

DCH RADIOGRAPHY PROGRAM CURRICULUM

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| 17 Hours of Pre-requisites are required before entering into the professional phase of the Radiography Program. |
| Pre-requisites |
| English Comp I |
| Intermediate College Algebra |
| Human Anatomy & Physiology I |
| Human Anatomy & Physiology II |
| Speech |
| Professional Phase of Radiography Program to be taught at DCH |
| RAD 100 Introduction to Radiologic Sciences and Health Care |
| RAD 101 Patient Care |
| RAD 105 Radiographic Procedures I |
| RAD 110 Clinical Education PRCT I |
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| RAD 202 Radiation Protection and Radiobiology |
| RAD 203 Imaging Equipment |
| RAD 205 Radiographic Procedures II |
| RAD 210 Clinical Education PRCT II |
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| RAD 301 Ethics and Law in the Radiologic Sciences |
| RAD 303 Principles of Imaging I |
| RAD 305 Radiographic Procedures III |
| RAD 310 Clinical Education PRCT III |
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| RAD 403 Principles of Imaging II |
| RAD 405 Radiographic Procedures IV |
| RAD 410 Clinical Education PRCT IV |
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| RAD 502 Digital Imaging and Acquisition |
| RAD 503 Special Imaging Systems & Equipment |
| RAD 505 Radiographic Procedures V |
| RAD 510 Clinical Education PRCT V |
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| RAD 600 Radiographic Pathology and Image Analysis |
| RAD 605 Radiographic Procedures VI |
| RAD 610 Clinical Education PRCT VI |
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| RAD 700 Radiography Capstone I |
| RAD 710 Clinical Education PRCT VII |
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| RAD 800 Radiography Capstone II |
| RAD 810 Clinical Education PRCT VIII |

Revised: 8/05; 9/08; 9/09; 8/11; 8/12; 1/13

Reviewed: 3/10; 9/14

Course Descriptions

RAD 100 Introduction to Radiologic Sciences & Healthcare

This course provides an orientation to the Radiography Program and the profession of Radiologic Technology. Initial emphasis is on the student's role as a radiographer in the healthcare delivery system to include student responsibilities, historical development in Radiology, professional organizations, accreditation, regulatory agencies and program personnel. Content provides an overview of the foundations of radiography and the practitioners' role and the healthcare delivery system. Principles, practices and policies of healthcare organization are examined and discussed in addition to the professional responsibilities of the radiographer.

| THEORY | LAB | CLINIC | COURSE |
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| 20 | 0 | 0 | 2 |

RAD 101 Patient Care

Content provides the concepts of optimal patient care, including consideration for the physical and psychological needs of the patient and family. The role of the radiographer and patient evaluation and education is identified. An introduction in assessing and performing patient care to include pediatric and geriatric patients in a Radiology department. Establish techniques that promote professional relations and standards of conduct while working with pediatric and geriatric patients and other medical personnel. Concepts and practices in routine and emergency patient care procedures, proper body mechanics, and pharmacology and drug administration. Instruction in cardiopulmonary resuscitation, oxygen administration and venipuncture is provided.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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| 20 | 20 | 0 | 3 |

RAD 105 Radiographic Procedures I

This course will introduce radiographic procedures consisting of positioning, associated terminology, projections, views, motion control, accessory equipment and patient considerations. An introduction to radiographic image analysis, technique applications and evaluation and critique is applied in classroom and laboratory environments. Supervised laboratory in image production, procedures and radiographic anatomy identification of the visceral thorax to include pharynx, larynx and abdomen is required. Age-related competencies will be included for all age groups. Upon completion of the course the student will demonstrate knowledge of anatomy and positioning skills, oral communication and critical thinking in both the didactic and laboratory settings.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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| 30 | 30 | 0 | 4 |

RAD 110 Clinical Education PRCT I

This clinical course introduces the operation of the medical imaging department and equipment. Scheduled clinical education rotations begin and the shifting of rotations may begin this quarter. Supervision, instruction, clinical practice, and procedural competency testing is performed as outlined in Section II, clinical preceptor handbook.

Preceptorship: Ratio 5:1 (one hour of credit for five hours of preceptorship instruction)

| THEORY | LAB | CLINIC | COURSE |
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| 0 | 0 | 150 | 3 |

RAD 202 Radiation Protection and Biology

A study of the effects of radiation exposure on biological systems, typical medical exposure levels, methods for measuring and monitoring, types of radiation, and methods for protecting personnel and patients from excessive exposure. Principles of the interactions of ionizing radiation with living systems with respect to molecules, organisms, systems, and influences affecting acute and long-term biological responses are described.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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| 20 | 0 | 0 | 2 |

RAD 203 Imaging Equipment

Concepts of Radiologic science, Radiologic quantities and units, fundamentals of physics, basic atomic structure, electromagnetic radiation, electricity and magnetism, electromagnetism, the x-ray imaging system and the x-ray tube are described.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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| 30 | 0 | 0 | 3 |

RAD 205 Radiographic Procedures II

This course provides instruction in Radiologic procedures, radiographic positioning and image analysis of the upper extremity, shoulder girdle, lower extremities and long bone measurements. Supervised laboratory and evaluation in image production, procedures, and radiographic anatomy identification is required. Procedural competency testing as outlined in Section II, clinical preceptor handbook. Course will also discuss age-specific competence. Age-related competencies will be included for all age groups. Includes discussion of trauma and mobile imaging.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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| 30 | 30 | 0 | 4 |

RAD 210 Clinical Education PRCT II

Rotation assignments to all radiographic areas within the imaging department continue as aligned with objective, competency and assessment as outlined in Section II, clinical preceptor handbook. This clinical education course provides assignments to all radiographic areas within the Imaging department. Rotations will include diagnostic radiology, digital equipment, IVP room, fluoroscopy, mobile procedures, surgery, outpatient imaging facilities and the emergency department.

Preceptorship: Ratio 5:1 (one hour of credit for five hours of preceptorship instruction)

| THEORY | LAB | CLINIC | COURSE |
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| 0 | 0 | 200 | 4 |

RAD 301 Ethics & Law in the Radiographic Sciences

This course provides a foundation in ethics and law related to the practice of medical imaging. An introduction to terminology, concepts and principles will be presented to serve as a background for ethical and legal issues found in clinical practice. Specific case studies regarding medical imaging will be presented and discussed.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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| 20 | 0 | 0 | 2 |

RAD 303 Principles of Imaging I

Content establishes a knowledge base in factors that govern the image production process. Beam restricting devices, grids, filtration, radiographic quality, radiographic exposure, radiographic technique and automatic exposure control are described.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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| 20 | 0 | 0 | 2 |

RAD 305 Radiographic Procedures III

This course provides instruction in Radiologic procedures, radiographic positioning, image critique, and analysis of the five segments of the vertebral column, the bony thorax and pelvic girdle. Supervised laboratory and evaluation in image production, procedures, and radiographic anatomy identification is required. Procedural competency testing is performed as outlined in Section II, clinical preceptor handbook. Course will also discuss age-specific competence. Age-related competencies will be included for all age groups. Includes discussion of trauma and mobile imaging.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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| 30 | 30 | 0 | 4 |

RAD 310 Clinical Education PRCT III

Rotational assignments to all radiographic areas within the imaging department continue as aligned with the objective, competency and assessment outlined in Section II, clinical preceptor handbook. This clinical education course provides assignments to all radiographic areas with the imaging department. Rotations will include diagnostic radiology, digital equipment, IVP room, fluoroscopy, mobile procedures, surgery, outpatient imaging facilities and the emergency department.

Preceptorship: Ratio 5:1 (one hour of credit for five hours of preceptorship instruction)

| THEORY | LAB | CLINIC | COURSE |
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| 0 | 0 | 200 | 4 |

RAD 403 Principles of Imaging II

Content establishes a knowledge base in factors that govern the image production process. Beam restricting devices, grids, filtration, radiographic quality, radiographic exposure, radiographic technique and automatic exposure control are described. Includes laboratory assignments and introduction to digital imaging.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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| 20 | 20 | 0 | 3 |

RAD 405 Radiographic Procedures IV

This course provides instruction in Radiologic procedures, radiographic positioning, image critique, and analysis of the cranium and associated structures, supervised laboratory and evaluation in image production, procedures, and radiographic anatomy identification is required. Continuation of procedural competency, testing and performance as outlined in Section II, clinical preceptor handbook. Course will also discuss age-specific competence. Age-related competencies will be included for all age groups. Includes discussion of trauma and mobile imaging.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
|--------|-----|--------|--------|
| 30 | 30 | 0 | 4 |

RAD 410 Clinical Education PRCT IV

Rotational assignments to all radiographic areas within the imaging department continue as aligned with the objective, competency and assessment outlined in Section II, clinical preceptor handbook. This clinical education course provides assignments to all radiographic areas with the imaging department. Rotations will include diagnostic radiology, digital equipment, IVP room, fluoroscopy, mobile procedures, surgery, outpatient imaging facilities and the emergency department.

Preceptorship: Ratio 5:1 (one hour of credit for five hours of preceptorship instruction)

| THEORY | LAB | CLINIC | COURSE |
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RAD 502 Digital Imaging & Acquisition

Course reviews computer concepts to form a basis for application for the components, principles, and operation of medical imaging systems found in diagnostic radiology. Factors that impact image acquisition, display, archiving, and retrieval are discussed. Principles of digital system quality assurance and maintenance are presented.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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RAD 503 Special Imaging Systems & Equipment

Instruction regarding special imaging systems and equipment to include surgery, fluoroscopy, trauma, conventional tomography, computed tomography, mobile and mammographic equipment and digital imaging. Radiographic quality assurance and quality control are introduced along with the discussion of quality management concepts.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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| 20 | 0 | 0 | 2 |

RAD 505 Radiographic Procedures V

This course provides instruction in radiographic procedures, radiographic positioning, image critique, and analysis of the salivary glands; digestive, biliary, urinary, and reproductive systems. Includes discussion of surgical imaging procedures. Procedural and patient considerations are discussed. Supervised laboratory and evaluation in image production, procedures, and radiographic anatomy identification is required. Continuation of procedural competency, testing and performance as outlined in Section II, clinical preceptor handbook. Course will also discuss age-specific competence. Age-related competencies will be included for all age groups. Includes discussion of trauma and mobile imaging.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
|--------|-----|--------|--------|
| 30 | 30 | 0 | 4 |

RAD 510 Clinical Education PRCT V

Rotational assignments to all radiographic areas within the imaging department continue as aligned with the objective, competency and assessment outlined in Section II, clinical preceptor handbook. This clinical education course provides assignments to all radiographic areas with the imaging department. Rotations will include diagnostic radiology, digital equipment, IVP room, fluoroscopy, mobile procedures, surgery, outpatient imaging facilities and the emergency department. Recomps in all categories can begin.

Preceptorship: Ratio 5:1 (one hour of credit for five hours of preceptorship instruction)

| THEORY | LAB | CLINIC | COURSE |
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| 0 | 0 | 200 | 4 |

RAD 600 Radiographic Pathology & Image Analysis

The study of common human diseases; their causes, treatment and radiographic appearance. Includes a discussion of diseases demonstrated with various imaging systems. Independent study and research is required.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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| 30 | 0 | 0 | 3 |

RAD 605 Radiographic Procedures VI

Introduction to special contrast procedures of the nervous system performed in the Radiology department. These contrast procedures include arthrography, tomography, lumbar puncture, venograms, myelography, and angiography. Procedural and patient considerations are discussed. Supervised laboratory and evaluation in image production, procedures and radiographic anatomy identification is required. Cross sectional anatomy will be introduced and discussed. Course will also discuss age-specific competence. Age-related competencies will be included for all age groups.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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| 20 | 0 | 0 | 2 |

RAD 610 Clinical Education PRCT VI

This clinical education course includes rotation assignments through all radiographic imaging areas to include mobile procedures and surgery. Assignments to other modalities, particularly CT may begin this quarter depending upon academic and clinical progression. Shift rotations may continue and students will complete a shift assignment in the Angiography lab. Competency testing in all categories continues.

Preceptorship: Ratio 5:1 (one hour of credit for five hours of preceptorship instruction)

| THEORY | LAB | CLINIC | COURSE |
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| 0 | 0 | 200 | 4 |

RAD 700 Radiography Capstone I

Intense review focusing on the synthesis of professional knowledge, skills, and attitudes in preparation for American Registry of Radiologic Technologists (ARRT) certification examination professional employment, and lifelong learning. Independent/group study, research, and testing are required. Areas of focus will be Imaging Procedures, Patient Care and Education, Competency assessment, resumes and career building.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
|--------|-----|--------|--------|
| 20 | 20 | 0 | 3 |

RAD 710 Clinical Education PRCT VII

This clinical education course includes rotation assignments through all radiographic imaging areas to include mobile procedures, surgery and specialty areas. Shift rotations will continue and assignments to other modalities will continue. Reassessment of all category competencies continues. Recomps in all categories continues.

Preceptorship: Ratio 5:1 (one hour of credit for five hours of preceptorship instruction)

| THEORY | LAB | CLINIC | COURSE |
|--------|-----|--------|--------|
| 0 | 0 | 200 | 4 |

RAD 800 Radiography Capstone II

Intense review focusing on the synthesis of professional knowledge, skills, and attitudes in preparation for American Registry of Radiologic Technologists (ARRT) certification examination professional employment, and lifelong learning. Independent/group study, research, and testing are required. Areas of focus will be Radiation Protection, Equipment Operation and Quality Control. Image Acquisition and Evaluation. Continued competency assessment.

Theory credit hours are a 1:1 contact to credit ratio. Manipulative labs are 3:1 and experimental labs are 2:1 ratio.

| THEORY | LAB | CLINIC | COURSE |
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| 20 | 20 | 0 | 3 |

RAD 810 Clinical Education PRCT VIII

This clinical education course includes rotation assignments through all radiographic imaging areas to include mobile procedures, surgery and specialty areas. Shift rotations will continue and assignments to other modalities will continue. Recomps in all categories continues. Reassessment of all category competencies continues. Capstone requirements to be completed.

Preceptorship: Ratio 5:1 (one hour of credit for five hours of preceptorship instruction)

| THEORY | LAB | CLINIC | COURSE |
|--------|-----|--------|--------|
| 0 | 0 | 200 | 4 |

Note: Clock hours are calculated based on course instruction over a 10-week period.