

# RADIOGRAPHY (RADG)

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## **RADG 101 Introduction to Radiologic Sciences (1)**

Provides an overview of the professions of radiography, radiation therapy, and nuclear medicine technology. Emphasis is placed on educational preparation, career planning and professional development in the radiologic sciences. Clinical observations in health care settings are included.

## **RADG 216 Radiographic Procedures V (2)**

This course examines the radiographic anatomy and positioning skills required to perform radiographic procedures of the human body. Specific areas presented include positioning and procedures of the skull, facial bones, and paranasal sinuses. Emphasis will be placed on the production of quality radiographs while minimizing radiation exposure to the patient. Laboratory exercises will demonstrate the application of theoretical principles and concepts and reinforce didactic lecture content. Commonly-encountered pathological conditions will also be presented.

## **RADG 218 Fluoroscopic Procedures I (1)**

This course examines the radiographic anatomy and positioning skills required to perform radiographic procedures of the human body. Specific areas presented include positioning and procedures of the esophagus, stomach, small and large intestines. Emphasis will be placed on the production of quality radiographs while minimizing radiation exposure to the patient. Commonly-encountered pathological conditions will also be discussed.

## **RADG 219 Fluoroscopic Procedures II (1)**

This course examines the radiographic anatomy and positioning skills required to perform radiographic procedures of the human body. Specific areas presented include positioning and procedures of the urinary system, biliary system, reproductive system, joints and spinal cord. Emphasis will be placed on the production of quality radiographs while minimizing radiation exposure to the patient. Commonly-encountered pathological conditions will also be discussed.

## **RADG 301 Radiography Clinical Orientation (2)**

Provides students an orientation to the imaging department and clinical environment. The student will participate in clinical observation in assigned radiographic areas within the Medical Imaging Department to gain an understanding of the functioning of the department and radiographic process. The student will also rotate through non-radiographic areas in the department to integrate knowledge and skills acquired in the co-requisite courses.

## **RADG 305 Radiography Clinical Experience I (3)**

Allows the student to progress through a series of clinical rotation assignments which reinforce and provide opportunities for observation, assistance and participation in radiographic procedures covered in other courses. Students will complete 300 hours of clinical experience in general and fluoroscopic radiographic procedures under direct supervision of a radiographer. The student will begin documenting competency in radiographic and patient care procedures.

## **RADG 306 Radiography Clinical Experience II (5)**

Continues clinical rotations from RADG 305, including fluoroscopy, chest, general, portable, emergency department, mobile radiography, urography, and outpatient clinic. Emphasis is on completion of assigned clinical objectives and competency evaluations.

## **RADG 307 Radiography Clinical Experience II (3)**

Continuation of RADG 305. Provides clinical rotation assignments in which reinforce and provide opportunities for observation, assistance and participation in radiographic procedures. Emphasis is placed on application of concepts in the actual performance of procedures.

## **RADG 310 Introduction to Clinical Radiologic Science (2)**

Provides an overview of radiography and radiation therapy and their role in health care delivery. The course outlines the structure of the health system and roles of various departments and health professionals. The course also includes an introduction to the topics of equipment and procedures, radiation safety, professionalization, ethics and law and the history of the radiologic sciences.

## **RADG 320 Medical Terminology (1)**

Explores a body systems approach to the language of medicine and the radiologic sciences. Course emphasizes clinical applications and use of terms in interpretation of orders and reports.

## **RADG 330 Methods of Patient Care (2)**

Covers concepts of routine and emergency patient care procedures, including infection control, patient assessment and education, death and dying, pharmacology and CPR. Consideration for the physical, developmental and psychological needs of the patient and family is emphasized.

## **RADG 331 Methods of Patient Care (3)**

Covers concepts of routine and emergency patient care procedures, including basic EKG, infection control, patient assessment and education, venipuncture and contrast injection, introduction of pharmacology and interacting with the terminally ill. The course includes certification in cardiopulmonary resuscitation and clinical demonstration of patient care skills. Consideration for the physical, developmental and psychological needs of the patient and family is emphasized.

## **RADG 335 Ethics and Law in Radiologic Science (2)**

Provides students with an understanding of the legal and ethical responsibilities of professional practice. Covered topics include ethical behavior, issues and dilemmas, interacting with the terminally ill, scope of practice, elements of malpractice and risk management, health care distribution, student rights, and future challenges.

## **RADG 350 Radiation Physics I (2-3)**

Explores the properties and medical applications of radiation including the electromagnetic spectrum, radioactivity and half-life, x-ray production, effects of technique selection on x-ray exposure, interaction of radiation with matter, and design of radiographic equipment. Emphasis is placed on clinical application of concepts in the safe operation of high voltage radiologic equipment.

## **RADG 360 Radiobiology and Radiation Protection (2)**

Is an overview of the interaction of radiation with living systems, effects on organisms, and factors affecting biological responses. Covered topics include: early and late effects of radiation exposure and epidemiological studies of radiation and acute radiation syndromes. Included is content which provides the student with an overview of the principles and practices of radiation protection for the patient, personnel, and general public.

## **RADG 370 Medical Imaging I (3)**

Presents the devices and techniques of radiographic image production. Covered topics include: films and processing, beam filtration and restriction, intensifying screens, radiographic grids and technique selection. Emphasis is placed on clinical applications and the evaluation of radiographic quality. Course content includes laboratory and demonstrations.

**RADG 371 Radiographic Imaging I (3)**

Provides the student with the knowledge of x-ray generation and the prime factors that govern and influence the production of x-rays, radiographic film, sensitometry, intensifying screens automatic processing and processor quality control and artifact identification. This course includes demonstrations and laboratory activities to reinforce concepts.

**RADG 372 Radiographic Imaging II (3)**

This course is a continuation of RADG 371. It is designed to develop the student's understanding of radiographic quality, the photographic and geometric properties which control and influence radiographic quality, technical factor selection systems including automatic exposure control and accessory radiographic devices. Problem solving and critical thinking skills will be emphasized in technique formulations and exposure calculations. Fluoroscopic and digital imaging is also included in the topics covered.

**Restrictions:** Enrollment is limited to students with a major in Radiography.

**RADG 374 Digital Radiography and PACS (2)**

Introduces the radiography student to Digital Imaging and Picture Archiving and Communication Systems (PACS). The level of sophistication that modern computers and robotic devices have attained, especially in the role they play in the creation of radiographic images is a necessity in the current day. Knowledge of how digital imaging differs from traditional film/screen imaging allows the technologist to produce optimal images. Knowledge of PACS is essential to ensure that images are properly stored with the correct patient demographic information as well as an understanding of how images can be moved from one location to another while maintaining proper image and data integrity.

**RADG 380 Radiographic Procedures (5)**

Explores anatomy review, positioning demonstration, and presentation of radiographs of the human body, so that the student learns radiographic examinations of the chest, abdomen, upper extremity, digestive system and urinary system. Course promotes student clinical competence in all assigned radiographic procedures and related anatomical and positioning theory and concepts.

**RADG 381 Radiographic Procedures II (5)**

Is a continuation of RADG 380 and includes the lower extremity, spine, bony thorax, cranium, facial bones and sinuses. Students perform all routine radiographic examinations and are expected to synthesize knowledge of radiation protection and exposure technique in the production of optimal quality diagnostic radiographs.

**RADG 405 Radiography Clinical Experience III (5)**

Is a continuation of the junior level RADG 305 utilizing week-long clinical rotation assignments. Emphasis on professional development and completion of clinical competencies is continued.

**RADG 406 Radiography Clinical Experience IV (4)**

Completes clinical rotations in general, surgical and portable radiography and also includes introductory clinical experiences in the special imaging modalities of MRI, US, CT, mammography, and angiography. Emphasis is on student development of proficient performance of all radiographic procedures.

**RADG 407 Radiographic Clinical Experience III (3)**

Is a continuation of the junior level RADG 307. The course emphasizes the continued development of clinical competency and professional development. Students will complete 300 hours of clinical experience in general radiographic and fluoroscopic procedures and trauma radiography under direct/indirect supervision. Students are also provided an opportunity to observe in some of the advanced imaging modality departments.

**RADG 408 Radiographic Clinical Experience IV (5-7)**

Continuation of RADG 407. The course emphasizes the continued development of clinical competency and professional development. Students will complete 400 hours of clinical experience in general radiographic and fluoroscopic procedures and trauma radiography under direct/indirect supervision. Students are also provided an opportunity to observe in some of the advanced imaging modality departments.

**RADG 409 Radiographic Clinical Experience V (4-10)**

Continuation of RADG 408. Provides opportunities for final student learning outcomes assessment. Requires successful completion of final clinical competencies in all major areas of radiography including critical thinking and problem-solving. Emphasis is on continued professional development and proficient performance of all radiographic procedures with opportunity for continued exploration of advanced imaging modalities.

**RADG 410 Radiographic Critique I (2)**

Allows students to integrate concepts learned in previous course work to critique the diagnostic quality of radiographs at the view box. Emphasis is placed on critical thinking, synthesis of information from across the curriculum and the application of theory in practice.

**RADG 411 Radiographic Critique II (2)**

Continuation of Critique I covering radiographic critique of the spine, thorax, cranium and facial bones.

**RADG 420 Sectional Anatomy (2)**

Presents anatomy from a three dimensional perspective, emphasizing the location and relative position of body structures. A body section approach to transverse, sagittal, and coronal anatomy uses slides of cadaver cross sections, correlated line diagrams, and cross sectional images from Computed Tomography and Magnetic Resonance Imaging is used.

**RADG 421 Sectional Anatomy (2)**

Presents anatomy from a three dimensional perspective, emphasizing the location and relative position of body structures. A body section approach to transverse, sagittal, and coronal anatomy enhances the student's understanding of gross anatomy and patient positioning. The course provides clinical application of information to the cross sectional images from Computed Tomography and Magnetic Resonance Imaging is used.

**RADG 430 Pharmacology (2)**

Explores the role of radiographics in the administration of contrast media and related medications. Topics include: principles of pharmacology, biopharmaceutics and pharmacokinetics, pharmacodynamics, classification, chemistry and pharmacology of contrast agents, various routes of administration, infection control and pharmacology of emergency medications.

**RADG 440 Radiographic Pathology I (2)**

Explores a body systems approach to the use of medical imaging in the demonstration of disease processes. Included are the respiratory, skeletal, gastrointestinal and urinary systems. Procedural and patient care considerations relative to pathology are emphasized. Radiographs and special imaging studies are reviewed.

**RADG 441 Radiographic Pathology II (2)**

Is a continuation of RADG 440, covering pathology of the following body systems: cardiovascular, nervous, hematopoietic system, endocrine, reproductive, and miscellaneous disorders.

**RADG 450 Quality Management (2)**

Covers the continuous quality improvement programs and the application of quality management concepts in diagnostic radiology. Included are quality control and assurance for darkroom processors, silver recovery as well as radiographic, ancillary, fluoroscopic and advanced imaging equipment.

**RADG 460 Health Care And Radiology Administration I (1)**

Provides a comprehensive overview of history, development, and features of the US health care delivery system. Focuses on forces and concepts driving the system and how they will affect the future of the industry.

**RADG 461 Health Care And Radiology Administration II (1)**

Continuation from RADG 460. Topics include: quality of care, hospital administration, and radiology department management.

**RADG 470 Computer Tomography and Digital Imaging (2)**

Covers advanced imaging equipment and theory related to fluoroscopic and digital radiographic imaging, computers and computer applications in medical imaging. Computerized tomography is also presented.

**RADG 480 Special Procedures (2)**

Presents the advanced radiographic, fluoroscopic and invasive procedures. Patient care, procedural protocol, equipment and accessories used are emphasized. Included are the following topics: non-routine skeletal procedures, arthrography, trauma radiography, pediatric and geriatric radiography, and mammography.

**Restrictions:** Students cannot enroll who have a major in Radiography.

**RADG 481 Special Procedures (3)**

Presents the advanced radiographic, fluoroscopic and invasive procedures. Patient care, procedural protocol, equipment and accessories used are emphasized. Included are the following topics: trauma radiography, pediatric and geriatric radiography, and special procedures.

**RADG 490 Radiography Registry Review (2)**

Offers a review of the content areas of the ARRT examination to prepare the student for certification, and to synthesize information from across the curriculum. Course includes developmental testing and simulated registry examinations.

**RADG 491 Radiography Registry Review (3)**

Offers a review of the content areas of the ARRT examination to prepare the student for certification, and to synthesize information from across the curriculum. Course includes developmental testing and simulated registry examinations. Successful completion of a simulated registry examination is a prerequisite to graduation.