Ultrasound Basics: 
Human Anatomy From a Different Perspective 
Mini-Elective 
FALL 2018

Course Dates: October 16, 23, 30, November 6 
Tuesdays, 1:00-2:30 PM 
(See location schedule on page 2)

Maximum Students: 4 students per instructor per session

Class Year: MS1

Course Director: Marek A. Radomski, DO 
Assistant Professor of Emergency Medicine

Contact Information: Marek A. Radomski, DO 
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412-864-2072

Registration: Betsy Nero, Office of Medical Education 
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Description:
During this 4 session mini-elective, which is designed to run concurrently with the Medical Anatomy MS-1 course, students will learn about anatomy as they scan each other. This will be a hands-on course that will focus on the sonographic anatomy.

Requirements:
Actively participate in all four sessions.
COURSE OUTLINE
Ultrasound Basics: Human Anatomy From a Different Perspective

Course Director:
Marek A. Radomski, DO, Assistant Professor of Emergency Medicine

Contact Information:
Marek A. Radomski, DO, 412-864-2072, radomskima@upmc.edu

Location
Students should meet in Lecture Room 2 at 1:00 pm for the didactic session and then will break into exam rooms for scanning—Scaife SP Center, M Floor, Exam Rooms 4, 5, 6, 7, 10, 12

Session 1:
Students will become familiar with the ultrasound machine and to learn the basic principles of point-of-care ultrasonography.
- Define ultrasound
- Describe the ALARA principle as it relates to diagnostic imaging
- Demonstrate the basic functions of the ultrasound machine
- Describe how to select the proper transducer for the intended application
- Demonstrate how gain, frequency and depth affect image acquisition
- Understand and demonstrate transducer orientation with respect to the acquired image
- Understand and identify common ultrasound artifacts

Session 2:
Focus on the cardiovascular system (heart and major vessels).
- Understand the basic anatomy of the heart
- Obtain views of the heart
- Identify the pericardium, valves and the 4 chambers of the heart
- Demonstrate how to measure the LV posterior wall and aortic outflow tract
- Develop essential knowledge for performing a transthoracic echocardiogram
- Describe the anatomy of the abdominal aorta and its major branches

Session 3:
Examines the kidneys, ureters and bladder
- Obtain views of the kidneys
- Obtain views of the bladder
- Understand the relation of the bladder to the uterus and/or prostate
- Measure the bladder size and estimate the bladder volume
- Attempt to visualize ureteric jets using power Doppler

Session 4:
Will involve anatomic structures of the head and neck
- Obtain views of the thyroid
- Demonstrate the course of the IJV in relation to its adjacent structures
- Demonstrate how changes in IJV diameter occur with valsalva and body inclination
- Demonstrate the anterior and posterior chambers of the eye
- Identify the optic nerve sheath, retina and lens

Requirements: Actively participate in all 4 sessions