

American University of Beirut Medical Center

Medical Students Clerkships Syllabus

Department of Diagnostic Radiology

April 2018

As Medical Imaging has become more central to the practice of medicine it has become increasingly important for medical students to be familiar with the basic principles of radiology, the different imaging modalities available and how they can be best utilized, as well as the role imaging holds in the current medical system.

Several lectures in the first two years of medical education introduce medical students to the basic principles of radiology and the different imaging modalities. As well, cross-sectional imaging studies are included in some learning cases given the help they offer in assimilating basic anatomy.

Medical students are also exposed to a wide range of imaging studies while taking care of patients during their clinical rotations.

At the department of Radiology, we offer a 4-week general radiology clerkship for medical students where they will spend time rotating through all of the subspecialty radiology services covered at the American University of Beirut Medical Center. Students will get to observe the spectrum of procedures performed by our state-of-the-art equipments and spend time in each subdivision observing interpretive sessions.

Contact information

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Goals:

The goal of the basic four-week clerkship at the department of Diagnostic Radiology is to teach the fundamental principles of interpreting radiographic studies. The medical student will learn the value and limitations of such studies in commonly encountered clinical problems. The concept of what constitutes an adequate radiographic study will be examined. Case material will be selected to illustrate both normal and abnormal anatomic and physiologic states.

This diverse learning experience incorporates lectures, conferences, textbook readings, and rotations in various radiological subspecialties, as well as opportunities to observe many interventional procedures.

Learning Objectives:

During this clerkship, students are expected to:

- Demonstrate professional behavior. They must be accountable and must adhere to principles of medical ethics by protecting the patient's information and best interests. They should be responsible with regard to conference attendance and assignments.
- Show good interpersonal and communication skills. Medical students should be able to effectively communicate information gained from the appropriate interpretation of diagnostic studies and the performance of procedures. They should also have effective communication with colleagues, physicians and other members of the health care system.
- Learn to investigate and evaluate patient care practices and appraise scientific evidence. They should be able to recognize and correct personal errors. They need to be competent in utilizing information technology to explore clinical questions and to ensure continuous self-learning.
- Assimilate the core disciplines of Diagnostic Radiology. By the end of the clerkship they should be able to:
 - Apply their knowledge of basic and clinical sciences to the decision-making process to identify the most appropriate imaging study for a given clinical condition
 - Understand the various types of imaging exams, including their indications, patients' preparation, contraindications and complications
 - Understand the basics of radiology safety and intravenous contrast use, including: indications, contraindications, and contrast reactions

- X-ray:
 - Identify normal anatomical landmarks
 - Chest X-ray: Identify consolidation/collapse, mass, pneumothorax, pleural effusion
 - KUB: Identify bowel perforation, bowel obstruction, bowel ischemia, stones
 - Skeletal films: Identify fractures, dislocations
- CT-scan:
 - Be familiar with the different protocols of CT scan and their indications (triple-phase, dual phase, without contrast, with oral/IV/rectal contrast..)
 - Understand the fundamentals of emergent CT scan evaluation for acute abdomen, cardiothoracic and skeletal trauma, and head injuries
- US:
 - Understand the indications and the diagnostic utility of Ultrasonography in specific clinical scenarios
- IR:
 - Understand how radiologic procedures are performed and their impact on the patient
 - Understand the proper placement of tubes and central venous lines, as well as the various complications of these procedures

Schedule and learning activities:

Students are expected to participate fully in all daily activities at the department of Diagnostic Radiology. Daily schedules are 7:30 am till 5pm Monday -Thursday and 8:30 am till 5 pm on Fridays.

Students will be scheduled in one different clinical reading rotation every week. This will ensure the student's exposure to four radiology sections which are the following:

- Plain films
- CT scan
- Ultrasound
- Interventional Radiology.

Medical students will not be exposed to MRI or Nuclear Medicine studies unless they express special interest into those fields.

They will be expected to observe, participate and, at some point independently assess the radiologic findings of cases and arrive at a defensible interpretation.

There will be daily conferences consisting of didactic lectures and unknown case presentations. Students will have to attend these morning lectures which are prepared by the Radiology residents and staff members and held at 7:30 am daily except Fridays. After lectures, students will be informed regarding whom resident/attending they are supposed to keep company throughout the day or the week and they can head to their assigned work stations.

Several basic Radiology text books are available at the department. The most recommended book is Clinical Radiology Made Ridiculously Simple. Students are encouraged to loan and read these materials during the rotation as they constitute an excellent introduction to radiology and should cover most of the rotations they will see. If more detailed information is needed, additional materials can be suggested.

Roles and responsibilities:

- Clerkship director:
 - Medical students should report to the director on the first day of their clerkship
 - Clerkship director will review goals and expectations at the first encounter with the students
 - Assure that the educational objectives are met
- Faculty members:
 - Be available
 - Lead a discussion during which the imaging study is interpreted and a differential diagnosis is generated
 - Provide verbal feedback to the medical students on the quality of their involvement
 - Provide verbal feedback to the senior residents on the quality of their teaching
 - At the end of the month, provide written evaluation of the student
- Residents:
 - Involve the medical student in the study interpretation and providing him with all the available information related to the case
 - Guide the medical students into identifying the anatomical landmarks on the various types of imaging studies
 - Introduce the radiological parameters (opacities, lucencies, density and echogenicity)
 - Sharing the information that they learned in the process of reading before reporting the imaging studies

- Medical student responsibilities:
 - Demonstrates respect for patients, families, and members of the health care team
 - Be truthful and honest with colleagues
 - Respect work hours
 - Preserves patient confidentiality
 - Shows appropriate self-assessment and willingness to admit mistakes
 - Be available to make up anticipated time off at the discretion of the clerkship director

Evaluation method (Grading criteria):

Evaluation will be based on resident and faculty feedback as well as attendance and participation in daily activities.

Evaluation will be formative and summative:

- Formative: Direct feedback by residents and faculty members
- Summative: Written evaluation by the faculty member/s which was/were in contact with the student

The areas of evaluation will be:

1. Fund of knowledge (30%)
2. Interest – industry and initiative (20%)
3. Response to instruction (30%)
4. Behavior and interpersonal relationships (20%)

At the end of the four weeks, there will be a paper-based test covering the majority of the material encountered during this period. The test has 2 parts. The first one contains 15 questions with multiple choices for the students to choose the best answer (usually the best of 4 choices). The second part has 15 basic radiology images with a single answer question each, regarding technique and diagnosis.

Exams are based upon required reading, lectures, presentations, and the clinical rotations. It is required that participants be present on the last day of the rotation to take the final exam.

Grading is based on evaluation and performance on the test.

Grading is based upon a 100 point scale: 50 points objective final exam and 50 points evaluation.

Students are also required to evaluate the residents and faculty members they got in touch with, as well as the overall program by filling an evaluation form at the end of the clerkship period.