

## **RADIOLOGIC SCIENCE MAJOR**

### **Bachelor of Science**

***Kristi Barnett, Program Director***

#### **Features of Distinction**

- Accredited by the Joint Review Committee on Education in Radiologic Technology
- Baccalaureate prepared graduates
- Two activated classroom laboratories and a CR digitizer on site
- Opportunities for advanced education and becoming multi-skilled in specialized imaging modalities
- Clinical rotations through a variety of health care settings, including a Level I Trauma Center, Cardiac Center, Pediatric Hospital, and Outpatient Facilities
- Highly selective program offers personal attention and low student/faculty ratio
- ASRT(R) to BSRT(R) Track offers opportunities for professional and educational advancement to practicing radiographers

#### **From the Faculty**

“Radiologic Science is the health profession involved in the direct administration of ionizing radiation for disease diagnosis and injury assessment. Since their accidental discovery in 1895, x-rays have been recognized as an essential tool designed to assist physicians in medical diagnosis. Technological advances and the addition of new imaging modalities now place radiologic sciences among the most dynamic and high-demand fields in clinical medicine.”

#### **Mission**

The primary mission/purpose of the Radiological Science Program is to provide challenging academic and clinical education for the development of the student as a compassionate, responsible, and multi competent radiology professional. The faculty is committed to: 1) educating students, in a liberal learning environment, for a life of productive work as a practicing radiographer, 2) guiding students on their journey to becoming life-long learners by modeling continued education, and 3) demonstrating the importance of service to the greater Charleston community.

#### **Accreditation**

The Radiological Science Program is accredited by the Joint Review Committee on Education in Radiological Technology (JRCERT). Contact information on the JRCERT is available at:

JRCERT  
20 North Wacker Drive, Suite 2850  
Chicago, IL 60606-3182  
(312) 704-5300  
[www.jrcert.org](http://www.jrcert.org)  
[mail@jcert.org](mailto:mail@jcert.org)

## Licensure

Radiologic Science Program graduates meet the academic and clinical requirements to be eligible to apply to take the American Registry of Radiologic Technology (ARRT) examination. Graduates who pass the ARRT examination are eligible to apply for the West Virginia state license to practice radiology. Application for licensure can be made at the West Virginia Medical Imaging & Radiation Therapy Technology Board in Cool Ridge, WV. Other states may have different criteria for licensure eligibility.

**Please Note:** Applicants should investigate his or her eligibility to sit for the American Registry of Radiologic Technologist Examination [ARRT - phone (651) 687-0048 or website <http://www.artt.org> before enrolling in the Radiologic Science program, or see the RADI Program Chair if they answer yes to the following questions:

- Have you ever been convicted of a misdemeanor, felony, or similar offense in a military court martial?
- Have you had any professional license, permit, registration, or certification denied, revoked, suspended, placed on probation, under consent agreement or consent order, voluntarily surrendered, or subjected to any conditions or disciplinary actions by a regulatory authority or certification board (other than ARRT)?
- Have you ever been suspended, dismissed, or expelled from an educational program that you attended in order to meet ARRT certification requirements?

The ARRT supports 23 ethical rules for practicing RTs that are found on their website.

## Admission

Students must first gain general admission to the University of Charleston prior to acceptance into the Radiologic Science Program. A visit to campus to meet with Admissions personnel and program faculty is strongly encouraged. The quota of applicants accepted and enrolled in the Radiologic Science Program is limited by the clinical facilities available.

- Applicants to the BS Radiologic Science Program must complete a minimum of 90% (34 credits) of the freshman year courses of the Radiologic Science Program (see curriculum). Students must achieve a grade of “C” or higher in RADI 101. Introduction to Radiologic Science and RADI 102 Radiation Physics. If a transfer student is accepted into the program, they must complete RADI 101 & RADI 102 with a “C” or higher. Failure to receive a “C” or higher in either course as a transfer or sophomore student will result in termination from the program.

- Students are admitted to the Radiologic Science Program in the fall semester of the SOPHOMORE YEAR after completing the required 30-37 credits. Admission may be based on a competitive point scale if there are more applicants than open slots.
- Applicants must have a cumulative grade point average of 2.7 or higher on a 4.0 academic scale.
- Each applicant is required to submit a satisfactory physical examination, including selected laboratory tests, and a current CPR certification card before the sophomore year. In addition, applicants must complete and pass a criminal background check for admission to the Radiologic Science program. Students who fail to submit or meet the minimum standards of the health examination and/or criminal background check may not be admitted to the Radiologic Science Program.
- The Department of Radiologic Science faculty reserves the right to evaluate all transfer credits.
- Students requesting to transfer into the Radiologic Science Program from other JRCERT accredited radiography programs (collegiate or certificate) will have all transcripts evaluated and advanced placement may be awarded. Additional departmental testing may be required to determine the student's retention level and placement. The Radiologic Science faculty will assess competency levels for advanced placement in the program. Contact the Department Chair for questions or more detailed information.
- Applications will be made available to prospective students in March and April with a completion due date of May 1<sup>st</sup>. Applicants to the Radiologic Science clinical component are evaluated on a competitive basis utilizing a point scale, which occurs at the end of the FRESHMAN YEAR. Points will be awarded for GPA scores (minimum 2.7), college credits completed, and for hours completed at the University. Additional point consideration will be awarded for students who have completed Associate or Baccalaureate degrees. All candidates who meet the program requirements will be reviewed by the admissions committee of the Radiologic Science Program and ranked based on the point scale.
  - **NOTE:** The point scale will be implemented if at the end of the freshman year the qualified student population exceeds the number of clinical openings available. Students are encouraged to strive for high academic achievement and professionalism to help secure their acceptance into the clinical radiography component. The number of clinical openings, which are scheduled to begin the sophomore year, will vary with each class; however, the target number will be approximately 18 students. Please contact Kristi Barnett, (304) 357- 4971, E-mail: [kristibarnett@ucwv.edu](mailto:kristibarnett@ucwv.edu) - Chair of Radiologic Science Department, or the University of Charleston, Office of Admissions for additional program information.

- Successful completion of science courses in high school and or college such as mathematics, biology, chemistry, physics, and human anatomy and physiology help academically prepare the student for the radiologic science curriculum.
- Applicants who read, write, and speak English as a second language must demonstrate proficiency in English skills. Additional testing of the applicant may be required before admission to the Radiologic Science Program.
- A personal interview with the Department of Radiologic Science Chair is recommended for all applicants to ensure that applicants fully understand the program and its requirements.
- Students admitted to the clinical component of the Radiologic Science Program will commit to between 25 and 38 contact hours per week depending on the number of support and institutional outcome courses completed prior to program entrance.
- Female applicants are required to review the radiography student pregnancy policy before entering the program.
- Applicants to the Radiologic Science Program are encouraged to review the student Radiologic Science Handbook before entering the program. Contact the Program Chair for details about receiving a copy. The Radiologic Science handbook will be reviewed in RADI 101.
- All health science students must complete a criminal background check prior to beginning the clinical component of the sophomore year. This is a confidential process required for compliance with Joint Commission on the Accreditation of Hospitals and Health Care Organizations.
- Each new Radiography class will begin in the fall semester of the sophomore year at the University of Charleston. Students accepted into the Radiologic Science Program will be notified by mail on or before May 30<sup>th</sup>.
- Students accepted into the Radiologic Science Program will be expected to attend clinical rotations during the shifts of 8:00 a.m. to 4:00 p.m. and 3:00 p.m. to 11:00 p.m. Students will not be scheduled on weekends or holidays observed by clinical facilities.
- Students will be expected to pay any fees associated with clinical readiness obligations such as criminal background checks and lab fees. Any costs associated with uniforms, CPR certification, parking, and textbooks are the responsibility of the student.

### **Admission Criteria and Technical Standards**

1. A Radiologic Science student works directly with sick patients and is frequently exposed to communicable diseases and infections; therefore, the applicant should be in good physical condition and free of communicable disease.

2. A Radiologic Science student must be capable of lifting patients, manipulating heavy equipment, including portable x-ray machines, and handling radiography accessories; therefore, the applicant must have full use of all four limbs and be able to grasp with at least one hand.
3. A Radiologic Science student must have the ability to remain mentally and physically alert to equipment malfunction, and safety hazard warning techniques such as, flashing lights, buzzers, fire alarm, smoke, emergency intercom, pages, monitoring the vital signs and assessing the patient; therefore, the applicant must have the ability to feel, see, hear, and smell.
4. A Radiologic Science student must be capable of long periods of concentration in selecting correct techniques, equipment and safety devices to assure maximum care and safety of the patient; therefore, the applicant should be able to exercise independent judgments under routine circumstances and stressful conditions.
5. A Radiologic Science student will be exposed to minimal amounts of ionizing radiation. Whereby, this may not cause biological changes in the individual, it can cause a harmful effect upon the gestation of a human fetus. Radiographers should take care not to expose the unborn to radiation while pregnant. (See pregnancy policy. A person who is pregnant may not meet the above criteria; however, a pregnant woman may apply and be accepted into the Radiologic Science Program.

### **ASRT(R) to BSRT(R) Concentration**

This concentration is designed to allow Registered Radiographers to complete requirements for the Bachelor of Science in Radiologic Science degree. The curriculum is planned depending upon the academic background of the individual. Students must meet all Institutional Learning Outcomes by course enrollment, transfer, portfolio, or independent learning plan.

### **Admission to the ASRT(R) to BSRT(R) Track**

The applicant must:

- Be eligible for admission to the University
- Hold current American Registry in Radiologic Technology (ARRT)
- Have an earned GPA of 2.7 minimum (on a 4.0 scale) on previous college coursework
- Show evidence of current CPR certification
- Show evidence of meeting clinical education setting's health requirements
- Complete criminal background check
- Document practical work experience

MATH 120	Intermediate Algebra	3 credits
HSCI 201 &201L	Health Care Assessment (unless work experiences substitutes)	3 credits
HSCI 312	Statistics for Evidence Based Practice (or equivalent)	3 credits
RADI 302	Cross Section Anatomy (unless work experiences substitutes)	1 credit
RADI 320-323L	Professional Specialization/Lab (unless specialty reg.)	2-5 credits
HSCI 401	Health Leadership & Mgmt. (unless work experience substitute)	3 credits
HSCI 302	Health Ethics & Policy	3 credits
HSCI 402	Research I	3 credits
RADI 420-423L	Specialization Clinical Lab (unless work specialty reg.)	3 credits
<b>Total</b>		<b>27 Credits</b>
General Education and Electives as determined by the student's individual program evaluation		Up to 53 credits
Prior Credit for Associate Degree/Diploma – Decision of Program Chair*		Approx. 60 credits

All other graduation requirements will be mandatory including the 30 credits of upper division coursework and resident coursework.

### Program Outcomes

To measure Radiologic Science Program effectiveness:

- Students/Graduates will demonstrate competence as an entry level radiographer.
- Students will demonstrate effective communication skills.
- Students/Graduates will employ critical thinking skills in professional practice.
- Students will model professionalism.

### Quantitative Program Data Benchmarks for the Joint Review Committee on Education in Radiologic Technology

Minimum quantitative outcomes are as follows:

- Graduates will earn degrees within four (4) years or less from date of program entrance.
- Five-year average credentialing examination (ARRT) pass rate must be 75% or higher.
- Five-year average job placement rate must be 75% or higher within 12 months of graduation.
- Program completion rate must be 60% or higher.
- Employer and graduate surveys will indicate 85% or higher satisfaction.

## What You Will Study

The Bachelor of Science in Radiologic Science degree consists of 122 credits, including 69 credits of Radiologic Science, 16 credits of Health Science core, 11 credits of Science and Mathematics, and 29 additional credits. Students will also complete approximately 1200 hours of clinical experiences. Coursework is based on a structure of 1 contact hour per credit hour for lecture courses. Clinical experiences are part-time experiences directly associated with didactic material of a course. The student receives one credit for every three hours of actual experience per week during a 15-week semester.

## Philosophy

The Radiologic Science faculty believes the practice of medical diagnostic imaging is both an art and a science; the art of human interactions and compassion, and the science of high technology used to produce diagnostic images. In recent decades the trend toward specialization has dominated the health care professions, and radiologic science is no exception. Yet, among its professionals, the current overriding perspective on its future direction is the need to become multi-skilled in order to provide patient care outside the purview of radiologic diagnosis and treatment.

This recognition of the need to expand the scope of practice has encouraged us to prepare students for the real world. A baccalaureate program must reflect advanced learning beyond the technical level and the baccalaureate level radiographer must possess and perform at a higher knowledge and skill level than the technical level. In addition, a baccalaureate degree program in radiologic science must offer upper-division courses within the professional discipline such as advanced patient assessment, expanded patient education, ethical practice, leadership roles, critical-thinking and problem-solving skills, research, and promote multi-credentialing in advanced imaging modalities. Our intention is to present the principles of radiologic science at the baccalaureate degree level in a challenging format that provides the student an opportunity for true personal and professional development.

The curriculum consists of lectures, seminars, demonstrations, online learning, Internet projects, group activities, laboratories at the University, and clinical experiences at nine Charleston area hospitals and outpatient centers. Students are reminded that the program is very structured. Students should consult closely with program faculty and major advisors to ensure that pre-requisites and the University of Charleston's Institutional Learning Outcomes are met.

## Bachelor of Science Degree in Radiologic Science - 2020-2023 Curriculum\*

FRESHMAN YEAR			
FALL SEMESTER		SPRING SEMESTER	
UNIV 104 College Motivation and Success	3	UNIV 105 Foundations of Character & Leadership	3
HUMN 1XX Humanities	3	RADI 102 Radiation Physics	3
RADI 101 Intro. To Radiologic Science	2	COMM 102 Freshman Writing II	3
BIOL 171 Fundamentals of Anatomy and Physiology	3	SPCH 103 Oral Communication Fundamentals	3
BIOL 171Lab Fundamentals of Anatomy and Physiology	1	BIOL 172 Fundamentals of Anatomy and Physiology II	3
COMM 101 Freshman Writing I	3	BIOL 172 Lab Fundamentals of Anatomy and Physiology II	1
<b>Total:</b>	<b>15</b>	<b>Total:</b>	<b>16</b>

SOPHOMORE YEAR			
FALL SEMESTER		SPRING SEMESTER	
PSYC 212 Life-Span Development	3	ENGL 2XX Literature	3
RADI 201 Radiographic Positioning I	3	RADI 211 Radiographic Positioning II	3
RADI 201L Clinical Lab I	3	RADI 211L Clinical Lab II	3
RADI 202 Osteology	3	RADI 212 Radiographic Exposure	3
MATH 120 Intermediate Algebra	3	HSCI 201 & 201L Health Care Assessment & Lab	3
<b>Total:</b>	<b>15</b>	<b>Total:</b>	<b>15</b>

JUNIOR YEAR			
FALL SEMESTER		SPRING SEMESTER	
RADI302 Cross Sectional Anatomy	1	RADI 304 Imaging Equipment	3
RADI 301 Radiological Positioning III	3	RADI 311L Clinical Lab IV / Pharmacology	6
RADI 301L Clinical Lab III	6	HSCI 312 Health Science Stats	3
RADI 311 Radiologic Pathology	2	RADI 498 Clinical Internship	1
RADI 320-324 Professional Specialization	3	HSCI 110 History of Health Sciences	3
<b>Total:</b>	<b>15</b>	<b>Total:</b>	<b>16</b>



SENIOR YEAR			
FALL SEMESTER		SPRING SEMESTER	
HSCI 402 Research I	3	RADI 410 Radiologic Science Senior Seminar	3
RADI 405 Radiation Biology	2	RADI 411L Clinical Lab VI	5
RADI 420-424L Specialization Lab	3	HSCI 401 Health Leadership & Management	3
RADI 401L Clinical Lab V	5	RADI 498 Clinical Internship	3
RADI 4XX Radiographic Digital Processing and Quality	3	Flex Elective	3
	<b>Total: 16</b>		<b>Total: 17</b>

*\*The curriculum is subject to change.*

**Grand total credits for graduation —125 credits.  
Total clinical hours – Approximately 1200 hours.**

### Additional Requirements

#### **Comprehensive Examination/Graduate Competencies**

All students who plan to receive a baccalaureate degree must pass a comprehensive examination during the final semester of the year of expected graduation. The examination for the Radiologic Science major will be prepared and administered by the Chair of the Department of Radiologic Science and the professor of Radiologic Science Senior Seminar course. Additional examinations will be provided for students who do not pass the first examination with an 85% or higher. Students must also complete all graduate level clinical competencies with 85% or higher. Students will not receive a diploma until this requirement has been achieved. Details of the written and practical examinations are available from the department chair.

#### **Policy for Professional Specializations**

Students will be required for graduation eligibility to select one major area of specialization, i.e., computed tomography, CT; magnetic resonance imaging, MRI; cardiovascular radiography CV; sonography; US or Mammography. The student may select one minor, mammography, M, in additional to one of the major areas listed above. Students will be enrolled in both didactic and clinical rotations courses as part of his other professional specialization. The Radiologic Science Department **CANNOT** guarantee the offering of each modality listed above in the event that a full-time RADI faculty member resigns from his/her position and a faculty member with the appropriate credentials is not available to teach the special modality.

The Radiologic Science faculty will make every attempt to grant students' requests with regards to specialization selections. Due to limited availability of clinical facilities, the student is NOT guaranteed his or her first choice in specialized modalities. Selections may be determined by the student's overall University grade point average.

Competency requirements will vary depending on the specialized area selected. Additional classes and or clinical education may be required after graduation from the Bachelor Degree Program at the University of Charleston to be job market prepared, state licensed, or eligible for certification in all specialized areas.

### **RADI Program Grading Scale:**

<b>A</b>	<b>92-100</b>
<b>B</b>	<b>85-91</b>
<b>C</b>	<b>84-84</b>
<b>D</b>	<b>75-79</b>
<b>F</b>	<b>&lt; 75</b>

### **Policies for Progression and Graduation**

Radiography students must achieve a minimum grade of “C” in all radiologic science (RADI) courses in order to enroll in the next course in the sequence or to be eligible for graduation. In any radiologic science course (RADI) in which the student earns less than a grade of “C”, the entire course, lecture and laboratory must be repeated to achieve a grade of “C” or higher. **NOTE:** All students must complete the entire Radiologic Science Program within a period of four years (48 months) from the time of the first enrollment in the clinical component of the curriculum. Candidates for the Radiologic Science degree who do not complete all requirements within a four-year period will be dismissed from the program.

At the conclusion of all semesters, except the semester immediately preceding graduation, radiography students with a grade point average below 2.0 will not be permitted to register for the next radiologic science course. Students with a grade point average between 2.0-2.2 will be placed on academic probation.

To be eligible for graduation, the Radiologic Science student will be required to develop, maintain and submit a portfolio for evaluation.

### **Policy for Holding Students**

Students enrolled in the University who have completed portions of the clinical component of the Radiologic Science Program, but are currently not enrolled in radiologic science courses may be readmitted to the radiography clinical component under the following conditions:

- The student must be academically admissible.
- The student must take all radiologic science courses in the sequence published in the Catalog.
- The student must have a minimum overall grade point average (GPA) of 2.0.
- The student must have completed all deficiencies with a “C” or higher.

- The student must otherwise meet all the conditions for any other student in the University.

### **Policies Governing Repeat of Radiologic Science Courses**

- Students requesting to repeat a radiologic science course must have a minimum overall grade point average of 2.0 before being re- admitted to a radiologic science course.
- Students may repeat a radiologic science course one time only.
- Students must state in writing their request to repeat any radiologic science course to the director of the Radiologic Science Program.
- Students must complete the Radiologic Science Program within four years (48 months) after admission to the clinical component of the Radiologic Science Program.
- Students may only repeat two (2) radiologic science courses because of academic failure. After the third failure, (“D” or “F”) in a radiologic science course, the student is dismissed from the Radiologic Science Program.

### **Physical Examinations / Background Check**

Each student entering the clinical component (sophomore year) is required to submit a satisfactory physical examination, including selected laboratory tests, criminal background check, and a current CPR certification card, before or at the time of admission to the clinical component of the Radiologic Science Program. Students who fail to meet minimum standards of the health examination/background check may not be admitted to the Radiologic Science Program. Students admitted to the program will be required to provide annual documentation of CPR re-certification, PPD, and flu vaccine and will be responsible for all associated fees.

### **Uniforms**

Students must purchase uniforms as designated by the Department of Radiologic Science. Information will be sent to students accepted into the clinical component and will be presented during student orientation. Addition information and dress code policies are contained within the RADI Student Handbook.

### **Insurance**

For protection of the radiography student, all students enrolling in the radiologic science clinical component will be required to carry medical malpractice insurance for the entire period they are enrolled in the clinical courses. This insurance will be provided by a group policy written for the University. All arrangements are made by the administration. The student pays the allocated premium, which the University will collect.

Radiography students enrolled in the clinical component of the Radiologic Science Program are strongly encouraged to carry personal health and accident insurance.

### **Transportation**

The Radiologic Science sophomore, junior, and senior students must provide their own transportation to and from all clinical education settings (hospitals). In addition, students should expect to pay for parking at the hospitals.

### **Other Expenses**

Students in the Radiologic Science Program may incur expenses related to participation in state and national conferences; however, opportunities for fund raisers may be available to help offset the costs.