

# RADIOGRAPHY (RADT)

## **RADT-1301 Radiographic Fundamentals and Technique 4 Credits**

Basic study of ionizing radiation relative to its nature, production, interaction with matter and effect on radiographic quality. Includes the fundamentals of radiation protection and image acquisition methods.

*Lecture: 3 hours. Laboratory: 2 hours*

*Prerequisite(s): Departmental approval: admission to program.*

## **RADT-1351 Image Acquisition and Evaluation 3 Credits**

Analysis and application of radiographic factors influencing the acquisition and evaluation of the digital radiographic image. Students are required to conduct X-ray exposure experiments, under supervision, using standard energized imaging equipment.

*Lecture: 2 hours. Laboratory: 3 hours*

*Prerequisite(s): RADT-1301 Fundamentals of Radiography, and departmental approval.*

## **RADT-1352 Digital Image Acquisition and Evaluation 3 Credits**

Analysis and application of radiographic factors influencing the acquisition and evaluation of the digital radiographic image. Students are required to conduct X-ray exposure experiments, under supervision, using standard energized imaging equipment.

*Lecture: 2 hours. Laboratory: 3 hours*

*Prerequisite(s): RADT-1301 Fundamentals of Radiography, and departmental approval.*

## **RADT-1400 Radiographic Positioning 3 Credits**

Introduction to and application of radiographic positioning for upper and lower extremities, chest, pelvis, abdomen, gastrointestinal and urinary systems including use of contrast media. Techniques and positioning variations for pediatrics age specific patients. Basic concepts of patient care and the role of the radiographer as a member of the health care team. Specific radiological patient care skills used in radiology practices. Discussion of legal issues and doctrines with introduction of medico-legal terminology. Special emphasis on the American Registry of Radiologic Technologists' Standards of Ethics.

*Lecture: 2 hours. Laboratory: 3 hours*

*Prerequisite(s): Departmental approval: admission to program.*

## **RADT-1410 Intermediate Radiographic Positioning 3 Credits**

Essentials of radiographic procedures involving cerebral and facial cranium, vertebral column, thoracic cage, and specific projections of upper extremity articulations. Techniques and positioning variations for trauma, geriatric and age specific patients. Communication skills for patient-focused care, being mindful of standard precautions, and appropriate safety practices. Additional hours required for practicing radiographic positioning assignments under direct supervision of registered radiographer.

*Lecture: 2 hours. Laboratory: 2 hours*

*Prerequisite(s): RADT-1400 Radiographic Positioning, and departmental approval: admission to program.*

## **RADT-1911 Clinical Radiography I 7 Credits**

Directed practice experience in the hospital environment. Competency-based training and evaluation on radiographic equipment and procedures. Emphasis on positioning and patient care skills including pediatric and geriatric populations. Includes a variety of imaging: appendicular skeleton, gastrointestinal procedures, mobile radiography, trauma and non-trauma exams.

*Other Required Hours: Directed Practice: 576 hours; This includes 16 hours of embedded lecture delivered at the clinical site.*

*Prerequisite(s): Departmental approval: admission to program.*

## **RADT-191A Clinical Radiography I-A 6 Credits**

Directed practice experience in the hospital environment. Competency-based training and evaluation on radiographic equipment and procedures. Emphasis on positioning and patient care skills including pediatric and geriatric populations. Includes a variety of imaging: appendicular skeleton, gastrointestinal procedures, mobile radiography, trauma and non-trauma exams.

*Other Required Hours: Directed practice: 496 hours; This includes 16 hours of embedded lecture delivered at the clinical site.*

*Prerequisite(s): Departmental approval: admission to program.*

## **RADT-191B Clinical Radiography I- B 1 Credit**

Directed practice experience in the hospital environment. Competency-based training and evaluation on radiographic equipment and procedures. Emphasis on positioning and patient care skills including pediatric and geriatric populations. Includes a variety of imaging: appendicular skeleton, gastrointestinal procedures, mobile radiography, trauma and non-trauma exams.

*Other Required Hours: Directed Practice: 80 hours to be completed in the two week intersession.*

*Prerequisite(s): RADT-191A Clinical Radiography I, and departmental approval: admission to program.*

## **RADT-191S Clinical Radiography I 5 Credits**

Directed practice experience in the hospital environment. Competency-based training and evaluation on radiographic equipment and procedures. Emphasis on positioning and patient care skills including pediatric and geriatric populations. Includes a variety of imaging: appendicular skeleton, gastrointestinal procedures, mobile radiography, trauma and non-trauma exams.

*Other Required Hours: Directed Practice: 400 hours; This includes 16 hours of embedded lecture delivered at the clinical site.*

*Prerequisite(s): Departmental approval: admission to program.*

## **RADT-2350 Radiographic Pathology 3 Credits**

Study and identification of selected pathologic conditions. Manifestations of diseases of the human body and their radiographic appearance. Adjustment of techniques due to pathologic changes and best imaging procedures will be covered.

*Lecture: 2 hours. Laboratory: 2 hours*

*Prerequisite(s): BIO-1221 Anatomy and Physiology for Diagnostic Medical Imaging, and RADT-1351 Image Acquisition and Evaluation, or departmental approval: admission to program.*

### **RADT-2362 Interventional Radiography and Pharmacology**

**1 Credit**

Introduction to specialized procedures and interventional imaging within diagnostic radiography. Foundational knowledge and skills to enable effective contribution as a member of a specialized imaging team. Basic concepts of pharmacology in interventional and diagnostic radiography. Laboratory demonstration of related patient care and technical skills.

*Laboratory: 2 hours*

*Prerequisite(s): BIO-1221 Anatomy and Physiology for Diagnostic Medical Imaging ; and concurrent enrollment in RADT-2350 Radiographic Pathology ; and departmental approval.*

### **RADT-2401 Imaging Systems**

**2 Credits**

Presentation of imaging systems and imaging modalities. Topics include conventional and digital fluoroscopy, image intensification, computerized tomography, magnetic resonance imaging, mammography, bone densitometry, sonography, nuclear medicine, radiation therapy and cross-sectional anatomy.

*Lecture: 2 hours*

*Prerequisite(s): RADT-1351 Image Acquisition and Evaluation or concurrent enrollment; or departmental approval.*

### **RADT-2610 Introduction to Mammography**

**1 Credit**

Introduction to mammography. Topics include historical development, patient education, patient services and screening procedures, risk factors for breast cancer, medical history documentation and assessment.

*Lecture: 1 hours*

*Prerequisite(s): Departmental approval: admission to Mammography program.*

### **RADT-2620 Anatomy and Pathology of the Breast**

**1 Credit**

Anatomy, physiology and pathology of the breast, including benign and malignant conditions, stages of breast cancer and treatment options.

*Lecture: 1 hours*

*Prerequisite(s): Departmental approval: admission to Mammography program.*

### **RADT-2630 Positioning Techniques for Breast Imaging**

**1 Credit**

Provides a knowledge base of the various positioning techniques and projections used to perform screening and diagnostic mammography. Content consists of discussions about resolving imaging problems, selection of technical factors and national standards involved in breast imaging.

*Lecture: 1 hours*

*Prerequisite(s): Departmental approval: admission to Mammography program.*

### **RADT-2640 Physics of Mammography**

**1 Credit**

Study of physics of mammography, including instrumentation equipment, digital mammography, and the factors affecting the images and picture archiving and communications system (PACS).

*Lecture: 1 hours*

*Prerequisite(s): Departmental approval: admission to Mammography program.*

### **RADT-2650 Interventional and Special Imaging Procedures**

**1 Credit**

Study of sterile technique, infection control, interventional procedures and OSHA regulations as applicable to a breast imaging department.

*Lecture: 1 hours*

*Prerequisite(s): RADT-2610 Fundamentals of Mammography; and RADT-2620 Anatomy and Pathology of the Breast; and RADT-2630 Positioning Techniques for Breast Imaging, and RADT-2640 Physics of Mammography; and concurrent enrollment in RADT-2930 Mammography Applications.*

### **RADT-2660 MQSA and ACR Regulatory Standards**

**1 Credit**

An overview of the mammography departmental structure and essential personnel. Review of specific guidelines set forth by the regulatory agencies and accrediting bodies that closely monitor a facility's quality assurance and quality control program, which provide the foundation for quality patient services offered by a facility. Discussion of how these regulations affect the daily operations of a facility or services it provides.

*Lecture: 1 hours*

*Prerequisite(s): RADT-2610 Fundamentals of Mammography; and RADT-2620 Anatomy and Pathology of the Breast; and RADT-2630 Positioning Techniques for Breast Imaging, and RADT-2640 Physics of Mammography; and concurrent enrollment in RADT-2930 Mammography Applications. and concurrent enrollment in RADT-2930 Mammography Applications.*

### **RADT-2670 Mammography Quality Control**

**1 Credit**

Discusses minimum standards set forth by regulatory agencies that closely monitor a facility's Quality Assurance (QA) and Quality Control (QC) programs. Accreditation process and preparation for Food and Drug Administration (FDA)/Mammography Quality Standards Act (MQSA) inspection, as it relates to a breast imaging center.

*Lecture: 1 hours*

*Prerequisite(s): RADT-2610 Fundamentals of Mammography.*

### **RADT-2911 Clinical Radiography II**

**7 Credits**

Directed practice experience in the hospital environment. Competency-based training and evaluation on radiographic equipment and procedures. Emphasis on further development of medical imaging skills gained in Clinical Radiography I with expanded imaging capacities such as cranium, spine, surgical procedures, special contrast studies, and specialized procedures.

*Other Required Hours: Directed Practice: 576 hours; This includes 16 hours of embedded lecture delivered at the clinical site.*

*Prerequisite(s): RADT-1911 Clinical Radiography I, and departmental approval: admission to program.*

### **RADT-291A Clinical Radiography II-A**

**6 Credits**

Directed practice experience in the hospital environment. Competency-based training and evaluation on radiographic equipment and procedures. Emphasis on further development of medical imaging skills gained in Clinical Radiography I with expanded imaging capacities such as cranium, spine, surgical procedures, special contrast studies, and specialized procedures.

*Other Required Hours: Directed Practice: 496 hours; This includes 16 hours of embedded lecture delivered at the clinical site.*

*Prerequisite(s): RADT-1911 Clinical Radiography I or RADT-191A Clinical Radiography I-A and RADT-191B Clinical Radiography I- B, and departmental approval: admission to program.*

**RADT-291B Clinical Radiography II-B****1 Credit**

Directed practice experience in the hospital environment. Competency-based training and evaluation on radiographic equipment and procedures. Emphasis on further development of medical imaging skills gained in Clinical Radiography I with expanded imaging capacities such as cranium, spine, surgical procedures, special contrast studies, and specialized procedures.

*Other Required Hours: Directed practice 80 hours to be completed during the two week intersession.*

*Prerequisite(s): RADT-291A Clinical Radiography II-A and departmental approval: admission to program.*

**RADT-291S Clinical Radiography II****7 Credits**

Directed practice experience in the hospital environment. Competency-based training and evaluation on radiographic equipment and procedures. Emphasis on further development of medical imaging skills gained in Clinical Radiography I with expanded imaging capacities such as cranium, spine, surgical procedures, special contrast studies, and specialized procedures. This includes 16 hours of embedded lecture delivered at the clinical site.

*Other Required Hours: Directed practice: 576 hours.*

*Prerequisite(s): RADT-191S Clinical Radiography I, and departmental approval: admission to program.*

**RADT-2921 Clinical Radiography III****5 Credits**

Directed practice experience in the hospital environment. Competency-based training and evaluation on radiographic equipment and procedures. This is a capstone course in radiography to hone medical imaging and critical thinking skills in all imaging areas.

*Other Required Hours: Directed Practice: 400 hours; This includes 16 hours of embedded lecture delivered at the clinical site.*

*Prerequisite(s): RADT-2911 Clinical Radiography II, and departmental approval: admission to program.*

**RADT-292C Clinical Radiography III****1-3 Credits**

Directed practice experience in the hospital environment. Competency-based training and evaluation on radiographic equipment and procedures. This is a capstone course in radiography to hone medical imaging and critical thinking skills in all imaging areas.

*Other Required Hours: Directed Practice: 80 hours of directed practice at a clinical site per credit hour.*

*Prerequisite(s): RADT-2911 Clinical Radiography II, and departmental approval: admission to program.*

**RADT-292S Clinical Radiography III****7 Credits**

Directed practice experience in the hospital environment. Competency-based training and evaluation on radiographic equipment and procedures. This is a capstone course in radiography to hone medical imaging and critical thinking skills in all imaging areas. This includes 16 hours of embedded lecture delivered at the clinical site.

*Other Required Hours: Directed practice: 576 hours.*

*Prerequisite(s): RADT-291S Clinical Radiography II, and departmental approval: admission to program.*

**RADT-2930 Mammography Applications****3 Credits**

Supervised sessions emphasizing practical application of patient preparation and positioning for diagnostic, screening and interventional/ special procedure mammographic examinations to include appropriate technique, radiation protection and demonstration of professional and ethical skills. Performance, evaluation and documentation of quality control tests, as required by the Mammography Quality Standards Act (MQSA) and the American College of Radiology (ACR). Clinical experience in a mammography clinical environment for a total of 225 clinical hours which includes 8 hours of full-field digital mammography (FFDM) and 8 hours of digital breast tomosynthesis (DBT) training.

*Other Required Hours: Directed Practice: 225 hours per semester, not to exceed 24 hours per week.*

*Prerequisite(s): RADT-2610 Introduction to Mammography, and RADT-2620 Anatomy and Physiology of the Breast, and RADT-2630 Positioning Techniques for Breast Imaging, and RADT-2640 Physics of Mammography; and concurrent enrollment in RADT-2650 Interventional and Special Imaging Procedures, and RADT-2660 MQSA and ARC Regulatory Standards, and RADT-2670 Mammography Quality Control; or departmental approval.*

**RADT-297C Clinical Seminar****2 Credits**

Capstone seminar focused on the completion of American Registry of Radiologic Technologists (ARRT) structured education and clinical competency requirements with particular emphasis on credentialing, licensure, professionalism, employment and career development.

*Lecture: 2 hours*

*Prerequisite(s): RADT-2911 Clinical Radiography II, and departmental approval: admission to program.*