

The logo for California State University Northridge (CSUN) is displayed in a large, bold, red serif font. The letters are closely spaced and have a classic, slightly ornate appearance.A thin, solid black vertical line is positioned to the right of the CSUN logo, separating it from the university's name.

CALIFORNIA
STATE UNIVERSITY
NORTHRIDGE

A large, light grey rectangular area serves as a background for the section header text.

**BS Radiologic Science
Information Packet**

Thank you for your interest in the CSUN BS Radiologic Sciences Program. The large number of requests that we receive prevents a personal response. We hope this brochure will provide you with enough information to answer your initial questions about the professional program.

WHY CSUN BSRS?

Out of all accredited BS Radiologic Sciences Programs in the United States, only 36 are entry level Bachelor of Science in Radiologic Sciences (BSRS) Programs. Within the BSRS Programs, the California State University, Northridge (CSUN) Radiologic Sciences Program is unique in that it requires both academic and clinical competencies in all of the following advanced imaging areas: Magnetic Resonance Imaging (MRI), Computed Tomography (CT), Interventional Radiology (IR), Cardiac Catheterization, Mammography, and Education. The BSRS graduate has more opportunities for entry and advancement in the field.

TABLE OF CONTENTS

Introduction 3

BS Radiologic Sciences Program Mission Statement 3

BS Radiologic Sciences Program Goals 3

General Program Information 4

Application and Acceptance Process 5

Background Checks for Student Clinical Placement 5

Radiology Department Tour 6

Volunteer Hours 6

Academic Eligibility 6

Prerequisite Coursework 7

Selection Criteria 7

Important Deadlines 7

Advisement 8

Information for Currently Licensed and Certified Radiologic Technologists 8

Course Descriptions of Professional Coursework 9

BS Radiologic Sciences Program Course Schedule 12

BSRS Technical Standards (physical requires of the Job 14

Steps for Completion 15

WHAT IS RADIOLOGIC SCIENCES OR RADIOGRAPHY?

Radiologic Sciences is a rapidly expanding health care profession whose practitioners (Radiographers/Radiologic Technologists) work in many areas of the medical community. A Radiographer, as a member of the allied health team, must be able to perform a variety of humanitarian and technically oriented services.

The Radiographer works directly with the patient and physician, performing sophisticated diagnostic x-ray procedures. The Radiographer must know the principles of x-ray and radiation safety, the operation of many types of equipment, the technique of obtaining specific radiographic exposures, image and film processing, and the professional handling and care of patients. Graduates of the CSUN BSRS Program receive a diverse educational background, as well as greater opportunities for advancement and mobility within the profession of Radiologic Sciences. In addition to proficiency in general radiography, RS Program graduates are educated in a variety of specialized imaging procedures, including Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Interventional and Cardiovascular Imaging. These images are then used by the physician to diagnose potential diseases.

RADIOLOGIC SCIENCES PROGRAM MISSION STATEMENT

The mission of the California State University, Northridge baccalaureate Radiologic Sciences program is to provide the community with a competent, professional Radiologic Technologist who possesses additional advanced medical imaging skills in MRI, CT and Interventional Radiography that meet the needs of the medical imaging community through a highly integrated and advanced level academic and clinical curriculum.

RADIOLOGIC SCIENCES PROGRAM GOALS

Graduates of the Radiologic Sciences Program at California State University, Northridge will:

1. Demonstrate a mastery of basic radiographic medical-imaging skills and advanced medical imaging skills in MRI, CT, and Interventional Radiography.
2. Demonstrate effective communication skills that provide compassionate and age-appropriate patient care.
3. Demonstrate problem-solving/critical-thinking skills that provide ethical and safe patient care.
4. Demonstrate the value of professional development for patient care and medical imaging through life-long learning that meets the needs of the medical imaging community.
5. Maintain program effectiveness through continual assessment.

General BSRS Program Information

The BS Radiologic Sciences degree is offered as one of several degrees in the Department of Health Sciences, under the College of Health and Human Development. The BS Radiologic Sciences Program is accredited by the Joint Review Committee on Education in Radiologic Sciences and the California Department of Health, Radiologic Health Branch. A primary objective of the Department of Health Sciences is to develop the abilities of students who will be prepared specifically for careers in the health professions. In keeping with this goal, the Radiologic Sciences Program provides students with a broad-based general education and the advanced skills necessary to become a medical radiographer and an advanced medical imager.

The BS Radiologic Sciences Program is an entry level in Radiologic Sciences Bachelor's Degree. Therefore, the student must meet both the graduation requirements for a Bachelor of Science (B.S.) Degree in Radiologic Sciences and the clinical education requirements for medical imaging. This clinical education or internship is comprised of 2600+ hours of practical experience during the two-and-a-half years of study. Clinical hours will be completed according to a structured schedule in the Radiology Departments of the affiliated major sites, which include Northridge Hospital Medical Center, VA Greater Los Angeles Healthcare System, Henry Mayo Newhall Medical Center, UCLA Medical Center, Valley Presbyterian Hospital and at the minor affiliate Radiology Departments at Shriners Hospital for Children at Los Angeles, Providence Holy Cross Medical Center, USC Outpatient Center, Olive View Medical Center, Cedars-Sinai Medical Center, Keck Hospital of USC, Children's Hospital of Los Angeles and Simi Valley Hospital. Satisfactory completion of both, the BSRS degree and the clinical requirements of the program, qualifies the student to take the state and national exams. The fundamental education which qualifies the student for the national certification examination can also be obtained from a 2-year accredited junior college-based Radiologic Technology Program. CSUN covers the basic material for diagnostic imaging in 12 months and the remaining 18 months is in advanced imaging.

The B.S. degree RS program offered at CSUN goes beyond the basic level of education found in the junior college programs. The CSUN BS Radiologic Sciences Program provides its graduates with a more diverse educational background with greater opportunities for advancement and mobility within the profession. In addition to proficiency in general radiography, B.S. degree graduates find themselves well acquainted with many new and specialized imaging procedures available in this rapidly advancing field. These include Computed Tomography, Magnetic Resonance Imaging, Interventional Radiography, Cardiovascular Imaging and Mammography. All curriculum and lab requirements for the California State Fluoroscopy permit are included in the following BSRS courses: Physics 376, HSCI 182, HSCI 482 and HSCI 385.

The objective of the program is to combine the fundamentals and techniques of Radiologic Technology with a general college education. The curriculum is relevant to preparation for employment in the various sub-specialties of Radiologic Sciences, such as:

- General Diagnostic Radiography
- Emergency and Trauma Radiography
- Special Procedures
- Interventional Radiography (IR)/Cardiovascular Imaging
- Computed Tomography (CT, CAT)
- Education
- Pediatrics
- Mammography

The curriculum of the BSRS Program also allows for a great deal of vertical mobility. Several options include:

- Radiologic Sciences Education
- Graduate School eligibility (Radiologic Sciences, Public Health, Health Administration, Environmental and Occupational Health, Education)
- Commercial Companies (Technical Specialist)
- Administration (Radiology Manager)
- Radiation Protection Specialist (state or local agencies)

Salaries for Radiologic Technologists compare with those in other professions requiring similar preparation. They vary according to geographic location, institutional policies and personal qualifications. Average salaries within our area are:

- Recent graduates of four-year or certificate programs: \$48,000 to \$65,000 per year.
- Supervisors, Teachers and Consultants: \$65,000 to \$80,000 per year.
- Experienced, high-level Radiologic Technologists in clinical, consultative, educational or administrative positions: \$70,000 to \$95,000 per year.

Application and Acceptance Process

Admission to CSUN and admission to the BS Radiologic Sciences Professional Program are separate procedures requiring two separate applications. Students must first apply and gain admission to CSUN before applying to the BSRS professional program.

Procedure for gaining admission to CSUN:

1. Write to the Office of Admissions for an application form: Admissions and Records, California State University, Northridge, 18111 Nordhoff Street, Northridge, CA 91330, **or go online to www.csun.edu**.
2. Submit the application for admission along with the processing fee directly to the Admissions and Records Office prior to November 1st for the following fall semester, and check the CSUN website for application deadline changes for the spring semester. Specify your major as Radiologic Sciences, Hegis Code #12251 and SIMS Code #342180.
3. Have the transcripts of all previous college course work sent directly to the Admissions and Records Office at CSUN.
4. If you live outside the area, you must seek on-campus advisement before submitting your CSUN application, only students who have been advised will be granted a Tier 2 exception (out of area).

During your prerequisites semesters, you should meet with a BS Radiologic Sciences academic advisor to determine your eligibility to apply to the BS Radiologic Sciences Program. You can make an appointment with an advisor through the Department of Health Sciences office at (818) 677-4081 or go directly to www.setmore.com. Applicants must have a **one-on-one advisement with a dedicated BSRS advisor** before November 15th of the semester before you submit the BSRS program application.

If you are completing prerequisites at your local community college, please meet with the CSUN RS advisor at least one year before your planned transfer to CSUN. The advisor will confirm that all the prerequisite courses and requirements have been fulfilled. Out of state students need to contact the Health Science department for advisement requirements.

If the BS Radiologic Sciences advisor determines that you are eligible to apply, the procedure is as follows:

1. Go to the BSRS homepage (<http://www.csun.edu/health-human-development/health-sciences/radiologic-sciences>) and print up an RS application or, request a Radiologic Sciences Application Packet from the Department of Health Sciences. Complete all portions and return it to: Program Director, Radiologic Sciences Program, Department of Health Sciences, California State University, Northridge, 18111 Nordhoff Street, Northridge, CA 91330-**8285** BEFORE the second Friday in January of the application year.
2. Send a second copy of your college transcripts directly to the Department of Health Sciences in order to complete your supplementary Radiologic Sciences application.

Background Checks for Student Clinical Placement

The use of background checks on individuals working in clinical settings is one of the mechanisms that agencies use to help protect their clients/patients. While obtaining background checks on employees is not new for clinical agencies, The Joint Commission (TJC) has recently added to its Human Resources Standards (HR.1.20) a section related to clinical background checks for all persons placed or employed in an accredited facility. Therefore, all CSUN clinical hospital affiliates are requiring background checks on all students placed at their facilities and have the right to reject a student based upon information gleaned from these background checks.

All CSUN BSRS students will be required to obtain their own background check and supply their personal identification code to the clinical sites for review of their criminal background check prior to the 1st day in June, of the year they have applied for professional placements. This is necessary to ensure that the background check is reviewed by each facility's Human Resources department for acceptance or rejection prior to professional BSRS program placement. A student may purchase this background check service by going online and subscribing to one of the service providers identified as acceptable by the affiliate site. The RS faculty will not be responsible for obtaining or monitoring the background checks on individuals. **Students not successfully cleared for placement at CSUN BSRS affiliate hospitals will not be eligible to complete the degree in Radiologic Sciences.** It is recommended that students obtain a background check as soon as possible. Print at least 10 copies of your background check for use throughout the program's clinical placements after you have been selected to enter the professional BSRS program.

Radiology Department Tour

All interested students are welcome to take a tour of one of our affiliate departments. Prior to submitting the application for the professional program, **you must have had a tour** of the facilities at either Northridge Hospital Medical Center (NHMC), VA Greater Los Angeles Healthcare System, or Valley Presbyterian Hospital (VPH).

Tours are conducted during the fall and spring semesters as well as the winter interim and summer sessions. To schedule an appointment for a tour at one of our facilities, please call any one of the three facilities indicated below. Ask for the Clinical Coordinator. Be sure to ask for directions when you call and dress in a professional manner for the tour.

Facility	Clinical Coordinator	Phone number
Northridge Hospital (NHMC)	Lisa Naugle	(818) 885-8500, extension 2628
VA Greater Los Angeles Healthcare System (VAGLAHCS)	Lisa Grate	(310) 268-3657
Valley Presbyterian Hospital (VPH)	Humberto (Tiddo) Payan	(818) 902-2957

Volunteer Hours

All BSRS professional program applicants must have completed at least 40 hours of volunteer hours (**100+ hours will give maximum points for interview criteria for motivation**) in a Medical Center prior to the interview. These hours should include shadowing a technologist in the Radiology department or Emergency Department. If you have questions, contact an BSRS advisor.

Academic Eligibility

To be eligible for consideration for acceptance into the professional Radiologic Sciences Program, an applicant must:

1. Provide evidence of satisfactory student status at CSUN.
2. Have completed or be in the process of completing all required prerequisite courses.
3. Have taken a tour of NHMC, VAGLAHCS or VPH.
4. Have done a one-on-one campus advisement with a dedicated BSRS advisor by the end of the fall semester before the RS program application submission deadline
5. Submit BSRS application to the Department of Health Sciences by the second Friday in January. All forms in the application and supporting documentation must be completed, which include:
 - a. A completed BS Radiologic Sciences Program application.
 - b. All official transcripts.
 - c. Evidence of student status at CSUN (i.e. student I.D. number or university letter of acceptance)
 - d. Evidence of volunteer hours in a hospital, if completed (minimum of 40 hours).

6. Interview with the BS Radiologic Sciences Selection Committee.
7. Evidence of medical insurance coverage (will be required, if you are selected to enter the professional program).
8. BLS CPR card for the Healthcare Provider by American Heart Association (will be required, if you are selected to enter the professional program).
9. Background check (will be required, if you are selected to enter the professional BSRS program).
10. Ten- Panel Drug Test (will be required, if you are selected to enter the professional BS RS program).

Applications **will not be eligible** for processing, if the candidate has one of the following:

1. A grade point average (GPA) of lower than 2.50 for prerequisite courses or as an overall GPA.
2. A grade of C- or below in any required prerequisite course.
3. A grade of C- or below in any Health Science Core course (HSCI 390 & HSCI 488), if taken.
4. More than 3 courses of GE, Upper Division Health Science Core, or Title V course work to complete by spring of the year you are applying (no summer school).

NOTE: All prerequisite courses in process at the time of final review of the application will be computed in the GPA as a C.

Prerequisite Coursework

Currently, the prerequisite courses or their approved equivalents (i.e., by articulation agreements with community colleges or other institutions) are:

Bio 101*	General Biology and Lab**	(4)
Bio 211-212L	Human Anatomy	(3)
Bio 281	Human Physiology	(3)
Math 105*	Pre-Calculus (or Math 102 plus 105)**	(5)
Chem 100*	Principles of Chemistry	(3)
Phys 100A	General Physics I	(4)
Phys 100B & BL	General Physics II & Lab**	(4)
Soc 150*	Introductory Sociology**	(3)
Psych 150*	Principles of Human Behavior**	(3)

*Ask the RS advisor about acceptable alternatives.

** Double count towards G.E.

Comparable coursework successfully completed at other institutions will be evaluated on an individual basis.

Selection Criteria

Factors considered in selection are: overall GPA, prerequisite GPA and Interview scores.

Important Deadlines

Second Friday in January	Deadline for all application materials (<i>must have met with a BSRS advisor one-on-one and completed the hospital tour prior to submission of the BSRS application</i>)
Feb/March/April	Interviews (<i>40 minimum volunteer hours must be completed before the interview</i>)
May	Selection meetings and notification of acceptance or rejection

Advisement

Records are maintained in the Department of Health Sciences on all pre-professional Radiologic Sciences students. Therefore, you must contact the Department of Health Sciences office at (818) 677-4081 to schedule RS advisement or complete online advisement with evidence of completed module tests.

Students must have one-on-one advisement with a dedicated BSRS advisor before the end of the fall semester before they submit the BSRS professional program application. We urge you to make an early appointment for counseling. BSRS advisors will be happy to assist you in projecting your program toward a satisfying educational experience.

To graduate, 126 units are needed. Within these units, the student must complete General Education requirements, Lower Division prerequisites (pre-radiologic sciences), the California Government and History (Title V) requirement, Health Science Upper Division Core requirements, the professional Radiologic Sciences courses which includes over 2600 hours of clinical education.

If the prerequisite courses are not offered at the institution the student is currently attending, it is suggested that the student transfer to CSUN prior to his/her sophomore year.

Estimate of expenses for the professional program, excluding room, board and transportation fee can be found on the CSUN website for the final 2-1/4 years of the professional program (5 semesters and 2 summers).

More complete information about the university and general education requirements can be obtained from the CSUN website at www.csun.edu, and the university's catalog found under quick links.

Information for Currently Licensed and Certified Radiologic Technologists

If you are currently an ARRT registered Radiographer, you may qualify for unit credit toward your degree. Many California community college radiologic science programs are articulated with California State University, Northridge. If you are a graduate of one of these programs, you will get full credit for your associate degree and professional coursework. If you are a graduate of a non-articulated program and are certified by the American Registry of Radiologic Technologists, you will not be required to repeat the entry-level coursework or clinical education you have completed.

Eligibility for clinical credit requires:

1. A program application filed with the Director of the Program.
2. Copies of ARRT certification filed with the Director.
3. Official Transcripts from the WASC accredited college.

Unit credit will be given only to CSUN Radiologic Sciences majors.

The evaluation of other applicable coursework for credit toward the degree will be done on an individual basis.

The BSRS degree offers an in-depth study of radiography for those individuals wishing to advance into education, administration, advanced imaging or other opportunities for Radiographers in the private sector. It includes in its academic coursework topics such as: the physics and electronics of radiographic equipment, special procedures, educational methodologies, pathology, and the newer imaging modalities of Computed Tomography, Vascular Imaging and Magnetic Resonance Imaging. The Radiologic Sciences Program has developed certificate programs in advanced imaging for Mammography, Magnetic Resonance Imaging, Computed Tomography and Interventional Radiography. These certificates will contain subsets of the Bachelor of Science degree for specific modalities.

For the CT and MRI certificate program offered through CSUN's Tseng College for ARRT (R)'s go to <http://tsengcollege.csun.edu/programs/radiologictechnologyprograms>

Course Descriptions of Professional Coursework

Lower Division:

HSCI 181 – MEDICAL IMAGING I (3)

Prerequisite: Acceptance into the Radiologic Sciences Option or consent of instructor.

An introduction to the role of the Radiologic Technologist. A study of the function and manipulation of equipment and technical factors used in the production of x-rays and in imaging systems used within radiology. Includes a progressive series of radiographic exercises in preparation for clinical experience.

HSCI 182 – MEDICAL IMAGING II (3)

Prerequisites: HSCI 181, 280, 285, Physics 376 or ARRT Certification. Corequisite: HSCI 281.

A study of imaging modalities and equipment utilized in Radiology. Includes a progressive series of exercises involving radiation protection procedures, problem-solving techniques and quality assurance programs to be used during clinical education. Considers the manipulation and use of body section Radiography, phototiming, image intensification and stereoscopic equipment.

HSCI 280 – RADIOLOGIC TECHNOLOGY: CLINICAL EDUCATION I (2)

Prerequisite: Acceptance into the Radiologic Sciences Program. Concurrent enrollment in HSCI 285.

Orientation and introduction to clinical education in medical Radiography. At an affiliated hospital, each student participates with direct supervision in selected darkroom, clerical and basic radiographic procedures. Includes lectures in hospital organization, departmental administration and medical ethics.

HSCI 281 – CLINICAL EDUCATION II (2)

Prerequisites: HSCI 181, 280, 285, Physics 376 or ARRT Certification. Corequisite: HSCI 182, 286, 385.

Clinical participation in the Radiology Department of an affiliated hospital. Includes patient positioning, manipulation of exposure factors, film analysis and methods of patient care.

HSCI 282 – CLINICAL EDUCATION III (3)

Prerequisites: HSCI 182, 281, 286, 385, or ARRT Certification.

Clinical participation in the Radiology Department of an affiliated hospital. Includes patient positioning, manipulation of exposure factors, film analysis and methods of patient care.

HSCI 283 – CLINICAL EDUCATION IV (3)

Prerequisites: HSCI 182, 281, 282, 286, 385, or ARRT Certification. Corequisite: HSCI 380, 384, 480, 482..

Clinical participation in the Radiology Department of an affiliated hospital. Includes patient positioning, manipulation of exposure factors and advanced film analysis.

HSCI 284 – CLINICAL EDUCATION V (3)

Prerequisites: HSCI 283, 380, 384, 480, 482, or ARRT Certification. Corequisite: HSCI 302, 485, 487.

Clinical participation in the Radiology Department of an affiliated hospital. Includes patient positioning, manipulation of exposure factors and advanced film analysis.

HSCI 285 – RADIOGRAPHIC ANATOMY AND POSITIONING I (4)

Prerequisite: Acceptance into the Radiologic Sciences Program. Biology 211, 212.

A comprehensive modular approach to radiographic positioning of the appendicular skeleton, vertebral column, chest and abdomen with emphasis on the associated anatomy, physiology, patient care, and medical terminology.

HSCI 286 – RADIOGRAPHIC ANATOMY AND POSITIONING II (4)

Prerequisites: HSCI 181, 280, 285, Physics 376 or ARRT Certification. Corequisite: HSCI 281.

Methodologies and elements of pediatric radiology GI, GU, Gauma; in-depth positioning of the skull, facial bones, paranasal sinuses, mastoids, intraoral and extraoral radiography; continuation of advanced film analysis.

HSCI 302 – PATHOPHYSIOLOGY (3)

Prerequisites: HSCI 283, 380, 384, 480, 482, or ARRT Certification. Corequisite: HSCI 284.

Study of abnormal functioning of neuromusculoskeletal, circulatory, respiratory, digestive, integumentary, metabolic and endocrine systems. Includes causes of disease, inflammatory response and immune system.

PHYSICS 376 – RADIOLOGIC PHYSICS (3)

Prerequisites: Physics 100A, 100B and 100BL, or consent of instructor.

A specialized course devoted to the nature and production of x-radiation. Topics covered include the interaction of radiation with matter, attenuation of x-rays and the principles behind radiographic equipment and components.

HSCI 380 – CROSS-SECTIONAL ANATOMY (2)

Prerequisites: HSCI 182, 281, 282, 286, 385 or ARRT Certification. Corequisite: HSCI 283.

Introduction to cross-sectional and three-dimensional anatomy. Lectures pertinent to Radiologic Sciences.

HSCI 382 – MAMMOGRAPHY (3) [ELECTIVE]

Prerequisite: CRT (R) certificate or senior status in an accredited RT Program.

A study of breast anatomy, physiology and pathology with an emphasis on the use of Mammography in the detection of breast cancer. The course includes equipment, imaging techniques and quality control techniques. Successful completion of this course qualifies the student to sit for the state Mammography exam.

HSCI 384 – COMPUTERS IN DIAGNOSTIC IMAGING (2)**[ALSO EARNS UPPER DIVISION G.E. CREDIT]**

Prerequisites: HSCI 182, 281, 282, 286, 385 or ARRT Certification. Corequisite: HSCI 283.

Study of state-of-the-art equipment and procedures available to radiology departments. Focuses on computer software, algorithms and digitization of imaging data. Topics prepare the student for specific computer applications in advanced imaging course work for MRI, CT and Digital Subtraction Angiography. Clinical applications and processes that highlight the course content are conducted at affiliated medical centers.

HSCI 385 – QUALITY ASSURANCE IN RADIOLOGY (2)

Prerequisites: HSCI 181, 280, 285, Physics 376 or ARRT Certification. Corequisite: HSCI 281.

A complete quality assurance program for the Radiology Department.

HSCI 386 – CLINICAL EDUCATION VI (3)

Prerequisites: HSCI 284, 302, or ARRT Certification.

Clinical participation in the radiology department of an affiliated hospital. Includes patient positioning, manipulation of exposure factors and advanced film analysis. Advanced imaging techniques in MR, CT, IR and Cardiac Cath are included. (Max enrollment of 24) (Offered summer semester)

HSCI 387 – CLINICAL EDUCATION VII (3)

Prerequisites: HSCI 386, or ARRT Certification. Corequisite: HSCI 483A.

Clinical participation in the radiology department of an affiliated hospital. Includes patient positioning, manipulation of exposure factors and advanced film analysis. Advanced imaging techniques in MR, CT, IR and Cardiac Cath are included. (Max enrollment of 24) (Offered fall semester)

EOH 467 – RADIOLOGIC HEALTH (3) [ELECTIVE]

Prerequisite: Completion of basic science core, including Physics 100B and 100BL.

Comprehensive coverage of ionizing radiation with emphasis on health effects, measurement and protection.

HSCI 480 – COMPUTED TOMOGRAPHY (2)

Prerequisites: HSCI 182, 281, 282, 286, 385 or ARRT Certification. Corequisite: HSCI 283.

The principles of Computed Tomography will provide the Radiologic Sciences student with a broad understanding of the applied physics and imaging techniques used in clinical computed tomography imaging. The course will overview all five generations of

Computed Tomography imaging. Clinical applications and processes that highlight the course content will be conducted at the Radiologic Sciences Program's affiliate medical centers.

HSCI 482 – ANGIOGRAPHY AND INTERVENTIONAL PROCEDURES (3)

Prerequisites: HSCI 182, 281, 282, 286, 385 or ARRT Certification. Corequisite: HSCI 283.

Radiographic examinations involving surgical procedures and specialized equipment.

HSCI 483A – MEDICAL IMAGING PATHOLOGY (2)

Prerequisites: HSCI 284, 302, or ARRT Certification. Corequisite: HSCI 387.

Understanding the basic principles of pathology is an essential part of the radiologic technologist's training. Knowing how disease processes work and recognizing the radiographic appearance of specific diseases can aid the technologist in selecting proper modalities and determining the need for repeat radiographs in different situations. This kind of knowledge enables the radiologic technologist to become a more competent professional and contributing member of the diagnostic team.

HSCI 485 – PRINCIPLES OF MAGNETIC RESONANCE IMAGING (3)

Prerequisites: HSCI 283, 380, 384, 480, 482, or ARRT Certification. Corequisite: HSCI 284.

The principles of Magnetic Resonance Imaging will provide the Radiologic Sciences student with a broad understanding of the applied physics, imaging techniques and imaged anatomy/pathology used in clinical Magnetic Resonance Imaging. Clinical applications and processes that highlight the course content will be conducted at the Radiologic Sciences Option's affiliate medical centers.

HSCI 486A – SEMINAR: ADVANCES IN RADIOLOGIC IMAGING I (1)

Prerequisites: HSCI 181, 280, 285, Physics 376 or ARRT Certification.

Research of diagnostic, interventional or therapeutic processes being developed or used in Radiologic Imaging for the purpose of improving the health and/or well-being of the patient population. Students work under the guidance of the instructor to research an approved topic and to develop a scientific paper, display or project. Students participate in seminar discussions on current research, present their research findings, and demonstrate professional communication and critical thinking skills.

HSCI 486B – SEMINAR: ADVANCES IN RADIOLOGIC IMAGING II (1) [ALSO EARNS UPPER DIVISION G.E. CREDIT]

Prerequisites: HSCI 283, 380, 384, 480, 482, or ARRT Certification. Corequisite: HSCI 284

Research of diagnostic, interventional or therapeutic processes being developed or used in Radiologic Imaging for the purpose of improving the health and/or well-being of the patient population. Students work under the guidance of the instructor to research an approved topic and to develop a scientific paper, display or project. Students participate in seminar discussions on current research, present their research findings, and demonstrate professional communication and critical thinking skills.

HSCI 487 – PROFESSIONAL DEVELOPMENT FOR RADIOGRAPHERS (3)

Prerequisites: HSCI 283, 380, 384, 480, 482, or ARRT Certification. Corequisite: HSCI 284.

This seminar will include the discussion and application of instructional interventions used in accredited radiography programs. Discussions will center on current issues and changes in practice as they apply to continuing curriculum development, the national accreditation process and patient education. Additional discussion will center around the professionalization of the Radiographer with topics covering professional ethics, professional codes of conduct and management of professionals.

Upper Division:

Health Science Upper Division Core Requirements:

- HSCI 488: Epidemiology (3 units)
- HSCI 390 & 390 Lab: Biostatistics (4 units)
- HSCI 384: Computers in Diagnostic (2 units)

Course Sequencing Schedule

(Subject to change)

FALL – 1		UNITS	SPRING – 1		UNITS
**Math 105	Pre-Calculus	5	Phys 100A	General Physics I	3
**Bio 101 & L	General Biology	4	**Soc 150	Introductory Sociology	3
**Psych 150	Prin of Human Behavior	3	Bio 211 & 212	Anatomy +Lab	3
*GE	General Education	3	*GE	General Education	6
		<hr/> 15 units			<hr/> 16 units
FALL – 2		UNITS	SPRING – 2		UNITS
**Phys 100B & L	General Physics	4	*GE	General Education	15
**Chem 100	Prin. of Chemistry	3			15 units
Bio 281	Physiology	3			
*GE	General Education	3			
		<hr/> 13 units			
FALL – 3		UNITS	SPRING – 3		UNITS
HSCI 181	Medical Imaging I	3	HSCI 182	Medical Imaging II	3
HSCI 280	Clinical Ed I	2	HSCI 281	Clinical Ed II	2
HSCI 285	RAP I	4	HSCI 286	RAP II	4
Phys 376	Rad Physics	3	GE	Upper Division HSCI	3
		<hr/> 12	HSCI 385	QA in Radiology	2
			HSCI 486A	Advances in Rad Sci I	1
					<hr/> 15
SUMMER – 3		UNITS			
HSCI 282	Clinical Ed. III	3			
FALL – 4		UNITS	SPRING – 4		UNITS
**HSCI 384	Computers in Imaging	2	HSCI 487	Prof. Dev. Of R.T.	3
HSCI 380	Cross Section Anatomy	2	HSCI 284	Clinical Ed V	3
HSCI 482	Angiography	3	HSCI 485	Principles of MRI	3
HSCI 283	Clinical Ed IV	3	HSCI 302	Pathophysiology	3
HSCI 480	CT	2	GE	Upper Division GE	3
GE	Upper Division GE	3	**HSCI 486B	Advances in Rad Sci II	1
		<hr/> 15			<hr/> 16
SUMMER – 4		UNITS			
HSCI 386	Clinical Ed. VI	3			
FALL – 5		UNITS			
HSCI 387	Clinical Ed. VII	3			
HSCI 483A	Med Imaging Path	2			
		<hr/> 5			
HSCI 382	Mammography <i>(optional)</i>	3			
EOH 467	Radiologic Health <i>(optional)</i>	3			

* General Education (GE) requirements are to be satisfied according to the CSUN catalog under which a student entered the university.

** Double counts towards General Education and RS option prerequisite.

BS Radiologic Sciences Program Course Integration Schedule

2 ¼ Years (5 Semesters + 2 Summers)

SEMESTER	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Junior Status – Major Clinical Affiliates					
1st FALL <i>(Junior)</i>	CSUN	CLINICAL 8-4:30PM	CSUN	CLINICAL 8-4:30PM	CSUN
Winter Break 2 Weeks	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM
1st SPRING <i>(Junior)</i>	CSUN	CLINICAL 8-4:30PM	CSUN	CLINICAL 8-4:30PM	CSUN
1st Summer 11 Weeks	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM
Senior Status – Major and Minor Affiliates					
2nd FALL <i>(Senior)</i>	CLINICAL 8-4:30PM	CSUN	CLINICAL 8-4:30PM	CSUN	CLINICAL 8-4:30PM
Winter Break 2 Weeks	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM
2nd SPRING <i>(Senior)</i>	CLINICAL 8-4:30PM	CSUN	CLINICAL 8-4:30PM	CSUN	CLINICAL 8-4:30PM
Graduating Senior Status – Major and Minor Affiliates					
2nd Summer 11 Weeks <i>(Graduating Sr.)</i>	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM
3rd FALL <i>(Graduating Sr.)</i>	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM	CLINICAL 8-4:30PM

CLINICAL HOURS: Will complete 2600+ hours of clinical education

- ✓ No clinical on major holidays when CSUN is closed or hospital has limited staff due to insurance coverage.
- ✓ Students will rotate through the following clinical sites:
 - **Major Affiliates:** Northridge Hospital Medical Center, Henry Mayo Memorial Hospital, UCLA Medical Center, VA Greater Los Angeles Healthcare System, VA-Sepulveda Ambulatory Care Center, and Valley Presbyterian Hospital
 - **Minor Affiliates:** Cedars-Sinai Medical Center, Children’s Hospital of Los Angeles, Keck Hospital of USC, Olive View Medical Center, Providence Holy Cross Medical Center, Shriners Hospital for Children, Simi Valley Hospital, and UCLA Santa Monica Medical Center.

CERTIFICATION AND LICENSURE:

Eligible for the CA state (CRT) and national (ARRT) exams.

- ✓ Eligible to take ARRT exam following the completion of all academic and clinical requirements.
- ✓ Advance certification in CT, MR, IR, CV, and Mammography may be possible, but not guaranteed.

CLINICAL ROTATIONS:	HOURS:
Angiography (IR)	240
CT	240
Cardiac Cath Lab	160
Elective	160
Emergency Room	80
Evenings	120
General Diagnostic	880
MRI	240
Pediatrics	280
Surgery (OR)	240
	2640
*Hours subject to change	

CSUN BSRS program has articulated with the following community colleges for Bachelor of Science in Radiologic Sciences degree: Bakersfield College, Cabrillo College, Chaffey College, City College of San Francisco, Cypress College, El Camino College, Foothill College, L.A. City College, Merritt College, Moorpark College, Mt San Antonio College, Orange Coast College, San Diego Mesa College, San Joaquin Delta College, Santa Barbara City College, & Yuba College.

Technical Standards for the BS Radiologic Sciences Program

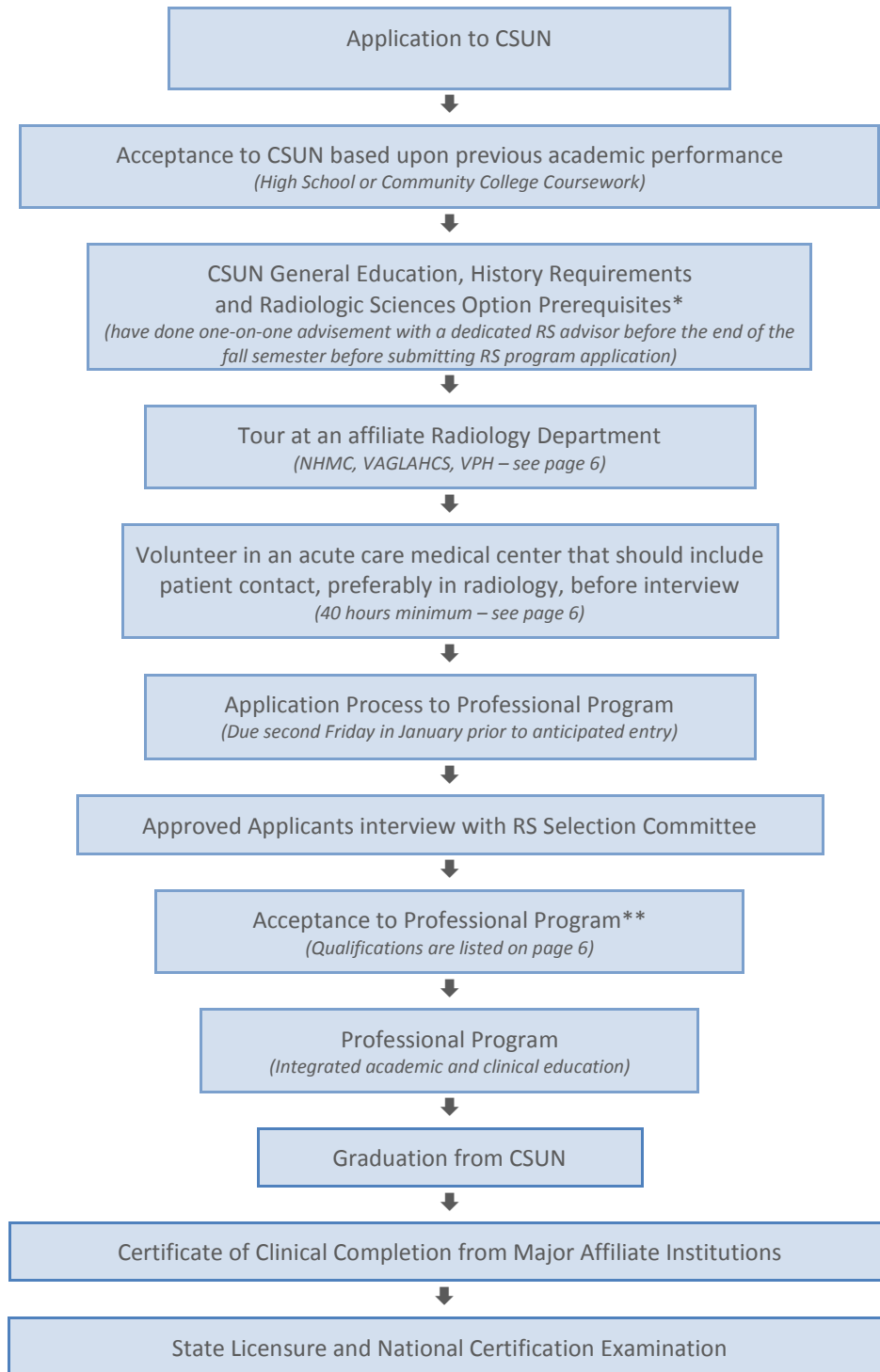
Students in a Radiologic Sciences program normally perform the following tasks. You will need to be able to...

- Stand up for 8 hours on a tiled or carpeted surface.
- Walk 600 feet one way on a tiled or carpeted surface.
- Lift a 20 pound sand bag from the floor to a height of 36 inches several times per hour.
- Lift and carry a 22 pound film cassette a distance of 20 feet several times per hour.
- Lift a 10 pound leaded apron to shoulder level.
- Wear a 10 pound leaded apron for duration of 3 hours.
- Push a 350 pound patient in a wheelchair or on a gurney.
- Pull an adult patient using a sheet or sliding board 3 to 4 feet?
- Maintain your balance in awkward positions (i.e. while transferring patients).
- Bend, stoop, or crouch to reach a lower object several times per hour.
- Twist your trunk (spine) from side to side.
- Rotate your forearm to turn knobs.
- Reach overhead to a height of 75 inches.
- Reach forward.
- Reach side to side.
- Handle various size objects (i.e. cassettes, sand bags, sponges, sliding boards, etc.)
- Able to manipulate small objects (i.e. dial switches, buttons, locks, etc.)

Other demands of working/training in this profession include the following listed below:

- Seeing/reading (e.g. control panels, positioning patients, pt identification, film assessment, etc.).
- Hearing (e.g. patient assessment and/or questions, physician questions and/or directions, etc.).
- Talking (e.g. giving instructions to patients, patient identification, emergency situations, etc.).
- Utilizing verbal and written skills to communicate in English with the patient and healthcare team.
- Utilizing the above standards to respond promptly to the patient's needs & emergency situations.
- Performing the assigned job responsibilities with the intellectual and emotional functions necessary to ensure patient safety and exercise independent judgment and discretion.

Steps for Completion



*Advisement with Program Faculty Required.

**Professional Programs begin in the Fall Semester ONLY.