

2024-2025

FUNDAMENTALS MSK TRAINING PROGRAM

Syllabus



USSONAR Fundamental Education Program Syllabus

COURSE TITLE: USSONAR Fundamentals Education 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: Norman Madsen, MSc, MD, FACR, RhMSUS
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ASSISTANT COURSE DIRECTOR: Michelene Hearsh-Holmes, MD, RhMSUS

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

COURSE SCHEDULE:

- **Fundamental Applicant Informational Meeting:** August 25th 8:00 PM EST via Zoom (this meeting is mandatory for all fellow applicants and is highly encouraged for non-fellow applicants.)
 - <https://us02web.zoom.us/j/83704756021?pwd=jnQogpDhQBfDmUjBfAXdZEGsfiXHfy.1>
 - Meeting ID: 837 0475 6021
 - Passcode: 346163
- **Application deadline** - August 30
- **Fellow participants:**
 - **Introductory modules and scan submissions** - September 2 – 26
 - **Image submission deadline** - September 27
 - Images submitted after 5 pm PST/ 8 pm EST will not be graded/counted toward total submissions
 - **Quiz** – September 28
 - 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 – April 30
 - **Scavenger hunt assignment** - Nov. 1 through Dec. 13
 - **Fundamentals Mid-Year Course** – Jan. 31 – Feb. 2, 2025 in Tampa, FL. Attendance is mandatory.
 - **Online Written exam** - May 3. Delivered online, approximately 2 hours.
 - **Virtual Hands-on Exam** - May 17, 18, 31 and June 1. 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 from <https://learn.ussonar.org>
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 lecture, 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”
3. Normal Anatomy

Full course modules also include:

4. Doppler Imaging (November)
5. Basic Pathology (November)
6. Disease Specific Pathology (December/January)
7. Guided Procedures (December/January)

Bonus Modules:

8. Advanced Ultrasound Techniques in Rheumatology (February)
9. Regulatory Matters (March)
10. USSONAR Publications

PARTICIPATION REQUIREMENTS:

It is the participant’s responsibility to:

- ensure that they meet the requirements to participate in the full course.
- 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 website regularly for module and assignment releases (no emails/notifications will be sent by course team)
- participate fully in the mid-year workshop
- (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)
- participate in any online discussion/journal club posts (if available this course year)

GRADING REQUIREMENTS:

Participants are required to submit the minimum of 50 approved scans by April 25, 2025 in order to be eligible to write 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 3, 2025
- Hands-on Examination demonstrating proficiency in scanning all joint regions and demonstrating needle-guidance via simulated injection
 - May 17, 18, 31 or June 1
 - The exam will be a 2-hour period on one of the above listed days.
Individual examination schedule will be determined in April.

EDUCATOR RESPONSIBILITIES:

1. At the beginning of each course, the course coordinator will provide a course syllabus to each participant.
2. 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.
3. The mentors/course directors will grade and provide feedback on assignments
4. Accurate records of approved ultrasound series submissions and mid-year workshop 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 live workshop in Tampa, FL