



# Medical Radiologic Technology (RAD)

## Program Information

The Medical Radiologic Technology program at Trenholm State provides students with the necessary education to gain entry-level positions in the field of medical imaging as diagnostic radiologic technologists. Students will receive didactic, laboratory, and clinical education in preparation for the American Registry of Radiologic Technologists (ARRT) certification examination.

Radiologic technologists produce medical images of parts of the human anatomy for use in diagnosing medical problems. Radiologic technologists must follow physicians' orders and conform to regulations concerning the use of radiation to protect themselves, their patients, and their coworkers from unnecessary exposure. The program has a competitive admissions process.

## Occupational Choices

Employment is projected to grow faster than average and job opportunities are expected to be favorable. Although hospitals and medical centers still remain the primary employers, a number of new jobs will be found in physician's offices and diagnostic centers. Health facilities such as these are growing due to the shift toward outpatient care. Radiologic Technologists experienced in more than one diagnostic imaging modality, such as CT, MR, and mammography, will have the best employment opportunities.

With experience and additional training, staff technologists may qualify for advanced certification in CT, angiography, and MRI. Experienced technologists also may be promoted to supervisor, chief radiologic technologist, and, ultimately, department administrator or director.

Source: U. S. Department of Labor Occupational Outlook Handbook, 2014-2015 Edition.

## Average Full-Time Wage

The median annual wage for radiologic technologists was \$58,120 in December 2015. Median wage data are from the BLS Occupational Employment Statistics survey. In May 2015, the median annual wage for all workers was \$36,200. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than \$38,110, and the highest 10 percent earned more than \$81,660.

Source: U. S. Department of Labor Occupational Outlook Handbook, 2014-2015 Edition.

## Admission Criteria

Applicants should complete and submit a Medical Radiologic Technology program application and have official copies of all college and high school transcripts sent directly to the College's Admissions Office.

Minimum admission standards include:

- A Trenholm State Community College application
- A Medical Radiologic Technology Program application
- Official transcripts from high school and all colleges attended; official GED scores if applicable. A minimum of 2.5 high school GPA (for students without previous college courses) or a cumulative GPA over the last 24 credit hours (for students with previous college courses) is required.
- Be eligible for placement into the following course: English 101, Math 100 and Biology 201.
- ACT test score greater than or equal to 18.
- Applicants must be at least 18 years of age.
- A completed essential functions form.
- Incomplete application packages submitted will not be considered. See Program Application

## Estimated Program Length & Cost \*

| Award                | Length  | Credit Hours | Tuition Fees | Books  | Tools | Supplies |
|----------------------|---------|--------------|--------------|--------|-------|----------|
| Associate Degree     | 6 Terms | 76           | \$11,020     | \$1197 | 0     | \$750    |
| Co-requisite Courses | 5 Terms | 24           | \$3,480      | \$547  | 0     | 0        |
| Radiology Courses    | 5 Terms | 52           | \$7,540      | \$650  | 0     | \$750    |

\* Tax not included. Prices are subject to change without prior notice; cost of books may vary considerably among suppliers. Cost of general education books is in addition to the total listed above. The length of the program is based on full-time status of 12-15 credit hours per term. Enrollment in transitional level general education courses will alter the length of the program.

Packet on the program web page at: <http://www.trenholmstate.edu/academics/medical-radiology.cms>

NOTE: It is highly recommended that students successfully complete BIO-103 (General Biology) or its equivalent in preparation for BIO-201 (Human Anatomy & Physiology I).

Students in the Medical Radiologic Technology program must meet the following requirements which will be completed at the student's expense prior to and throughout enrollment in the program:

- a. Verification of absence of drug and alcohol use by participation in random and scheduled drug/alcohol testing at the student's expense.
- b. Undergo a background screening.
- c. Provide proof of all vaccinations designated by the program.
- d. Submit proof of completed CPR for Healthcare Providers course.
- e. Undergo a student physical administered by a physician.
- f. Adhere to policies of affiliated clinical affiliates.

Admission to the Medical Radiologic Technology Program is competitive, and the number of students is limited by the number of faculty and clinical facilities available. Meeting the minimum requirements does not guarantee acceptance.

If the number of eligible applicants exceeds the space available to new enrollees, applicants are rank-ordered using a point system based on: ACT Exam scores and grades from prior courses. See Ranking Form on the program webpage at: <http://www.trenholmstate.edu/academics/medical-radiology.cms>

### Awards Available

Associate in Applied Science Degree  
Medical Radiologic Technology

### Program Contact

Laurie Burnett  
Program Coordinator/Instructor  
334-420-4342  
Location: Trenholm Campus - Bldg. H

As part of ongoing planning and evaluation, the College regularly evaluates student learning outcomes for each program.

## Associate in Applied Science Degree Medical Radiologic Technology

### Required Technical Courses (52 credit hours)

| Course  | Title                            | Hrs |
|---------|----------------------------------|-----|
| RAD-111 | Introduction to Radiography      | 2   |
| RAD-112 | Radiographic Procedures I        | 4   |
| RAD-113 | Patient Care                     | 2   |
| RAD-114 | Clinical Education I             | 2   |
| RAD-122 | Radiographic Procedures II       | 4   |
| RAD-124 | Clinical Education II            | 5   |
| RAD-125 | Imaging Equipment                | 3   |
| RAD-134 | Clinical Education III           | 5   |
| RAD-135 | Exposure Principles              | 3   |
| RAD-136 | Radiation Protection and Biology | 2   |
| RAD-212 | Image Evaluation & Pathology     | 2   |
| RAD-214 | Clinical Education IV            | 8   |
| RAD-224 | Clinical Education V             | 8   |
| RAD-227 | Review Seminar                   | 2   |

### Required General Education \* (24 credit hours)

| Course  | Title                           | Hrs |
|---------|---------------------------------|-----|
| BIO-201 | Human Anatomy and Physiology I  | 4   |
| BIO-202 | Human Anatomy and Physiology II | 4   |
| ENG-101 | English Composition I           | 3   |
| MTH-100 | Intermediate Algebra            | 3   |
| MUS-101 | Music Appreciation              | 3   |
|         | OR ART-100 Art Appreciation     |     |
| ORI-101 | Orientation to College          | 1   |
| PSY-200 | General Psychology              | 3   |
| SPH-106 | Fund of Oral Communication      | 3   |
|         | OR SPH-107 Public Speaking      |     |

\*These are co-requisite requirements, but may be completed prior to the start of the program. The student must be eligible for placement into the following courses: English 101, Math 100 and Biology 201 to apply.

Students must successfully complete all required co-requisite general education courses listed above prior to completion of the Radiology Program.

**Total Hours: 76 Credit Hours; 2,160 Contact Hours**

## Course Descriptions for Medical Radiologic Technology (RAD)

| Course #       | Course Title   | Theory<br>Contact<br>Hours/Wk | Lab<br>Contact<br>Hours/Wk | Clinical<br>Contact<br>Hours/Wk | Credit<br>Hours |
|----------------|--|-------------------------------|----------------------------|---------------------------------|-----------------|
| <b>RAD-111</b> | <b>INTRODUCTION TO RADIOLOGY</b><br>COREQUISITE: RAD-112, RAD-113, RAD-114<br>PREREQUISITE: Admission into program<br>This course provides students with an overview of radiography and its role in health care delivery. Topics include the history of radiology, professional organizations, legal and ethical issues, health care delivery systems, introduction to radiation protection, and medical terminology. Upon completion students will demonstrate foundational knowledge of radiologic science.  | 2                             | 0                          | 0                               | 2               |
| <b>RAD-112</b> | <b>RADIOLOGIC PROCEDURES I</b><br>COREQUISITE: RAD-111, RAD-113, RAD-114<br>PREREQUISITE: Admission into program<br>This course provides the student with instruction in anatomy and positioning of the Chest and Thorax, Upper and Lower Extremities, and Abdomen. Theory and laboratory exercises will cover radiographic positions and procedures. Upon completion of the course the student will demonstrate knowledge of anatomy and positioning skills, oral communication and critical thinking in both the didactic and laboratory settings.   | 3                             | 3                          | 0                               | 4               |
| <b>RAD-113</b> | <b>PATIENT CARE</b><br>COREQUISITE: RAD-111, RAD-112, RAD-114<br>PREREQUISITE: Admission into program<br>This course provides the student with concepts of patient care and pharmacology and cultural diversity. Emphasis in theory and lab is placed on assessment and considerations of physical and psychological conditions, routine and emergency. Upon completion, students will demonstrate / explain patient care procedures appropriate to routine and emergency situations.  | 1                             | 3                          | 0                               | 2               |
| <b>RAD-114</b> | <b>CLINICAL EDUCATION I</b><br>COREQUISITE: RAD-111, RAD-112, RAD-113<br>PREREQUISITE: Admission into program<br>This course provides the student with the opportunity to correlate instruction with applications in the clinical setting. The student will be under the direct supervision of a qualified practitioner. Emphasis is on clinical orientation, equipment, procedures, and department policies. Upon completion of the course, the student will demonstrate practical applications of specific radiographic procedures identified in RAD-112.  | 0                             | 0                          | 6                               | 2               |
| <b>RAD-122</b> | <b>RADIOLOGIC PROCEDURES II</b><br>COREQUISITE: RAD-124, RAD-125<br>PREREQUISITE: Successful complete of RAD-111, RAD-112, RAD-113, RAD-114<br>This course provides the student with instruction in anatomy and positioning of spine, cranium, body systems and special procedures. Theory and laboratory exercises will cover radiographic positions and procedures with applicable contrast media administration. Upon completion of the course the student will demonstrate knowledge of anatomy and positioning skills, oral communication and critical thinking in both the didactic and laboratory settings.   | 3                             | 3                          | 0                               | 4               |
| <b>RAD-124</b> | <b>CLINICAL EDUCATION II</b><br>COREQUISITE: RAD-122, RAD-125<br>PREREQUISITE: Successful completion of RAD-111, RAD-112, RAD-113, RAD-114<br>This course provides students with the opportunity to correlate previous instruction with applications in the clinical setting. Students will be under the direct supervision of a qualified practitioner. Practical experience in a clinical setting enables students to apply theory presented thus far and to practice radiographic equipment manipulation, radiographic exposure, routine radiographic positioning, identification, and patient care techniques. Upon completion of the course, students will demonstrate practical applications of radiographic procedures presented in current and previous courses. | 0                             | 0                          | 15                              | 5               |
| <b>RAD-125</b> | <b>IMAGING EQUIPMENT</b><br>COREQUISITE: RAD-122, RAD-124<br>PREREQUISITE: Successful completion of RAD-111, RAD-112, RAD-113, RAD-114<br>This course provides students with knowledge of basic physics and the fundamentals of imaging equipment. Topics include information on x-ray production, beam characteristics, units of measurement, and imaging equipment components. Upon completion, students will be able to identify imaging equipment as well as provide a basic explanation of the principles associated with image production.   | 3                             | 0                          | 0                               | 3               |

| <b>Course #</b> | <b>Course Title</b>   | <b>Theory<br/>Contact<br/>Hours/Wk</b> | <b>Lab<br/>Contact<br/>Hours/Wk</b> | <b>Clinical<br/>Contact<br/>Hours/Wk</b> | <b>Credit<br/>Hours</b> |
|-----------------|---|--|-------------------------------------|--|-------------------------|
| <b>RAD-134</b>  | <b>CLINICAL EDUCATION III</b><br>COREQUISITE: RAD-135, RAD-136<br>PREREQUISITE: Successful completion of RAD-122, RAD-124, RAD-125<br>This course provides students with the opportunity to correlate previous instruction with applications in the clinical setting. Students will be under the direct supervision of a qualified practitioner. Practical experience in a clinical setting enables students to apply theory presented thus far and to practice radiographic equipment manipulation, radiographic exposure, routine radiographic positioning, identification, and patient care techniques. Upon completion of the course, students will demonstrate practical applications of radiographic procedures presented in current and previous courses.  | <b>0</b>                               | <b>0</b>                            | <b>15</b>                                | <b>5</b>                |
| <b>RAD-135</b>  | <b>EXPOSURE PRINCIPLES</b><br>COREQUISITE: RAD-134, RAD-136<br>PREREQUISITE: Successful completion of RAD-122, RAD-124, RAD-125<br>This course provides students with the knowledge of factors that govern and influence the production of radiographic images and assuring consistency in the production of quality images. Topics include factors that influence density, contrast and radiographic quality as well as quality assurance, image receptors, intensifying screens, processing procedures, artifacts, and state and federal regulations.   | <b>2</b>                               | <b>3</b>                            | <b>0</b>                                 | <b>3</b>                |
| <b>RAD-136</b>  | <b>RADIATION PROTECTION &amp; BIOLOGY<br/>&amp; RADIATION BIOLOGY</b><br>COREQUISITE: RAD-134, RAD-135<br>PREREQUISITE: Successful completion of RAD-122, RAD-124, RAD-125<br>This course provides the student with principles of radiation protection and biology. Topics include radiation protection responsibility of the radiographer to patients, personnel and the public, principles of cellular radiation interaction and factors affecting cell response. Upon completion the student will demonstrate knowledge of radiation protection practices and fundamentals of radiation biology.   | <b>2</b>                               | <b>0</b>                            | <b>0</b>                                 | <b>2</b>                |
| <b>RAD-212</b>  | <b>IMAGE EVALUATION &amp; PATHOLOGY</b><br>COREQUISITE: RAD-214<br>PREREQUISITE: Successful completion of RAD-134, RAD-135, RAD-136<br>This course provides a basic understanding of the concepts of disease and provides the knowledge to evaluate image quality. Topics include evaluation criteria, anatomy demonstration and image quality with emphasis placed on a body system approach to pathology. Upon completion students will identify radiographic manifestations of disease and the disease process. Students will evaluate images in the classroom, laboratory and clinical settings.  | <b>1</b>                               | <b>3</b>                            | <b>0</b>                                 | <b>2</b>                |
| <b>RAD-214</b>  | <b>CLINICAL EDUCATION IV</b><br>COREQUISITE: RAD-212<br>PREREQUISITE: Successful completion of RAD-134, RAD-135, RAD-136<br>This course provides students with the opportunity to correlate previous instruction with applications in the clinical setting. Students will be under the direct supervision of a qualified practitioner. Practical experience in a clinical setting enables students to apply theory presented thus far and to practice radiographic equipment manipulation, radiographic exposure, routine radiographic positioning, identification, and patient care techniques. Principles of computed tomography and cross sectional anatomy will be presented. Upon completion of the course, students will demonstrate practical applications of radiographic procedures presented in current and previous courses. | <b>0</b>                               | <b>0</b>                            | <b>24</b>                                | <b>8</b>                |
| <b>RAD-224</b>  | <b>CLINICAL EDUCATION V</b><br>COREQUISITE: RAD-227<br>PREREQUISITE: Successful completion of RAD-212, RAD-214<br>This course provides students with the opportunity to correlate previous instruction with applications in the clinical setting. Students will be under the direct supervision of a qualified practitioner. Practical experience in a clinical setting enables students to apply theory presented thus far and to practice radiographic equipment manipulation, radiographic exposure, routine radiographic positioning, identification, and patient care techniques. Principles other imaging modalities will be presented. Upon completion of the course, students will demonstrate practical applications of radiographic procedures presented in current and previous courses.                                     | <b>0</b>                               | <b>0</b>                            | <b>24</b>                                | <b>8</b>                |
| <b>RAD-227</b>  | <b>REVIEW SEMINAR</b><br>COREQUISITE: RAD-224<br>PREREQUISITE: Successful completion of RAD-212, RAD-214<br>This course provides a consolidated and intensive review of the basic areas of expertise needed by the entry level technologist. Topics include basic review of all content areas, test taking techniques and job seeking skills. Upon completion, the student will be able to pass comprehensive tests of topics covered in the Radiologic Technology Program.   | <b>2</b>                               | <b>0</b>                            | <b>0</b>                                 | <b>2</b>                |