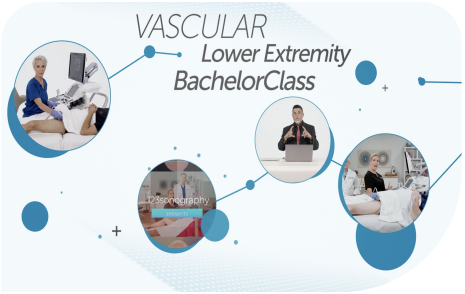

Vascular Lower Extremity BachelorClass

With the Vascular Lower Extremity BachelorClass, you will gain a strong foundation and comprehensive introduction to performing and interpreting vascular ultrasound examinations. Note: This course includes AI-generated translations in Spanish and Arabic. Accuracy is not guaranteed (read more in Terms & Conditions)

9.5	13	123	12
CME credits	Chapters	Lectures	Quizzes

Chapter 1 | CME

Free lectures

Lectures & Quizzes:

- Free lecture 1
- Free lecture 2
- Free lecture 3

Chapter 2 | 1 CME

Basic and Advanced Ultrasound Concepts

In this first chapter we discuss the history of vascular disease, the importance of studying it, and its prevalence worldwide. Subsequently, we cover the professions to which this course is tailored and a chronological overview of the upcoming chapters. Prior to diving into the deep end of vascular imaging, we must first undersand the basic ultrasound concepts. Basic ultrasound concepts entail a general overview of the ultrasound system then a more focused lens on individual ultrasound system functions. Furthemore, we will learn how to set up our ultrasound environment. Once our ultrasound environment is prepared, we will review orientation, transducer ergonomics, transducer manipulation, and basic knobology. Then we proceed to learn advanced ultrasound concepts. These concepts entail image optimization via B-mode, color Doppler, and spectral Doppler, which will enable us to have full diagnostic confidence during image aquisition.

Lectures & Quizzes:

- Course Introduction
- Ultrasound System: Basic Overview
- Ultrasound System: Comprehensive Overview
- Transducer Selection
- Setting Up the Ultrasound Environment
- Transducer Manipulation
- Basic Knobology
- Image Optimization: B-Mode
- Image Optimization: Color Doppler
- Image Optimization: Spectral Doppler

- Image Orientation
- Transducer Ergonomics
- Vascular Lower Extremity BachelorClass - Basic and Advanced Ultrasound Concepts

Chapter 3 | 0.5 CME

Clinical Ultrasound Concepts

A mastery of the technical and conceptual concepts regarding ultrasound imaging is not sufficient to create a competent sonographer. To truly excel, we must consider how we communicate with others. In order to answer the clinical questions, this chapter will provide a guideline regarding how communicate with both the patient and the physician.

Lectures & Quizzes:

- Sonographer-Physician Communication
- Sonographer-Patient Communication
- Vascular Lower Extremity BachelorClass - Clinical Ultrasound Concepts

Chapter 4 | 0.5 CME

Lower Extremity Arterial System

A thorough understanding of the peripheral arterial system is required to image the lower extremities. This chapter encompasses normal arterial anatomy, arterial physiology, and arterial hemodynamics.

Lectures & Quizzes:

- Lower Extremity Arterial Anatomy
- Lower Extremity Arterial Physiology
- Lower Extremity Arterial Hemodynamics
- Vascular Lower Extremity BachelorClass - Lower Extremity Arterial System

Chapter 5 | 0.5 CME

Lower Extremity Arterial Pathology

Now that we have an understanding of normal peripheral arterial function, we have a foundation to learn how to differentiate between various peripheral arterial diseases. This chapter covers peripheral arterial pathology and the pathophysiology behind atherosclerosis, aneurysms, fibromuscular dysplasia, and congenital anomalies.

Lectures & Quizzes:

- Atherosclerosis
- Aneurysm
- Fibromuscular Dysplasia
- Congenital Anomalies
- Vascular Lower Extremity BachelorClass - Lower Extremity Arterial Pathology

Chapter 6 | 0.75 CME

Lower Extremity Arterial Evaluation: Technical Protocol

This chapter covers the technical protocol for duplex evaluation of the lower extremity peripheral arterial system. We review how to orient via the anatomic landmarks. Subsequently, we review how to image the peripheral arterial system with B-mode, color Doppler, and sprectral pulsed wave Doppler.

Lectures & Quizzes:

- Patient Positioning and Transducer Selection
- Proximal Common Femoral Artery
- Distal Common Femoral Artery
- Superficial Femoral Artery
- Popliteal Artery
- Proximal Tibioperoneal Trunk
- Distal Tibioperoneal Trunk
- Calf Anatomy
- Posterior Tibial Artery
- Peroneal Artery
- Anterior Tibial Artery
- Dorsalis Pedis Artery
- Calf Arteries
- Vascular Lower Extremity BachelorClass - Lower Extremity Arterial Evaluation: Technical Protocol

Chapter 7 | 1.25 CME

Lower Extremity Arterial Evaluation: Abnormal Findings

This chapter covers duplex evaluation of lower extremity peripheral arterial pathology. We review how to image and document the pathological findings of stenosis, occlusion, and aneurysms via B-mode, color Doppler, and spectral Doppler.

Lectures & Quizzes:

- Clinical Session: Superficial Femoral Artery
- Clinical Session: Above Knee Level
- Clinical Session: Below Knee Level
- Case Study
- Clinical Session: Common Femoral to Deep Femoral Arteries
- Clinical Session: Superficial Femoral Artery
- Case Study
- Patient Story
- Clinical Session: Superficial Femoral Artery
- Clinical Session: Above Knee Level
- Clinical Session: Aneurysm Assessment
- Case Study: Superficial Femoral Artery Stenosis
- Case Study: Distal Superficial Femoral Artery Occlusion
- Case Study: Aortoiliac Occlusion
- Vascular Lower Extremity BachelorClass - Lower Extremity Arterial Evaluation: Abnormal Findings

Chapter 8 | 0.5 CME

Lower Extremity Venous System

A thorough understanding of the peripheral venous system is required to image the lower extremities. This chapter covers normal venous anatomy of the deep and superficial systems. Subsequently, this chapter covers venous physiology and venous hemodynamics.

Lectures & Quizzes:

- Lower Extremity Venous Anatomy
- Lower Extremity Venous Physiology
- Lower Extremity Venous Hemodynamics
- Vascular Lower Extremity BachelorClass - Lower Extremity Venous System

Chapter 9 | 0.5 CME

Lower Extremity Venous Pathology

Now that we have an understanding of normal peripheral venous function, we have a foundation to learn how to differentiate between various peripheral venous diseases. This chapter covers peripheral venous pathology and the pathophysiology behind venous insufficiency, deep vein thrombosis, superficial thrombophlebitis, and post-thrombotic luminal wall changes.

Lectures & Quizzes:

- Venous Thromboembolism and Deep Vein Thrombosis
- Varicose Veins
- Venous Severity Measurement
- Vascular Lower Extremity BachelorClass - Lower Extremity Venous Pathology

Chapter 10 | 0.75 CME

Lower Extremity Venous Patency Evaluation: Technical Protocol

This chapter covers the technical protocol for duplex evaluation of the lower extremity peripheral venous system. We review how to orient via the anatomic landmarks. Subsequently, we review how to image the peripheral venous system for patency with B-mode, color Doppler, and sprectral pulsed wave Doppler.

Lectures & Quizzes:

- Patient Positioning and Transducer Selection
- Common Femoral Vein
- Saphenofemoral Junction
- Femoral Vein
- Popliteal Vein
- Intramuscular Veins
- Posterior Tibial and Peroneal Veins
- Anterior Tibial Veins
- Great Saphenous Vein
- Small Saphenous Vein
- Vascular Lower Extremity BachelorClass - Lower Extremity Venous Patency Evaluation: Technical Protocol

Chapter 11 | 1.25 CME

Lower Extremity Venous Insufficiency Evaluation: Technical Protocol

This chapter covers the duplex evaluation of the lower extremity peripheral venous system. We review how to orient via the anatomic landmarks. Subsequently, we review how to image the peripheral venous system for insufficiency with B-mode, color Doppler, and spectral pulsed wave Doppler.

Lectures & Quizzes:

- Examination Overview
- Patient Positioning and Transducer Selection
- Common Femoral Vein
- Femoral Vein
- Popliteal Vein
- Calf Veins
- Great Saphenous Veins
- Small Saphenous Veins
- Patient Positioning
- Common Femoral Vein
- Femoral Vein
- Popliteal Vein
- Great Saphenous Vein: Saphenofemoral Junction
- Great Saphenous Vein: Terminal Valve
- Great Saphenous Vein: Subterminal Valve
- Great Saphenous Vein: Proximal Thigh Level
- Great Saphenous Vein: Distal Thigh Level
- Great Saphenous Vein: Knee Level
- Great Saphenous Vein: Below Knee Level
- Great Saphenous Vein: Proximal Calf Level
- Great Saphenous Vein: Distal Calf Level
- Tributaries
- Anterior Accessory Saphenous Vein
- Posterior Accessory Saphenous Vein
- Intersaphenous Connection
- Small Saphenous Vein: Below Knee Level
- Small Saphenous Vein: Proximal / Mid Calf Level
- Small Saphenous Vein: Distal Calf Level
- Conclusion
- Vascular Lower Extremity BachelorClass - Lower Extremity Venous Insufficiency Evaluation: Technical Protocol

Chapter 12 | 1 CME

Lower Extremity Venous Evaluation: Abnormal Findings

This chapter covers the technical protocol for duplex evaluation of the lower extremity peripheral venous pathology. We review how to image and document the pathological findings of deep vein thrombosis, deep venous insufficiency, and superficial venous insufficiency via B-mode, color Doppler, and spectral Doppler.

Lectures & Quizzes:

- Clinical Session: Venous Patency Evaluation
- Clinical Session: Common Femoral Vein
- Clinical Session: Great Saphenous Vein
- Clinical Session: Tributary and Perforator
- Case Study
- Patient Story
- Clinical Session: Contralateral Common Femoral Vein
- Clinical Session: Common Femoral Vein
- Clinical Session: Femoral Vein
- Clinical Session: Popliteal Vein
- Clinical Session: Calf Veins
- Three Case Studies: Saphenous Vein Insufficiency
- Case Study: The Heart and the Vascular System
- Case Study: Deep Vein Thrombosis
- Case Study: Massive Deep Vein Thrombosis
- Vascular Lower Extremity BachelorClass - Lower Extremity Venous Evaluation: Abnormal Findings

Chapter 13 | 1 CME

Lower Extremity Functional Testing and Alternative Modalities

Functional arterial and venous testing is complementary to ultrasound imaging of the peripheral arterial and venous system. Together, these modalities allow us to paint a complete and vivid picture of the patient's peripheral arterial and venous pathology. This chapter covers ABI testing, segmental testing, and pulse-volume recording as well as air plethysmography testing. Furthermore, modern technology allows us to use alternative ultrasound modalities in order to improve our visualization of the peripheral venous system. This chapter also covers one of these modalities: intravascular ultrasound.

Lectures & Quizzes:

- Ankle-Brachial Index: Examination Overview
- Ankle-Brachial Index: Cuff Placement
- Ankle-Brachial Index: Brachial Pressures
- Ankle-Brachial Index: Ankle Pressures
- Ankle-Brachial Index: Review of Findings
- Segmental Examination: Segmental Pressures
- Segmental Examination: Review of Findings
- Pulse-Volume Recording
- Continuous Wave Doppler
- Toe-Brachial Index
- Plethysmography Testing
- Intravascular Ultrasound
- Vascular Lower Extremity BachelorClass - Functional Testing and Alternative Modalities