

Radiologic Technology (RADT) Course Descriptions

RADT 101 - *Introduction to Radiography*

An introduction to the principles and practices of radiology; historical and professional evolution, status of the health care delivery system, medicolegal and ethical considerations, medical communications, organization and operation of a radiology department, the imaging process and equipment, radiographic preparation and examinations, basic principles of radiation safety, and management techniques of the patient during radiologic procedures. Learning activities include demonstrations, video presentations and the use of computerized programs in patient care management in the Center for Information and Learning.

Credit Hours: 3. *Corequisites:* ACSM 100, BIOL 210, MATH 112, RADT 111, RADT 141

RADT 110 - *Radiographic Procedures*

A study of radiographic procedures with related positioning and anatomy. Emphasis on the vertebral column, abdomen, mobile, surgical, and trauma radiography, fluoroscopic and contrast media examinations. Cranial topography and morphology, radiography of the cranial, facial, nasal, and temporal bones, zygomatic arches, paranasal sinuses, orbits, optic foramen, mandible and temporomandibular joints with image analysis and interpretation is also included. Students are provided with laboratory opportunities to develop practical skills.

Credit Hours: 3. *Prerequisites:* ACSM 100, BIOL 100, MATH 112, RADT 101, RADT 111, RADT 141. *Corequisites:* BIOL 211, ENGL 101, RADT 112, RADT 142

RADT 111 - *Image Production I*

A study of radiation concepts with related practical application; x-ray properties, basic x-ray equipment, principles of x-ray production, x-ray interactions, prime factors of exposure, exposure calculations, image receptors and accessory devices, basic digital imaging process, components of image quality, technique charts, characteristics of image receptor systems, grids, filtration, beam restriction, technique manipulation, exposure control systems, and technical factors that influence and control image production and quality. Lab opportunities will allow students to produce and analyze images by varying technical parameters.

Credit Hours: 3. *Corequisites:* ACSM 100, MATH 112, RADT 101, RADT 141

RADT 112 - *Image Production II*

This course is a continuation of RADT 111. The technical factors and variables that affect the photographic and geometric quality of an image are analyzed. The course examines the methods of conventional and imaging technology processes with related practical application; design and construction requirements for acquisition, processing and displaying images; characteristics of conventional and digital image receptors and detectors including handling and storage, latent image formation; automatic processor equipment, system components, cycles, chemistry, processor monitoring and preventative maintenance; quality assurance/control testing programs, silver recovery, sensitometry, image artifacts, evaluation of image quality, exposure selection and conversions. Lab opportunities will allow students to produce and analyze images by varying technical parameters.

Credit Hours: 3. *Prerequisites:* ACSM 100, BIOL 210, MATH 112. RADT 101, RADT 111, RADT 141. *Corequisites:* BIOL 211, ENGL 101, RADT 110, RADT 142

RADT 123 - *Radiation Protection & Radiobiology*

A study of radiation protection safety practices and radiobiology; Emphasis on units of measurement, radiation quantities and units, detection devices, cellular components, radiation effects, dose limits and calculations, protective measures, equipment and shielding design; federal and state regulations governing radiation protection.

Credit Hours: 2. *Prerequisites:* LEVEL I Semesters I and II Radiologic Technology courses.

Corequisites: PHSC 100, RADT 143.

RADT 141 - *Radiographic Practicum*

Supervised clinical experiences designed to provide students with a fundamental understanding of the actual practice of radiology. This course includes theoretical and practical components. Instruction in positioning and basic imaging principles and considerations, terminology, anatomy and radiographic examination and evaluation of the upper extremity, shoulder girdle, lower extremity, pelvis and upper femora, bony thorax, thoracic viscera, and geriatric imaging; emphasis on operation of equipment, performance of darkroom procedures, patient care management, communication skills, application of radiation protection precautions, and the general radiographic process. Students are provided with laboratory opportunities to develop practical skills.

Credit Hours: 5. *Prerequisites:* Admission to the RADT associate degree program; Current CPR-C certification. *Corequisites:* ACSM 100, BIOL 210, MATH 112, RADT 101, RADT 111

RADT 142 - *Radiographic Practicum*

Supervised clinical performance of basic skills with more emphasis on preparation of the patient, room, and equipment for fluoroscopic, mobile, surgical, emergency/trauma and general radiographic procedures, including film evaluation. Continued development and application of clinical competencies.

Credit Hours: 6. *Prerequisites:* ACSM 100, BIOL 210, MATH 112, RADT 101, RADT 111, RADT 141 and current CPR-C Certification. *Corequisites:* BIOL 211, ENGL 101, RADT 110, RADT 112

RADT 143 - *Radiographic Practicum*

Continued development and application of clinical competencies with emphasis on precautions in patient care and performance of general radiographic procedures, emergency/trauma, mobile, surgical, fluoroscopic and contrast media procedures, and corresponding film evaluation.

Credit Hours: 3. *Prerequisites:* LEVEL I Semester I and II Radiologic Technology courses and current CPR-C Certification. *Corequisites:* PHSC 100, RADT 123

RADT 214 - *Special Imaging Technology*

A study of the fundamental principles of special imaging techniques and equipment with emphasis on radiographic equipment and accessory devices, x-ray circuitry and rectification, image intensified fluoroscopy, body section radiography, macroradiography, mammographic equipment, exposure control systems and devices, digital imaging, thermography, cine, mobile equipment, duplication, evaluation of radiographic equipment; uses of the computer in the radiology department. Introduction to specialized imaging and therapeutic equipment including MRI, CT, US, PET, radiation therapy and nuclear medicine technologies.

Credit Hours: 3. *Prerequisites:* LEVEL I Radiologic Technology courses.

Corequisites: PSYC 100, RADT 220, RADT 241

RADT 220 - *Advanced Radiographic Procedures*

An examination of radiographic anatomy advanced positioning, and patient care methods with related imaging equipment. Emphasis on basic pharmacology, venipuncture, advanced contrast media examinations, mammography, computed tomography, magnetic resonance imaging, scanograms, pediatric and trauma radiography, foreign body localization, advanced imaging studies of all body systems, including cross-sectional anatomy presentations. Students are provided with laboratory opportunities to develop practical skills.

Credit Hours: 3. *Prerequisites:* LEVEL I Radiologic Technology courses.

Corequisites: PSYC 100, RADT 214, RADT 241

RADT 230 - Radiographic Pathology

A study of medical disease processes and their radiographic manifestations. Emphasis on radiographic anatomy, physiology, pathology, and evaluation of radiographic quality with related exposure considerations.

Credit Hours: 2. *Prerequisites:* LEVEL II Semester III Radiologic Technology courses. *Corequisites:* HUMN elective, RADT 232, RADT 242

RADT 232 - Senior Seminar

Seminars of topics related to the practice of radiologic technology including written and oral presentations; a review of materials in preparation for the American Registry of Radiologic Technologists Examination

Credit Hours: 2. *Prerequisites:* LEVEL II Semester III Radiologic Technology courses. *Corequisites:* HUMN elective, RADT 230, RADT 242

RADT 241 - Radiographic Practicum

Continued participation and application of general radiographic procedures, emergency/trauma, mobile, surgical, fluoroscopic procedures, contrast media administration and examinations, angiography, patient care procedures, film evaluation, and quality control testing; introduction to CT, and MRI.

Credit Hours: 6. *Prerequisites:* LEVEL I Radiologic Technology courses and current CPR-C Certification. *Corequisites:* PSYC 100, RADT 214, RADT 220

RADT 242 - Radiographic Practicum

Advanced integration and application of all clinical skills including production of radiographs of optimal diagnostic quality. Clinical experiences are provided to enable students to manage patients and perform radiographic procedures with proficiency and using independent judgment. Clinical competencies related to patient preparation and management, room preparation, equipment operation, radiation safety practices, effective communication, performance of radiologic procedures utilizing appropriate supplies and accessory devices, image production, positioning, overall analysis of image quality and structures demonstrated. Elective rotations will be provided in radiation oncology, nuclear medicine, and ultrasound.

Credit Hours: 8. *Prerequisites:* LEVEL II Semester III Radiologic Technology courses and current CPR-C Certification. *Corequisites:* HUMN elective, RADT 230, RADT 232

RADT 345 - Principles of Mammography

The purpose of this course will prepare the student to enter the advanced practice of mammography. This course consists of didactic and clinical experiences necessary to expose the technologist to the actual practice of screening mammography. This course is not applicable to any of the degree or certificate programs at OLOL College. The study of the fundamentals of mammography. The course will include mammographic imaging of the breast (including the augmented breast), positioning, breast anatomy, breast physiology, pathology, mammographic education/care, instrumentation, techniques, and laboratory/clinical demonstrations. It includes a clinical component in which participants will become skilled in screening mammography. This course will be taught in a condensed format utilizing evenings and weekends. This provides the opportunity for those students who are employed to enroll in this course. The learning activities are designed to enable students to meet course objectives. This class meets Mammography Quality Standards Act for the FDA.

Credit Hours: 3 - not for degree credit. *Prerequisites:* Must be a registered technologist, registry eligible technologist, or enrolled in the last semester of a radiologic technology program.