

# RADIOGRAPHY (IMG)

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## IMG 100 (7 credit hours)

### Radiography I

Emphasizes the historical perspective, professional ethics, introductory imaging equipment, patient care, interpersonal communications and the role of the radiographer as the member of the healthcare team.

Applies the principles of human anatomy to the study of fundamental radiographic procedures (exposure factors and patient positioning) used for diverse populations. Covers procedures of the chest, abdomen, extremities, shoulder girdle, bony thorax, and pelvic girdle. Lecture: 6.0 credits (90 contact hours). Lab: 1.0 credit (30 contact hours).

**Pre-requisite:** Admissions to the radiography program and BIO 139 with a minimum grade of "C".

**Co-requisite:** IMG 101.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## IMG 101 (4 credit hours)

### Clinical I

Focus on the application and evaluation of radiography in the clinical setting. Integrates concepts and knowledge of anatomy, pathology, procedures, patient care, and imaging principles. Develops technical and procedural knowledge through observation and participation in radiographic studies. Clinical: 4.0 credits (240 contact hours).

**Pre-requisite:** Admissions to the radiography program and BIO 139 with a minimum grade of "C".

**Co-requisite:** IMG 100.

**Attributes:** Technical

**Components:** CLN: Clinical

## IMG 104 (2 credit hours)

### Introduction to Radiography

Provides an overview of the foundations of radiography and the practitioner's role in health care delivery. Examines the principles, practices, and policies of health care organizations, in addition to the professional responsibilities of the radiographer. Incorporates basic tube function and radiation protection, as well as legal and ethical considerations. Provides a brief overview of other imaging modalities and patient treatments. If taken as a Pre-requisite, a minimum grade of C is required. Lecture: 1.0 credit (15 contact hours). Lab: 1.0 credit (30 contact hours).

**Pre-requisite:** BIO 137 with a minimum grade of C.

**Pre- or co-requisite:** BIO 139.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## IMG 106 (2 credit hours)

### Patient Care in Radiography

Provides the concepts of optimal patient care, including consideration for the physical and psychological needs of the patient and family. Describes routine and emergency patient care procedures, as well as infection control procedures using standard precautions. Identifies the role of the radiographer in patient education. Lecture: 1.0 credit (15 contact hours). Lab: 1.0 credit (30 contact hours).

**Pre-requisite:** BIO 137.

**Pre- or co-requisite:** BIO 139.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## IMG 108 (4 credit hours)

### Radiographic Procedures I

Provides the knowledge base necessary to perform imaging procedures of the upper extremities and shoulder girdle, lower extremities and pelvic girdle, bony thorax, chest, upper airway, and plain abdomen. Covers criteria for optimal diagnostic images, including anatomical structures shown, as well as corrective positioning action to be taken for sub-optimal images. Lecture: 2.0 credits (30 contact hours). Lab: 2.0 credits (60 contact hours).

**Pre-requisite:** BIO 137.

**Pre- or co-requisite:** BIO 139.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## IMG 109 (1 credit hours)

### Clinical Practice I

Designed to sequentially develop, apply, critically analyze, integrate, synthesize, and evaluate concepts and theories in the performance of radiologic procedures. Examines patient-centered clinical practice and professional development through competency-based clinical assignments and concepts of team practice. Provides patient care and assessment, competent performance of radiologic imaging and total quality management. Focuses on the upper and lower extremities, bony and visceral thorax, and abdomen. Clinical: 1.0 credit (60 contact hours).

**Pre-requisite:** BIO 137.

**Pre- or co-requisite:** BIO 139.

**Attributes:** Technical

**Components:** CLN: Clinical

## IMG 110 (7 credit hours)

### Radiography II

Emphasizes radiographic imaging, related technical factors, and accessories. Includes procedures for the basic and complex skulls, vertebral column, abdomen/GI studies and Urological studies. Considers special radiographic examinations and equipment. Concludes with a detailed discussion of digital imaging and associated topics. Lecture: 6.0 credits (90 contact hours). Laboratory: 1.0 credit (30 contact hours).

**Pre-requisite:** IMG 100 with a minimum grade of "C".

**Co-requisite:** IMG 111.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## IMG 111 (4 credit hours)

### Clinical II

Continues IMG 101 by focusing on the application and evaluation of radiography in the clinical setting. Integrates concepts and the knowledge of anatomy, pathology, procedures, patient care, and imaging principles. Develops technical skills and procedural knowledge through observation and participation in radiographic studies with opportunities for more responsibility and independence with previously learned procedures. Clinical: 4.0 credits (240 contact hours).

**Pre-requisite:** IMG 101 with a minimum grade of "C".

**Co-requisite:** IMG 110.

**Attributes:** Technical

**Components:** CLN: Clinical

**IMG 114 (2 credit hours)****Image Production & Acquisition**

Establishes a basic knowledge of atomic structure and terminology. Presents the nature and characteristics of radiation, x-ray production and the fundamentals of photon interactions with matter. Establishes a knowledge base in factors that govern the image production process. Imparts an understanding of the components, principles and operation of digital imaging systems found in diagnostic radiology. Includes factors that impact image acquisition, display, archiving and retrieval are discussed. Presents the principles of digital system quality assurance and maintenance. Lecture: 1.0 credit (15 contact hours). Lab: 1.0 credit (30 contact hours).

**Pre-requisite:** IMG 104, IMG 106, IMG 108 and IMG 109.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**IMG 116 (2 credit hours)****Advanced Patient Care in Radiography**

Provides basic concepts of pharmacology, venipuncture and administration of diagnostic contrast agents. Explains the classification and scheduling of drugs. Emphasizes the appropriate delivery of patient care during radiographic procedures requiring the administration of contrast agents. Provides the knowledge base and practical skills necessary to perform special diagnostic studies. Covers fluoroscopic procedures requiring informed consent, aseptic technique, and the administration of various contrast media. Lecture: 1.0 credit (15 contact hours). Lab: 1.0 credit (30 contact hours).

**Pre-requisite:** IMG 104, IMG 106, IMG 108 and IMG 109.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**IMG 118 (4 credit hours)****Radiographic Procedures II**

Provides the knowledge base necessary to perform standard imaging procedures of the spine, cranium, facial bones, paranasal sinuses, upper gastrointestinal, lower gastrointestinal, urinary system, as well as fluoroscopic procedures requiring informed consent, aseptic technique, and the administration of various contrast media. Covers criteria for optimal diagnostic images, including anatomical structures shown, as well as corrective positioning action to be taken for sub-optimal images. Lecture: 3.0 credits (45 contact hours). Lab: 1.0 credit (30 contact hours).

**Pre-requisite:** IMG 104, IMG 106, IMG 108 and IMG 109.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**IMG 119 (3 credit hours)****Clinical Practice II**

Continues the IMG 109 clinical experience. Designed to sequentially develop, apply, critically analyze, integrate, synthesize and evaluate concepts and theories in the performance of radiologic procedures. Provides structured clinical experience through sequential competency-based assignments that focus on the upper and lower extremities, bony and visceral thorax, abdomen, vertebral column, cranium, facial bones, and contrast studies of the digestive and urinary system. Clinical: 3.0 credits (180 contact hours).

**Pre-requisite:** IMG 104, IMG 106, IMG 108 and IMG 109.

**Attributes:** Technical

**Components:** CLN: Clinical

**IMG 201 (3 credit hours)****Clinical III**

Continues IMG 111 by focusing on the application and evaluation of radiography in the clinical setting. Integrates concepts and the knowledge of anatomy, pathology, procedures, patient care, and imaging principles. Emphasizes on radiographic mobile studies and image analysis. Develops technical skills and procedural knowledge through observation and participation in radiographic studies with opportunities for more responsibility and independence with previously learned procedures. Clinical: 3.0 credits (180 contact hours).

**Pre-requisite:** IMG 111 with a minimum grade of "C".

**Attributes:** Technical

**Components:** CLN: Clinical

**IMG 209 (3 credit hours)****Clinical Practice III**

Continues the IMG 119 clinical experience. Designed to sequentially develop, apply, critically analyze, integrate, synthesize and evaluate concepts and theories in the performance of radiologic procedures. Provides structured clinical experience through sequential competency-based assignments that focus on the upper and lower extremities, bony and visceral thorax, abdomen, vertebral column, cranium, facial bones, and contrast studies of the digestive and urinary systems, as well as surgical radiographic procedures. Clinical: 3.0 credits (180 contact hours).

**Pre-requisite:** IMG 114, IMG 116, IMG 118 and IMG 119.

**Attributes:** Technical

**Components:** CLN: Clinical

**IMG 210 (4 credit hours)****Radiography IV**

Covers radiographic imaging methods examining the imaging process as a sequence of events of x-ray production through hard copy processing. Discussion of the image equipment in terms of function, influences on the image, and the impact of alterations on image characteristics. Emphasizes on fluoroscopic equipment and QC/QA. Enhances and complements the concurrent clinical experiences of the student. Lecture: 3.0 credit (45 contact hours). Lab: 1.0 credit (30 contact hours).

**Pre-requisite:** IMG 201 with a minimum grade of "C".

**Co-requisite:** IMG 211.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**IMG 211 (6 credit hours)****Clinical IV**

Continues IMG 201 by focusing on the application and evaluation of radiography in the clinical setting. Integrates concepts and the knowledge of anatomy, pathology, procedures, patient care, and imaging principles. Develops technical skills and procedural knowledge through observation and participation in radiographic studies with opportunities for more responsibility and independence with previously learned procedures. Clinical: 6.0 credits (360 contact hours).

**Pre-requisite:** IMG 201 with a minimum grade of "C".

**Co-requisite:** IMG 210.

**Attributes:** Technical

**Components:** CLN: Clinical

**IMG 214 (2 credit hours)****Imaging Equipment**

Establishes a knowledge base in radiographic, fluoroscopic, and mobile equipment requirements and design. Provides a basic knowledge of quality control. Imparts an understanding of the components, principles and operation of digital imaging systems found in diagnostic radiology. Discusses factors that impact image acquisition, display, archiving and retrieval. Presents the principles of digital system quality assurance and maintenance. Lecture: 1.0 credit (15 contact hours). Lab: 1.0 credit (30 contact hours).

**Pre-requisite:** IMG 209.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**IMG 216 (1 credit hours)****Basic Computed Tomography**

Provides entry-level radiography students with an introduction to and basic understanding of the operation of a computed tomography (CT) device. Lecture: 1.0 credit (15 contact hours).

**Pre-requisite:** IMG 209.

**Attributes:** Technical

**Components:** LEC: Lecture

**IMG 219 (6 credit hours)****Clinical Practice IV**

Continues the IMG 209 clinical experience. Designed to sequentially develop, apply, critically analyze, integrate, synthesize and evaluate concepts and theories in the performance of radiologic procedures. Provides structured clinical experience through sequential competency-based assignments that focus on the upper and lower extremities, bony and visceral thorax, abdomen, vertebral column, cranium, facial bones, and contrast studies of the digestive and urinary systems, surgical radiographic procedures and special diagnostic procedures such as myelograms, arthrograms, hepatobiliary studies, and venography. Clinical: 6.0 credits (360 contact hours).

**Pre-requisite:** IMG 209.

**Attributes:** Technical

**Components:** CLN: Clinical

**IMG 220 (4 credit hours)****Radiography V**

Re-introduces advanced modalities used to complement diagnosis images. Covers the principles of radiation biology, radiation protection, pathology, pharmacology principles and systemic classification of diseases. Continues the discussion of professional and legal standards needed to practice by reviewing radiographic topics in preparation for a career as an imaging professional. Lecture: 3.0 credits (45 contact hours) Lab: 1.0 credit (30 contact hours).

**Pre-requisite:** IMG 210 with a minimum grade of "C".

**Co-requisite:** IMG 221.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**IMG 221 (6 credit hours)****Clinical V**

Continues IMG 211 by focusing on the application and evaluation of radiography in the clinical setting. Integrates concepts and the knowledge of anatomy, pathology, procedures, patient care, and imaging principles. Develops technical skills and procedural knowledge through observation and participation in radiographic studies with opportunities for more responsibility and independence with previously learned procedures. Clinical: 6.0 credits (360 contact hours).

**Pre-requisite:** IMG 211 with a minimum grade of "C".

**Co-requisite:** IMG 220.

**Attributes:** Technical

**Components:** CLN: Clinical

**IMG 224 (2 credit hours)****Radiation Protection & Biology**

Provides 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. Discusses factors affecting biological response, including acute and chronic effects of radiation. Presents an overview of the principles of radiation protection, including the responsibilities of the radiographer for patients, personnel and the public. Incorporates radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies and health care organizations. Lecture: 2.0 credits (30 contact hours).

**Pre-requisite:** IMG 214 and IMG 216 and IMG 219.

**Attributes:** Technical

**Components:** LEC: Lecture

**IMG 226 (1 credit hours)****Radiographic Pathology**

Introduces concepts related to disease and etiological considerations with emphasis on radiographic appearance of disease and impact on exposure factor selection. Lecture: 1.0 credit (15 contact hours).

**Pre-requisite:** IMG 214 and IMG 216 and IMG 219.

**Attributes:** Technical

**Components:** LEC: Lecture

**IMG 228 (2 credit hours)****Radiography Seminar**

Provides capstone information needed by the entry level radiographer; includes the radiography practitioner's role in the health care delivery system, continuing education, and professional development, advanced modalities, accreditation organizations, national registration and state licensure, as well as the benefits of membership and activity in professional societies. Examines the principles, practices, and policies of health care organizations, and the delivery of health care in the United States. Lecture: 2.0 credits (30 contact hours).

**Pre-requisite:** IMG 214, IMG 216 and IMG 219.

**Attributes:** Technical

**Components:** LEC: Lecture

**IMG 229 (6 credit hours)****Clinical Practice V**

Continues the IMG 219 clinical experience. Designed to sequentially develop, apply, critically analyze, integrate, synthesize and evaluate concepts and theories in the performance of radiologic procedures. Provides structured clinical experience through sequential competency-based assignments that focus on the upper and lower extremities, bony and visceral thorax, abdomen, vertebral column, cranium, facial bones, and contrast studies of the digestive and urinary systems, surgical radiographic procedures, and special diagnostic procedures such as myelograms, arthrograms, hepatobiliary studies, and venography. Clinical: 6.0 credits (360 contact hours).

**Pre-requisite:** IMG 214, IMG 216 and IMG 219.

**Attributes:** Technical

**Components:** CLN: Clinical

**IMG 230 (3 credit hours)****Sectional Anatomy for Advanced Medical Imaging**

Provides content on computed tomography and magnetic resonance imaging (CT/MRI) procedures including patient care, image acquisition, and cross sectional anatomy. Lecture: 3.0 credits (45 contact hours).

**Pre-requisite:** ((IMG 201 or IMG 216 or DMI 130) with a minimum grade of C) or consent of instructor defined by enrollment in an accredited Nuclear Medicine program or enrollment in second year of an accredited Radiography program or ARRT registry or NMTCB registry.

**Attributes:** Technical

**Components:** LEC: Lecture

**IMG 240 (3 credit hours)****Pathology for Advanced Medical Imaging Modalities**

Examines diseases commonly diagnosable via computed tomography (CT) and/or magnetic resonance imaging (MRI). Traces the disease or trauma process from its description, etiology, symptoms, and diagnosis with appearance on CT and/or MRI scans. Lecture: 3.0 credits (45 contact hours).

**Pre-requisite:** ((IMG 201 or IMG 216 or DMI 130) with a minimum grade of C) or consent of instructor defined by enrollment in an accredited Nuclear Medicine program or enrollment in second year of an accredited Radiography program or ARRT registry or NMTCB registry.

**Attributes:** Technical

**Components:** LEC: Lecture

**IMG 250 (3 credit hours)****Computed Tomography Physics & Instrumentation**

Explores the physical principles and instrumentation involved in computed tomography (CT). Examines the history and evolution of CT, and the physics of radiation and CT. Includes the study of configuration, collimation, functions, processing, and quality of CT systems operations. Lecture: 3.0 credits (45 contact hours).

**Pre-requisite:** ((IMG 201 or IMG 216 or DMI 130) with a minimum grade of C) or consent of instructor defined by enrollment in an accredited Nuclear Medicine program or enrollment in second year of an accredited Radiography program or ARRT registry or NMTCB registry.

**Attributes:** Technical

**Components:** LEC: Lecture

**IMG 255 (3 credit hours)****Magnetic Resonance Physics & Instrumentation**

Explores the physical principles and instrumentation involved in magnetic resonance imaging (MRI). Examines the history and evolution of MRI and the physics of radiation and MRI. Includes the study of configuration, collimation, functions, processing, and quality of MRI systems operations. Lecture: 3.0 credits (45 contact hours).

**Pre-requisite:** ((IMG 201 or IMG 216 or DMI 130) with a minimum grade of C) or consent of instructor defined by enrollment in an accredited Nuclear Medicine program or enrollment in second year of an accredited Radiography program or ARRT registry or NMTCB registry.

**Attributes:** Technical

**Components:** LEC: Lecture

**IMG 260 (3 credit hours)****Computed Tomography Imaging Procedures**

Examines the procedures, positioning, and equipment involved in computed tomography (CT) imaging. Lecture: 3.0 credits (45 contact hours).

**Pre-requisite:** ((IMG 201 or IMG 216 or DMI 130) with a minimum grade of C) or consent of instructor defined by enrollment in an accredited Nuclear Medicine program or enrollment in second year of an accredited Radiography program or ARRT registry or NMTCB registry.

**Attributes:** Technical

**Components:** LEC: Lecture

**IMG 265 (3 credit hours)****Magnetic Resonance Imaging Technology**

Focuses on patient care and imaging areas of magnetic resonance imaging (MRI) and magnetic resonance angiography (MRA). Explores topics of image formation, tissue characteristics, resolution, imaging options, and parameters, post processing, and patient characteristics. Discusses specific MRI and MRA exams for image body systems. Lecture: 3.0 credits (45 contact hours).

**Pre-requisite:** ((IMG 201 or IMG 216 or DMI 130) with a minimum grade of C) or consent of instructor defined by enrollment in an accredited Nuclear Medicine program or enrollment in second year of an accredited Radiography program or ARRT registry or NMTCB registry.

**Attributes:** Technical

**Components:** LEC: Lecture

**IMG 285 (4 credit hours)****Computed Tomography Clinical Practice I**

Provides a structured clinical experience through sequential competency-based assignments that focuses on the upper and lower extremities, bony and visceral thorax, abdominal and pelvic cavities, and cranium. Provides necessary clinical correlation of data acquisition concepts and basic scanning parameters. Clinical: 4.0 credits (240 contact hours).

**Pre-requisite:** ARRT registered as a Radiographer or Nuclear Medicine Technologist, or NMTCB registered as a Nuclear Medicine Technologist, and Kentucky radiography license or a provisional license as a nuclear medicine technologist to perform CT.

**Pre- or co-requisite:** IMG 230, IMG 240, IMG 250 and IMG 260.

**Attributes:** Technical

**Components:** CLN: Clinical

**IMG 295 (4 credit hours)****Clinical Practice in Magnetic Resonance Imaging**

Designed to provide the post-registry radiographer or nuclear medicine technologist with the opportunity to establish clinical competencies in the various categories of MRI, including, the head, neck, thorax, abdomen & pelvis, spine, and musculoskeletal system. Includes experience in quality control procedures, image analysis, and the storage and retrieval of electronic images. Provides clinical experience including magnetic safety, screening of the patient, coworkers, the general public and anyone entering the magnetic scanning room. Pre-Requisites: IMG 255 and IMG 265. Clinical: 4 credits (240 contact hours).

**Attributes:** Technical

**Components:** CLN: Clinical