



University  
of  
Pittsburgh

School  
of  
Medicine

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

FALL 2019

Course Dates: October 15, 22, 29, November 5  
Tuesdays, 1:00-2:30 PM  
(See location schedule on page 2)

**OR**

October 17, 24, 31, November 7  
Thursdays, 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  
radomskima@upmc.edu  
412-864-2072

Registration: Betsy Nero, Office of Medical Education  
betsy@medschool.pitt.edu

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.

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[www.omed.pitt.edu](http://www.omed.pitt.edu)

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## **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](mailto:radomskima@upmc.edu)

#### **Location**

Students should meet in **Lecture Room 1\* 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**

**\*NOTE: FOR OCTOBER 17, 2019 SESSION ONLY –meet in LR3 at 1:00 PM—then proceed to Rooms 513, 514, 515, 516, 517 for exam scanning**

#### **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