

# **Syllabus for RAD-880J: Diagnostic Radiology**

## **Updated 6/2014**

Welcome to the 3<sup>rd</sup> Year Selective in Diagnostic Radiology, one of the most dynamic medical specialties!

### **Learning Goals and Objectives:**

At the completion of this 3 week selective, the student will be able to:

1. Describe the spectrum of diagnostic imaging (e.g., ultrasound, CT, MR, nuclear medicine, angiography, conventional radiology) and diagnostic and therapeutic image-guided interventional techniques.
2. Appreciate the role of the radiologist as consultant to the clinician and importance of providing detailed clinical information in the radiology consult.
3. Appreciate the fundamental role and value of imaging to provide timely, accurate, and actionable diagnostic information regarding a patient's medical condition.
4. Utilize the ACR Appropriateness Criteria to determine the most effective and appropriate imaging studies for common clinical problems.
5. Participate in imaging interpretation, including basic study identification, recognition of normal radiographic and cross-sectional anatomy, and common pathology as depicted on common studies, primarily plain films and CT.
6. Describe the risks of medical imaging (including radiation induced cancer, MRI safety, contrast nephropathy, and contrast reactions).
7. Evaluate a chest x-ray for technical adequacy and be able to identify normal anatomy and common and/or potentially life-threatening abnormalities including a pneumothorax, pneumoperitoneum, pleural effusion, congestive failure, diaphragmatic rupture, and misplaced endotracheal and enteric tubes.
8. Describe how common procedures and imaging are performed to patients utilizing web based information like [www.radiologyinfo.org](http://www.radiologyinfo.org).
9. Identify major abdominal organs with ultrasound and perform an Abdominal FAST Scan.

## **Learning Methodologies and Activities:**

### **1. Clinical Exposure:**

The students will participate on a variety of clinical services interacting with and observing the residents and faculty daily from 8-11:30 .m. and 3-5 p.m.. During these services, the students will be exposed to normal and abnormal imaging studies and procedures on current MUSC patients. The students may be asked to gather clinical data via EPIC on these patients to assist the radiology residents and faculty in the interpretation/performance of the imaging studies.

Every student will spend 2 days each in the following subspecialty areas: Chest, Pediatrics, Neuroradiology, Musculoskeletal, Body Imaging (Fluoroscopy, CT, US, and MRI) @ ART, and CT/MR in the a.m. and Nuclear Medicine in the p.m. @ MUSC. Every student will rotate through 1 additional day in either Cardiac CT @ ART or Interventional Radiology.

### **2. Lectures and Conferences:**

The students will attend daily interactive conferences scheduled from 1-3 pm daily with the faculty.

The students are encouraged to attend tumor boards and multidisciplinary conferences such as the Radiology Pathology Conference, Trauma Conference, Tumor Boards, and Breast Imaging conference while rotating on the clinical services.

### **3. Self-Directed Anatomy Review**

The students will complete web-based review of pertinent radiologic and cross-sectional anatomy.

### **4. Reading Assignments:**

The students will complete web-based AHRQ Morbidity and Mortality Clinical Scenarios on such topics as Contrast reactions, MRI Safety, and Contrast-Induced Nephropathy.

The students will be given copies of Lawrence Goodman, Felson's Principles of Chest Roentgenology: A Programmed Text . The students will be expected to complete the Goodman text during the rotation.

### **5. Case Based Online Radiology Education (<http://www.med-u.org/core>)**

The students will complete Four Virtual Cases to attain a basic understanding of the principles and applications of medical imaging to pathologies of the Chest.

Case 1: Chest Infection

Case 2: Masses

Case 3: Trauma

Case 4: Vascular and COPD.

#### 6. Role Playing Exercise:

The students will select a radiologic procedure from a list of common radiologic procedures (i.e. VCUG, UGI, Knee MRI, CT guided biopsy, etc.), observe the procedure, and research the procedure online using RSNA's Patient Education Site, [www.RadiologyInfo.org](http://www.RadiologyInfo.org). At the end of the first week, each student will be asked to explain the procedure to a patient (another student), investigate any potential contraindications for the procedure, and answer any questions the patient may have in a group role playing exercise.

#### 7. Evidence Based Imaging Conferences

At the end of the second week, the students will present a Case Scenario selected from 25 common clinical scenarios, develop a differential diagnosis, and research the appropriate imaging workup using the ACR Appropriateness criteria, [www.acr.org/secondarymainmenucategories/quality\\_safety/app\\_criteria.aspx](http://www.acr.org/secondarymainmenucategories/quality_safety/app_criteria.aspx).

Each student will create a 5-10 minute Power point presentation to present to the class. The presentation should include the clinical case, differential diagnostic considerations, recommended imaging workup, potential complications, contraindications, relative cost, and relative radiation dose of the imaging involved. Imaging examples of the pathologic disease process should be included.

#### 8. Dictation Module

During the third week, each student will review 5 imaging cases and create a radiographic report for each one, submitting the completed dictations on Moodle. A dictation template has been supplied for this purpose. Please refer to the ACR Standard for Reporting for guidelines for radiographic reporting.

#### 9. Interactive Labs

The students will get the opportunity to improve abdominal ultrasound skills during hands on scanning labs of standardized patients, emphasizing recognition of abdominal organs and emphasizing the performance of the FAST Scan.

In an MRI Simulation Lab the students will learn about MR Safety, Magnetic field strength, and the patient's experience during a visit to our MRI Research facility.

**Evaluation and Feedback:**

Students will be evaluated through the following methods:

1. Evaluation of student participation in the faculty conferences and during clinical rotations.
2. Evaluation of student performance in the Role Playing Exercise, Evidence Based Imaging Power point presentations, Labs and Dictation Modules.
3. Performance on two quizzes which will be based on the material presented in conferences and group activities, assigned online readings, virtual cases, and the required text, Felson's Principles of Chest Roentgenology .