

627A Emergency Medicine Ultrasound

Course Description: Students are required to complete enough shifts to perform a minimum of 75 ultrasounds per week on ED patients. Indications, limitations, Knobology, and image acquisition will be emphasized in the following areas: cardiac, lung, ocular, intestinal, gallbladder, renal, aorta, endovaginal, trauma, DVT, and procedural guidance.

Materials: Please download Dr. Fox's podcast and watch prior to the start of your rotation found here: <https://itunes.apple.com/us/itunes-u/ms4-ultrasound-in-medec/id429668966?mt=10>

Department: Emergency Medicine

Prerequisites: UC Irvine students must have successfully completed the basic science curriculum. If you are a 3rd year medical student you must request prior approval from the Elective Coordinators. Extramural students must be in the final year of undergraduate medical education.

Restrictions: Any student enrolled at a U.S. LCME medical school will use VSAS to apply. To apply please refer to this website <http://www.aamc.org/programs/vsas/>.

Elective Director: J. Christian Fox, MD , Department of Emergency Medicine, 333 City Boulevard, Suite 640, Orange, CA 92868, 714-456-5239 jfox@uci.edu

Instructing Faculty: J. Christian Fox, MD, Shadi Lahham, MD

Course Website: http://www.ultrasound.uci.edu/em_objectives.asp

Periods Available: Throughout the year - No blackout dates.

Duration: 4 weeks for UCI medical students and Non-UCI medical students (extramural and international students). *Splitting the 4 weeks is an option for UCI medical students only and will be considered on a case-by-case basis.* UCI medical students must get prior approval from the Elective Coordinators to split the 4-week blocks. **Please note that your grade will be withheld until the 4th and final week has been completed. This must be completed prior to your graduation.**

Number of Students: 6 maximum (4 UCI, 2 non-UCI)

Who to Report to on First Day: You will be emailed an orientation packet and attending schedule once you have been confirmed for the course. You will report to Dr. Fox or Dr. Lahham during the scheduled QA meeting during the first week of your rotation elective.

Location to Report on First Day: Emergency Department at City Tower in Orange, CA (Dr. Fox's Office)

Time to Report on First Day: During QA scheduled meeting.

Elective Coordinator(s): Nora Perez-Moreno, RDMS, nperezmo@uci.edu, Brenda Nash, RDMS, nashb@uci.edu UC Irvine Campus: 836 Health Sciences Road, Suite 3129, Irvine, CA 92697

Phone number: 949.824.1132

Site(s): UC Irvine Medical Center – 101 The City Drive South
Orange, CA 92868 (Emergency Department). UC Irvine Campus in Irvine, CA (for ultrasound clinical foundation teaching sessions to underclassmen).

UC Irvine students must officially enroll for the course by contacting the Scheduling Coordinator via email or phone (714) 456-8462 to make a scheduling appointment.

Extramural students enrolled at a U.S. LCME medical school must use VSAS to apply. To apply please refer to this website <https://students-residents.aamc.org/attending-medical-school/electives-andmake-courses/applying-away-electives-vsas/>

Course Objectives: At the end of this rotation, the student will be:

- Knowledgeable in the structure and function of the major organ systems including the heart, kidneys, vascular, soft tissue, lung, ocular, intestinal, hepatobiliary, splenic, and genitourinary. Students will also be routinely expected to diagnose disease states commonly found in the emergency department using their skills of bedside ultrasound. (Ai, Aii)
- Integrate the results of their bedside ultrasound into the patient's clinical scenario in order to effect a treatment or disposition. This often involves using the information derived from the ultrasound to necessitate an emergency lifesaving procedure, or medications. (Bii, Biii, Bv)
- Knowledgeable and skillful of bedside ultrasound that has far reaching possibilities to enhance the needs of underserved patients locally, nationally, and internationally (Civ)

Key Topics: The following applications of emergency ultrasound include: Cardiac, Gallbladder, Renal, Lung, Intestinal, Aorta, Appendicitis, Ocular, Testicular, Endovaginal, eFAST (Trauma), Lower Extremity Doppler, and Ultrasound Guided Procedures. All students will get the opportunity to perform each of these ultrasounds

Competencies:

- Students will be proficient in obtaining the windows necessary to interpret the above mentioned applications.
- Students will be competent at adjusting the knobs to enhance the image.
- Students will be competent at probe selection and probe frequency necessary to interrogate the various regions of the body with ultrasound.

Attitudes and Commitments:

- During your rotation, if there is a Clinical Foundation (CF) teaching session at UC Irvine OR an off-site teaching session you will be required to lead an ultrasound hands on session with our 1st and/or 2nd year medical students.
- You will be given a link to the podcast and a list of objectives of the topic in advance.
- In addition to an overall commitment to the quality of point-of-care ultrasound to walk away from the course with an attitude that ultrasound is a multi-specialty discipline.
- To develop a commitment to lifelong learning
- Ways of furthering their skills in beside ultrasound while working independently.

Sample Schedule of Educational Activities:

Monday 3:00pm - 12:00am	Scanning shift
Tuesday 1:00pm - 5:00pm	CF Teaching Session (UCI campus)

Wednesday 11:00am – 5:00pm	QA (Conference City Tower Suite 640)
Thursday 3:00pm - 12:00am	CF Teaching Session (UCI campus)
Friday 1:00pm - 5:00pm	Scanning shift
Saturday 3:00pm - 12:00am	Scanning shift
Sunday 12:00pm - 5:00pm	Scanning shift

What Students should do to Prepare for the Rotation:

- Download and watch Dr. Fox's podcasts on iTunes: <https://itunes.apple.com/us/itunes-u/ms4-ultrasound-in-meded/id429668966?mt=10>
- Go to www.ultrasoundpodcast.com and find topics of your liking. There are many edutaining ones to choose from.
- Alternatively: Review the textbook entitled "Emergency Ultrasound" by Ma and Mateer (3rd edition). A copy is in the resident workroom, and here it is on amazon:
- http://www.amazon.com/Ma-Mateers-Emergency-Ultrasound-SET/dp/0071792155/ref=sr_1_fkmr0_1?ie=UTF8&qid=1463200637&sr=8-1-fkmr0&keywords=ma+mateer+blaivas

Clinical Responsibilities of the Student: Students will be required to obtain the necessary ultrasound windows to allow for a meaningful interpretation of relevant normal or pathological findings. The students will then be required to integrate the results of their ultrasound into the diagnostic workup for each patient.

Patient Care Responsibilities: The students will have no direct responsibilities for patient care during this rotation. The student will learn how to obtain the ultrasound windows, image interpretation, and how to integrate this information into the clinical picture of the patient. However, at no time will the student act on the results of their ultrasound independently.

Call Schedule of the Student: Students will be required to spend as much time in the ED as necessary to perform 75 ultrasound studies per week. This typically requires about twelve 8-hour shifts in order for this to occur.

Procedures to be Learned by the Student: Ultrasound guided procedures such as internal jugular vein catheterization, peripheral vein catheterization, paracentesis, thoracentesis, arthrocentesis, abscess localization and drainage, and lumbar punctures. The student's role during the procedure is to perform the ultrasound while the physician performs the procedure.

Percentage of Time Student will Participate in Ambulatory Setting: 80% ambulatory, 20% didactic

Conference/Lecture/Small Group Sessions: Attendance at all quality assurance (QA) and Journal club sessions are MANDATORY! Students will be given a set of lectures by Dr. Fox, or the ultrasound fellow on the 9 primary applications of emergency ultrasound described below. Each student gets the same lecture series, most of which have been videotaped and converted into an interactive DVD format for the student to watch in the ED at their own pace while awaiting an ultrasound opportunity.

- Aorta Ultrasound
- Pelvic Ultrasound
- Lung Ultrasound
- Trauma Ultrasound
- Lower Extremity Duplex

- Cardiac Ultrasound
- Abdominal Ultrasound (Renal, Hepato-Biliary, Appendicitis)
- Ocular Ultrasound
- Testicular Ultrasound
- Ultrasound Guided Procedures

Aorta Ultrasound	40 minutes
Pelvic Ultrasound	70 minutes
Trauma Ultrasound	50 minutes
Lower Extremity Duplex	60 minutes
Cardiac Ultrasound	60 minutes
Abdominal Ultrasound (Renal, Hepato-Biliary, Appendicitis)	80 minutes
Ocular Ultrasound	45 minutes
Testicular Ultrasound	60 minutes
Ultrasound Guided Procedures	60 minutes

Course Hours Weekly Summary:

5.0	Conference
4.0	Ultrasound QA
30.0	Emergency Department
10.0	Lectures/Teaching sessions
49.0	Total

Content Theme Integration:

- Behavioral Science
- Decision Making
- Research Methods
- Technology Assessment

Recommended Reading: Emergency Ultrasound by O. John Ma, and James Mateer, 2003, McGraw-Hill

Official Grading Policy: The student will receive a grade of Honors, Pass or Fail. The student's final grade will be submitted on the standard UC Irvine elective form. The student will be evaluated by attendings and residents in the areas of ultrasound competency and performance.

Updated 3/12/2018