# Critical Care Ultrasound: Adult Sample Course Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tr>
<td>7:00 am – 7:30 am</td>
<td>Breakfast</td>
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<tr>
<td>7:30 am – 7:45 am</td>
<td>Welcome and Introductions</td>
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<tr>
<td>7:45 am – 8:15 am</td>
<td>Pretest Review</td>
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**8:15 am – 9:00 am**

**Ultrasound Physics and Knobology**
- Explain the basics of ultrasound physics
- Explore the inverse relationship between resolution and depth in ultrasound imaging
- Identify the different modes of ultrasound imaging
- Discuss the ultrasound device platform
- Demonstrate basic image optimizing techniques

**9:00 am – 9:45 am**

**Basic Windows and Views**
- Define critical care echocardiography
- Discuss the importance of basic windows
- Acquire optimal images
- Troubleshoot suboptimal images

**9:45 am – 10:00 am**

*Break*

**10:00 am – 12:00 pm**

**Skill Stations**
- Apical Views
- Parasternal Views
- Subcostal Views

**12:00 pm – 1:00 pm**

**Lunch Cases 1A and 1B**
- 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 pm – 1:30 pm**

**Left Ventricular (LV) Function and Cardiac Output**
- 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 pm – 2:00 pm**

**Echocardiographic Evaluation: Right Ventricular (RV) Dysfunction**
- Explore RV anatomy
- Discuss morphologic assessment of RV
- Perform functional assessment of RV

**2:00 pm – 2:30 pm**

**Echocardiographic Evaluation of Hypovolemia and Volume Responsiveness**
- Evaluate and recognize hypovolemia
- Recognize predictors of volume responsiveness in spontaneously ventilated and passively mechanically ventilated patients
- Assess effectiveness of volume loading
2:30 pm – 2:45 pm | **Break**

2:45 pm – 4:45 pm | **Skill Stations**
- Cardiac Output
- Volume Assessment
- Left/Right Ventricular Function

4:45 pm – 5:30 pm | **Afternoon Clinical Cases**
- 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

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### Day 2

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<tr>
<td>7:00 am – 7:30 am</td>
<td>Breakfast</td>
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<tr>
<td>7:30 am – 7:45 am</td>
<td>Questions and Overview</td>
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| 7:45 am – 8:15 am | **Ultrasound and Pulmonary Embolism**
  - Discuss epidemiology
  - Discuss the pathophysiology of PE
  - Review the Wells criteria for CT angiography deferral
  - Recognize non-ultrasound markers of PE
  - Practice ultrasound assessment of PE
  - Evaluate PE and associated RV dysfunction
  - Practice lower extremity ultrasound evaluation of deep vein thrombosis (DVT) |
| 8:15 am – 8:45 am | **Pericardial Tamponade: Evaluation of Tamponade Physiology**
  - Differentiate between acute versus chronic pathophysiology
  - Review ventricular interdependence
  - Discuss clinical diagnosis
  - Discuss echocardiographic diagnosis
  - Describe reciprocal respiratory changes of Doppler velocity
  - Recognize pitfalls |
| 8:45 am – 9:15 am | **Abdominal Ultrasound: eFAST and Beyond**
  - Review the principles of the eFAST examination
  - Practice techniques for image acquisition
  - Interpret ultrasound images
  - Evaluate the clinical relevance of the eFAST examination
  - Explore additional applications of abdominal ultrasound |
| 9:15 am – 9:45 am | **Echocardiographic Approach to Shock**
  - Describe a systematic algorithm
  - Apply quantitative and qualitative assessments
  - Explain coronary blood flow and its relationship to shock
  - Recognize patterns |
| 9:45 am – 10:00 am | Break                                                                   |
| 10:00 am – 12:00 pm | **Skill Stations**
  - FAST Examination
  - Tamponade Evaluation
  - Focused Assessed Transthoracic Echocardiography (FATE) Examination |
| 12:00 pm – 1:00 pm | **Lunch Cases 2A and 2B**
  - 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 |
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<th>Topics</th>
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| 1:00 pm – 1:30 pm | **Vascular Ultrasound: Deep Venous Thrombosis and Vascular Access** | • Recognize DVT risk factors  
• Practice ultrasound evaluation for DVT  
• Practice ultrasound techniques for vascular access  
• Identify troubleshooting pitfalls |
| 1:30 pm – 2:15 pm | **Approach to Lung Ultrasonography** | • Discuss the anatomy of pleural space  
• Practice ultrasound evaluation of pneumothorax, effusion, and consolidation  
• Practice ultrasound approach to performing a thoracentesis |
| 2:15 pm – 2:30 pm | Break |  |
| 2:30 pm – 4:30 pm | **Skill Stations** | • Lung: Pleural Effusions and Thoracentesis  
• Vascular Ultrasound  
• Ask the Expert |
| 4:30 pm – 5:00 pm | **Clinical Cases** | • 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 pm – 5:30 pm | **SCCM Ultrasound Course: How Can We Move Forward?** | • Introduce fundamentals and enhance critical care ultrasound skills  
  o Echocardiography  
  o Lung ultrasound  
  o Vascular ultrasound  
  o Procedures  
• Participate in hands-on practice |