2025 - 2026

USSONAR FUNDAMENTALS IN MUSCULOSKELETAL ULTRASOUND PROGRAM

Syllabus

USSONAR

Ultrasound School of
North American Rheumatologists

USSONAR Fundamentals in Musculoskeletal Ultrasound Program Syllabus

COURSE TITLE: USSONAR Fundamentals in Musculoskeletal Ultrasound Program

PREREQUISITE: Access to a high-quality ultrasound machine is preferred. Participants must be able to export ultrasound images from the ultrasound machine to upload de-identified JPG files to the grading website

COURSE DIRECTOR: Philip Chu, MD, RhMSUS (philip.chu.ussonar@gmail.com)

ASSISTANT COURSE DIRECTOR: Erin Chew, MD, RhMSUS

COURSE COORDINATOR: Michelle Mullins (mmullins@srahec.org, or ussonar@srahec.org) – for general inquiries

COURSE SCHEDULE:

- **USSONAR Fundamentals in Musculoskeletal Ultrasound Program Applicant Informational Meeting**: August 11th 8:00 PM EST via Zoom (this meeting is mandatory for all fellow applicants and is highly encouraged for non-fellow applicants.)
    - Join Zoom Meeting: https://us02web.zoom.us/j/87156316967?pwd=mK3AZCUvywIRcQmHIjKANvkNzbubNA.1
    - Meeting ID: 871 5631 6967
    - Passcode: 175677
- **Application deadline** - August 29
- ***Fellow participants:***
    - **Introductory modules and scan submissions** - September 2 – 26, 2025
    - **Image submission deadline** - September 27, 2025
        - Images submitted after 5 pm PST/ 8 pm EST will not be graded/counted toward total submissions
    - **Quiz** – September 27, 2025
        - The quiz will be approximately 30 minutes
    - After the introductory month, fellows will be selected for the remaining course year. An approval or denial email will be sent at the end of September.
- ***Non-Fellow and Successful Fellow participants***:
    - **Course Dates**, including modules, assignments and scan submissions – October 1, 2025 – April 30, 2026
    - **Scavenger hunt assignment** - Nov. 1, 2025 through Dec. 12, 2025
    - **USSONAR Fundamentals in Musculoskeletal Ultrasound Program Mid-Year Course** – Jan. 30, 2026 – Feb. 1, 2026, in Tampa, FL. Attendance is

mandatory. Participants are in charge of making their own travel arrangements for the course.
    - **Online Written exam** - May 2, 2026. Delivered online, approximately 2 hours.
    - **Virtual Hands-on Exam** - May 16, 17, 30 and 31, 2026. The exam will be a 2-hour period on one of the listed days. Schedule will be determined in April.

COURSE OBJECTIVES:

- Understand the basics of ultrasound physics and image creation
- Understand the basics of image optimization and demonstrate competence in image optimization
- Understand the basic protocols for acquisition of ultrasound images and demonstrate competence in image acquisition of the following joint regions:
    - Hand
    - Wrist
    - Elbow
    - Shoulder
    - Hip
    - Knee
    - Ankle
    - Foot
- Identify basic and intermediate pathology visible with ultrasound (adult and pediatric specific)
- Identify imaging artifacts and appropriately adjust acquisition to eliminate artifacts
- Identify the limits of ultrasound imaging and when other imaging modalities are more appropriate/necessary
- Understand the basics of ultrasound guided procedures and demonstrate proficiency with basic guided procedures
- Understand the minimum requirements for documentation and a general knowledge of billing/CPT codes
- Identify the utility of ultrasound in the assessment of other rheumatic diseases and emerging applications

MEDIA, TEXT & RESOURCE REQUIREMENTS:
Participants will need access to a computer to upload acquired image series to the USSONAR website. Participants will also need to ensure institutional access to recommended readings.

Course Modules and Assignments are accessible through Canvas
https://ussonar.instructure.com/login/canvas

Submission of ultrasound image series is through the training program login portal at
https://www.ussonar.org/members/sign-in

INSTRUCTIONAL STRATEGIES:
This course combines online modules and assignments with a live mid-year with patient volunteers and cadaver-based procedure training. Instructional strategies for the online portion of the course include modules, assigned readings, video demonstrations, and knowledge checks. Mid-year workshop includes lectures, demonstration, and simulation. Feedback on submitted scan images and in-person scanning during the workshop will be provided by expert faculty.

MODULE OUTLINE

Initial month for fellow applicants (September/October) and non-fellow participants (October):

1. Getting Started
2. Terms, Imaging, and "Knobology" and Doppler Imaging
3. Normal Anatomy Adult

Full course modules also include:

4. Normal Anatomy Pediatrics
5. Adult Pathology (November)
6. Pediatric Pathology (November)
7. Adult Disease Specific Pathology (December/January)
8. Pediatric Disease Specific Pathology (December/January)
9. Ultrasound-Guided Procedures (December/January)

Bonus Modules:

10. Development and Implementation of a Rheumatologic Ultrasound Clinic Practice (February)
11. Advanced Ultrasound Topics in Rheumatology (February)

PARTICIPATION REQUIREMENTS:
It is the participant's responsibility to:

- ensure that they meet the requirements to participate in the full program.
- ensure that they have regular access to a high-quality ultrasound machine in order to submit the minimum required ultrasound image series
- ensure they have read the instructions for image series acquisition, electronic submission, and assignment acquisition/submission
- ensure that they have read the assignment requirements and submit assignments for grading on-time
- ensure that they have completed the modules and required readings as per the overall course schedule
- check the **CANVAS announcements** regularly for module and assignment releases (no emails/notifications will be sent by the program directors)

- participate fully in the mid-year hands-on ultrasound course
- participate in any online discussion/journal club posts
- participate in a minimum of 4 USSONAR webinars during the program (suggested Webinars announced in CANVAS).
- (Fellows) submit 16 ultrasound image series (see protocols for required images per series) for grading prior to September 27 – no guided injections/procedures
- (full course participants) submit a minimum of 50 ultrasound image series including the minimums below for specific joint regions:
    - 5 image series of each of the following regions:
        - Hand (7 images per series)
        - Wrist (9 images per series)
        - Elbow (7 images per series)
        - Hips (4 images per series)
        - Knee (8 images per series)
        - Foot (5 images per series)
    - 7 image series of the shoulder (9 images per series)
    - 8 image series of the ankle (13 images per series)
    - 5 ultrasound guided injections (direct, long axis type ultrasound guidance; minimum of 3 images per series)
- To help with pacing, below are approximate scan targets by month. This is to ensure that you are on track to complete the minimum number of scans by the end of the course. If you do not complete the required approved scans, you will not be eligible to participate in the final examination for the program.

    - 16 studies accepted by September 28th (**Fellows**)
    - 16 studies accepted by October 31st (**Non-Fellows**)
    - 30 (total) studies accepted by December 31st (14 in addition to October total)
    - 40 (total) studies accepted by February 15th
    - 45 (total) studies accepted by March 30th
    - 50 (total) studies accepted by April 30th

GRADING REQUIREMENTS:
Participants are required to submit the minimum of 50 approved scans by April 24, 2026, in order to be eligible to take the course examinations

Participants are required to PASS both the written examination and the hands-on examination to successfully complete the course

- Multiple-Choice Written Examination (2 hours)
    - May 2, 2026
- Hands-on Examination demonstrating proficiency in scanning all joint regions and demonstrating needle-guidance via simulated injection

- May 16, 17, 30 or 31, 2026
- The exam will be a 2-hour period on one of the above listed days. Please ensure that you block all these dates on your calendar to ensure you are available for your assigned date. Individual examination schedule will be determined in April.
- The final exam will be virtual, using teleguidance technology. You will be using a Butterfly Ultrasound Transducer for the final examination. If you do not have access at your institution, one will be provided by the program. Due to regulations surrounding transportation of medical devices across international borders, USSONAR cannot provide those participating from outside the United States with a Butterfly transducer or iPads. If participating from an international location, you will need to procure your own access to a Butterfly ultrasound transducer and compatible iOS device to access the teleguidance technology for the final exam. Android devices are not compatible with the teleguidance feature, and **neither are all iOS devices.** It is the participants responsibility to ensure that your iOS device is included on the list of teleguidance compatible devices which can be found here. An opportunity to test the teleguidance feature will be available in the weeks prior to the exam date.

EDUCATOR RESPONSIBILITIES:

1. At the beginning of the program, the program syllabus will be provided to each participant.
2. USSONAR is a non-profit organization, and or faculty experts generously volunteer their time in education to promote the use of rheumatologic ultrasonography to advance the care of patients with rheumatic diseases. The mentors will evaluate each image series submission and provide either video (preferred) or written feedback. If too many image series are submitted in the last month of the course, feedback will be limited to APPROVED/NOT APPROVED. Participants will be notified of this if the need arises. USSONAR is a non-profit association, and our faculty experts are generously volunteering their time in education to further the use of rheumatologic ultrasonography to advance the care of patients with rheumatic diseases.
3. The mentors/course directors will grade and provide feedback on assignments.
4. Accurate records of approved ultrasound series submissions and mid-year course attendance will be maintained and retained electronically.
5. Unannounced quizzes or assignments may be given at the Course Director's discretion.

STUDENT: TEACHER RATIO

There will be a maximum of 5 participants to each mentor at the mid-year hands-on ultrasound course in Tampa, FL