

**STAMFORD HOSPITAL  
PROGRAM IN RADIOGRAPHY  
COURSE DESCRIPTION**

Faculty:  
**D.A. Saia, M.A., R.T.(R)(M)**  
Program Director  
**O. Peart, M.S., R.T.(R)(M)**  
Clinical Instructor  
**S. Bull, M.S.**  
Physics Instructor

**First Year - First Semester**

**ORIENTATION AND INTRODUCTION TO RADIOGRAPHY (RS101)**

An introduction to the profession of Radiologic Technology, the health care team and the hospital environment. Policies of the Program, the Radiology/Imaging Department and the hospital are reviewed. Professional organizations, Accreditation, Certification, Licensure, and Medical Specialties are discussed. Students are familiarized with career opportunities and continuing education requirements and options. 37 hr.

**RADIATION PROTECTION I (RS104)**

Discusses various sources of radiation, dose-limits, monitoring, patient and personnel protection, radiation safety rules and regulations 20 hr.

**PATIENT CARE/MANAGEMENT & PHARMACOLOGY (RS102)**

Major topics include the vital signs, body mechanics, standard precautions, sterile technique, communicable diseases, intravenous equipment, pharmacology, contrast media reactions, and basic life support systems. 95 hr.

**ETHICS AND LAW (RS106)**

Issues involving moral, legal, and professional responsibilities of members of the health team are discussed. Includes discussion of the code of Ethics, role-playing. 21 hrs.

Prerequisite: Patient Care

**COMPUTERS IN RADIOLOGIC SCIENCE (RS103)**

Upon completion of the student radiographer's rotation in information systems, the student will be able to demonstrate knowledge, understanding and skills in performing tasks related to radiology information system management. 5 hr.

**MEDICAL TERMINOLOGY (RS105)**

Analyzes the origin of medical terms, root words, suffixes, prefixes. Discusses medical terminology as it applies to specific systems, disease processes and injuries. 70 hr.

**ANATOMY & PHYSIOLOGY I (RS109)**

Introduction to structure and function of body cells, tissues, organs, and systems. A study of body systems begins with particular emphasis on the respiratory and skeletal systems. Students use skeletons, models, phantoms, and radiographs to gain a thorough understanding of anatomy and physiology. 62 hr.

**RADIOGRAPHIC PROCEDURES I AND IMAGE ANALYSIS (RS110)**

Acquaints the student with positioning terms, body planes and basic positioning of the chest, abdomen, and upper extremity. This course has classroom and laboratory components. Clinical competency examinations required. 71 hr.

**PRINCIPLES OF RADIOGRAPHIC EXPOSURE I AND IMAGE ANALYSIS (RS112)**

A study of radiographic imaging and the production of quality radiographs. Understanding and control of contrast, density, detail, and distortion are emphasized with the aid of radiographs and laboratory experiments. 104 hr.

**RADIOLOGIC PHYSICS I (RS111)**

This course includes mathematics review, units of measure, structure of matter, electrostatics, current electricity, and magnetism. Designed to introduce the student to the basics of electricity. 25 hr.

**APPLIED CLINICAL RADIOGRAPHY I (RS113)**

Students learn patient management skills. Students become acquainted with all Imaging department sections. Skills are integrated and practiced. Students participate in collecting and evaluating patient history relative to the care and method of examination performed in the imaging department. 400 hrs.

**JOURNAL I (RS107)**

Students are required to keep a *journal* is a personal record or "diary of reflection" of the student experience. Via "reflection", the student is being asked to consider decisions, the impact of knowledge, feelings of life-learned experiences and potentially how this entire professional and academic process is transforming oneself. The *journal* is submitted to the faculty for evaluation, comment, and grading three times during the semester.. 20 hr.

## **First Year - Second Semester**

### **ANATOMY & PHYSIOLOGY II (RS209)**

This course continues to take the student through the musculoskeletal system. Topic included are the muscular, digestive, urinary and reproductive systems. Sectional anatomy is emphasized. 127 hrs.

Prerequisite: Anatomy & Physiology I

### **RADIOGRAPHIC PROCEDURES II AND IMAGE ANALYSIS (RS210)**

A continuation of Radiographic Procedures I and Image Analysis. Positioning methods of skeletal system, pediatric, urinary and reproductive are included. This course has classroom and laboratory components. Clinical competencies are required. 216 hrs.

### **PRINCIPLES OF RADIOGRAPHIC EXPOSURE II AND IMAGE ANALYSIS (RS212)**

A study of radiographic imaging and the production of quality radiographs. Understanding and control of contrast, density, detail, and distortion are emphasized with the aid of radiographs and laboratory exposure experiments. The control of scattered radiation and the construction and use of grids, screens, collimators is covered. 69 hr.

Prerequisite: Principles of Radiographic Exposure I and Image Analysis

### **RADIOLOGIC PHYSICS II (RS211)**

Topics include electromagnetism, motors, generators, transformers, rectifiers, the x-ray tube and production of x-rays. 18 hrs.

Prerequisite: Radiologic Physics I

### **RESEARCH AND ANALYSIS I (RS216)**

Written and oral presentations on technical and ethical topics of the student's choice. Students will develop writing and speaking skills; thoughtful discussion is encouraged. Students are graded on oral presentation, relevancy of topic, grammar, sentence structure, etc. 20 hrs.

Prerequisite: Patient Care, Procedures I

### **JOURNAL II (RS207)**

Journal entries are meant to be a forum for the student to articulate comments about a reaction to the clinic or curriculum, recall previous experiences and relate them to current activities, describe new insights and generate thinking. The journal is submitted to the faculty for evaluation, comment, and grading three times during the semester.. 20 hr.

Prerequisite: Journal I

### **LITERATURE REVIEW (RS217)**

Students select, read, and individually review articles from a professional radiologic journal or magazine (monthly, second and third semesters). The student will achieve greater insight and understanding of current events in the field of radiologic sciences. The students will broaden their perspective as future healthcare professionals with respect to the industry, technology, and workplace policies. 20 hours

### **APPLIED CLINICAL RADIOGRAPHY II (RS213)**

A continuation of Applied Clinical Radiography I. The student gains practical experience needed to function as a radiographer. Consists of supervised application of theory and procedures necessary for the student to attain competency. All areas and radiographic positions have established criteria that students will meet. 430 hrs.

Prerequisite: Applied Clinical Radiography I

### **TRAUMA ELECTIVE (RS214)**

An off-hours (Friday evening, Saturday, Sunday) clinical elective offered to afford the student the opportunity to improve clinical confidence, obtain more clinical experience, and increase clinical skills. Compensatory "off" hours are assigned during the week on a non-class day.

Prerequisite: Applied Clinical Radiography I

## **Second Year - First Semester**

### **ANATOMY & PHYSIOLOGY III (RS309)**

This continuation of human structure and function includes a study of the circulatory and nervous systems. Pathology and sectional anatomy are emphasized. 126 hr.

Prerequisite: Anatomy & Physiology I and II

### **RADIOLOGIC PHYSICS III (RS311)**

A continuation of Radiologic Physics I and II, this course includes topics such as x-ray circuitry, nature of x-rays, output, inverse square law, minimum wavelength and maximum photon energy, half value layers. 22 hr.

Prerequisite: Radiologic Physics I and II

### **PRINCIPLES OF RADIOGRAPHIC EXPOSURE III AND IMAGE ANALYSIS (RS312)**

A continuation of PRE I with added emphasis on producing and recognizing a quality radiograph with regard to recorded detail, distortion, density, contrast. AEC, recognizing and correcting exposure errors is emphasized. 26 hrs.

Prerequisite: Principles of Radiographic Exposure and Image Analysis II

### **SURVEY OF IMAGING EQUIPMENT I (RS318)**

Presents construction principles, theory and operation of special imaging equipment. Includes tomography, AEC, cine, image intensification, computed radiography. 20 hrs

Prerequisite: Principles of Radiographic Exposure I and II

### **SEMINAR IN RESEARCH AND ANALYSIS II (RS316)**

Written and oral presentations on technical and ethical topic of the student's choice. Students will continue to develop written and speaking skills. 20 hrs.

Prerequisite: Seminar in Research and Analysis I

### **RADIOGRAPHIC PROCEDURES III AND IMAGE ANALYSIS (RS310)**

Advanced positioning course includes contrast studies and pediatric imaging. Includes classroom and laboratory components. Clinical competency examinations are required. 88 hrs.

Prerequisite: Radiographic Procedures and Image Analysis I and II

### **INTRODUCTION TO QUALITY ASSURANCE (RS319)**

Designed to acquaint the student with various methods of testing equipment and accessories in the radiology department; includes data collection and record keeping. 21 hrs.

Prerequisite: Principles of Radiographic Exposure I and II

### **INTRODUCTION TO COMPUTERIZED TOMOGRAPHY (RS321)**

Orientation of the radiography student to CT scanning; comparison with radiographic images. Reviews diagnoses, types of exams performed and their protocols. Clinical assignments begin. 8 hrs.

Prerequisite: A&P I, II; Computers in Radiologic Science

### **VASCULAR INTERVENTIONAL RADIOLOGY / CATH LAB (RS322)**

Presents invasive radiologic studies performed in cardiovascular imaging. Includes digital angiography and other specialized equipment. Includes orientation and clinical rotation. 2 hrs.

Prerequisite: Radiographic Procedures I and II; Principles of Radiographic Exposure I and II

### **INTRODUCTION TO RADIATION ONCOLOGY / DOSIMETRY (RS323)**

Prologue to the specialty includes patient management, terminology, basic equipment and procedures. Includes orientation and elective clinical rotation. 4 hrs

Prerequisite: Procedures I, II

### **INTRODUCTION TO MAGNETIC RESONANCE IMAGING (RS324)**

Includes nuclear magnetism, resonance, magnetization and relaxation, image weighting, MR instrumentation, pulse sequencing, patient safety/comfort, image artifacts. Includes orientation and additional clinical rotation. 2 hrs

Prerequisite: Physics I, II, III

### **INTRODUCTION TO NUCLEAR MEDICINE (RS325)**

Fundamentals of physics, instrumentation, radiation protection, and an overview of clinical nuclear medicine. Includes orientation and elective clinical rotation. 2 hrs.

Prerequisite: Physics I, II, III

### **INTRODUCTION TO DIAGNOSTIC SONOGRAPHY (RS326)**

Prologue to the specialty which includes terminology, theory of ultrasound, basic equipment and procedures. Includes orientation and clinical rotation. 2 hrs

Prerequisite: A&P, Patient Care, Procedures I, II

### **PRINCIPLES OF VENIPUNCTURE (RS327)**

Basic guidelines and essential educational requirements for compliance with state licensure guidelines regarding venipuncture and administration of contrast agents. Reviews safe and accurate procedures and discusses legal and ethical considerations. 13 hrs

Prerequisite: A&P, BLS certification, Patient Care

### **APPLIED CLINICAL RADIOGRAPHY III (RS313)**

A continuation of Clinical Education I and II. Supervised practicum. Clinical rotations include specialty imaging areas. 557.5 hrs.

Prerequisite: Applied Clinical Radiography I and II

**LITERATURE REVIEW (RS317)**

Students select, read, and individually review articles from a professional radiologic journal or magazine (monthly, second and third semesters). The student will achieve greater insight and understanding of current events in the field of radiologic sciences. The students will broaden their perspective as future healthcare professionals with respect to the industry, technology, and workplace policies. 20 hours

**TRAUMA ELECTIVE (RS314)**

An off-hours (Friday evening, Saturday, Sunday) clinical elective offered to afford the student the opportunity to improve clinical confidence, obtain more clinical experience, and increase clinical skills. Compensatory "off" hours are assigned during the week on a non-class day.

Prerequisite: Applied Clinical Radiography I, II

## **Second Year - Second Semester**

### **PATIENT CARE AND PHARMACOLOGY REVIEW (RS402)**

Major topics include the vital signs, body mechanics, standard precautions, sterile technique, communicable diseases, intravenous equipment, pharmacology, contrast media reactions, and basic life support systems. 15 hr.

### **RADIATION PROTECTION II (RS404)**

This course presents the types of radiation and their interaction with matter. Structural shielding, NCRP guidelines, personal monitoring considerations, radiation units and measures, basic biological effects and acute radiation syndrome are also discussed. 20 hrs

Prerequisite: Radiation Protection I

### **RADIOGRAPHIC PROCEDURES IV AND IMAGE ANALYSIS (RS410)**

Advanced positioning includes venography, mammography, non-interpretive fluoroscopy, and Case of the Week. 66 hrs.

Prerequisite: Radiographic Procedures I, II, III

### **RADIOLOGIC PHYSICS IV (RS411)**

Includes an overview of special imaging modalities and a review of material from the first three semesters. Course includes CT, MR and other computer applications in Imaging Services. 15 hrs

Prerequisite: Radiologic Physics I, II, III

### **RADIOBIOLOGY (RS420)**

Designed to correlate with radiation protection by exploring biologic effects of ionizing radiation at the cellular level, somatic and genetic effects of radiation exposure. 48 hrs.

Prerequisite: Radiation Protection I and II

### **SURVEY OF IMAGING EQUIPMENT II (RS418)**

Presents construction principles, theory and operation of imaging equipment and various methods of image recording. Includes image intensification, AEC, computed radiography and other electronic imaging. 20 hrs

Prerequisite: Principles of Radiographic Exposure I, II, III

### **CLINICAL PHLEBOTOMY (RS428)**

Includes lecture, individualized instruction, supervised practice, competency, independent phlebotomy. 18 hrs.

Prerequisite: A&P, BLS certification, Patient Care, Venipuncture

### **CLINICAL ECG (RS429)**

Theory and guided experience in electrocardiography. Includes cardiac anatomy and physiology, instrumentation, procedural performance, elementary interpretation. Clinical competency required. 18 hrs.

Prerequisite: A&P, BLS certification, Patient Care

### **APPLIED CLINICAL RADIOGRAPHY IV (RS413)**

Practicum coordinated with corresponding didactic areas; includes clinical orientations in ultrasound, radiation therapy, nuclear medicine, cardiovascular imaging, MRI. 607.5 hrs.

Prerequisite: Applied Clinical Radiography I, II, III

### **SEMINAR IN PROFESSIONAL DEVELOPMENT (RS430)**

The completion and presentation of Senior Year Research Project – scientific essay or scientific exhibit. Course also includes development of resume and interview skills PLUS Students will prepare reports on cases in which they have actively participated in some area of the patient's diagnostic, treatment or workup. Includes final examinations. 10 hrs.

Prerequisite: successful completion of all other academic and clinical requisites.

### **FINAL EXAMINATIONS (RS431)**

One week of simulated Board examinations. Intensive review prior to graduation. 37 hrs.

Prerequisite: successful completion of all other academic and clinical requisites.

### **TRAUMA ELECTIVE (RS414)**

An off-hours (Friday evening, Saturday, Sunday) clinical elective offered to afford the student the opportunity to improve clinical confidence, obtain more clinical experience, and increase clinical skills. Compensatory "off" hours are assigned during the week on a non-class day.

Prerequisite: Applied Clinical Radiography I, II, III

*Admin/Application info/Course Descriptions rev 8/98: 6/99, 4/01, 7/03, 6/06, 7/07, 1/08, 7/08*