

**Aurora St. Luke's Medical Center
School of Radiologic Technology**

Curriculum

Overview

The program is divided into six semesters. The fall and spring semesters are 16 weeks, and the summer semesters are 12 weeks and 6 weeks respectively.

Our curriculum is based on the Standards for an Accredited Educational Program in Radiologic Sciences as established by the Joint Review Commission on Education in Radiologic Technology (JRCERT), the curriculum recommendations of the American Society of Radiologic Technologists (ASRT) and the Task Inventory of the American Registry of Radiologic Technologists (ARRT). The faculty presents the curriculum through formal lecture, laboratory, and clinical applications to enhance the learning experience.

Transfer credits

All enrolled students must complete the prescribed curriculum in its entirety in order to graduate from the program. The program does not accept transfer credits from colleges and/or universities due to the highly specialized nature of our program's curriculum. In addition, the program does not accept transfer students from other JRCERT accredited certificate programs.

Course descriptions

Introduction to Radiologic Science and Healthcare (2 credits)

This course is designed to prepare the student for clinical practice by providing an overview of the foundations in radiography and the practitioner's role in the health care delivery system. Principles, practices, and policies of the health care organizations are examined and discussed in addition to the professional responsibilities of a radiographer. The student is introduced to the various modalities and equipment found in the imaging department. Course content will include an introduction to basic concepts of patient care, body mechanics, vital signs, aseptic technique, pharmacology, infection control and standard precautions. EKG and medical emergencies are also discussed. This course also explores diversity and the physical and psychological needs of patients and their families. CPR certification will also be completed.

Principles of Imaging I (2 credits)

This course provides the student with knowledge of radiographic qualities and the factors influencing those qualities. This semester the student is introduced to the principles of x-ray production, interactions with matter, the x-ray tube, and exposure factors. The relationship between exposure factors and radiographic quality is also discussed.

Radiographic Procedures I (5 credits)

This course provides the student with radiographic positioning for the chest, abdomen, upper extremity, and urinary system. Students practice positioning skills in the laboratory and demonstrate proficiency by written testing and skills demonstration in a laboratory setting. Each unit includes radiographic image evaluation modules which correlate knowledge and skills from several didactic units, laboratory assignments and clinical education. Through the image evaluation component students learn to identify radiographic anatomy, evaluate diagnostic quality, identify images that are of poor radiographic quality as well as determine the appropriate corrective actions for unacceptable images.

In this course the student also studies both the structure and physiology of the human body as they relate to radiographic procedures covered in this semester. This course focuses the thoracic and abdominal structures, the urinary system and skeletal anatomy of the upper extremity.

Radiation Protection (2 credits)

This course covers all aspects of radiation protection including the technologist's responsibilities for patients, personnel, the public and themselves. Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies, and healthcare organizations are included. Specific topics also include radiation safety methods and devices as well as the detection and measurement of radiation dose.

Clinical Education I (3 credits)

The clinical component of our program allows students to rotate through all aspects of the radiologic science field. Students progress in competence and ability on an individual basis. A total of 66 competencies, including 37 mandatory competencies, must be achieved in the two years. The student must complete the total number of competencies required by the completion of the semester.

SEMESTER II

Seminar in Radiography I (3 credits)

The course will provide an introduction to medical ethics and law. Cultural diversity will also be discussed.

Principles of Imaging II (3 credits)

This course provides the student with knowledge of radiographic qualities and the factors influencing those qualities. This semester the student is introduced to the geometric factors, scatter radiation, grids, beam restriction, filters, and compensating filters. Exposure Intensity maintenance problems are introduced.

Radiographic Procedures II (5 credits)

The procedure course provides the student with radiographic positioning for lower extremity, thorax, ribs, sternum spine, and digestive and accessory digestive system structures. Students practice positioning skills in the laboratory and demonstrate proficiency by written testing and skills demonstration in a laboratory setting. Each unit includes radiographic image evaluation modules which correlate knowledge and skills from several didactic units, laboratory assignments and clinical education. Through the image evaluation component students learn to identify radiographic anatomy, evaluate diagnostic quality, identify images that are of poor radiographic quality as well as determine the appropriate corrective actions for unacceptable images.

In this course the student also studies both the structure and physiology of the human body as they relate to radiographic procedures covered this semester. Areas of study include the digestive system, accessory digestive organs, and skeletal anatomy of the lower extremity, thorax, ribs, sternum, spine and vascular anatomy.

Clinical Education II (3 credits)

The clinical component of our program allows students to rotate through all aspects of the radiologic science field. Students progress in competence and ability on an individual basis. The student must have earned 15 competencies by the end of Semester II.

SEMESTER III

Radiographic Procedures III (3 credits)

The student learns basic concepts of advanced imaging methods, special procedures and supplementary imaging modalities. The student will write and present a research paper on a specific modality during this semester.

In this course the student studies both the structure and physiology of the human body as they relate to the procedures taught. Anatomical instruction will focus on the circulatory system and skull.

Clinical Education III (4 credits)

The clinical component of our program allows students to rotate through all aspects of the radiologic science field. Students progress in competence and ability on an individual basis. The student must complete the total number of competencies required by the completion of the semester.

SEMESTER IV

Radiographic Physics I (2 credits)

This course provides instruction in the fundamental components of matter, the characteristics of electromagnetic radiation, the theory of magnetism, electricity and electrodynamics, image production and interactions with matter.

Digital Imaging (3 credits)

This course is designed to impart an understanding of the operation of various equipment found in the imaging department. Students will gain an understanding of the components, principles and operation of the digital imaging systems found in diagnostic radiology. Factors that impact image acquisition, display, archiving, and retrieval are discussed. Digital systems and images are compared and contrasted to film/screen systems and images. Guidelines for selecting exposure factors, exposure numbers, exposure latitude, and image brightness and contrast are discussed.

Cross-Sectional Anatomy (3 credits)

This course is designed to provide the student with basic knowledge of cross-sectional anatomy to include at a minimum, head, neck, thorax and abdomen. Instruction will focus on orienting the student to CT images, with some exposure to MRI images as well. The student will gain a basic understanding of which modality is preferred for a specific examination and why.

Radiographic Procedures IV (2 credits)

This course provides the student with radiographic positioning for the skull, facial bones.. Students practice positioning skills in the laboratory and demonstrate proficiency by written testing and skills demonstration in a laboratory setting. Each unit includes radiographic image evaluation modules which correlate knowledge and skills from several didactic units, laboratory assignments and clinical education. Through the image evaluation component students learn to identify radiographic anatomy, evaluate diagnostic quality, identify images that are of poor radiographic quality as well as determine the appropriate corrective actions for unacceptable images. In addition, this course provides instruction in venipuncture and CT imaging of the head.

In this course the student also studies both the structure and physiology of the human body as they relate to radiographic procedures covered this semester. Areas of study include skull, facial bones, mandible, TMJ, sinuses, orbits, and nasal bones.

Clinical Education IV (3 credits)

The clinical component of our program allows students to rotate through all aspects of the radiologic science field. Students progress in competence and ability on an individual basis. The student must complete the total number of competencies required by the completion of the semester.

SEMESTER V

Radiographic Physics II (2 credits)

This course familiarizes the student with current concepts in quality assurance. The physics of advanced modalities are introduced. The physics of radiobiology and radiation protection are also examined

Seminar in Radiography II (2 credits)

This course integrates previous coursework through an analysis of contrast, density/brightness, detail/resolution and distortion. Content is designed to provide the student the ability to evaluate all aspects of the imaging system. Sensitometry, quality assurance and quality control systems will be explored, as well as regulatory agency requirements for equipment performance / tolerances. Complex conversion problems are also covered.

Radiation Biology (2 credits)

Radiation biology covers radiation effects on the cellular, tissue, organ and systemic structures of the human body. Long term somatic effects, short terms somatic effects and genetic effects are investigated.

Radiographic Pathology (3 credits)

This course acquaints the student with pathologic processes and injury as well as how pathology affects the radiographic appearance of anatomic structures. The use and benefits of other imaging modalities in the diagnosis of disease is also discussed.

Independent Study (2 credits)

Students will research a topic related to medical imaging, complete a paper on their research, and present their findings to a panel of faculty. The project may be submitted as the student's symposium project if they so choose.

Clinical Education V (3 credits)

The clinical component of our program allows students to rotate through all aspects of the radiologic science field. Students progress in competence and ability on an individual basis. The student must complete the total number of competencies required by the completion of the semester.

SEMESTER VI

Professional Development in Radiography (3 credits)

This course will explore current topics in health care and medical imaging and is intended to promote professionalism as the student begins a career in the field of Radiologic Technology. The ARRT Code of Ethics and Standards of Care will be reviewed, as well as exam security. The course will also prepare the student to successfully complete the ARRT Registry Exam.

Clinical Affiliates

We maintain various clinical sites to provide students with a diverse educational experience. During the first semester, students are assigned to one of the following clinical affiliates:

- Aurora St. Luke's Medical Center
- Aurora Sinai Medical Center
- Aurora West Allis Medical Center

During subsequent semesters, students rotate to all of the major clinical affiliates. In addition, the school utilizes additional rotational sites throughout the program.

Evaluation of Clinical Performance

Each semester, the student's clinical performance is assessed. The clinical evaluation encompasses assessment of skills: positioning, radiation protection, equipment manipulation, patient care, as well as the student's professional growth. The clinical component of the semester grade is based on Instructor, Rotational and Semester Evaluations, Competencies and Simulations. Excessive absenteeism and tardiness will affect the student's grade.

Grading Policy

The student must maintain a minimum of an 80% average in all academic and clinical courses in order to earn course credits and remain in good standing. The student's academic and clinical progress is evaluated at the conclusion of each semester.

The first semester is considered probationary. Students receiving grades below the 80% standard in 2 or more courses are requested to withdraw from the program. Students receiving 1 failing grade are placed on an additional probation period. Students failing any course work at the end of the additional probationary period are requested to withdraw from the program. After the first semester, failure to maintain the school's grading standard will result in probation. Subsequent failures may lead to termination from the program.

In addition to semester coursework, proficiency examinations are administered periodically throughout the program. Failure of these examinations will impact the student's status.

Graduation

The following criteria must be met to graduate:

1. The student must earn all necessary credits.
2. The student must successfully complete all identified "Clinical Competencies."
3. The student must achieve all required Exit Outcomes/Competencies.
4. The student must fulfill any monetary agreements made with the Department and/or the Medical Center. This includes full payment of tuition and fees.
5. The student must return all Departmental and/or Medical Center property prior to leaving on the final day of scheduled attendance.

Upon successful fulfillment of these criteria, the student will be awarded a certificate, indicating the status of Graduate of the Aurora St. Luke's Medical Center School of Radiologic Technology.

Certification

Upon satisfactory completion of the prescribed curriculum and other listed criteria, the student receives a certificate of graduation. This certificate enables the graduate to apply for registration through the American Registry of Radiologic Technologists. After successful completion of this 200-question examination, the graduate is registered in the field of Radiologic Technology and may use the title Registered Technologist - Radiographer, RT(R) (ARRT).