ionic

b. non-ionic
3. radionuclide

B. List the characteristics and composition of contrast medias
1. viscosity
2. toxicity
3. iodine content
4. osmolality
5. miscibility
6. persistence

C. List the routes of drug administration
1. enteral
2. parenteral
3. pulmonary

D. Discuss the selection of contrast medias

E. Describe the different classifications of reactions and the treatment for each classification of reaction
1. mild
2. moderate
3. severe

F. Identify the reactions and complications resulting from the use of contrast agents.
1. Overdose
2. Anaphylactic
3. Cardiovascular
4. Psychogenic

II. Pharmacology

A. Define common terms used in pharmacology.

B. Identify the general guidelines for drug administration.

C. Identify the principles of intravenous (IV) therapy

D. Define local anesthesia.

E. Define conscious sedation.

F. Identify the various types of pharmacologic agents used in conjunction with the advanced radiographic and interventional procedures.

G. List the medications used in cases of cardiac or respiratory emergencies.

H. List the principles of medication dose calculation.

I. Define the medication reconciliation form and its purpose.

III. Upper Gastrointestinal System

A. Identify anatomical landmarks of the UGI system

B. Identify anatomical structure and function of the UGI system
1. pharynx
2. esophagus
3. stomach

C. Discuss the different contrast medias used to visualize the UGI system
1. barium sulfate
2. gaseous media

3. water soluble iodine

D. Demonstrate the specific knowledge and skills associated with positioning of the UGI system

1. UGI
2. esophagus
3. soft tissue neck

E. Describe Sialography

1. Identify the anatomy of the salivary glands.
    a. List the indications and contraindications for the procedure.
    b. Identify the type of contrast media used for the procedure.
    c. Describe the patient preparation for the procedure.
    d. List the specialized equipment necessary for the procedure.
    e. Describe the patient positioning for the procedure.

IV. Lower Gastrointestinal System

A. Identify anatomical landmarks of the Lower GI system

B. Identify anatomical structure and function of the Lower GI system

1. small bowel
2. large intestine

C. Discuss the different contrast medias used to visualize the Lower GI system

1. barium sulfate
2. air
3. water soluble iodine

D. Demonstrate the specific knowledge and skills associated with positioning of the Lower GI system

1. SBS
2. BE
    a. single column
    b. colon with air

V. Gallbladder and Biliary Ducts

A. Identify anatomical landmarks of the Biliary system

B. Identify anatomical structure and function of the Biliary system

1. liver
2. pancreas
3. gallbladder
4. biliary tree

C. Discuss radiographic examinations of the biliary system

1. cholangiogram
    a. operative
    b. laparoscopic
    c. T-tube
2. ERCP

3. Sonography

VI. Urinary System

A. Identify anatomical landmarks of the Urinary system

B. Identify anatomical structure and function of the Urinary system

1. kidneys
2. ureters
3. bladder
4. urethra

C. Discuss the different contrast media used to visualize the Urinary system and the route of administration

1. IV
2. retrograde

D. Demonstrate the specific knowledge and skills associated with positioning of the Urinary system

1. IVU/IVP
2. retrograde IVU/IVP
3. cystogram
4. VCUG

VII. Reproductive Procedures

A. Identify the anatomy of the female reproductive system.

B. List the indications and contraindications for the hysterosalpingograms.

C. Identify the type of contrast media used for hysterosalpingograms.

D. Describe the patient preparation for hysterosalpingograms.

E. List the specialized equipment necessary for hysterosalpingograms.

F. Describe the patient positioning for hysterosalpingograms.

G. Explain the special considerations for imaging pregnant females.

VIII. Skull and Cranial Bones

A. Identify Anatomy of the cranium

1. frontal
2. right and left parietal
3. occipital
4. right and left temporal
5. sphenoid
6. ethmoid

B. Demonstrate the specific knowledge and skills associated with positioning the cranium

1. landmarks
2. morphology
3. planes

C. Visualize how the radiographs of the skull should look, including structures shown and proper patient positioning

1. PA/AP
2. AP Axial (Townes)
3. Parieto-acanthial (Waters)
4. Lateral
5. SMV

IX. Facial Bones

A. Identify Anatomy of the facial bones

1. maxillae

2. nasal
3. lacrimal
4. zygoma
5. inferior nasal conchae
6. palatine
7. mandible
8. vomer

B. Demonstrate the specific knowledge and skills associated with positioning the facial bones

1. parieto –orbital (Rhese)
2. oblique infer-superior
3. axiolateral oblique
4. SMV

C. Visualize how the radiographs of the facial bones should look, including structures shown and proper patient positioning

X. Paranasal Sinuses

A. Identify Anatomy of the sinuses

1. frontal
2. maxillary
3. sphenoid
4. ethmoid

B. Demonstrate the specific knowledge and skills associated with positioning the sinuses

1. PA Axial (Caldwell)
2. Parieto-acanthial (Waters)
3. transoral
4. Lateral
5. SMV

C. Visualize how the radiographs of the sinuses including structures shown and proper patient positioning.

IX. Pediatrics

A. Discuss the differences between adult and pediatric imaging

B. Discuss the importance of identifying and reporting child abuse

XII. Trauma

A. List the types of trauma centers

B. Describe special equipment used for trauma patients

C. Discuss manipulation of equipment and positions for trauma patients

XIII. Radiation Therapy

A. Discuss the history of radiation therapy

B. Identify different types of cancer treatment

1. Curative
2. Palliative

C. Discuss the types of radiation therapy

1. External beam therapy
2. Brachytherapy
3. Chemotherapy

TECHNICAL REQUIREMENTS
The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at https://lit.edu/online-learning/online-learning-minimum-computer-requirements. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT
The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email specialpopulations@lit.edu. You may also visit the online resource at Special Populations - Lamar Institute of Technology (lit.edu).

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. 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.

RADR 2401 LAB
Requirements:

1. Attendance in lab is mandatory. Tardiness will not be tolerated. Students missing more than two (2) labs or having more than two (2) tardies will be counseled. Three (3) tardies

will be counted as an absence. Leaving early will be counted as a tardy. Students having three (3) tardies will be given a warning using the Disciplinary Action form. On the fouth tardy, the student's next lab practical will be lowered by 10 points. If the occurrence happens after Lab Practical II, the points will be deducted from Lab Practical III. Disciplinary action and grade reduction will result from chronic attendance/tardy issues. Students missing more than three labs are subject to being dropped from the course.

2. Students need to report to lab on their scheduled day.
3. Students not missing any lab classes and having zero tardies will be given 5 extra points on the last practical exam.
4. Know anatomy of all systems and positions covered.
5. Know basic positioning for GU, GU and biliary systems.
6. Know how to position all skull, sinus, facial bones, orbits, mandible, and nasal bones.

Radiographic labeling assignments in blackboard

There will be labeling assignments in blackboard. Late work will NOT be accepted. The assignment will be due on the scheduled day by 11:59pm.

- Lab Practical I 25% of lab grade
  - Each student will demonstrate competency by performing an exam in each x-ray room. These exams will be a review of the upper & lower extremities and the spines from last semester. These two practical's will be averaged together for one lab grade (Lab Practical I). There will be no radiographs on these two practical portions.
  - Lab Practical II GI, GU, and biliary – 25% of lab grade
  - Lab Practical III Skull, sinus, facial bones, orbits, mandible and nasal bones – 25% of lab grade
  - Daily simulations grades and labeling will be averaged together and will equal another test grade – 25%

Instructors:

Mrs. Griselda Thornton, Instructor I, Allied Health and Sciences
Office: MPC, Rm 230

Mrs. April Smith, Instructor II, Allied Health and Sciences
Office: MPC, Rm 233

Mrs. Gina Johnson, Instructor III, Allied Health and Sciences
Office: MPC, Rm 234

Mrs. Samantha Cox, Instructor III, Allied Health and Sciences
Office: MPC, Rm 240

RADR 2401 Laboratory Schedule- SPRING 2023

RADR 2401- Lab Schedule/ Tues 5A or Thurs 5B 2:00-4:00	
Jan. 17/19	Introduction to lab/Powerpoint on Fluoro set-up/Consent forms Radiograph Review: Extremities
Jan. 24/26	**Lab Practical I- Upper & Lower Extremities (Rooms only) One Room, Entire Exam**
Jan. 31/Feb 2	**Lab Practical I- Spines (Rooms Only) One Room, 2 Projections**
Feb. 7/9	Positioning of Upper GI System/**Assignment**: **Simulate: UGI Projections: RAO, Rt.Lateral, AP** **SBS Projection: PA 15 minute** **Labeling: 5A due Feb 13, 5B due Feb 15**
Feb. 14/16	Positioning of Lower GI System/**Assignment**: **Simulate: BE Projections: Oblique, AP axial, LPO 30 deg. Cephalic, Lateral Rectum** Demonstrate**:** PA, Decubitus **Labeling: 5A due Feb 20, 5B due Feb 22**
Feb. 21/23	Positioning of Urinary System/**Assignment:** **Simulate: IVU Projections: AP nephrogram, Oblique** **Cystogram Projections: AP scout, Oblique, Lt Lateral** **Labeling: 5A due Feb 27, 5B due Mar 1** **Practice LP II/make up any missing simulations**
Feb. 28/Mar 2	**Lab Practical II**
Mar. 7/9	**Go over LP II**

Mar. 14/16	**Spring Break**
Mar. 21/23	Positioning of Skull/ **Assignment:** Homework Skull **Simulate: Skull Projections: AP Towne's, PA, Water's, Lateral** **Labeling: 5A due Mar 27, 5B due Mar 29**
Mar. 28/30	Positioning of Sinuses/ **Assignment:** Homework Sinuses **Simulate: PA Caldwell, Water's, SMV, Lateral** **Labeling: 5A due Apr 3, 5B due Apr 5**
Apr. 4/6	Positioning of Facial Bones/ **Assignment:** Homework Orbits, Mandible, Facial Bones & Nasal Bones **Simulate: Rhese, Axiolateral Oblique Mandible, Lateral Nasal Bones** **Labeling: 5A due Apr 10, 5B due Apr 12**
Apr. 11/13	**Practice LP III/make up any missing simulations**
Apr. 18/20	**Lab Practical III**
Apr. 25/27	**Go over LP III**