

**RADT - 1001 Radiology Observation, 1.00 Credit**

Level: Lower

This course is designed to provide an introduction to the radiology department and patient care routines. The students will observe the basic practices within the radiologic imaging department and the necessary skills needed to manipulate the radiography equipment. Students will also observe patient/technologist interactions for obtaining history, consent, and giving instructions. The students will develop the basic skills necessary for a professional healthcare worker and will achieve competency in required diagnostic procedures. This clinical observation experience will consist of 8 hours per week for 15 weeks.

**RADT - 1003 Radiation Physics, 3.00 Credits**

Prerequisite(s): RADT 1004 with D or better

Level: Lower

This course is designed to provide a basic knowledge of the principles of physics as it pertains to radiation. The x-ray circuit, radiographic equipment, diagnostic x-ray tubes, fluoroscopy units, and an overview of quality control will be discussed. Additionally, this course provides fundamental principles of radiographic exposure. Principles of exposure and image production including exposure factors, receptor exposure, differential absorption, spatial resolution, shape distortion, magnification, beam restriction, beam filtration, scatter radiation, grids and exposures factors will be discussed. Digital image acquisition and processing, image acquisition errors, quality management, image display and data management will also be covered.

**RADT - 1004 Fundamentals of Radiologic Sci, 4.00 Credits**

Level: Lower

This course is designed to provide a general overview of the study of radiologic science and the role it serves in the health care delivery system. Several key topics in imaging including introductory principles of radiography, the health care environment, understanding orders and diagnostic reports, hospital organizations, and radiology organizations. The course will also include a dialogue of medical legal ethics and the radiographer's role in making ethical decisions. Pharmacology and venipuncture topics such as drug nomenclature and classification, general pharmacologic principles, contrast agents, routes of administration, and drug categories relevant to radiography will be discussed. Patient care topics including transfer techniques, patient history and vital signs, infections control, sterile techniques, medical emergencies, and professionalism and communication in patient care will be presented. Finally, cultural awareness and the radiographer's role in multicultural health care setting will be discussed.

**RADT - 1013 Fundamentals of Radiologic Sci, 3.00 Credits**

Level: Lower

This course provides a general overview of the study of radiologic science and the role it serves in the health care delivery system. Several key topics in imaging including introductory principles of radiography, the health care environment, understanding orders and diagnostic reports, hospital organizations, and radiology organizations. The course will also include a dialogue of medical legal ethics and the radiographer's role in making ethical decisions. Pharmacology and venipuncture topics such as drug nomenclature and classification, general pharmacologic principles, contrast agents, routes of administration, and drug categories relevant to radiography will be discussed. Patient care topics including transfer techniques, patient history and vital signs, infection control, sterile techniques, medical emergencies, and professionalism and communication in patient care will be presented. Finally, cultural awareness and the radiographer's role in multicultural health care setting will be discussed.

**RADT - 2003 Radiobiological Protection, 3.00 Credits**

Prerequisite(s): RADT 1003 with C or better

Level: Lower

This course establishes a knowledge of atomic structure and terminology. Principles of ionizing radiation including basic interactions of radiation and matter, radiation quantities, units and dose limits for exposure, radiation protection for patients and employees as well as radiation monitoring devices are all discussed. In addition, this course will provide an overview of the principles of the interaction of radiation with living systems. Radiation effects on molecules, cells, tissues and the body as a whole are presented. Factors affecting biological response are presented, including acute and chronic effects of radiation.

**RADT - 2013 Radiographic Exposure & Quality, 3.00 Credits**

Prerequisite(s): RADT 1004 with C or better and RADT 1003 with C or better and RADT 2014 with C or better \*

Level: Lower

This course is designed to provide fundamental principles of radiographic exposure. These principles include the radiographic factors; density, contrast, recorded detail and distortion that affect and influence the radiographic image and the technique compensation necessary to produce a diagnostic image as these factors change. Digital image acquisition and film screen imaging as well as film processing are also discussed. The fundamental criteria of image analysis and evaluation of quality diagnostic imaging are emphasized.

**RADT - 2014 Radiographic Procedures I, 4.00 Credits**

Prerequisite(s): RADT 1003 with C or better and RADT 2013 with C or better \*

Level: Lower

Applied Learning-Practicum

This course provides the theoretical basis for performing radiographic procedures with specific patient positioning instruction in the laboratory. The examination protocols and imaging evaluation for the thoracic cavity, abdominal cavity, upper extremities and lower extremities will be introduced. The laboratory setting will reinforce the theoretical foundation of the lecture through demonstration, role playing and skill practice in the laboratory. Image analysis will be included and require problem solving and critical thinking skills to evaluate diagnostic quality of the images obtained in the laboratory.

**RADT - 2021 Radiographic Procedures I LAB, 1.00 Credit**

Corequisite(s):

Level: Lower

This course provides the theoretical basis for performing radiographic procedures with specific patient positioning instruction in the laboratory. The laboratory setting will reinforce the theoretical foundation of the lecture through demonstration, role playing and skill practice in the laboratory.

**RADT - 2023 Radiographic Procedures I, 3.00 Credits**

Corequisite(s):

Level: Lower

This course provides the theoretical basis for performing radiographic procedures with specific patient positioning instruction in the laboratory. Standard terminology for positioning and will be discussed. The examination protocols and imaging evaluation for the thoracic cavity, abdominal cavity, upper extremities and lower extremities will be introduced. Image analysis will be included and require problem solving and critical thinking skills to evaluate diagnostic quality of the images obtained in the laboratory.

**RADT - 2041 Radiology Clinical I, 1.00 Credit**

Prerequisite(s): RADT 1001 with C or better

Level: Lower

Applied Learning-Practicum, Clinical Liability Insurance

This course is designed to provide an introduction to the radiology department and patient care routines. The students will develop the basic skills necessary for a professional healthcare worker and will achieve competency in required diagnostic procedures established for the Radiologic Technology Program. Performance assessment in the clinical setting will provide the foundation to build clinical skills necessary to be successful in the field. This clinical experience consists of 120 hours, which will be completed 8 hours per week for 15 weeks.

**RADT - 2044 Radiology Clinical II, 4.00 Credits**

Prerequisite(s): RADT 2003 with C or better and RADT 2023 with C or better and RADT 2021 with C or better and RADT 2041 with C or better

Level: Lower

Applied Learning-Practicum, Clinical Liability Insurance

This course allows for the continued progression of skills in the clinical setting. Procedural competence and the acquisition of additional proficiencies in radiography is the focus of this clinical experience. Continued assessment of learning and proficiency is conducted using summative competencies and intermediate level learning objectives during the clinical rotation. This clinical experience consists of at 480 hours, which will be completed 40 hours per week for 12 weeks.

**RADT - 3011 Radiographic Procedures II Lab, 1.00 Credit**

Prerequisite(s): RADT 2023 with D or better and RADT 2021 with D or better

Corequisite(s): RADT 2023 with D or better and RADT 2021 with D or better

Level: Lower

This course will provide the theoretical basis for performing radiographic procedures with specific patient positioning instruction in the laboratory. The examination protocols and imaging evaluation for the cranium, fluoroscopy procedures, special procedures, and urological procedures will be introduced. The procedural considerations for contrast studies and patient education and instruction will be discussed. The laboratory setting will reinforce the theoretical foundation of the lecture through demonstration, role playing and skill practice. Image analysis will be included and require problem solving and critical thinking skills to evaluate diagnostic quality of the images obtained in the laboratory.

**RADT - 3013 Radiographic Procedures II, 3.00 Credits**

Prerequisite(s): RADT 2023 with D or better and RADT 2021 with D or better

Corequisite(s): RADT 2023 with D or better and RADT 2021 with D or better

Level: Lower

This course will provide the theoretical basis for performing radiographic procedures with specific patient positioning instruction in the laboratory. The examination protocols and imaging evaluation for the cranium, fluoroscopy procedures, special procedures, and urological procedures will be introduced. The procedural considerations for contrast studies and patient education and instruction will be discussed. Image analysis will be included and require problem solving and critical thinking skills to evaluate diagnostic quality of the images obtained in the laboratory. This course will also introduce the many advanced imaging modalities that are included in the radiology department.

**RADT - 3014 Radiographic Procedures II, 4.00 Credits**

Prerequisite(s): RADT 2014 with C or better and RADT 2013 with C or better

Level: Lower

Applied Learning-Practicum

This course provides the theoretical basis for performing radiographic procedures with specific patient positioning instruction in the laboratory. The examination protocols and imaging evaluation for fluoroscopy, the skull, special views of the upper extremities and lower extremities, special views of the spine, bone surveys, arthrograms, pediatric and geriatric procedures, and trauma radiography will be introduced. The laboratory setting will reinforce the theoretical foundation of the lecture through demonstration, role playing and skill practice. Image analysis will be included and require problem solving and critical thinking skills to evaluate diagnostic quality of the images obtained in the laboratory.

**RADT - 3023 Diagnostic Imaging I, 3.00 Credits**

Prerequisite(s): RADT 2014 with C or better and RADT 3043 with C or better \*

Level: Lower

This course provides a comprehensive understanding of the current image analysis and digital imaging guidelines for radiographic imaging and related positioning. Included are the importance of optimal imaging standards, discussion of a problem-solving technique for image evaluation and the factors that can affect image quality. Actual images will be critiqued for analysis.

Additionally, this course will discuss and observe pathologic conditions as they related to radiology with an emphasis on radiographic appearance of disease and impact on exposure factor selection.

**RADT - 3024 Diagnostic Imaging II, 3.00 Credits**

Level: Lower

This course provides a foundation in ethics and law related to the practice of medical imaging. In addition, accreditation, regulatory agencies, professional credentialing, professional organizations and professional development and advancement will be discussed. Students will examine a variety of ethical and legal issues found in clinical practice. The course will also revisit the professional responsibilities of the radiographer.

**RADT - 3043 Radiology Clinical III, 3.00 Credits**

Prerequisite(s): RADT 2044 with C or better

Corequisite(s): RADT 2044 with C or better

Level: Lower

Applied Learning-Practicum, Clinical Liability Insurance

This course provides ongoing experience in the radiology department clinical setting allowing implementation of advanced learning objectives and skills. This course allows for the continued progression of skills in the clinical setting. Procedural competence and the acquisition of additional proficiencies in radiography is the focus. Continued assessment of learning and proficiency is conducted using summative competencies and advanced level learning objectives. This clinical experience consists of 360 hours, which will be completed 24 hours per week for 15 weeks.

**RADT - 4003 Intro to Adv Diagnostic Imagin, 3.00 Credits**

Prerequisite(s): RADT 3023 with C or better and RADT 4023 with C or better \*

Level: Lower

This course introduces the many advanced imaging modalities that are included in the radiology department. Computer tomography (CT) and its operation is discussed along with department archival systems and digital medical image storage. The course then introduces basic mechanisms of image acquisition, basic operating principles and applications for the advanced imaging modalities of magnetic resonance imaging (MRI), nuclear medicine, positron emission tomography (PET) and single-photon emission computed tomography (SPECT) imaging, ultrasound, radiation therapy and interventional radiography including arteriograms, cardiac angiography and venograms.

**RADT - 4013 Prof Development in Imaging Sc, 3.00 Credits**

Level: Lower

This course is an overview of the radiographer's continued professional development. The course is designed to encourage active participation in professional organizations and a development of lifelong learning. The course will culminate in a senior research project and presentation on a topic within the field of radiologic science and imaging.

**RADT - 4023 Diagnostic Imaging II, 3.00 Credits**

Prerequisite(s): RADT 3023 with C or better and RADT 3043 with C or better

Level: Lower

This course provides an overview of the functional imaging equipment components, operational principles and clinical applications of conventional and digital fluoroscopy systems. Emphasis will be given to dynamic imaging of various body systems and its use in advanced interventional procedures. Imaging system quality assurance and quality control procedures are also introduced as each relates to imaging equipment and patient safety.

**RADT - 4043 Radiology Clinical IV, 3.00 Credits**

Prerequisite(s): RADT 3043 with C or better

Level: Lower

Applied Learning-Practicum, Clinical Liability Insurance

This course is designed to allow for expanded experience in radiology by implementing advanced proficiencies in the clinical setting. Various imaging modalities will be introduced and experienced including computed tomography (CT) scanning, special procedures, magnetic resonance imaging (MRI), nuclear medicine and ultrasound. Procedural competencies and characteristics of an entry-level radiographer will be demonstrated at the conclusion of this final clinical experience as documented by the terminal competencies and mastery level objectives. This clinical experience will consist of 360 hours, which will be completed 24 hours per week for 15 weeks.

**RADT - 4900 Directed Study, 1.00 Credit**

Prerequisite(s): RADT 3043 with D or better

Level: Lower

This course is an elective course designed to allow students to pursue advanced work in radiologic technology or obtain extended clinical opportunities. A student may contract for one credit hour of independent study through an arrangement with the clinical coordinator, who agrees to direct such a study. Enrollment is limited by clinical site participation.