

2016

# B.S. in Cardiovascular Sonography Curriculum

Nova Southeastern University

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## B.S. in Cardiovascular Sonography (B.S.-CVS) Curriculum 2016

### Curriculum

Course Number	Course Title	Credits
BHS 3110	<b>Health Care Ethics</b> This course is designed to introduce ethical thinking and concepts regarding health care to prepare the student with the essential vocabulary and thought processes to understand, evaluate and participate in ethical decision making.	3
BHS 3120	<b>Introduction to Health Epidemiology</b> The purpose of this course is to introduce the history and development of epidemiology in relation to public health and disease. Communicable, epidemic and endemic as well as social disease will be discussed.	3
BHS 3130	<b>Research and Design for Health Care / Research Design in Health Care</b> This course is designed as an introduction to critical analysis of research and medical literature as well as basic research methods. The course includes an introduction to descriptive and inferential statistics and research design. Statistical and research concepts and procedures are combined with an emphasis on practical health care applications.	3
BHS 3150	<b>Principles in Leadership</b> This course will provide an overview of numerous leadership theories to prepare the student for a leadership role in Health Care. The course will critically analyze the differences between leadership and management	3
BHS 3155	<b>Conflict Resolution in Health Care</b> The purpose of this course is to develop an understanding of the conflict and effective methods and strategies for reducing the incidence of workplace conflict including employee-employee conflict, supervisor subordinate conflict, patient-patient conflict and patient/client provider conflict.	3
BHS 3160	<b>Health Policy</b> This course provides the student with a broad understanding of policy, how health care is organized, dispensed and how the practitioner can better work in the system. Topics of discussion include cost control, long term care, quality control, ethical issues and insurance.	3
BHS 4000	<b>Cultural Competency in Health Care</b> The purpose of this course is to develop competency and better understanding when confronted with issues related to culture, diversity and ethnically based customs, rituals, alternative health care choices, folk medicine, cultural structure and viewpoints and the practitioner's delivery of health care.	3
BHS 4100	<b>Academic and Professional Writing</b> The purpose of this course is to strengthen the skills and thought processes students require for successful academic and professional writing. Proper sentence and paragraph structure, grammar, punctuation usage, formatting and bibliographic referencing will be discussed. Students will learn the five chapter model utilized in scholarly writing and be introduced to the fundamentals of APA formatting.	3
BHS 4110	<b>Health Care and Aging</b> This course examines the psychosocial and cultural variations associated with maturing and aging. Topics covered will be an overview of life choices, living wills, and treatment, as well as cultural implications of senior care.	3

<b>Course Number</b>	<b>Course Title</b>	<b>Credits</b>
CVS 3010	<p><b>Cardiac Sonography I/Lab</b></p> <p>This course is a basic study of two-dimensional, M-mode, Doppler echocardiography and left ventricular systolic function. There will be discussion of various pathologies to include congestive heart failure, pericardial diseases, cardiomyopathies, and cardiac masses. The course will emphasize the understanding of echocardiographic findings and treatment. The lab will include an introduction to basic scanning protocol, proper patient positioning and correct ergonomics. In addition basic M-mode and Doppler echocardiography are presented. Imaging planes and windows are explained and demonstrated.</p>	3
CVS 3020	<p><b>Cardiac Sonography II/Lab</b></p> <p>This is an intermediate course and continuation of Echocardiography I. It is a study of acquired and congenital pathologies of the cardiovascular system and associated echocardiography findings. It is also, a discussion of echocardiographic findings with arrhythmias, cardiac transplantation, heart sounds and murmurs and correlation of other modalities with echocardiography. Pediatric echocardiography is briefly introduced. A lab is provided with this class to teach intermediate scanning skills necessary to succeed in the clinical setting. There will be two course assignments required prior to completion of course. The lab will include advance measurement techniques are demonstrated including continuity equation, pressure half-time, ejection fraction, wall motion analysis, and calculation of right ventricular systolic pressure.</p>	3
CVS 3030	<p><b>Cardiac Sonography III/Lab</b></p> <p>This is an advanced course to prepare the student for clinical rotation in a cardiovascular department. Here the student will learn to demonstrate knowledge and competency in a variety of areas outside the routine echocardiographic examination including stress echo and TEE. Courses on pharmacology and provocative stress agents will be presented to elevate the level of study for comprehensive clinical training that is typically encountered in a diagnostic setting. Emphasis will be focused on psychomotor skills in imaging techniques. The student must be capable of understanding and explaining the clinical indications for a study as well as perform competently in the laboratory setting. Lastly the student will be required to analyze acquired data and present those findings in a professional manner.</p>	4
CVS 3040	<p><b>Ultrasound Physics I/Lab</b></p> <p>This course is designed to introduce the student to the fundamental principles of sound and ultrasound. Initially, the student will review the basic principles of graphs and the metric system. Student will learn how sound generated, transmitted and reflected in soft tissue. They will then learn how to technically define sound waves as it relates to ultrasound physics. The course will then focus on ultrasound beams, axial and lateral resolution and how the image is changed by various controls. The student will learn the basic construction of the ultrasound transducers and how different technologies affect images. This course will prepare the student for Doppler and color Doppler in Physics II.</p>	4
CVS 3050	<p><b>Ultrasound Physics Review</b></p> <p>This course is a continuation of Physics I and focuses on hemodynamics, Doppler and color Doppler imaging. The student will learn how the Doppler shift is generated and analyzed, and how it affects image quality. Subjects on artifacts, harmonics quality assurance and bio-effects will be addressed. The</p>	2

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	student will learn the basic operation of imaging and Doppler controls and the proper set up and storage of images and videos.	
CVS 3060	<b>Cerebrovascular Testing/Lab</b> This course will review the cerebrovascular anatomy and physiology associated with cerebrovascular disease. The student will learn the scanning protocols for extra and intracranial cerebrovascular testing and the diagnostic criteria for assessing disease. The student will also review various diagnostic and treatment options for the patient.	3
CVS 3070	<b>Peripheral Arterial Testing/Lab</b> This course will review the peripheral arterial anatomy and physiology associated with peripheral arterial system. The student will learn the scanning protocols for upper and lower extremity arterial testing and the diagnostic criteria for assessing disease. The student will also review various diagnostic and treatment options for the patient.	3
CVS 3080	<b>Venous Testing/Lab</b> This course will review the venous anatomy and physiology associated with venous disease. The student will learn the scanning protocols for deep and superficial venous testing and the diagnostic criteria for assessing disease. The student will also review various diagnostic and treatment options for the patient.	3
CVS 3090	<b>Abdominal Vascular Testing/Lab</b> This course will review the abdominal anatomy and physiology associated with visceral vascular disease. The student will learn the scanning protocols for abdominal vascular testing and the diagnostic criteria for assessing disease. The student will also review various diagnostic and treatment options for the patient.	3
CVS 4000	<b>Clinical Prep and Review</b> Clinical Prep and Review is a course designed to review general anatomy and physiology, terminology, medical and surgical interventions and pharmacology. Students will be expected to complete comprehensive clinical drills to demonstrate comprehensive skills prior to advancing to the clinical training. Students will also receive a course in Basic Life Support (BLS) prior to their clinical rotation.	3
CVS 4500	<b>Clinical Externship I</b> The first clinical externship is designed to introduce the student to the vascular laboratory and health care environment. The student will be expected to prepare patients for examination, complete normal studies under direct supervision of the clinical instructor and write technical impressions on the studies performed. Students will complete competency based assessment reports each week to the clinical instructor and clinical coordinator.	9
CVS 4600	<b>Clinical Externship II</b> This segment of the externship is designed to transition the student into less directly supervised vascular testing and more independent scanning. The student will be expected to complete normal and abnormal studies and write technical impressions on the studies performed and present and document findings of the study. Students will continue complete competency based assessment reports each week to the clinical instructor and clinical coordinator.	9
CVS 4700	<b>Clinical Externship III</b> The final clinical externship is designed to ensure the student has gained a level of competency with both normal and abnormal studies with greater technical expertise. The student will be expected to complete abnormal studies	9

**Course Number****Course Title****Credits**

independently, present cases to the technical and medical director, and write technical impressions on the studies performed. Students will continue to complete competency-based assessment reports each week to the clinical instructor and clinical coordinator.

**TOTAL CREDITS: 92**