BHS in Clinical and Diagnostic Sciences with Emphasis in Radiography

Degree Program Description

Radiographers are medical imaging professionals who utilize ionizing radiation (X-rays) and strong magnetic fields to produce high-quality images of the body, aiding in the diagnosis and treatment of injury and disease. They independently perform a range of diagnostic imaging procedures, including general X-ray, magnetic resonance imaging (MRI), computed tomography (CT), mammography, and bone densitometry. In interventional procedures, such as cardiac and vascular imaging, radiographers collaborate with radiologists and other physicians to support therapeutic interventions. Radiographers find employment in hospitals, clinics, imaging centers, mobile services, research institutions, and various industries.

Program Mission

The Mission of the Radiography Program at the University of Missouri is to equip current and future imaging sciences professionals to achieve their personal and professional goals, meet workforce needs and improve health outcomes for our communities through the provision of exemplary diagnostic care. Our program and curriculum are designed to provide an educational foundation for the advancement into leadership and supervisory positions within medical imaging, as well as providing an environment where scholarly activity, professional development, and service are expectations.

Degree Program Options

Students can choose from two degree completion pathways based on their entry level and prior experience. The **Entry to Practice Program** is designed for students who are new to the field and seeking to become radiographers, providing both didactic coursework and clinical education. The **RT(R) Degree Advancement Option** is intended for credentialed radiologic technologists (RT[R]) looking to further their education and does not require a clinical component. However, students in this pathway may choose to enroll in the **Advanced Medical Imaging Externship** to gain clinical competencies in a specialized imaging modality.

Entry to Practice Radiography

The Radiography program is a **full-time, on-campus program** that consists of two years of prerequisite coursework followed by two years of professional coursework, including summer semesters. The professional phase integrates didactic instruction with clinical experiences at healthcare facilities **across the mid-Missouri region**. Students select one advanced imaging modality for a comprehensive education, with options including MRI, CT, and Cardiac/Vascular Interventional Radiography. After graduation, students may choose to enroll in the **Advanced Imaging Clinical Externship** to fulfill clinical requirements for certification in MRI, CT, or Cardiac/Vascular Interventional Radiography.

Graduates earn a **Bachelor of Health Science (BHS) degree in Clinical and Diagnostic Sciences with an emphasis in Radiography** and are eligible to sit for credentialing examinations administered by the **American Registry of Radiologic Technologists (ARRT)** (www.arrt.org (https://www.arrt.org/)).

Accreditation of the program is granted by:

The Joint Review Committee on Education in Radiologic Technology
20 North Wacker Drive, Suite 2850
Chicago, Illinois 60606-3182
(312) 704-5300
mail@jrcert.org

Entry to Practice BHS in CDS with an Emphasis in Radiography - Student Learning Outcomes

1. Students will demonstrate clinical and didactic competence as defined by the professional standards for radiography and the student's chosen advanced medical imaging area.
2. Students will provide safe, effective patient care.
3. Students will engage in effective written and oral communications.
4. Students will employ sound, independent judgment and successful problem-solving in completion of professional tasks.

RT(R) Degree Advancement

The fully online RT(R) Degree Advancement program is designed for ARRT-registered Radiologic Technologists (RT[R]) seeking a bachelor's degree. This program expands students' knowledge of the healthcare system while enhancing their patient care skills. Additionally, it provides graduates of associate degree radiologic technology programs with advanced training in leadership, management, research, and specialized imaging modalities, including CT, MRI, Cardiac Interventional Radiography, and Vascular Interventional Radiography. This flexible program equips radiologic technologists with the knowledge and skills to achieve their academic and professional goals.

RT(R) Degree Advancement - Student Learning Outcomes

1. Students will demonstrate advanced imaging skills by applying knowledge of radiologic pharmacology, sectional anatomy, and imaging modalities such as MRI, CT, and interventional radiography.
2. Students will develop digital and information literacy skills, including sourcing credible information, understanding neutrality and bias in research, and effectively revising and editing work based on feedback.
3. Students will communicate evidence-based healthcare information effectively to both professional and public audiences by demonstrating strong writing, digital literacy, and information literacy skills.
4. Students will apply management and leadership principles to identify organizational problems and propose evidence-based solutions.

Major Program Requirements

To earn the BHS in Clinical and Diagnostic Sciences with an emphasis in Radiography degree, students must meet degree and University requirements (https://catalog.missouri.edu/academicdegreerequirements/universityrequirements/), including University general education (https://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/) requirements. A separate application is required for admission to the program. Students are encouraged to

work with an advisor and the Radiography Program Director in order to best structure the pre-requisites and prepare for the program application. Students transferring from other institutions should contact the program director and work with an advisor to evaluate coursework and ensure they will meet the program's pre-requisite requirements. All students must complete all Program Pre-requisite courses below with a grade of C (2.0) or higher for admission to the BHS in Clinical and Diagnostic Sciences with an emphasis in Radiography program. Once admitted to the program, all Major Core Requirements must be completed with a grade of C (2.0) or higher, and students must maintain a 2.5 or higher GPA each semester while in the program.

Program Pre-requisites		**36**
ENGLSH 1000	Writing and Rhetoric	3
1000-level or higher Psychology course		3
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	4-5
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
or BIO_SC 1030	General Principles and Concepts of Biology with Laboratory	
or MICROB 2800	Microbiology for Nursing and Health Professions	
or MICROB 3200	Medical Microbiology and Immunology	
or BIO_SC 3750 & BIO_SC 3760	General Microbiology and Microbiology Laboratory	
MATH 1100	College Algebra	3-5
or MATH 1050	Quantitative Reasoning	
or MATH 1160	Precalculus Mathematics	
or MATH 1400	Calculus for Social and Life Sciences I	
or MATH 1500	Analytic Geometry and Calculus I	
CHEM 1400 & CHEM 1401	College Chemistry I and College Chemistry I Laboratory	4
or CHEM 1100	Atoms and Molecules with Lab	
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
MPP 3202	Elements of Physiology	5
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or STAT 2500	Introduction to Probability and Statistics I	
or ESC_PS 4170	Introduction to Applied Statistics	
CDS 2190	Medical Terminology	3
CDS 3100	Introduction to Research *Degree Advancement students must take as WI.	3
or HLTH_SCI 4200W	Introduction to The Research Process and Evidence Base - Writing Intensive	
Major Core Requirements - Entry to Practice		**65**
RA_SCI 3110	Radiography Procedures I	3
RA_SCI 3120	Fundamentals of Radiography	3
RA_SCI 3130	Basic Radiographic Skills	2
RA_SCI 3140	Principles in Radiographic Exposures	3
RA_SCI 3150	Radiologic Pharmacology	3
RA_SCI 3160	Radiologic Physics	3
RA_SCI 3170	Imaging Modalities	2
RA_SCI 3180	Radiography Procedures II	3
RA_SCI 3190	Radiography Procedures III	3
RA_SCI 4110	Sectional Anatomy	3
RA_SCI 4160 & RA_SCI 4170	Vascular Interventional Radiography and Cardiac Interventional Radiography	6
or RA_SCI 4140	Magnetic Resonance Imaging: Physics and Procedures	
or RA_SCI 4150	Computed Tomography: Physics and Procedures	
RA_SCI 4490W	Image Analysis with Pathologic Considerations	3
RA_SCI 4947	Radiography Overview	3
RA_SCI 3941	Clinical Education I	3
RA_SCI 3942	Clinical Education II	3
RA_SCI 4943	Clinical Education III	3
RA_SCI 4944	Clinical Education IV	3
RA_SCI 4945	Clinical Education V (Capstone option)	3
CDS 3200	Essentials of Pathology	3
CDS 4328	Radiation Safety and Biology	4
CDS 4985	Healthcare Organization and Leadership (Capstone option)	3
Major Core Requirements - RT(R) Degree Advancement		**15**
CDS 4985	Healthcare Organization and Leadership (Capstone)	3
or RS_THR 4440	Organization and Administration	
CDS 3100W	Introduction to Research - Writing Intensive	3
or HLTH_SCI 4200W	Introduction to The Research Process and Evidence Base - Writing Intensive	
RA_SCI 3150	Radiologic Pharmacology	3
RA_SCI 4110	Sectional Anatomy	3
RA_SCI 4140	Magnetic Resonance Imaging: Physics and Procedures	3-6
or RA_SCI 4150	Computed Tomography: Physics and Procedures	
or RA_SCI 4160	Vascular Interventional Radiography	
or RA_SCI 4170	Cardiac Interventional Radiography	

Professional Certification

Upon completion of the program, students are eligible to sit for the national certifying exam(s) given by the American Registry of Radiologic Technologists (ARRT (https://www.arrt.org/)). The RT(R) credential is required to begin the RT(R) Degree Advancement core courses.

Graduates may be required to apply for licensing in the state in which they choose to work.

Accreditation

The University of Missouri Radiography Program's Bachelor of Health Science in Clinical & Diagnostic Sciences with an emphasis in Radiography is accredited by:

> The Joint Review Committee on Education in Radiologic Technology (https://www.jrcert.org/)
> 20 North Wacker Drive, Suite 2850
> Chicago, Illinois 60606-3182
> (312) 704-5300
> mail@jrcert.org

Programmatic outcomes data (https://www.jrcert.org/programs/university-of-missouri-columbia-campus/) for entry into practice programs are available to the public on the JRCERT website.

Semester Plan

Below is a sample plan of study, semester by semester, for Entry to Practice students. A student's actual plan may vary based on course choices where options are available. An individualized semester plan

will be created for RT(R) Degree Advancement students by the CHS Academic Advisor.

First Year					
Fall	**CR**	**Spring**	**CR**		
BIO_SC 1010 & BIO_SC 1020	5	ENGLSH 1000	3		
MATH 1100 or 1050	3	CHEM 1100	4		
Humanities	3	STAT 1200 or ESC_PS 4170	3		
PSYCH 1000	3	2000+ level Humanities	3		
	14		**13**		
Second Year					
Fall	**CR**	**Spring**	**CR**	**Summer**	**CR**
HIST 1100, 1200, or POL_SC 1100	3	MPP 3202	5	RA_SCI 3110	3
PTH_AS 2201 & PTH_AS 2203	5	CDS 2190	3	RA_SCI 3120	3
Writing Intensive Humanities	3	CDS 3100	3	RA_SCI 3130	2
Behavioral/Social Science	3	Elective	3		
	14		**14**		**8**
Third Year					
Fall	**CR**	**Spring**	**CR**	**Summer**	**CR**
RA_SCI 3140	3	CDS 3200	3	RA_SCI 4943	3
RA_SCI 3150	3	CDS 4985	3		
RA_SCI 3160	3	RA_SCI 3170	2		
RA_SCI 3180	3	RA_SCI 3190	3		
RA_SCI 3941	3	RA_SCI 3942	3		
	15		**14**		**3**
Fourth Year					
Fall	**CR**	**Spring**	**CR**		
CDS 4328	4	RA_SCI 4140, 4150, or 4160 ***and*** 4170[+]	6		
RA_SCI 4110	3	RA_SCI 4945	3		
RA_SCI 4944	3	RA_SCI 4947	3		
RA_SCI 4490W	3				
	13		**12**		

Total Credits: 120

+ Course is taught solely on the internet.