Radiologic Sciences (RA_SCI)

RA_SCI 3110: Radiography Procedures I
This course is an introduction to basic radiographic positioning and procedures. Specific radiographic procedures of the chest, upper extremity, shoulder girdle, pelvis and lower extremity are taught. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 3120: Fundamentals of Radiography
Orientation to radiology department, ethics, psychodynamics of patient care, medical legal considerations and radiation safety procedures.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 3130: Basic Radiographic Skills
Radiographic film processing techniques, intensifying screens and sensitometry will be discussed. The x-ray tube, x-ray production and some of the factors which affect the quantity and quality of the x-ray beam as well as the x-ray image will also be introduced.

Credit Hours: 2
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 3140: Principles in Radiographic Exposures
Theory and principles of X-ray technique; correlation of factors with application. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 3150: Radiologic Pharmacology
Pharmacological principles, biopharmaceutics, pharmacokinetics, pharmacodynamcis, drug classifications, drug names, administration routes, and infection prevention and control will be covered. Attention will be given to contrast agents relative to radiographic imaging. Ethical and legal implications will be explores.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 3160: Radiologic Physics
Fundamental physics of electricity and radiant energy; principles of generation of electromagnetic radiation and applicable equipment; and principles of digital image capture, display and storage.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 3170: Imaging Modalities
The study of radiographic and fluoroscopic equipment with attention to automatic exposure devices, image intensification, and imaging detectors. Consideration will be given to equipment in such modalities as computed tomography, magnetic resonance imaging, ultrasound, nuclear medicine and radiation therapy.

Credit Hours: 2
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 3180: Radiography Procedures II
Instruction in radiographic procedures of the upper and lower gastrointestinal system, urinary system, bony thorax, vertebral column, and cranium. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 3190: Radiography Procedures III
Instructions in advanced radiographic imaging techniques with emphasis in trauma radiography, vascular studies and other specialty radiographic procedures.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 3941: Clinical Education I
First in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing radiographic procedures of the chest, abdomen, and extremities.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 3942: Clinical Education II
Second in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing the development of technical skills and procedural knowledge of routine radiographic procedures,

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 4001: Topics in Radiography
Topics, issues, or review of research in any area of radiography and/or experimental development of new content areas.

Credit Hour: 1-6
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 4085: Problems in Medical Imaging
Supervise investigation in an aspect of medical imaging science usually culminating in a written report.

Credit Hour: 1-3
Prerequisites: instructor's consent

RA_SCI 4110: Sectional Anatomy
(cross-leveled with RA_SCI 7110). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on an A-F basis only.

Credit Hours: 3
Prerequisites: instructor's consent required

RA_SCI 4140: Magnetic Resonance Imaging: Physics and Procedures
(cross-leveled with RA_SCI 7140). Magnetic Resonance imaging fundamentals, applications, instrumentation, physical principles. Basic imaging concepts including positioning, scanning protocols, contrast imaging, anatomy review, and pathological considerations. Graded on A-F basis only.

Credit Hours: 6
Prerequisites: Acceptance into Radiologic Sciences

RA_SCI 4150: Computed Tomography: Physics and Procedures
(cross-leveled with RA_SCI 7150). Computed tomography imaging fundamentals, applications, instrumentation, physical principles. Applied concepts regarding patient care and CT imaging procedures. Graded on an A-F basis only.

Credit Hours: 6
Prerequisites: Acceptance into Radiologic Sciences

RA_SCI 4160: Vascular Interventional Radiography
(cross-leveled with RA_SCI 7160). This course is designed to provide students with a strong academic introduction to diagnostic and interventional procedures performed in the interventional radiology suite. The purpose of this course is to prepare students to undertake clinical experiences in a healthcare setting. Together, clinical training and this course will help to prepare students for the ARRT Vascular Interventional Radiography certification examination. Specifically, this course addresses the patient care, pharmacology, radiation safety, image acquisition, equipment, devices, and procedural considerations essential to the performance of advanced Vascular Interventional radiographic procedures. This course is designed for technologists with primary certifications in radiography, nuclear medicine, or radiation therapy through the ARRT or other ARRT-acceptable certifying organizations.

Credit Hours: 3
Prerequisites: Instructor consent

RA_SCI 4170: Cardiac Interventional Radiography
(cross-leveled with RA_SCI 7170). This course is designed to provide students with a strong academic introduction to diagnostic and interventional cardiovascular procedures performed in the cardiac cath lab. The purpose of this course is to prepare students to undertake exam performance in a clinical setting. Together, clinical training and this course will help to prepare students for the ARRT Cardiac Interventional Radiography certification examination and the CCI Registered Cardiovascular Invasive Specialist (RCIS) credentialing examination. Specifically, this course addresses the patient care, pharmacology, radiation safety, image acquisition, equipment, devices and procedural considerations essential to the performance of advanced Cardiac Interventional radiographic procedures. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Instructor Consent

RA_SCI 4303: Radiation Safety
(same as NU_ENG 4303; cross-leveled with RA_SCI 7303, NU_ENG 7303). Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

Credit Hours: 3

RA_SCI 4440: Organization and Administration
(same as RS_THR 4440, CDS 4440). Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medical-legal aspects, interdepartmental relations and curriculum development.

Credit Hours: 2

RA_SCI 4490: Image Analysis with Pathologic Considerations
This course focuses on understanding the visual representation of the anatomy, detecting sub-optimal demonstration of anatomical structures and the positioning alterations needed to correct underlying errors. Additionally, we will address the image features of radiographically significant pathologies and the technical adjustments necessary to optimally image patients with these pathologies. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 4490W: Image Analysis with Pathologic Considerations
This course focuses on understanding the visual representation of the anatomy, detecting sub-optimal demonstration of anatomical structures and the positioning alterations needed to correct underlying errors. Additionally, we will address the image features of radiographically significant pathologies and the technical adjustments necessary to optimally image patients with these pathologies. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 4943: Clinical Education III
Third in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing the transition to self-directed practice of routine radiographic procedures and the development of technical skills and procedural knowledge of more advanced radiographic procedures.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Science, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 4944: Clinical Education IV
Fourth in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing self-directed clinical practice and the development of technical skills and procedural knowledge of more advanced radiographic procedures and modalities.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 4944W: Clinical Education IV - Writing Intensived
Fourth in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing self-directed clinical practice and the development of technical skills and procedural knowledge of more advanced radiographic procedures and modalities.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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RA_SCI 4945: Clinical Education V
Final clinical course. Supervised clinical experience emphasizing self-directed performance of complex radiographic procedures, continued competency in routine diagnostic radiography and the investigation of advanced modalities, while transitioning to reflective, critical, and strategic professional practice.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Sciences students only

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RA_SCI 4946: Advanced Medical Imaging Externship
(cross-leveled with RA_SCI 7946). Supervised clinical experience in a medical imaging specialty with emphasis on patient care and technical practice.

Credit Hours: 3
Prerequisites: Instructor's consent required. Certification in a primary area of imaging. An affiliation agreement between the University of Missouri Radiologic Sciences Program and the clinical facility. Satisfactory completion of all Clinical Screening Requirements

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RA_SCI 4947: Radiography Overview
A comprehensive overview of all aspects of diagnostic radiology with emphasis on procedures, technique, radiation protection, positioning, radiographic anatomy and patient care.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program

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RA_SCI 4980: Imaging Pathology
Etiology and processes of disease. Emphasis on pathology of body systems and the manifestation of pathology through imaging.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program

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RA_SCI 4980W: Imaging Pathology - Writing Intensive
Etiology and processes of disease. Emphasis on pathology of body systems and the manifestation of pathology through imaging.

Credit Hours: 3
Prerequisites: Acceptance into Radiologic Sciences, Radiography Program

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RA_SCI 7110: Sectional Anatomy
(cross-leveled with RA_SCI 4110). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Instructor consent required

RA_SCI 7140: Magnetic Resonance Imaging: Physics and Procedures
(cross-leveled with RA_SCI 4140). Magnetic Resonance imaging fundamentals, applications, instrumentation, physical principles. Basic imaging concepts including positioning, scanning protocols, contrast imaging, anatomy review, and pathological considerations. Graded on A-F basis only.

Credit Hours: 6
Prerequisites: Instructor consent

RA_SCI 7150: Computed Tomography: Physics and Procedures
(cross-leveled with RA_SCI 4150). Computed tomography (CT) imaging fundamentals, applications, instrumentation, physical principles. Applied concepts regarding patient care and CT imaging procedures. Graded on an A-F basis only.

Credit Hours: 6
Prerequisites: Instructor's consent required

RA_SCI 7160: Vascular Interventional Radiography
(cross-leveled with RA_SCI 4160). This course is designed to provide students with a strong academic introduction to diagnostic and interventional procedures performed in the interventional radiology suite. The purpose of this course is to prepare students to undertake clinical experiences in a healthcare setting. Together, clinical training and this course will help to prepare students for the ARRT Vascular Interventional Radiography certification examination. Specifically, this course addresses the patient care, pharmacology, radiation safety, image acquisition, equipment, devices, and procedural considerations essential to the performance of advanced Vascular Interventional radiographic procedures. This course is designed for technologists with primary certifications in radiography, nuclear medicine, or radiation therapy through the ARRT or other ARRT-acceptable certifying organizations.

Credit Hours: 3
Prerequisites: Instructor consent

RA_SCI 7170: Cardiac Interventional Radiography
(cross-leveled with RA_SCI 4170). This course is designed to provide students with a strong academic introduction to diagnostic and interventional cardiovascular procedures performed in the cardiac cath lab. The purpose of this course is to prepare students to undertake exam performance in a clinical setting. Together, clinical training and this course will help to prepare students for the ARRT Cardiac Interventional Radiography certification examination and the CCI Registered Cardiovascular Invasive Specialist (RCIS) credentialing examination. Specifically, this course addresses the patient care, pharmacology, radiation safety, image acquisition, equipment, devices and procedural considerations essential to the performance of advanced Cardiac Interventional radiographic procedures. Graded on A-F basis only.

Credit Hours: 3
Prerequisites: Instructor Consent

RA_SCI 7946: Advanced Medical Imaging Externship
(cross-leveled with RA_SCI 4946). Supervised clinical experience in a medical imaging specialty with emphasis on patient care and technical practice.

Credit Hours: 3
Prerequisites: Instructor's consent required. Certification in a primary area of imaging. An affiliation agreement between the University of Missouri Radiologic Sciences Program and the clinical facility. Satisfactory completion of all Clinical Screening Requirements

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