



INSTITUTE FOR  
INTERNATIONAL  
MEDICINE

## INMED Professional Certificate Course in Ultrasound for Primary Care Syllabus

### Course Faculty:

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Mark Muilenberg, ARDMS

### Student Support & Technology Assistance:

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### Overview:

Quality medical care in low-resource settings is often hampered by lack of objective clinical information. ultrasonography is a useful technology in such settings, providing vital data to support patient care decision-making. This course enhances performance and interpretation for ultrasonography of carotid, thyroid, heart, lung, aorta, abdomen, urinary tract, DVT screening, joint and venous access, and eFAST exam. The INMED Professional Certificate Course in Ultrasound for Primary Care is a hybrid experience that combines online preparation followed by a one-day, in-classroom event to master hands-on skills and assess achievements.

Participants will receive access to the INMED Ultrasound for Primary Care Short Self-Paced Course, one day of supervised hands-on skill development, and upon satisfactory participation and skill demonstration, the INMED Professional Qualification in Ultrasound for Primary Care. Please note that accommodations and meals are not included.

### Competency Objectives:

At the completion of the INMED Professional Certificate Course in Ultrasound for Primary Care learners will be able to:

- Apply the basic principles of ultrasonography to clinical settings
- Perform basic ultrasonography of carotid, thyroid, heart, lung, aorta, abdomen, urinary tract, DVT screening, and joint and venous access
- Interpret basic ultrasonography of carotid, thyroid, heart, lung, aorta, abdomen, urinary tract, DVT screening, and joint and venous access
- Perform eFAST (Extended Focused Assessment with Sonography for Trauma) Exams
- Interpret eFAST (Extended Focused Assessment with Sonography for Trauma) Exams

### **Timeframes:**

This Professional Certificate Course is a hybrid experience that combines an online learning experience followed by a one-day, in-classroom event to master hands-on skills and assess achievements.

### **Academic Credit:**

Completion of this course requirements earns one credit hour of academic credit.

### **Admission Requirements:**

Enrollment is open to healthcare professionals and healthcare profession learners, including physicians, midwives, advanced practice nurses, and physician assistants.

### **Computing Requirements:**

The following are the minimum computing requirements for participating this course. Students must have ready access to and be functionally proficient with:

- A personal computer with an up-to-date operating system and ample memory for downloads. A rectangular monitor (desktop or tablet) is preferable for course navigation.
- A web browser, preferably the most up-to-date version of Chrome, Internet Explorer, Firefox, or Safari
- Applications capable of opening and editing Microsoft Word documents and of viewing PDFs
- An Internet connection, preferably high speed
- Capability of viewing YouTube and Vimeo videos

### **Education Methods:**

Learners will achieve the course competency objectives through the following education methods:

- Interactive online learning techniques
- Interactive live presentations
- Skill stations for increasing technical proficiency
- Case studies for developing clinical judgment

### **Accessible Education**

INMED is committed to creating a learning environment that meets the needs of its diverse student body. If a student anticipates or experiences any barriers to learning in this course, please feel welcome to discuss concerns. If a student requires accessible academic adjustments and/or auxiliary aids, contact the Office of Student Support to request official accommodation. To contact Student Support, email [students@inmed.us](mailto:students@inmed.us).

Writing, study skills, mental wellness resources are available to all students.

#### *Library, Information Resources, Writing:*

All INMED students have access to a variety of library services and resources, available through <https://www.inmed.us/library-resources/>. You can contact the library by email at [library@inmed.us](mailto:library@inmed.us). INMED's research librarian regularly provides assistance in the use of library resources, citation formatting assistance, information literacy topics, and academic research.

#### *Study Skills and Learning Strategies Resources:*

Faculty advisors provide academic skills support and assistance for academically related and personal problems. Please reach out to your advisor.

#### *Mental Health:*

If you are experiencing symptoms of anxiety or depression or are feeling overwhelmed, stressed, or in crisis, you can seek help through the following outside organizations/resources: <https://www.inmed.us/student-resources/#mental-wellness>. Disclaimer: Inclusion does not constitute an endorsement by the Institute of International Medicine of any outside organization, or the- products or services offered, or views expressed. The list is intended to provide clarity to the public regarding support services provided nationally and internationally.

#### *IT Assistance & Additional Learning Support:*

For assistance with the LMS, course registration, degree audit, please contact INMED's director of student engagement & technology by email at

lrivera@inmed.us.

### **Assigned Ultrasound for Primary Care Lessons:**

Assignments to be completed prior to the in-person classroom event:  
Participate in the Ultrasound for Primary Care content, Lessons 1-15, and complete the Pre-Test and Post-Test for this content

#### **Learning Content:**

- Lesson 1 Ultrasound Physics
- Lesson 2 Thyroid
- Lesson 3 Carotid
- Lesson 4 Pulmonary
- Lesson 5 Cardiac
- Lesson 6 Hepatobiliary
- Lesson 7 Spleen
- Lesson 8 Renal
- Lesson 9 Inferior Vena Cava
- Lesson 10 Abdominal Aorta
- Lesson 11 Bladder
- Lesson 12 Musculoskeletal
- Lesson 13 Vascular Access
- Lesson 14 eFAST
- Lesson 15 Deep Venous Thrombosis

#### **In-Person Classroom Workshop:**

Each major topic will begin with a rapid review of anatomy and examples of normal scan planes, followed by supervised, hands-on scanning experience to achieve normal scan planes, ultrasound techniques and equipment control.

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|--------|--|
| 8:00am | Principles of US equipment use and image optimization  |
| 9:00   | Thyroid & Carotid                                      |
| 10:00  | Limited Echo & Thoracic                                |
| 11:00  | Abdominal, Renal, Urinary & eFAST                      |
| 12:00  | Lunch  |
| 1:00pm | DVT Screening  |
| 2:00   | Joint Space Access (Glenohumeral, Superiolateral Knee) |
| 3:00   | Venous Access (IJV, SCV, Basilic, Common Femoral)      |
| 5:00   | Finish   |
- \*Schedule is subject to change

#### **Final Exam:**

Learners will each demonstrate their skills throughout the day under supervision of the ultrasound faculty, who will evaluate learners using a standardized skills checkoff list. Learners must demonstrate satisfactory attainment of all required skills.

### **Explanation of Assignments:**

**Participation:** Learners are required to fully participate in the course content, including interactive content, pre-test, post-test, and in-person classroom hands-on activities.

**Punctuality:** This is a professional level course. All assignments are expected to be submitted on time.

**Professionalism Requirement:** This is a learning experience for professionals. Assignments are expected to be completed with excellence.

Learners whose evaluation is acceptable will receive the *INMED Professional Certificate in Ultrasound for Primary Care*. Those learners whose evaluation is not acceptable will receive a certificate of participation and the opportunity to remediate.

Inadequate learner performance will be managed according to the *Student Probation, Suspension, Dismissal, and Readmission Policy*. This policy is located within the Student Resources tab on the INMED website.

### **Requirements for Successful Completion & Course Grade Determination:**

This course is graded pass/fail. Successful pass requires:

- Ultrasound for Primary Care Post-Test  $\geq 80\%$
- Satisfactory demonstration of all required skills
- Complete course evaluation and credit claims forms at the course conclusion.

### **Remediation:**

If a learner does not complete this course and achieve the required competencies, the faculty may require the learner to 1) remediate the component(s) that the learner did not satisfactorily complete, or 2) repeat the entire course. Learners must repeat payment of tuition in order to retake a failed course.

### **Academic Integrity:**

This is a professional-level learning experience. All learners are expected to be self-motivated, to perform with excellence, and to be thoroughly honest throughout their process of learning. If any INMED faculty determines that a learner has committed academic dishonesty by plagiarism, cheating or in any other manner, the faculty member has the right to 1) fail the learner for the particular assignment, project and/or exam, 2) fail the learner for the entire course, 3) discharge the learner from any future INMED learning experience, including degree, diploma, or certificate completion.

### **Withdrawal and Refund Policy:**

You may choose to defer a course enrollment to a future course date. If you do not defer to a future course date, you may withdraw from currently enrolled courses at any time and receive the following refund rates:

100% refund 1st day – 3rd day\*

No refund if any course materials have been accessed.

\* Day one = date enrollment agreement is signed or date on course registration receipt. "Day" refers to a business day and excludes weekends and holidays.

### **Course Faculty:**

David Culpepper, MD, FACP

Dr. Culpepper is an internist and Point of Care Ultrasound Fellow with Ultrasound Leadership Academy. Trained at the University of South Carolina School of Medicine, he practiced general internal medicine for three decades, and today continues with Access Med in Lexington, KY. Dr. Culpepper has provided volunteer medical services to marginalized people in Brazil, Peru, Bolivia, Romania, Kenya, and refugees in Greece. His professional passion is teaching point of care ultrasound skills to those serving around the world in low resource communities.

Mark Muilenberg, ARDMS

Mark Muilenburg is an ultrasound technologist originally from the Iowa City area. His is largely focused on equipping healthcare professionals with critical ultrasound skills essential for underserved communities. Such teaching has brought him to Africa and Asia, and several times to teach at INMED. Realizing the limits of infrastructure in low-resource communities, he is currently very involved in the product development of a wireless, battery-powered, cell-phone-sized, high-resolution ultrasound scanner. When he's not abroad teaching ultrasound, Mark Muilenburg shares his skill at a crisis pregnancy center in Naples, Florida.