

## Course: Point of Care Ultrasound Course number: EMED 2105

Department:	Dept. of Emergency Medicine
Faculty Coordinator:	Mandy Pasqual, MD, Jodi Jones, MD
Hospital:	Location of rotation: Parkland Memorial, Emergency Department
Periods Offered:	1-12
Length:	4 weeks
Max # of Students:	2
First Day Contact:	Connie Chow; <a href="mailto:Connie.Chow@UTSouthwestern.edu">Connie.Chow@UTSouthwestern.edu</a> Mandy Pascual; <a href="mailto:Mandy.Pascual@UTSouthwestern.edu">Mandy.Pascual@UTSouthwestern.edu</a>
First Contact Time:	Varies, will be notified by email prior to the first day of the rotation
First Day Location:	Virtual and Parkland ED

**Prerequisites:** All required core clerkships must be completed except for Psych and Pediatrics

### I. Course Description:

This rotation is designed to impart to each 4th year student a fundamental understanding of goal-directed point of care ultrasound, a method of examination that answers specific and important clinical questions.

Drawing upon the skills of basic anatomy knowledge, clinical physical exam and the selection of the appropriate patient based on presenting complaint, high quality ultrasound images will be obtained at the bedside. It is expected that the student learner will be able to integrate point of care ultrasound knowledge along with other investigations into the clinical picture for a given patient scenario. The skills acquired in bedside ultrasonography will be applicable not only to emergency medicine but to other specialties including internal and family medicine, OB/GYN, critical care, surgery, anesthesiology, radiology, orthopedics and pediatrics, just to name a few.

Goals	Objectives	Assessment methods
Patient Care: <i>Assessment and Management</i>	1. Use of point of care ultrasound to perform basic focused exams to improve patient care.	

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1. Students will learn how to integrate ultrasound into the clinical evaluations and investigations of multiple patients at the bedside.		
<p>Medical knowledge:</p> <ol style="list-style-type: none"> <li>1. Understand the basic knowledge of ultrasound, recognize indications for point of care ultrasound.</li> <li>2. Recognize classic examination windows and be able to interpret bedside ultrasound of anatomical regions in a timely manner.</li> <li>3. Learn to identify the key anatomic landmarks and ultra-sonographic findings used to diagnose focused pathologic conditions.</li> </ol>	<ol style="list-style-type: none"> <li>1. Perform/interpret images of FAST, AAA, cardiac, biliary, renal, thoracic, and soft tissue/abscess examinations.</li> <li>2. Identify free fluid on an abdominal/thoracic ultrasound.</li> <li>3. Identify pathologic conditions, for example, such as cholecystitis, pneumothorax, hydronephrosis, ascites, AAA, and abscess.</li> </ol>	
<p>Interpersonal and communication skills:</p> <ol style="list-style-type: none"> <li>1. Communicate with patients during performance and evaluation of bedside US examinations.</li> <li>2. Communicate effectively with other ultrasound team members.</li> <li>3. Understand development of US imaging storage systems and their role in learning, clinical care and quality improvement.</li> </ol>	<ol style="list-style-type: none"> <li>1. Create patient and family rapport during required number of ultrasound examinations.</li> <li>2. Demonstrate verbal, written and image skills regarding point of care ultrasound with fellow students, residents and faculty.</li> <li>3. Correctly save, store and retrieve US imaging for learning and quality improvement purposes.</li> </ol>	<p><i>The student will be evaluated based on oral input during teaching sessions.</i></p>
<p>Practice Based learning and Improvement:</p> <ol style="list-style-type: none"> <li>1. Systematically use quality improvement methods as basis of point of care ultrasound skill improvement.</li> </ol>	<ol style="list-style-type: none"> <li>1. Participate and contribute to scheduled QA review of all studies done, both by student, residents and faculty during twice weekly conferences.</li> </ol>	

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<ol style="list-style-type: none"> <li>2. Develop methods of learning such as evidence based medicine, online resources in point of care ultrasound</li> <li>3. Incorporate formative rotation evaluation feedback into self-reflection and setting learning goals</li> </ol>	<ol style="list-style-type: none"> <li>2. Mastery of utilizing references such as American College of Emergency Physician's online ultrasound curricula, SonoSite, core texts Emergency Ultrasound by Ma, Mateer and Blaivas.</li> <li>3. Participate in real time and scheduled evaluation sessions by fellow ultrasound students, fellows and faculty.</li> </ol>	
<p>Professionalism: Students must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.</p> <ol style="list-style-type: none"> <li>1. Develop behaviors respectful of patient comfort and privacy while performing exams.</li> <li>2. Present self as professional health care team member in all aspects of bedside patient care utilizing point of care ultrasound.</li> </ol>	<ol style="list-style-type: none"> <li>1. Demonstrate how to appropriately drape patients during appropriate ultrasound examinations.</li> <li>2. Demonstrate professional appearance and behaviors toward patients and medical colleagues.</li> </ol>	
<p>Systems based practice:</p> <ol style="list-style-type: none"> <li>1. Understand the value and use of point of care ultrasound across all medical specialties in the care of various populations of patients.</li> <li>2. Learn about the integration of point of care ultrasound in local hospital systems, Prehospital environments, and institutional educational programs.</li> </ol>	<ol style="list-style-type: none"> <li>1. Demonstrate examples and application of ultrasound in clinical areas such as wards, clinics, intensive care units and other areas of patient care.</li> <li>2. Provide evidence of integration of ultrasound principles and practice in undergraduate/graduate medical education, patient care and research purposes using online resources and local system uses.</li> </ol>	

### III. Methods of Instruction:

- a. Didactic
  - i. Scheduled student ultrasound principle and clinical lectures, prerequisite online lectures
  - ii. Participate in ultrasound journal club by reviewing and critiquing recent literature relevant to point of care ultrasound
  - iii. Read and review online resources such as American College of Emergency Physicians (ACEP) Ultrasound for Emergency Physicians (<https://www.acep.org/sonoguide/>) and other provided web based resources
  - iv. Participate in mandatory CQI sessions with ultrasound residents, fellows and faculty as scheduled
  - v. Attendance at Emergency Medicine and specific ultrasound conferences
- b. Hands on learning
  - i. Proctored bedside exams and procedural assistance techniques with dedicated ultrasound residents, fellows and faculty
  - ii. Evolvement to independent exams to be stored and reviewed during scheduled CQI session
  - iii. Expectation of minimum of 100 verified scans during the month by student across all common anatomical regions
  - iv. Use of anatomic model simulators in developing procedural assistance skills

### IV. Schedule

#### Orientation

Students will be expected to be enrolled in this course as the first day of the UTSW academic periods. **The first two sessions are mandatory orientation days where you will meet the members of Team Ultrasound, consisting of the US attendings, fellows and residents. All meeting times are nonnegotiable and may not be missed for any reason.** Often the POCUS student period will be offset from the EM/Resident blocks of time. Prior to the Monday that begins a student period, and each twice weekly teaching session there is a great deal of online prerequisite work that must be done. These involve video lectures that must be reviewed prior to your first teaching session on the first Monday of each period.

#### Prior to First Monday:

Contacted via email about the orientation session.

#### First Monday

Meet Team Ultrasound virtually

Orientation to course, machines, procedures, storing images et.al

Hands on sessions

#### Weekly Schedule

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Every teaching session (virtual and in-person) throughout the course is a **MANDATORY** event and must be attended.

After your first day, Team Ultrasound will supply you with dates of resident, fellow, and attending schedules. These scanning shifts will be proctored. More information on when and how will be given to you during orientation.

In order to gain needed scans for the month (100), Students may scan in the AM 7 days per week from 0700-1200. The student will not be scanning every morning but planning their time to match with the US resident, fellows and attending's. Structured proctored US shifts with EM POCUS residents, fellows and attending's will occur 1200-1900 on given days according to attending and fellow shift schedules.

Additional proctored skill based scanning shifts based upon attending and fellow shift schedule will be provided

Twice weekly QA, didactics and simulation procedural assistance throughout the 4-week period

US Journal club once per month

EM residency conference Thursdays 0730-1130, D1.502

**V. Course Requirements**

- a. Completion of all 3rd year clerkships and all online lectures
- b. Attendance and participation at all structured ultrasound (virtual and in-person) and EM conferences.
- c. Present one journal club article over the course of the month
- d. Submit 100 high quality stored exams for CQI review during course of the month
- e. Maintain high professional standards and be an interested participant as expected of all medical students.

**VI. Method of Evaluation of the Student**

- a. Pass/Fail grading structure
- b. Students will be assigned a grade [Pass/Fail] based on attendance, participation, case presentations and interactions with residents, faculty, staff, and patients. Specific criteria such as number of point of care scans performed during each ED shift, quality of the students performed scans and overall student attitude, improvement and completeness will be used as factors in grade assignment.
- c. An end of rotation evaluation form will be filled out and submitted by Team Ultrasound for each student. Each student is encouraged to consult with the course directors and Team Ultrasound as the weeks progresses to obtain real time feedback on areas of strengths and weaknesses so that there are no surprises when it comes down to formal written evaluations.

## VII. Recommended reading:

The more you experience online learning in Ultrasound, the greater of an appreciation you will have when spending time with your dedicated Ultrasound faculty and residents. Take the time to review what is out there in the world. A huge variety of resources exist for self-learning in POCUS. These are just a starting point and have drop down menus for student's just learning ultrasound.

- a. Society of Ultrasound in Medical Education- Learning Modules <http://www.susme.org/learning-modules/learning-modules>
- b. ACEP Ultrasound Guide for Emergency Physicians: <https://www.acep.org/sonoguide/>
- c. AIUM: <https://learn.aium.org/lectures>
- d. Emergency Ultrasound 4th ed. Ma O. Mateer J. Blaivas M. 2021
- e. ACEP EFAST Trauma Ultrasound  
<https://itunes.apple.com/us/app/trauma-ultrasound-ebook/id714242498?mt=8>
- f. Emergency Ultrasonography, Hayden G. <http://emergencyultrasoundteaching.com/index.html>
- g. [Ohio State's iPhone/Android app for POCUS](#)
- h. [SAEM's Academy of Emergency Ultrasound](#)

These are not meant to be an exhaustive list and multiple more resources can be found. Start exploring and learning!