# SONOGRAPHY (SON)

**SON 1311 Cross-Sectional Anatomy**
**Credit Hours:** 2
**Prerequisites:** Admission to Diagnostic Medical Sonography program required
This course provides basic sectional anatomy of the head, neck, thorax, abdomen, pelvis, extremities, and obstetrics, which allows the ultrasound student to develop sufficient comfort with cross-sectional images. The student will be able to identify a sizable number of clinically significant structures. Students will build on their knowledge of human anatomy and physiology using transverse, coronal, and sagittal MRI, CT and ultrasound imaged sections of the human body.

**SON 2000 Introduction to Sonography**
**Credit Hours:** 2
**Prerequisites:** Admission to the Diagnostic Medical Sonography program required
This course provides an entry-level exploration of the historical, professional and occupational development of medical imaging with an emphasis on diagnostic medical sonography. Current uses and future trends are discussed in the areas of diagnostic radiology, computed tomography, (CT), magnetic resonance imaging (MRI), mammography, and nuclear medicine. Clinical exploration through the radiology department's imaging sections coupled with laboratory assignments and case studies will give the student full understanding of the entire function of a medical imaging department. Case studies of the various imaging modalities and how to correlate these findings with ultrasound will be emphasized. Medical-legal issues as well as ethics are also discussed. Radiation safety practices will be discussed. Ergonomics in sonography (working smarter) will be discussed.

**SON 2061 Sonography Seminar**
**Credit Hours:** 2
This course is comprehensive, covering all topics that appear in the current American Registry of Diagnostic Medical Sonography (ARDMS) test content outline for general abdomen, obstetrics and gynecology, breast, and vascular technology, as well as the American Registry of Radiologic Technologists sonography primary pathway examination (ARRT-RT(S)).

**SON 2111 Abdominal Sonography 1**
**Credit Hours:** 2
This course is an introduction to the cross-sectional anatomy of the abdominal area and its recognition on sonographic visualization systems.

**SON 2112 Abdominal Sonography 2**
**Credit Hours:** 2
This course is a continuance of SON 2111 and is designed to provide an in-depth presentation of the abdominal area, stressing deviations from the normal and the methods used to create a diagnostically acceptable study.

**SON 2121 Obstetrical Sonography 1**
**Credit Hours:** 2
**Prerequisites:** Admission to the Diagnostic Medical Sonography program required
This course is an introduction to the cross-sectional anatomy of the female reproductive system with an existing pregnancy. This course emphasizes the detection of normal obstetric anatomy as well as its associated anomalies and deviation from the normal. The planes that must be sonographically imaged for accurate diagnosis are stressed.

**SON 2122 Obstetrical Sonography 2**
**Credit Hours:** 2
This course is a continuance of SON 2121 and is designed to emphasize the detection of obstetrical anomalies, pathology, and the deviation from normal. The planes that must be sonographically imaged for accurate diagnosis are stressed.

**SON 2125 Sonography of the Female Pelvis**
**Credit Hours:** 2
This course is an introduction to the cross-sectional anatomy of the female reproductive system without an existing pregnancy. The sonographic recognition of normal and abnormal anatomy as well as gynecological physiology are discussed.

**SON 2147 Sonography of the Breast**
**Credit Hours:** 2
This course emphasizes the sonographic features and characteristics of normal and abnormal breast anatomy. The course will also integrate clinical and diagnostic procedures for the male and female breast.

**SON 2171 Introduction to Vascular Sonography**
**Credit Hours:** 2
This course provides a foundation for the use of sonographic techniques in vascular diagnosis. The course details the hemodynamics of the circulatory system and sonographic imaging and vascular technological assessment of the systemic arterial, venous, and extra-cranial vascular systems. Emphasis is placed on a thorough understanding of the basic principles and clinical applications and uses of Doppler, color, and spectral Doppler techniques.

**SON 2211 Ultrasound Physics and Instrumentation 1**
**Credit Hours:** 2
**Prerequisites:** Admission to the Diagnostic Medical Sonography program required.This course is a study of the principles of diagnostic ultrasound, the fundamental properties of ultrasonic physics, stressing tissue interactions, and interfaces
The course also focuses on characteristics, methods, intensity, and power of ultrasound as well as system resolution considerations.

**SON 2212 Ultrasound Physics and Instrumentation 2**
**Credit Hours:** 2
This course is a continuance of SON 2211 and builds on the principles of diagnostic ultrasound and the fundamental properties of ultrasonic physics, stressing tissue interactions and interfaces. The course also focuses on characteristics, methods, intensity, power, and system resolution.

**SON 2804 Practicum 1**
**Credit Hours:** 2
**Prerequisites:** Admission to the Diagnostic Medical Sonography program required
**Lab Fee:** Yes
This course introduces the student to clinical education requiring application of the knowledge learned within the didactic setting as well as the skills laboratory. Professionalism and personal interaction are stressed along with technical abilities. As the student progresses, he or she will perform examinations with less and less supervision.

**SON 2814 Practicum 2**
**Credit Hours:** 2
**Prerequisites:** Admission to the Diagnostic Medical Sonography program required
**Lab Fee:** Yes
This course is a continuation of applied learning in the clinical setting with increased responsibility in problem solving and critical thinking based on the individual patient situation. This course further introduces the student to clinical education, requiring application of the knowledge learned within the didactic setting as well as the skills laboratory.

**SON 2824 Practicum 3**
**Credit Hours:** 3
This course is an application of all the material presented requiring the student to make judgment decisions regarding current acceptable clinical practices. Professional interaction with other professionals and patients is stressed. The student is expected to progress to the point where, after successful testing, he or she may be accepted as a competent sonographer for general, vascular, and breast sonographic exams.

**SON 2834 Practicum 4**
**Credit Hours:** 3
**Lab Fee:** Yes
This course is an application of all the material presented requiring the student to make judgment decisions regarding clinical applications. Professional interaction with those whom he or she comes into contact is stressed. The student is expected to progress to the point where, after successful testing, the student may be accepted as a competent sonographer for abdominal extended, obstetrics, gynecology, vascular, and breast sonographic exams.

**SON 2844 Practicum 5**
**Credit Hours:** 3
**Lab Fee:** Yes
This course is an application of all the material presented requiring the student to make judgment decisions regarding clinical applications of sonographic imaging. This course also helps the student progress to the point where, after successful testing, the student may be accepted as a competent sonographer for general, vascular, and breast sonographic exams.

**SON 3173 Vascular Technology 1**
**Credit Hours:** 2
This course details the anatomy, physiology, and hemodynamics of the circulatory system as well as the sonographic imaging and vascular technological assessment of the systemic arterial system. This course provides a foundation for the use of techniques in vascular diagnosis. Emphasis is placed on a thorough understanding of basic principles underlying the Doppler examination and clinical applications using color and spectral Doppler techniques.

**SON 3174 Vascular Technology 2**
**Credit Hours:** 2
This course details the anatomy, physiology, and hemodynamics of the circulatory system as well as the sonographic imaging and vascular technical assessment of the systemic venous and extra-cranial systems. This course provides a foundation for the use of techniques in vascular diagnosis. Emphasis is placed on a thorough understanding of basic principles underlying the Doppler examination and clinical applications using color and spectral Doppler techniques.

**SON 3402 Introduction to Electrocardiography**
**Credit Hours:** 3
**Prerequisites:** Current registry in the American Registry for Diagnostic Medical Sonography (ARDMS)
This course provides an introduction to electrocardiography (ECG) and investigates normal and abnormal cardiac anatomy and physiology as well as normal and abnormal electrical conduction through the heart. Students will identify and relate waveforms to the cardiac cycle, various lead placements, and the purpose of each placement. Utilizing a systematic process when approaching the interpretation of the ECG, students will identify normal and abnormal components on an ECG as well as recognize how the 12 lead ECG relates to areas of the heart.

**SON 3806 Clinical Practicum 1**
**Credit Hours:** 3
**Lab Fee:** Yes
This course introduces the student to vascular technology procedures used to assess the lower and upper extremities, abdomen, visceral organs, and the cerebral vasculature system. Emphasis will be placed on ultrasound duplex imaging and interpretation examinations. Instrumentation commonly used in the vascular laboratory will be presented and utilized in both the skills laboratory at Eastern Florida State College as well as all assigned clinical affiliations.

**SON 3816 Clinical Practicum 2**
**Credit Hours:** 3
This course is a continuation of SON 3806 and further introduces the student to vascular technology procedures used to assess the lower and upper extremities, abdomen, visceral organs, and the cerebral vasculature system. Emphasis will be placed on ultrasound duplex imaging and interpretation examinations. Instrumentation commonly used in the vascular laboratory will be presented and utilized in both the skills laboratory at Eastern Florida State College as well as all assigned clinical affiliations.

**SON 4131 Pediatric Cardiac Sonography**
**Credit Hours:** 4
**Prerequisites:** Current student in good standing in the Adult Cardiac Sonography Program or currently registered Adult Cardiac Sonographer through the American Registry for Diagnostic Medical Sonography (ARDMS) or Cardiac Credentialing International (CCI)
In this course students gain comprehensive knowledge of congenital heart disease (CHD) to understand pathology and echocardiographic evaluation of numerous congenital and acquired heart lesions in pediatric patients.

**SON 4132 Adult and Pediatric Cardiac Sonography Seminar**
**Credit Hours:** 2
**Prerequisites:** Current student in good standing in the Adult Cardiac Sonography Program or Currently registered Adult Cardiac Sonographer through the American Registry for Diagnostic Medical Sonography (ARDMS) or Cardiac Credentialing International (CCI)
This course provides a comprehensive review of adult and pediatric cardiac sonography in order to prepare the student for the American Registry for Diagnostic Medical Sonography (ARDMS) certification exams for the adult cardiac sonographer - Registered Diagnostic Cardiac Sonographer - Adult Echocardiography (RDCS-AE), and the pediatric cardiac sonographer - Registered Diagnostic Cardiac Sonographer - Pediatric Echocardiography (RDCS-PE). Students will integrate program content areas and examine new areas of research and current techniques.

**SON 4404 Adult Cardiac Sonography I**
**Credit Hours:** 3
**Prerequisites:** Current registry in the American Registry for Diagnostic Medical Sonography (ARDMS)
This course presents the anatomical and physiological curriculum involved in imaging and performing non-invasive adult cardiac sonography, including those tests performed for the purpose of the diagnosis and treatment of cardiovascular disease.

**SON 4405 Adult Cardiac Sonography 2**
**Credit Hours:** 3
**Prerequisites:** Current registry in the American Registry for Diagnostic Medical Sonography (ARDMS)
This course continues the study of advanced echocardiographic procedures including those tests performed for the purpose of the diagnosis and treatment of cardiovascular disease. Topics include stress echo, transesophageal echo (TEE), related diagnostic imaging, and related noninvasive cardiac testing.

**SON 4944 Pediatric Cardiac Sonography Practicum**
**Credit Hours:** 4
**Prerequisites:** Current student in good standing in the Adult Cardiac Sonography Program or Currently registered Adult Cardiac Sonographer through the American Registry for Diagnostic Medical Sonography (ARDMS) or Cardiac Credentialing International (CCI)
**Lab Fee:** Yes
Students gain a comprehensive knowledge of congenital heart disease (CHD) and an understanding of the pathology and echocardiographic evaluation of numerous congenital and acquired heart lesions in pediatric patients.

**SON 4945 Adult Cardiac Practicum 1**
**Credit Hours:** 4
**Prerequisites:** Current registry in the American Registry for Diagnostic Medical Sonography (ARDMS)
**Lab Fee:** Yes
This course is designed to provide the student with the practical application, in a supervised clinical setting, of scanning techniques in the cardiac sonography advanced technical certificate (ATC) program. Students will rotate through and assist staff sonographers in cardiac procedure areas as well as participate in simulations of those low volume/high risk procedures in the skills laboratory.

**SON 4946 Adult Cardiac Practicum 2**
**Credit Hours:** 4
**Prerequisites:** Minimum: passing of the American Registry for Diagnostic Medical Sonography (ARDMS) Sonography Physics and Instrumentation (SPI) board exam
**Lab Fee:** Yes
In addition: Passing of the SPI board exam plus passing of one or more of the ARDMS board exams. This course is designed to provide the student with the practical application, in a supervised clinical setting, of scanning techniques in the cardiac sonography ATC program. Students will rotate through and assist staff sonographers in cardiac procedure areas as well as participate in simulations of those low volume/high risk procedures in the skills laboratory.