Radiologic Sciences (RA_SCI)

**RA_SCI 1000: Introduction to Radiography**
Overview of radiography through small group discussions and onsite visitations in radiology departments. Graded on S/U basis only.

*Credit Hours: 1*

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**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.

*Credit Hours: 2*
*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 Exposure I**
Theory and principles of X-ray technique; correlation of factors with application.

*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, pharmacodynamics, 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 explored.

*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.

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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: 3*
*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.

*Credit Hours: 2*
*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 3460: Cardiovascular and Pulmonary Diagnostic Applications I**
(same as CDS 3460). Problem-based study of cardiopulmonary anatomy and physiology using current imaging methods. Emphasis given to assessment of the acutely distressed cardiac or pulmonary subject, emergency pulmonary support and vascular access techniques.

*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

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

**Credit Hours:** 1-3

**Prerequisites:** Instructor's consent

**RA_SCI 4110: Sectional Anatomy**
(same as DMU 4312; cross-leveled with RA_SCI 7110, DMU 7312).
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 an A-F basis only.

**Credit Hours:** 5

**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:** 5

**Prerequisites:** Acceptance into Radiologic Sciences

**RA_SCI 4303: Radiation Safety**
(same as NU_ENG 4303). 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 and 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:** 3

**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

**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

**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

**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

**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

**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

**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

RA_SCI 7110: Sectional Anatomy
(same as DMU 7312; cross-leveled with RA_SCI 4110, DMU 4312).
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: 5
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: 5
Prerequisites: Instructor's consent required

RA_SCI 7303: Radiation Safety
(same as 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 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