



**Critical Care Ultrasound: Adult
Sample Course Agenda**

Day 1	
8:00 a.m. – 8:15 a.m.	Welcome and Course Announcements Critical Care Ultrasound: Adult Overview
8:15 a.m. – 9:00 a.m.	Ultrasound Physics and Knobology <ul style="list-style-type: none"> • Explain the basics of ultrasound physics • Identify the different modes of ultrasound imaging • Discuss the ultrasound device platform • Demonstrate basic image-optimizing techniques
9:00 a.m. – 9:45 a.m.	Basic Windows and Views <ul style="list-style-type: none"> • Define critical care echocardiography • Discuss the importance of basic windows • Identify how to acquire optimal images • Recognize how to troubleshoot suboptimal images
9:45 a.m. – 10:00 a.m.	BREAK
10:00 a.m. – 12:00 p.m.	<p style="text-align: center;">Skill Stations Rotation 1</p> <p>A. Apical Views</p> <ul style="list-style-type: none"> • Recognize the apical 4-chamber view as a primary view • Evaluate the value of apical views • Discuss examining relative chamber sizes <p>B. Parasternal Views</p> <ul style="list-style-type: none"> • Identify sonoanatomy of long- and short-axis parasternal views • Recognize the anatomical structures (short axis) <p>C. Subcostal Views</p> <ul style="list-style-type: none"> • Identify sonoanatomy of subcostal views (anatomical structures) • Discuss the evaluation of pericardial effusion • Review evaluation of right and left ventricular function, especially free wall of right ventricle thickness
12:00 p.m. – 1:00 p.m.	LUNCH With Clinical Cases A and B <ul style="list-style-type: none"> • Review a series of cases focused on the topics covered in this morning's presentations • Apply the knowledge gained from presentations when responding to questions posed in the cases • Evaluate your knowledge of the topics covered in this afternoon's presentations
1:00 p.m. – 1:30 p.m.	Left Ventricular (LV) Function and Cardiac Output <ul style="list-style-type: none"> • Discuss global quantitative and qualitative measurements of LV systolic function (fractional shortening, mitral annular plane systolic excursion, E-point septal separation, 2D and 3D imaging) • Perform Doppler assessment of cardiac output

1:30 p.m. – 2:00 p.m.	Echocardiographic Evaluation: Right Ventricular (RV) Dysfunction <ul style="list-style-type: none"> • Explore RV anatomy • Discuss morphologic assessment of the RV • Perform functional assessment of the RV
2:00 p.m. – 2:30 p.m.	Echocardiographic Evaluation of Hypovolemia and Volume Responsiveness <ul style="list-style-type: none"> • Recognize and evaluate hypovolemia • Recognize predictors of volume responsiveness in spontaneously ventilated and passively mechanically ventilated patients • Assess effectiveness of volume loading
2:30 p.m. – 2:45 p.m.	BREAK
2:45 p.m. – 4:45 p.m.	<p style="text-align: center;">Skill Stations Rotation 2</p> <p>A. Right Ventricular (RV) Function</p> <ul style="list-style-type: none"> • Compare RV size assessment versus left ventricle (LV) views • Perform absolute RV measures in the apical view • Review linear and 2D assessment • Recognize septal dyskinesis <p>B. LV Function</p> <ul style="list-style-type: none"> • Describe global versus regional systolic dysfunction • Discuss global assessment of LV systolic function • Demonstrate linear and 2D assessment <p>C. Volume</p> <ul style="list-style-type: none"> • Recognize inferior vena cava diameter and variability • Perform passive leg raising test • Demonstrate LV end-diastolic area
4:45 p.m. – 5:30 p.m.	Clinical Cases C and D <ul style="list-style-type: none"> • Review a series of cases focused on the topics covered in this morning's/afternoon's presentations • Apply the knowledge gained from presentations when responding to questions posed in the cases • Evaluate your knowledge of the topics covered in this afternoon's presentations
5:30 p.m. – 5:45 p.m.	WRAP-UP DAY 1

Day 2	
7:30 a.m. – 7:45 a.m.	Welcome and Announcements
7:45 a.m. – 8:15 a.m.	Ultrasound and Pulmonary Embolism (PE) <ul style="list-style-type: none"> • Discuss the pathophysiology of PE • Review the Wells criteria for CT angiography deferral • Recognize non-ultrasound markers of PE • Practice lower extremity ultrasound evaluation of deep vein thrombosis
8:15 a.m. – 8:45 a.m.	Pericardial Tamponade: Evaluation of Tamponade Physiology <ul style="list-style-type: none"> • Differentiate between acute and chronic pathophysiology • Review ventricular interdependence • Describe reciprocal respiratory changes of Doppler velocity
8:45 a.m. – 9:15 a.m.	Abdominal Ultrasound: Extended Focused Assessment With Sonography in Trauma (eFAST) and Beyond <ul style="list-style-type: none"> • Review the principles of the eFAST examination • Practice techniques for image acquisition • Evaluate the clinical relevance of the eFAST examination • Explore additional applications of abdominal ultrasound
9:15 a.m. – 9:45 a.m.	Echocardiographic Approach to Shock <ul style="list-style-type: none"> • Describe a systematic algorithm • Apply quantitative and qualitative assessments • Explain coronary blood flow and its relationship to shock
9:45 a.m. – 10:00 a.m.	BREAK
10:00 a.m. – 12:00 p.m.	<p style="text-align: center;">Skill Stations Rotation 3</p> <p>A. Cardiac Output</p> <ul style="list-style-type: none"> • Identify and procure 4-chamber view structures • Obtain a 5-chamber view, including anterior angulation or clockwise rotation and aortic valve • Obtain a parasternal long-axis view and measure left ventricular outflow tract diameter for cross-section area <p>B. Focused Assessment With Sonography in Trauma (FAST) Examination</p> <ul style="list-style-type: none"> • Obtain views to evaluate for abnormal fluid • Examine for fluid in Morison pouch, right paracolic gutter, subdiaphragmatic space, and right pleural space • Demonstrate the subxiphoid (pericardial) complementary examination • Demonstrate the pelvic view <p>C. Tamponade Evaluation/Focused Assessed Transthoracic Echocardiography Examination (FATE)</p> <p>Specific to FATE:</p> <ul style="list-style-type: none"> • Describe the assessment of wall thickness and chamber dimensions • Discuss the assessment of biventricular function • Perform image pleura on both sides for large pleural effusion and hypotension • Discuss the emphasis on different wall segments in apical and parasternal views <p>Specific to tamponade:</p> <ul style="list-style-type: none"> • Identify pleural effusion in subcostal, apical, and parasternal views • Recognize right atrial late systolic collapse • Describe right ventricular diastolic collapse

	<ul style="list-style-type: none"> • Discuss reciprocal respiratory changes in right ventricular and left ventricular filling • Obtain a view of inferior vena cava plethora
12:00 p.m. – 1:00 p.m.	LUNCH With Clinical Cases E and F <ul style="list-style-type: none"> • Review a series of cases focused on the topics covered in this morning's presentations • Apply the knowledge gained from presentations when responding to questions posed in the cases • Evaluate your knowledge of the topics covered in this afternoon's presentations
1:00 p.m. – 1:30 p.m.	Vascular Ultrasound: Deep Venous Thrombosis (DVT) and Vascular Access <ul style="list-style-type: none"> • Practice ultrasound evaluation for DVT • Recognize DVT risk factors • Practice ultrasound techniques for vascular access
1:30 p.m. – 2:15 p.m.	Approach to Lung Ultrasonography <ul style="list-style-type: none"> • Practice ultrasound evaluation of pneumothorax, effusion, and consolidation • Discuss the anatomy of the pleural space • Practice ultrasound approach to performing a thoracentesis
2:15 p.m. – 2:30 p.m.	BREAK
2:30 p.m. – 4:30 p.m.	<p style="text-align: center;">Skill Stations Rotation 4</p> <p>A. Lung: Pleural Effusions and Thoracentesis</p> <ul style="list-style-type: none"> • Discuss probe selection • Describe B-mode and M-mode • Depict normal lung sliding • Recognize the spine sign in both right and left upper quadrants <p>B. Vascular Ultrasound</p> <ul style="list-style-type: none"> • Perform 2-point compression examination • Demonstrate color flow, Doppler flow, and augmentation • Explain the technique for rotating the probe between axial and longitudinal views for vascular cannulation • Discuss subclavian access using ultrasound <p>C. Ask the Expert</p> <ul style="list-style-type: none"> • Discuss clinical applications • Describe image acquisition techniques
4:30 p.m. – 5:00 p.m.	Clinical Cases G and H <ul style="list-style-type: none"> • Review a series of cases focused on the topics covered in this afternoon's presentations • Apply the knowledge gained from presentations when responding to questions posed in the cases • Evaluate your knowledge of the topics covered in this afternoon's presentations
5:00 p.m. – 5:30 p.m.	SCCM Ultrasound Course: How Can We Move Forward? <ul style="list-style-type: none"> • Introduce fundamentals and enhance critical care ultrasound skills • Participate in hands-on practice
5:30 p.m. – 5:45 p.m.	WRAP-UP DAY 2