

Syllabus: RAD-851 Diagnostic Radiology

Updated 6/2014

Welcome to the 4th Year elective in Diagnostic Radiology, one of the most dynamic medical specialties!

Description:

Rad-851 is designed to provide the student with a better understanding of the central role of diagnostic radiology in the evaluation and management of patients through participation in reading room readouts, radiology call, lectures, case conferences, case presentations, on-line assignments, interactive labs, and observation of the various imaging modalities and procedures. Students will spend 1 week in each of 4 areas of the department of their choosing. They will also participate in 1 weekday evening (5-11 pm) shadowing/observing the radiology residents on call.

Course Objectives: At the conclusion of this 4 week elective, the student will be able to:

- Describe the spectrum of diagnostic imaging (e.g., ultrasound, CT, MR, nuclear medicine, angiography, and conventional radiology) and diagnostic and therapeutic image-guided interventional techniques.
- Appreciate the role of the radiologist as consultant to the clinician and importance of providing detailed clinical information in the radiology consult.
- Appreciate the fundamental role and value of imaging to provide timely, accurate, and actionable diagnostic information regarding a patient's medical condition.
- Recognize the indications and appropriateness of imaging studies for common clinical problems.
- Describe the risks of medical imaging (including radiation induced cancer, MRI safety, contrast nephropathy, and contrast reactions).
- Describe the appropriate sequencing of exams and the limitations of diagnostic imaging tests, including cost-effectiveness of imaging studies.
- Apply basic interpretive skills to evaluate common imaging studies – predominantly plain films and CT.
- Participate in imaging interpretation, including basic study identification, recognition of normal radiographic and cross-sectional anatomy, and common pathology as depicted on common studies.
- Describe how common procedures and imaging are performed.
- Utilize the PACS system to retrieve and review images.

Learning Methodologies and Activities:

1. Clinical Exposure:

- The students will participate in clinical services interacting with and observing the residents and faculty, 8:00 – 10:00 a.m. and 1:00 – 3:00 p.m. daily. The students will be exposed to normal and abnormal imaging studies and procedures on current MUSC patients.
- **Utilizing EPIC**, students will be expected to gather and communicate appropriate clinical data on current patients to assist the radiology residents/faculty in the interpretation of imaging studies.
- As directed by the resident on service, each student will **preliminarily dictate a minimum of 1 case per day** utilizing the dictation system.
- Every student will have the opportunity to tailor their experience to meet their interests, choosing four one-week rotations from the following options:
 - Cardiothoracic Radiology
 - Body Imaging (MUSC, ART)
 - Breast Imaging (Ltd availability)
 - Pediatric Radiology
 - Musculoskeletal Radiology
 - Neuroradiology
 - Nuclear Medicine
 - Ultrasound
 - Vascular Interventional Radiology (MUSC, ART)
- The students will select 1 shift of call per rotation (weekday evenings 5 pm-11pm), shadowing the radiology residents on call. The students may opt to observe additional call shifts and this can be arranged through the course coordinator.

2. Lectures/Conferences:

- Review On-Line Lecture Assignments
- General and Subspecialty Case Presentations with faculty and fellows (Monday-Friday – 4 -5 hrs/week) @ 10:00 a.m.

Each student will select a case from that day's clinical work that was interesting, demonstrating a nice example of a common problem or disease entity, or demonstrating the value of a certain type of imaging. Although this does not require a formal presentation, be prepared to present the case as an unknown to your peers and faculty (See Template). You should provide a brief and appropriate clinical history, be able to point out the important imaging findings, and provide several important teaching points about the case or disease process to your fellow students. Each presentation should take no more than 5 minutes.

Each student will select one case from each of the first 3 weeks to develop 3 test questions for the final exam. The questions should be multiple choice, have an accompanying image, and should reflect the "take home point" of each case. The test questions should be submitted in a word file (with asterisk to denote correct answer) with accompanying jpeg images on the Moodle Assignment page by the Friday of the third week of the course.

- Daily Resident/Faculty Interactive Case Conferences (5 hrs/week) @ 3:00 p.m.
- Daily Radiology Resident Lectures and Grand Rounds 11:30-1:00 Rm 270 (optional)

3. Workshops

- 3D Imaging Lab
- Ultrasound Guided Vascular Access Simulations
- Ultrasound Guided Paracentesis and Biopsy Simulations

4. On-Line Assignments:

- Review Radiographic Anatomy as needed @ www.netanatomy.com
 - Thoracic Radiographic Anatomy - Plain film and CT
 - Abdominal Anatomy – Plain film and CT
 - Musculoskeletal Anatomy – Plain film and CT

- Review Web M&M Scenarios @ www.webmm.ahrq.gov/index.aspx
- Review assigned lectures @ www.learningradiology.com
- Review the appropriate CORE cases during the weeklong clinical rotations @ http://www.med-u.org/virtual_patient_cases/core
 - **Professionalism: All rotations**
 - **Chest Rotation: Case 1, 2, 3, 4**
 - **Body Imaging Rotation: Case 5, 6, 7, 8**
 - **Neuroradiology Rotation: Case 9, 10**
 - **Musculoskeletal Rotation: Case 13, 16**
- Review Cleveland Clinic Interactive Website for Pediatric Radiology Rotation @ www.cchs.net/pediatricradiology/
 - Lines and Catheters
 - Childhood Pneumonia
 - Neonatal Chest
 - Appendicitis
 - Intussusception
 - Malrotation and Midgut Volvulus
 - Testicular Torsion
 - Vesicoureteral Reflux
 - Child Abuse
 - Childhood Fractures

5. Reading Assignments: Review the following Chapters in Herring's Learning Radiology: Recognizing the Basics

- Recognizing the Basics on CT of the Chest
- Recognizing the Basics on CT of the Abdomen
- Recognizing Abnormal Head CT Findings
- Recognizing Some Common Causes of Neck and Back Pain

Evaluation and Feedback:

Students will be evaluated through the following methods:

1. Direct observation of the student's clinical work by the resident and attending physicians.
2. Evaluation of student participation in case conferences and workshops.
3. Performance on a final quiz which will be based on the on-line assignments, textbook, and material presented in conferences and workshops.