Radiology Course

Radiology
Course Number 088
2023-2024

Clerkship Director: Harprit S. Bedi, MD
Clerkship Coordinator: Mariama Bah
Radiology Syllabus

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## Medical Education Program Objectives

A Boston University Chobanian & Avedisian School of Medicine graduate will be able to:

### INSTITUTIONAL LEARNING OBJECTIVES

| MK.1 | Describe the normal development, structure, and function of the human body. |
| MK.2 | Recognize that a health condition may exist by differentiating normal physiology from pathophysiologic processes. |
| MK.3 | Describe the risk factors, structural and functional changes, and consequences of biopsychosocial pathology. |
| MK.4 | Select, justify, and interpret diagnostic tests and imaging. |
| MK.5 | Develop a management plan, incorporating risks and benefits, based on the mechanistic understanding of disease pathogenesis. |
| MK.6 | Articulate the pathophysiologic and pharmacologic rationales for the chosen therapy and expected outcomes. |
| MK.7 | Apply established and emerging principles of science to care for patients and promote health across populations. |
| MK.8 | Demonstrate knowledge of the biological, psychological, sociological, and behavioral changes in patients that are caused by or secondary to health inequities. |

| CSDR.1 | Gather complete and hypothesis driven histories from patients, families, and electronic health records in an organized manner. |
| CSDR.2 | Conduct complete and hypothesis-driven physical exams interpreting abnormalities while maintaining patient comfort. |
| CSDR.3 | Develop and justify the differential diagnosis for clinical presentations by using disease and/or condition prevalence, pathophysiology, and pertinent positive and negative clinical findings. |
| CSDR.4 | Develop a management plan and provide an appropriate rationale. |
| CSDR.5 | Deliver an organized, clear and focused oral presentation. |
| CSDR.6 | Document patient encounters accurately, efficiently, and promptly including independent authorship for reporting of information, assessment, and plan. |
| CSDR.7 | Perform common procedures safely and correctly, including participating in informed consent, following universal precautions and sterile technique while attending to patient comfort. |
| CSDR.8 | Utilize electronic decision support tools and point-of-care resources to use the best available evidence to support and justify clinical reasoning. |
| CSDR.9 | Recognize explicit and implicit biases that can lead to diagnostic error and use mitigation strategies to reduce the impact of cognitive biases on decision making. |

### Effectively communicate with patients, families, colleagues and interprofessional team members (C)

| C.1 | Demonstrate the use of effective communication skills, patient-centered frameworks, and behavioral change techniques to achieve preventative, diagnostic, and therapeutic goals with patients. |
| C.2 | Clearly articulate the assessment, diagnostic rationale, and plan to patients and their caregivers. |
| C.3 | Effectively counsel and educate patients and their families. |
| C.4 | Communicate effectively with colleagues within one’s profession and team, consultants, and other health professionals. |
| C.5 | Communicate one’s role and responsibilities clearly to other health professionals. |
| C.6 | Demonstrate appropriate use of digital technology, including the EMR and telehealth, to effectively communicate and optimize decision making and treatment with patients, families and health care systems. |
A Boston University Chobanian & Avedisian School of Medicine graduate will be able to:

<table>
<thead>
<tr>
<th>INSTITUTIONAL LEARNING OBJECTIVES</th>
<th>MEDICAL EDUCATION PROGRAM OBJECTIVES</th>
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<tbody>
<tr>
<td>C.7</td>
<td>Practice inclusive and culturally responsive spoken and written communication that helps patients, families, and health care teams ensure equitable patient care.</td>
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<td>C.8</td>
<td>Communicate information with patients, families, community members, and health team members with attention to health literacy, avoiding medical jargon and discipline-specific terminology.</td>
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<td>C.9</td>
<td>Communicate effectively with peers and in small groups demonstrating effective teaching and listening skills.</td>
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<td>Practice relationship centered care to build therapeutic alliances with patients and caregivers (PCC)</td>
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<td>PCC.5</td>
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<td>Exhibit skills necessary for personal and professional development needed for the practice of medicine (PPD)</td>
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<td>PPD.3</td>
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<td>Exhibit commitment and aptitude for lifelong learning and continuing improvement (LL)</td>
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<td>LL.6</td>
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<td>Demonstrate knowledge of health care delivery and systems needed to provide optimal care to patients and populations (HS)</td>
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<tr>
<td>HS.7</td>
<td>Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care.</td>
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<tr>
<td>HS.8</td>
<td>Integrate preventive interventions into the comprehensive health care of individuals.</td>
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<td>HS.9</td>
<td>Explain how different health care systems, programs and community organizations affect the health of neighborhoods and communities.</td>
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Exhibit commitment to promoting and advancing health equity for all patients (HE)

| HE.1                             | Define health equity and describe the individual and population level differences in health outcomes and disease burden due to inequities in health care. |
| HE.2                             | Comprehend the historical and current drivers of structural vulnerability, racism, sexism, oppression, and historical marginalization and how they create health inequity. |
| HE.3                             | Explain how one’s own identity, lived experiences, privileges, and biases influences their perspectives of colleagues, patients and clinical decision making. |
| HE.4                             | Comprehend and identify the impact of health care inequities through medical decision making tools, interpreting medical literature and reviewing scientific research. |
| HE.5                             | Identify factors needed to advocate for a more diverse and equitable healthcare environment at a local, community, and systems based level. |

**Third Year Learning Objectives**

During the third-year clerkships, students will

- Demonstrate use of patient-centered interviewing and communication techniques
- Take a clinical history that demonstrates both organization and clinical reasoning
- Perform accurate and relevant physical exam techniques
- Demonstrate an ability to synthesize clinical information and generate a differential diagnosis, assessment and plan
- Demonstrate a compassionate and patient-sensitive approach to history taking and physical examinations
- Communicate well organized, accurate and synthesized oral presentations
- Counsel and educate patients and families
- Demonstrate timely, comprehensive and organized documentation
- Demonstrate a fund of knowledge in the clinical discipline and apply this to patient care
- Demonstrate an awareness of one’s own learning needs and work to address these gaps
- Show respect and empathy for others
- Demonstrate accountability to the responsibilities of the student’s role and expectations of a clinical clerk
- Communicate effectively with the interprofessional team

**Radiology Clerkship Learning Objectives**

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<tr>
<th>Radiology Clerkship Learning Objectives</th>
<th>Medical Education Program Objectives</th>
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<tr>
<td>1. Identify and describe the basic principles of various imaging modalities.</td>
<td>MK.1; MK.2; MK.7</td>
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<td>2. Recognize and describe common radiological findings in common disease entities.</td>
<td>MK.2; MK.3; MK.4; CSDR.2; CSDR.3</td>
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<td>3. Describe and apply ACR Appropriateness Criteria in clinical scenarios.</td>
<td>MK.4; MK.7; CSDR.4; LL.5 LL.6</td>
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<td>4. Describe the role of the radiologist in the health care system and the importance of multidisciplinary work and team-based management in radiology</td>
<td>C.4; C.5, C.9, PPD.1 PPD.2 LL.4</td>
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<td>5. Demonstrate the ability to utilize virtual PACS and explain the benefits of technology in imaging.</td>
<td>CSDR.8 HS.6 LL.6</td>
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<td>7. Integrate pertinent clinical history and imaging findings into the differential diagnosis and management.</td>
<td>CSDR.3</td>
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<tr>
<td>8. Communicates the pertinent information to include (e.g., relevant clinical history) when requesting diagnostic imaging.</td>
<td>C.4; C.5; C.6</td>
</tr>
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<td>9. Consistently demonstrate professional behavior consistent with the values of the medical profession</td>
<td>PPD.1; PPD.3</td>
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<td>10. Display skills of lifelong learning including generating clinical questions or identifying one’s own learning needs, using appropriate resources to answer questions or close learning gaps, engaging in self-assessment and goal setting and demonstrating growth in response to feedback</td>
<td>LL.1; LL.2; LL.3; LL.4; LL.6</td>
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Contact Information

Clerkship Director

Harpit S. Bedi, MD
Radiology Medical Student Clerkship Director
Telephone: (617) 414-4914
Email: Harprit.Bedi@bmc.org
Office: Department of Radiology FGH Building 4th Floor
820 Harrison Avenue, Room 4013
Office Hours: Contact Mariama Bah to set up a meeting with Dr. Bedi

Assistant/Associate Clerkship Director

Ari Damla, MD
Assistant Medical Student Director
Telephone: (617) 414-4914
Email: Ari.Damla@bmc.org
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Assistant/Associate Clerkship Director

Bindu Setty, MD
Assistant Medical Student Director
Telephone: (617) 414-4914
Email: Bindu.Setty@bmc.org
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820 Harrison Avenue
Office Hours: Contact Mariama Bah to set up a meeting with Dr. Setty

Clerkship Coordinator

Mariama Bah
Medical Student Coordinator
Telephone: (617) 414-4914
Email: Mariama.Bah@bmc.org
Office: Department of Radiology FGH Building, 3rd Floor
Office Hours: Monday - Friday, 8:30am to 5:00pm
Clerkship Description

Focus of clerkship

The third-year radiology clerkship focuses on providing students with a basic understanding of radiological imaging and intervention, while also offering hands-on learning through observing radiologists, participating in multidisciplinary conferences, and using virtual PACS and simulation centers. The curriculum blends lectures and independent study, equipping students with basic essential radiology knowledge and skills for their future careers in various medical specialties.

The purpose of the third-year clerkship in Radiology is to provide the fundamentals of radiological imaging and intervention. This Clerkship aims to immerse the student in Radiology and prepare them for encounters of radiological imaging or intervention in their future career in any chosen specialty. The clerkship will teach the basics of acquiring and interpreting common imaging modalities, such as X-rays, CT scans, MRI, and ultrasound, with the goal of identifying the basic relevant findings and their clinical implications. It will also teach how to integrate information from clinical history and imaging in order to produce a differential diagnosis and guide appropriate management.

During the clerkship, students will be exposed to the inpatient and outpatient imaging. They will learn about the radiologic diagnosis of common conditions using various diagnostic and interventional radiology techniques. Students will also learn about the American College of Radiology (ACR) Appropriateness Criteria, which guides the selection of the most appropriate imaging examinations for specific clinical conditions.

The curriculum features a blend of onsite lectures and independent study, with engaging opportunities for hands-on learning through interactive sessions using virtual PACS and simulation sessions. Students will also spend time in the reading rooms, observing radiologists and residents at work, experiencing the consultative nature of radiology with other specialties, and observing radiologists' roles in multi-disciplinary conferences.

In addition, the clerkship offers support to those considering Radiology as a future career. Radiology is an evolving field with continuous advancements in imaging technology and breakthroughs in therapeutics, including artificial intelligence-assisted diagnostics, minimally invasive image-guided interventions, and molecular imaging for personalized medicine, to name a few. This clerkship aims to provide a strong foundation in radiological knowledge and skills, fostering a deeper understanding of the field’s impact on patient care across various medical specialties in the inpatient setting.
Pre-requisite knowledge and skills
Students must have completed their second-year curriculum and the Transitional Clerkship and have taken the Step-I exam prior to taking this clerkship.

Clerkship Changes Made Based on Feedback
We are incorporating virtual PACS simulation into the selective so students have the opportunity to simulate the work of a radiologist by navigating a PACS and make basic findings.

Additional assessment reviews have been added to the schedule on a regular basis to ensure students receive feedback on their quizzes and OSCEs on a timelier basis.

We have converted to an on-site rotation so students can have more face-to-face time with faculty and residents.

Diversity, Equity, and Inclusion Initiatives
We will continue to strive for excellence in this arena. We will dedicate a portion of time during orientation and the Imaging Bootcamp lectures to learning more about diversity, equity and inclusion in the field of radiology.

Other Recent Changes to the Clerkship
Students will have several interactive sessions during their rotation including team-based learning, PACS simulation, time in the simulation center for hands-on activities, and time in the reading rooms. There will be a quiz every morning based on material learned the previous day that will reviewed immediately after completion.

Site Information
Site maps indicating the availability of student resources at our affiliate hospitals can be found under the Clinical Sites section of the Medical Education Office’s Student Resources page at http://www.bumc.bu.edu/busm/education/medical-education/student-resources/#siteinfo.

Boston University Medical Center
820 Harrison Avenue
Site Director: Dr. Harprit S. Bedi, (617) 414-4914, Harprit.Bedi@bmc.org
Site Administrator: Mariama Bah, (617) 414-4914, Mariama.bah@bmc.org

Description of site: In the event of a fully in person clerkship, medical students will spend the vast majority of their time in the following two locations:

1. All lectures, quizzes, OSCEs, Projects and Exams will take place onsite.
2. Virtual meeting links will be provided to the students for all supporting educational activities.
## Clerkship Schedule

This is an example of the basic schedule. Further details will be provided.

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
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<tbody>
<tr>
<td>8:00 Orientation</td>
<td>Quiz 1 Imaging Modalities</td>
<td>Quiz 2 Chest Cases</td>
<td>Quiz 3 Chest Cases</td>
<td>Abdomen 1</td>
</tr>
<tr>
<td>8:30</td>
<td>Quiz 1 Review</td>
<td>Quiz 2 Review</td>
<td>Quiz 3 Review</td>
<td>Abdomen 1</td>
</tr>
<tr>
<td>9:00</td>
<td>Imaging Modalities 1</td>
<td>Chest 1</td>
<td>Chest 3</td>
<td>Abdomen 1</td>
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<tr>
<td>9:30</td>
<td>Chest 1</td>
<td>Chest 3</td>
<td>Abdomen 1</td>
<td>DSCE 1</td>
</tr>
<tr>
<td>10:00</td>
<td>Visiting X-Ray</td>
<td>Chest Shadowing</td>
<td>Chest Shadowing</td>
<td>Body Shadowing</td>
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<tr>
<td>11:00</td>
<td>Visiting CT</td>
<td>Chest Shadowing</td>
<td>Chest Shadowing</td>
<td>Body Shadowing</td>
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<tr>
<td>11:30</td>
<td>Visiting Ultrasound</td>
<td>Body Shadowing</td>
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<tr>
<td>13:00</td>
<td>Imaging Modalities 2</td>
<td>Chest 2</td>
<td>Chest 4</td>
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<td>Abdomen 2</td>
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<tr>
<td>14:00</td>
<td>Orientation to Simulation</td>
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<tr>
<td>8:00</td>
<td>Quiz 4 Body Cases</td>
<td>Quiz 5 GU</td>
<td>Quiz 6 Neuro</td>
<td>Quiz 7 Neuro</td>
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<tr>
<td>8:30</td>
<td>Quiz 4 Review</td>
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<td>Quiz 6 Review</td>
<td>Quiz 7 Review</td>
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<tr>
<td>9:00</td>
<td>Neuro 2</td>
<td>Neuro 3</td>
<td>MSK 1</td>
<td>MSK 2</td>
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<td>9:30</td>
<td>Neuro 2</td>
<td>Neuro 3</td>
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<td>Body Shadowing</td>
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<td>Neuro Shadowing</td>
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<tr>
<td>8:00</td>
<td>Quiz 8 MSK</td>
<td>Quiz 9 Nuclear</td>
<td>Quiz 10 IR</td>
<td>Breast 1</td>
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<td>8:30</td>
<td>Quiz 8 Review</td>
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<td>Quiz 10 Review</td>
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Selective requirements: In addition to regular schedule (see above)

- Final examination: Last Friday afternoon of each Block, students will have the weekend to complete the examination to be submitted by Sunday at midnight.

- Final Exams and Quiz make-ups: Make up for the weekly quizzes, OSCEs and final examination must be coordinated with the Medical Student Coordinator and Selective Director. Email the Medical Student Coordinator as soon as you know that you will not be able to attend the Selective, submit a time off form, and coordinate a time to make up the quiz. Contact the Selective Director if you are not going to be present on the day of the scheduled final examination and arrange for an alternate examination time.

- Absences, including sick days and personal appointments: If you must be absent due to illness or other reason such as medical or dental appointment, you must email or speak to the Medical Student Coordinator stating that you need to be out secondary to an illness or an appointment. In order that your privacy may be preserved, please do not indicate the nature of your illness or appointment.

- Days away for residency interviews: The Radiology Department allows for 7 max absences. Any additional days requested beyond 7 days must be approved by the Radiology Medical Student Director. Students must remediate each absence by doing an additional evening assignment or during a weekend call shift with one of the Radiologists. Please make sure the Radiology Medical Student Director is aware of the absence via email. Please review the Chobanian & Avedisian School of Medicine Time off Policy for further clarification which is on blackboard and at this desk.

- Dress code: Professional attire. Consistent with Chobanian & Avedisian School of Medicine/BMC requirements.

- Cameras should remain on during didactic sessions to allow for direct student engagement and participation.

- Use of cell phones: Not permitted, including no cell phone use while attending virtual educational activities.

- Student Disciplinary Code of Academic and Professional Conduct: https://www.bumc.bu.edu/busm/about/diversity/prs/medical-student-disciplinary-code/

Block Schedule
Block schedule dates for all clerkships can be located on the Medical Education website: http://www.bumc.bu.edu/busm/education/medical-education/academic-calendars/

Didactic Schedule
There will be didactics in the morning and afternoon which will be mandatory attendance for CAMed students. Kaiser students may watch the recorded morning lectures and attend live for afternoon lectures.

Call Schedule
No call for this rotation

Holidays
Juneteenth: Monday, June 19, 2023
Thanksgiving: Wednesday, November 22, 2023 at 12PM – Sunday, November 26, 2023
Intersession: Sunday, December 24, 2023 – Monday, January 1, 2024
Other holidays that occur during specific blocks will be communicated by the clerkship director.

Holidays by Clerkship can be viewed on the Medical Education website at:
http://www.bumc.bu.edu/busm/education/medical-education/academic-calendars/#clerkhols

Assessment and Grading

Clerkship Grading Policy

<table>
<thead>
<tr>
<th>WHAT CONTRIBUTES TO YOUR GRADE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSEF</td>
</tr>
<tr>
<td>OSCEs (3)</td>
</tr>
<tr>
<td>Final Summative Quiz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HOW YOUR FINAL WORD GRADE IS CALCULATED:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass</td>
</tr>
<tr>
<td>&gt;70% total on the OSCEs and Final Summative Quiz</td>
</tr>
<tr>
<td>&gt;2.50 average score in all observed CSEF Domains</td>
</tr>
<tr>
<td>Fail</td>
</tr>
<tr>
<td>&lt;70% total on the OSCEs and Final Summative Quiz</td>
</tr>
<tr>
<td>&lt;2.5</td>
</tr>
</tbody>
</table>

INTERNAL EXAM GRADING (minimum passing percentile/2-digit score)

<table>
<thead>
<tr>
<th>Final Summative Quiz and OSCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;70% total</td>
</tr>
</tbody>
</table>

Standard Clerkship Clinical Grade Procedures/Policies

- Preceptors will provide clinical evaluations that contain the “raw data” on the student’s clinical performance. Preceptors DO NOT determine the final “word” grade. You are encouraged to regularly ask for specific behaviorally-based feedback on your clinical skills from your preceptors. However, do not ask them what word grade you will get, as that is a multifactorial process of which the clinical evaluation is one component.

- The CSEF form will be used to numerically calculate your clinical grade: 1 to 5 points (depending on which box is checked) for each domain which will be averaged to give you a final score out of 5. Categories: Needs intensive remediation (1); Needs directed coaching (2); Approaching competency (3); Competent (4) or Achieving behaviors beyond the 3rd year competency criteria (5) to get a final number in each domain. This can be rounded to the nearest number using standard rounding for the CSEF domain and this is the box that should be checked (e.g., if an average of 2.4 then the student should have needs directed coaching (2) checked off). Each CSEF will be weighted based on how long the student worked with each evaluator.

- CSEF Clinical Grade Calculations should be made using the 0.01 decimal point in each domain (though the rounded number will be checked off on the final CSEF) to give a final number.

Any average of <2.5 in any domain = an automatic fail for the clerkship and overall:

- <2.50 = Fail
- >2.50 = Pass

- Primary preceptors at sites with multiple preceptors will collect evaluation data from the other clinicians with whom the student works. The primary preceptor will collate this data and submit the final clinical evaluation.
### Professional Conduct and Expectations

Evaluation of a medical student’s performance while on a clinical clerkship includes all expectations outlined in the syllabus and clerkship orientation as well as the student’s professional conduct, ethical behavior, academic integrity, and interpersonal relationships with medical colleagues, department administrators, patients, and patients’ families. Student expectations include those listed below in professional comportment sections. If there are multiple professionalism concerns through a clerkship the student will not be eligible to receive honors on the clerkship. A student will be given feedback prior to receiving their final grade for the clerkship if their professional conduct is of concern. Prior to receiving a final grade, if a clerkship director determines that a student does not meet the professional conduct and expectations of the clerkship, a student will fail the clerkship. Any professionalism lapses resulting in either a clerkship fail or ineligibility to receive honors will require narrative comments by the clerkship director in the summative comments section of the final evaluation and the student will be given feedback in advance of the final grade form submission.

### Final Summative Quiz/OSCE Failures & Remediation

If a student gets <70% in averaged for their final summative quiz/OSCE, they will receive an Incomplete for the clerkship and retake the exams at the end of the year. Students:
- will not receive a Fail on their transcript if they pass the reexamination.
- If a student fails the reexamination, they will have Fail on their transcript, and have to remediate the clerkship.

### Clerkship Failure & Remediation

If a student fails a third- or fourth-year clerkship, the student will receive a Fail grade and will be required to repeat the clerkship. The grade for the repeated clerkship will be calculated based on the grading criteria outlined in the syllabus for Pass, High Pass, or Honors independent of the prior Fail. The original Fail grade will remain on the transcript. The original summative evaluation narrative will be included in the MSPE, in addition to the summative evaluation from the repeated clerkship.

If a student fails the remediated clerkship again and the SEPC allows for another remediation, the grade for the repeat clerkship will still be calculated based on the grading criteria outlined in the course syllabus for (Pass, High Pass, or Honors). The original two failures will remain on the transcript. The repeated course will be listed again, and the word (Repeat) will appear next to both course names.

### Grade Review Policy


### AME/Kaiser Core Faculty Direct Observation

During the third year, students will be directly observed by their core AME (or Kaiser) faculty three times throughout the year. They will also submit one write up in their core AME/Kaiser faculty’s discipline, and one video of a session with an SP for review and feedback. At the end of the year, the core AME/Kaiser faculty will write a narrative summary describing the student’s growth trajectory and competency development in the observed domains. This narrative will be included as part of the End of Third Year Assessment (in addition to the EOTYA 6 station OSCE).

### Formative Assessments

The purpose of formative assessment is to improve student learning by providing feedback on how well they are learning skills and content during the clerkship. Formative assessments are not included in the calculations of students’ final grades. Each clerkship has required **FOCuS** (Feedback based on Observation of Clinical UME Student) forms which must be completed by the mid/end of the clerkship. These forms will provide formative
assessment through direct observation of CSEF behaviors. Each student is required to complete one interviewing technique and one physical exam FOCuS form on each clerkship.

**Formative Assessment and Feedback Policy**
Boston University Chobanian & Avedisian School of Medicine ensures that each medical student is provided with formative assessment early enough during each required course or clerkship to allow sufficient time for remediation. Formative assessment occurs at least at the midpoint of each required course or clerkship four or more weeks in length.


**Mid-Clerkship Review**
You and your clerkship director, site director or primary faculty/preceptor will complete the Mid-clerkship Evaluation form at the mid clerkship point.

The purpose of this evaluation is to give the student a chance to understand both their strengths as well as opportunities to improve. The feedback received at the mid-clerkship review is intended to allow the student to improve their clinical skills in real time.

**Final Summative Assessments**
The final summative assessment will be based on the clerkship grading policy and include a final narrative describing your overall grade, clinical grade, based on the CSEF (Clinical Student Evaluation Form), and other assessments, depending on the clerkship. The summative narrative must include a final summative statement regarding your professionalism on the clerkship (meet expectations or did not meet expectations) per the AAMC MSPE requirements. The final grade form summative narrative appears in your MSPE and is based on aggregate comments from your individual CSEFs and is written by a site director/clerkship director and is reviewed by the clerkship director before submission.

**NBME Subject Examination**
Students will take the Radiology Selective/Core Elective NBME Subject Examination on the last Friday of the clerkship (unless otherwise communicated by the Medical Education Office). Students are given a reading day the day before the exam. Students do not report to their clerkship site on the reading day or the day of the exam. Students will be given access to their exam on Friday at 1:30pm and must submit it no later than Sunday midnight. Shelf exam dates can be found in the 3rd year google calendar.
Remotely administered assessments

Students are responsible for ensuring that they meet any technical needs required for remotely administered assessments (e.g., NBME Shelf Exams, OCRAs). This includes, but is not limited to, ensuring:

- computer specifications meet requirements outlined on the Alumni Medical Library website: [https://www.bumc.bu.edu/medlib/computing/busmrequirements/](https://www.bumc.bu.edu/medlib/computing/busmrequirements/)
- for NBME shelf exams, the student runs the laptop certification process noted below
- a consistent and stable internet connection
- a quiet testing space where the student will not be disturbed during assessment administration

Clerkships will reserve BUMC space as an onsite testing space for any remotely administered assessments. Students who do not have an appropriate testing space or prefer to test on campus should reach out to their clerkship coordinator at least two weeks prior to the assessment to make arrangements to test on campus.

Students with technical difficulties during a remotely administered assessment who do not take their assessment at a designated campus location will not be able to submit a grade reconsideration request solely for this reason.

Shelf Exam Laptop Certification Process

Students must certify their laptops one week before the NBME Subject Exam and again on the day before the exam. Instructions are provided on the Alumni Medical Library website at: [http://www.bumc.bu.edu/medlib/services/computing/nbme/](http://www.bumc.bu.edu/medlib/services/computing/nbme/)

If a student has technical difficulties during a shelf exam, they must report this to the clerkship coordinator. The clerkship coordinator must inform the Medical Education Office, and the student is required to have their laptop evaluated by BUMC IT before their next shelf exam. [https://www.bumc.bu.edu/it/support/bumc-it/request/](https://www.bumc.bu.edu/it/support/bumc-it/request/)

Exam Policies

Testing Center Policies

Make-Up Exams
Students needing to make up the exam or remediate only the exam portion of the clerkship must contact the Clerkship Coordinator to arrange for a make-up/remediation date. **Students may not take a make-up or remediation exam during any block they currently have a scheduled rotation.** Make-up and remediation exams will typically be scheduled at the end of the third-year blocks between mid-May and early June.

Roles and Responsibilities

Each clerkship is directed by the School’s Clerkship Director who oversees all clerkship sites. Each clinical site is directed by a clerkship site director who ensures that students are appropriately supervised and faculty and residents are prepared to teach at their site. Clerkships also have multiple clinical faculty that have varying degrees of exposure to students. The responsibilities of the directors and coordinators are described below more specifically. Clerkship directors are assisted by assistant clerkship directors, clerkship site directors, and clerkship coordinators.
School’s Clerkship Director & Assistant Clerkship Director

- Oversees the clerkship curriculum’s design, implementation, and administration
- Defines clerkship specific learning objectives and requirements
- Creates and maintains an appropriate learning environment, modeling respectful and professional behaviors for and toward students
- Ensures student and faculty access to appropriate resources for medical student education
- Orientes students to the overall clerkship, including defining the levels of student responsibility requirements (i.e., required diagnoses and procedures, direct observations, forms, feedback), grading structure and student schedule
- Oversees teaching methods (e.g., lectures, small groups, workshops, clinical skills sessions, and distance learning) to meet clerkship objectives
- Develops faculty involved in the clerkship and provides faculty development across sites specific to clerkship needs
- Evaluate and grade students
  - Develops and monitors assessment materials
  - Uses required methods for evaluation and grading
  - Assures timely mid-clerkship meetings at all sites with students
  - Ensures students receive timely and specific feedback on their performance
  - Submits final grade form for students via School of Medicine’s evaluation system
- Evaluates clerkship, faculty, and programs via peer review and annual data from the Medical Education Office (MEO) and national organizations (AAMC, NBME, etc.)
- Supports each student’s academic success and professional growth and development, including identifying students experiencing difficulties and providing timely feedback and resources
- Address any mistreatment and professionalism concerns in real time and communicate with MEO
- Participates in the school’s clerkship Educational Quality Improvement and peer review processes with completion of action items
- Ensures LCME accreditation preparation and adherence
- Adheres to the AAMC-developed guidelines regarding Teacher-Learner Expectations

Overall Clerkship Coordinator

- Supports the clerkship director in their responsibilities above
- Creates and maintains an appropriate learning environment, modeling respectful and professional behaviors for and toward students
- Responds within one business day to student emails and questions
- Maintains student rosters and clinical schedules
- Coordinates orientations and didactic sessions
- Liaises with site directors and administrators to coordinate student experiences across all sites and timely collection of evaluations
- Verifies completion of clerkship requirements, including midpoint and final evaluations for each student, required diagnoses, and FOCuS forms
- Monitors students’ reported work hours and report any work hours violations to the clerkship director
- Coordinates and proctors clerkship exams

Clerkship Site Director

- Oversees the clerkship curriculum and administration at the site
• Creates and maintains an appropriate learning environment, modeling respectful and professional behaviors for and toward students
• Is available and responsive to students’ questions and concerns
• Ensures all faculty and residents teaching students are oriented to students’ expectations, responsibilities, learning objectives, requirements, and assessments used in the clerkship
• Ensures student and faculty access to appropriate resources for medical student education
• Orientes students to the clinical site when new students arrive at the site
• Reviews clerkship requirements and student expectations at site
  o Provides site specific information including, but not limited to, lockers, library, call rooms as applicable and required by LCME
  o Reviews site-specific schedule, discusses student role and responsibilities at site, supervision at site, and who to contact with questions and concerns
• Supervises students and ensures clerkship specific required observations are completed
• Meets with the student for the Mid-clerkship review
• Meets with the student for the final exit meeting
• Ensures timely and specific formative feedback based on direct observations
• Works with faculty and residents to delegate increasing levels of responsibility to students based on clerkship requirements
• Provides site didactics when applicable
• Recognizes students with academic or professionalism difficulties and communicates to Clerkship Director in a timely fashion
• Completes and ensures the accuracy of student evaluation forms, including formative and summative narratives for students at the site
  o Ensures collection of feedback and evaluation data from all physicians who work with each student by the end of the clerkship block to meet school’s grading deadlines
  o Ensures that narrative data are consistent with and support numerical data
  o Evaluates students fairly, objectively, and consistently following medical school and clerkship rubrics and guidelines
• Addresses any student mistreatment concerns immediately and notifies the Clerkship Director
• Adheres to the AAMC Teacher-Learner Expectations guidelines
• Reviews site specific evaluations at mid-year and end of year and facilitates improvements based on data
• Works with School to provide faculty development for faculty and residents
• Answers Clerkship Director’s questions or concerns regarding site evaluation or student concerns
• Participates in educational programming and meetings as requested by Clerkship Director or Assistant Dean for Affiliated Sites
• Adheres to LCME guidelines

**Clerkship Site Coordinator**
• Supports the clerkship site director in their responsibilities above
• Creates and maintains an appropriate learning environment, modeling respectful and professional behaviors for and toward students
• Responds within one business day to student emails and questions
• Sends out welcome email informing students where and when to arrive at least 72 hours before student start date
• Provides students with their contact information and remains available for questions and concerns during working days and hours
• Ensures students are oriented to clinics and hospital
• Obtains, tracks, and manages student rosters
• Obtains and maintains student information required by the site, as applicable
• Creates and distributes:
  o Student schedules to students, faculty, and staff before clerkship start date
  o Didactics/Presentation schedules, if applicable
• Schedules mid-clerkship evaluations; tracks and keeps record of completion and provides to overall Clerkship Coordinator
• Informs faculty and overall Clerkship Coordinator of student absences
• Arranges and schedules educational resources as applicable (e.g., SIM lab, EMR & Scrub training) and helps students troubleshoot
• Provides students with necessary documents and resources needed to be oriented to site
• Monitors and processes evaluations for distribution to faculty and residents
• Collects timely feedback from faculty for mid and end of clerkship evaluations to meet School’s deadlines
• Collects feedback and evaluation data from all physicians who work with each student by end of clerkship block to meet School’s grading deadlines
• Understands evaluation system and all site requirements
• Communicates site information changes (e.g., faculty, rotation details) to School’s Clerkship Director and Clerkship Coordinator
• Maintains communication with Clerkship coordinator centrally and response within one business day
• Coordinates site specific meetings and faculty development with School

**Primary Clinical Faculty/Preceptors/Trainees**

- Sets and clearly communicates expectations to students
- Observes students’ history taking and physical exam skills, and documents it on the FOCuS form
- Delegates increasing levels of responsibility to students based on clerkship requirements
- Maintains appropriate levels of supervision for students at site
- Creates and maintains an appropriate learning environment, modeling respectful and professional behaviors for and toward students
- Recognizes students with academic or professionalism difficulties and communicates to Clerkship Director in a timely fashion
- Gives students timely and specific formative feedback based on direct observations
- Assesses students objectively using School of Medicine’s evaluation system
- Adheres to the AAMC Teacher-Learner Expectations guidelines

**Supervision**

Initially, the primary clinical faculty members should designate time to observe you performing: **history taking, focused physical exam, clinical problem-solving and interaction with patients and patient education.** Once the supervisor establishes the student’s level of confidence and competency, the student should be delegated increasing levels of responsibility in patient care, as appropriate. Although students may initiate a
particular patient encounter on their own and without direct supervision, the faculty must at some point review the encounter with the student and inform the patient in-person that the student’s assessment and management plan has been reviewed and approved by the faculty. The faculty is ultimately responsible for the evaluation, treatment, management, and documentation of patient care. If students have concerns regarding their clinical supervision, the site director and clerkship director should be immediately notified. Any supervision concerns should also be immediately submitted through the ATM link or directly to the Associate Dean of Medical Education.

Supervision and Delegating Increasing Levels of Responsibility

It is expected that the level of student responsibility and supervision will be commensurate with student’s competency and level of confidence. When the student arrives to a new setting, a faculty may wish to observe you for the first session. Thereafter, you should begin to see patients on your own. In the outpatient setting, the student should initially perform 4-5 focused visits per day in the first week, increasing to 6-12 thereafter. In the inpatient setting, the student should initially follow 1-2 patients and increased to 3-4 thereafter. When a student feels that they are being asked to perform beyond their level of confidence or competency, it is the responsibility of the student to promptly inform the preceptor. It is then the preceptor’s responsibility to constructively address the student’s concerns and appropriately restructure the teaching encounter to address the student’s learning needs.

Under no circumstances should the following occur:

- Patient leaves the office/hospital without having had a direct face-to-face encounter with clinical faculty/supervising resident.
- Primary faculty gives “prior approval” for student to perform intervention (order labs, prescribe meds) without satisfactory review.
- Patient leaves office/hospital without being informed that assessment/management plan has been directly reviewed and approved by the faculty.
- Learning in which a student is expected to perform an intervention or encounter without the prerequisite training and/or adequate supervision.
- Student note provides the only record of the visit. Although all faculty see all patients, faculty must document that they were actually the person responsible for seeing and examining the patient.

Intimate Exam Policy

Students participating in an intimate exam with a patient (which includes, pelvic, genitourinary and rectal exam) must have a chaperone with them, irrespective of the gender of the patient or the student. Permission to participate in an intimate exam must be obtained by the supervisor in advance of the examination itself. The patient has the right to decline student attendance at any examination. If a student is unable to perform any intimate exam due to patient preference, the student’s evaluation will not be impacted and if necessary, the clerkship director will provide an alternative experience.

Physical Exam Demonstrations

The demonstration of the physical examination on students should not be done by any supervisor of students including residents and attending faculty. Practicing the physical examination on students places them in a position where they may feel pressure to consent to something they may not feel comfortable with.

Third Year Student

This section goes through all aspects of the clerkship that the student is responsible for.

- Attendance at didactic lectures
- Attendance at morning quizzes and quiz review
• Attendance at any onsite simulation sessions
• Attendance at online sessions with Dr. Shaffer
• Attendance and completion of weekly OSCE
• Completion of Final Summative Quiz

In addition to the above clerkship specific requirements, the below MUST be included for all clerkships:

Professional Comportment
Students are expected to adhere to the AAMC-developed guidelines regarding Teacher-Learner Expectations, located on the Policies page, under “Academic Policies and Information” (http://www.bumc.bu.edu/busm/files/2015/05/AAMC-Teacher-Learner-Expectations.pdf)

Students are expected to be aware of and follow the site expectations on professional comportment, including, but not limited to, dress code and the use of phones, pagers, and laptops. Students must arrive on time at their site and for any scheduled sessions. Any missed sessions and absences must adhere to the Attendance & Time Off Policy.

Further, below are expectations for student professional conduct and behavior in the core clerkship curriculum. These include, but are not limited to:

• Treating and communicating with the clerkship team in a respectful manner.
• Engaging in the core curriculum and participating respectfully with peers and colleagues at all times.
• Arriving at clerkship didactic sessions on time and being present throughout sessions.
• Requesting faculty and resident evaluations in a timely manner.
• Reviewing and responding to e-mail requests in a timely manner.
• Returning borrowed clerkship materials on time.
• Handing in all assignments on time.
• Completing all logs and FOCuS forms by the clerkship specific deadline.
• Informing clerkship leadership and supervising faculty/residents of absences in advance of the absence.

Professional conduct will be reviewed at the mid-clerkship feedback session. Additionally, students will be given feedback prior to receiving their final grade when professionalism concerns are identified on the clerkship. If students are not meeting expectations for professional conduct and behavior in the clerkship or there are concerns, students will be made aware of the concerns noted by the clerkship directors, clerkship coordinator, faculty or residents.

Ethical Behavior for Examinations and Mandatory Sessions
• Refrain from any conversation with your peers during exams and as you leave the L-11 testing space (when applicable), including within the vending room and elevator waiting area, until you are on the elevator.
• Refrain from leaving your computer camera view at any point during the examination. Any time where a student cannot be viewed may result in failure of the examination.
• Don’t seek or receive copies of the examinations
• Signing in classmates, or signing in yourself and not staying for mandatory sessions is considered cheating and violations will be referred to Medical Student Disciplinary Committee
• If you are aware of any violations of the ethical standards listed above, within the Student Disciplinary Code of Academic and Professional Conduct, or otherwise, report it to the Clerkship Director

Student Evaluation of the Clerkship
Student feedback is a highly valued, critical resource for helping us continually improve our curriculum. Evaluation of learning experiences is a requirement of the Liaison Committee on Medical Education. To ensure that we have a representative amount of data on our courses and clerkships, all students are expected to complete an evaluation via the School of Medicine’s evaluation system, MedHub (https://bu.medhub.com/), for each of the courses/modules and their instructors. All evaluations are anonymous and aggregate data is only released to clerkship directors after grades have been submitted for the blocks. Please comment freely and honestly about your experience.

Blackboard
Students will have access to a Blackboard site for the clerkship. The site is listed under “My Courses” as MS412: Radiology Clerkship Selective/Core Elective on your Blackboard landing page.

The Blackboard page will be introduced during orientation at the start of the block, and all of its resources will be made available. You can start by looking through the ‘1. Selective/ Core Elective + Kaiser’ tab on the left hand side.

Students who have questions about the Blackboard site or find that they do not have access to the site should contact the Clerkship Coordinator for assistance.

Blackboard Learn: https://learn.bu.edu/

Assignments
During the Radiology Course you’ll have two graded assignments outside of the weekly OSCEs and the final exam. The first assignment is the Evidence Based Imaging (EBI) presentation.

• Students develop and present imaging algorithms for common clinical scenarios
• Working in groups of 2-3, each group will select one case from the list of 25 cases (can be found on blackboard under Required Presentation and Projects)
• Each group will create a PowerPoint presentation and facilitate discussion of their case
• The group will answer 3 questions for its case:
  o What is the differential diagnosis?
  o What imaging tests could we order?
  o What are the data to support or not support the use of these tests. The relative risks and benefits?
• Each group will create a one-page handout outlining the imaging algorithm for their case’s specific clinical diagnosis
• Please use the ACR Appropriateness Criteria (http://www.acr.org) as your primary resource
• Grading: Pass/Fail

An example of an Evidence-Based Imaging presentation can be found in the Student Presentations folder on Blackboard under the Radiology Clerkship.

Patient Encounters/Case Logs
Across the third year, there are required patient encounters and procedures that must be logged whenever they are seen. To log the patient encounter, students must have participated in the history, physical exam, assessment and plan development of the patient.
**Required Patient Encounters (The Core)**

http://www.bumc.bu.edu/busm/education/medical-education/faculty-resources/

Students should log every time they see any patient with the required patient encounter and continue to log throughout all clerkships. There will be no direct patient encounters in this rotation.

**Alternative Patient Encounters**

If a student has not been able to experience all patient encounters required for the clerkship, students must address any gaps in their patient encounters through an alternative experience. In this clerkship, the alternative experiences are simulations and videos.

**Patient Encounter Log**

Students are expected to log their patient encounters in MedHub (https://bu.medhub.com/). Patient logs help the clerkship ensure that each student is seeing a diagnostically diverse patient population, an adequate number of patients, and performing a sufficient number of required procedures and diagnoses. Students must bring a printed copy of their patient encounter and procedure log to their mid rotation feedback meeting.

**Policies and Procedures for Evaluation, Grading and Promotion of Boston University School of Medicine MD Students**

http://www.bumc.bu.edu/busm/faculty/evaluation-grading-and-promotion-of-students/

**Collaborative Student Assessment System**


**Student Disciplinary Code of Academic and Professional Conduct**

http://www.bumc.bu.edu/busm/faculty/medical-student-disciplinary-code/

**Attendance Policies**

On-site hours must be limited to 80 hours per week, averaged over a two-week period. Violations should be reported directly to the clerkship director or to an Associate Dean (Medical Education or Student Affairs). As part of becoming a professional, medical students should have the flexibility to address personal and professional needs at their discretion. In the clerkship year, as students transition to more of a professional work environment, they gain the responsibility of a working professional, yet do not have the agency to attend to their personal needs. As such, the Student Affairs Office and Medical Education Office have developed this personal day policy in conjunction with the clerkship directors for the core clerkship year. In addition to addressing issues of wellness and professional development, this policy will teach students the importance of time management and managing days off.

Time off requests must comply with the Attendance & Time Off Policy.

  - 3rd Year Excused Absence Form: https://wwwapp.bumc.bu.edu/MedPersonalDays/home/Index
- Work Hours: http://www.bumc.bu.edu/busm/education/medical-education/policies/work-hours/
- Religious Observance: https://www.bu.edu/chapel/religion/religiouslifepolicies/

_Clerkship Specific Blackout Dates_

_Scrubs Policy_
http://www.bumc.bu.edu/busm/education/medical-education/policies/scrubs-policy/

_School of Medicine Policies_
In addition to the expectations listed above, all students are expected to adhere to Chobanian & Avedisian School of Medicine and Boston University policies.
http://www.bumc.bu.edu/busm/education/medical-education/policies/

**BU Policies and Student Support Services**

_Appropriate Treatment in Medicine_
Boston University Chobanian & Avedisian School of Medicine is committed to providing a work and educational environment that is conducive to teaching and learning, research, the practice of medicine and patient care. This includes a shared commitment among all members of the School’s community to respect each person’s worth and dignity, and to contribute to a positive learning environment where medical students are enabled and encouraged to excel.

Chobanian & Avedisian SOM has a **ZERO** tolerance policy for medical student mistreatment.

Students who have experienced or witnessed mistreatment are encouraged to report it using one of the following methods:

- Contact the chair of the Appropriate Treatment in Medicine Committee (ATM), Dr. Robert Vinci, MD, directly by email (bob.vinci@bmc.org)
- Submit an online Incident Report Form through the online reporting system

These reports are sent to the ATM chair directly. Complaints will be kept confidential and addressed quickly.

Appropriate Treatment in Medicine website: http://www.bumc.bu.edu/busm/student-affairs/atm/

_Needle Sticks and Exposure Procedure_
http://www.bumc.bu.edu/busm/student-affairs/additional-student-resources/needle-stickexposure/

_Boston University Sexual Misconduct/Title IX Policy_

_Boston University Social Media Guidelines_
http://www.bu.edu/policies/information-security-home/social-media-guidelines/
Using Generative AI in Coursework Guidelines
With the increased use of Generative AI, Boston University’s Faculty of Computing & Data Sciences has issued guidelines around use and attribution.
https://www.bu.edu/cds-faculty/culture-community/conduct/gaia-policy/

Learning Strategies and Tools

Recommended Texts

- Felson’s Principles of Chest Roentgenology
- Squire’s Fundamentals of Radiology Suggested chapters:
  - 1 – Basic Concepts
  - 2–The Imaging Techniques
  - 11–How to Study the Abdomen
  - 12 – Bowel Gas Patterns, Free Fluid, and Free Air
  - 13 – Contrast Study and CT of the Gastrointestinal Tract
  - 14 – The Abdominal Organs
  - 16 – Men, Women, and Children
  - 18 – The Central Nervous System
  - 19 – Interventional Radiology
  - 20 – The Latest in Diagnostic Imaging

- Squire’s Fundamentals of Radiology Reference chapters – Please review the images and figures:
  - 4 – How to Study the Chest
  - 5–The Lung
  - 6 – Lung Consolidations and Pulmonary Nodules
  - 7 – The Diaphragm, the Pleural Space and Pulmonary Embolism
  - 8 – Lung Overexpansion, Lung Collapse, and Mediastinal Shift
  - 9 – The Mediastinum
  - 10–The Heart


MedHub
Chobanian & Avedisian School of Medicine uses MedHub for evaluation and assessment. MedHub uses Single-Sign-On with BU accounts, and contains tutorial and training resources under the “Help” tab once logged in.

Students with technical issues or in need of additional help beyond the resources provided should submit a support ticket via: https://www.bumc.bu.edu/evalue/medhub-support-tickets/ Echo360/Technology
Echo360 may only be used for streaming captured lecture videos; the videos may not be downloaded. Taking smartphone or digital pictures or videos of any part of the lecture in class, or at home, is similar to downloading and is not allowed. There are a number of reasons for this, including that students and/or the University may be liable for violations of federal copyright and privacy laws as a result of the use of copied material.

If you experience any technical problems, please report the issue in one of the following ways to generate an IT ticket:

- **Echo360 Related Issues:** Create a ticket on the Ed Media site (http://www.bumc.bu.edu/bumc-emc/instructional-services/echo360/): sign in and provide pertinent information that will enable an effective response. Have a link to the problematic video ready to copy/paste into this form.

- **Educational Technology Related Issues:** For assistance with technology supported by BUMC's Educational Media (e.g., ExamSoft), tickets can be created via their website at: http://www.bumc.bu.edu/bumc-emc/instructional-services/report-an-educational-technology-issue/

- **Other Technology Related Issues:** For assistance with BU-wide technology, such as Blackboard, email an example (e.g., picture or very brief phone video) to ithelp@bu.edu with a descriptive subject line and give as many details as possible on the what, where, how you are using the service and what type of computer, browser, etc. along with type of student (i.e. M3). Always include link(s) to or screen shots of where the issue is occurring.

School’s Policy on Recordings: https://www.bumc.bu.edu/busm/education/medical-education/policies/classroom-recordings/

**Tutoring**
Peer tutors may be requested via the Office of Academic Enhancement’s Peer Tutoring Program at: http://www.bumc.bu.edu/busm/student-affairs/office-of-academic-enhancement/academic-enhancement/peer-tutoring-program/

**Disability & Access Services**
Disability & Access Services’ goal is to provide services and support to ensure that students are able to access and participate in the opportunities available at Boston University. In keeping with this objective, students are expected and encouraged to utilize the resources of Disability & Access Services to the degree they determine necessary. Although a significant degree of independence is expected of students, Disability & Access Services is available to assist should the need arise. https://www.bu.edu/disability/accommodations/

**Session Learning Objectives and Notes**
*Please refer to Blackboard*