

ADULT ECHOCARDIOGRAPHY, EMPHASIS

The St. Mary's/Marshall University Sonography Degree program offers a comprehensive curriculum designed to equip students with the knowledge and skills necessary to excel in the dynamic field of diagnostic medical sonography. This program provides a strong foundation in both **Adult Echocardiography** and **General Sonography**, preparing graduates to work effectively in diverse healthcare settings, such as hospitals, clinics, and imaging centers.

Key Areas of Emphasis:

- 1. Adult Echocardiography:** The Adult Echocardiography track focuses on using ultrasound technology to assess the structure and function of the heart and vascular system. Students learn to perform and interpret various echocardiogram procedures, including transthoracic and transesophageal echocardiograms. Through practical experience and coursework, students gain expertise in:
 - Cardiac and vascular anatomy and physiology
 - Doppler ultrasound techniques to assess blood flow
 - Identifying pathologies such as vascular disease, valvular disease, coronary artery disease, and heart failure
 - Advanced imaging techniques for the evaluation of cardiac function
- 2. General Sonography:** The General Sonography portion of the program covers a broad spectrum of diagnostic imaging techniques, focusing on imaging the abdominal organs, pelvic structures, and other soft tissues. Students are trained to perform ultrasounds of:
 - The abdomen (liver, kidneys, pancreas, spleen, gallbladder)
 - The pelvic region (bladder, uterus, ovaries, prostate)
 - Obstetrical sonography, including fetal imaging in pregnancy Through clinical training, students gain hands-on experience in performing diagnostic exams and learn to interpret ultrasound images to assist in patient diagnosis.
 - Visceral and vascular anatomy and pathology

Program Structure:


The program combines classroom instruction, laboratory work, and clinical practice, ensuring that students develop both theoretical knowledge and hands-on expertise. Key components of the program include:

- **Coursework:** Focuses on the fundamentals of human anatomy, medical imaging physics, ultrasound principles, patient care, and specialized techniques in vascular sonography, echocardiography, and general sonography.
- **Clinical Rotations:** Students gain practical experience in accredited healthcare facilities, working directly with patients and under the supervision of registered sonographers. These rotations are critical for mastering the skills required for real-world diagnostic imaging.
- **Certification Preparation:** The program is designed to prepare students for certification exams, such as those offered by the







American Registry for Diagnostic Medical Sonography (ARDMS), enabling graduates to become registered sonographers in adult echocardiography, vascular sonography, abdominal sonography, and OB/GYN sonography.



Course Requirements

 - General Education Course

 - Milestone course: a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.


The Core Curriculum is designed to foster critical thinking skills and introduce students to basic domains of thinking that transcend disciplines. The Core applies to all majors. Information on specific classes in the Core can be found at <https://www.marshall.edu/gened/>.

Code	Title	Credit Hours
Core Curriculum		
<i>Core 1: Critical Thinking</i>		
FYS 100	First Yr Sem Critical Thinking	3
MTH 121 	Concepts and Applications (CT)	3
CLS 105 	Medical-Lab Terminology (CT)	3
<i>Core 2</i>		
ENG 101 	Beginning Composition	3
ENG 201 	Advanced Composition	3
CMM 103 	Fund Speech-Communication	3
MTH 121 	Concepts and Applications (CT)	3
BSC 228 	Human Physiology	3
BSC 228L 	Human Physiology Lab	1
Core II Humanities		3
Core II Social Science		3
Core II Fine Arts		3
<i>Additional University Requirements</i>		
Writing Intensive		3
MI 403	Adv Practice Medical Img (recommended)	
Writing Intensive		3
MI 411 	Transcultural Healthcare (recommended)	
Multicultural or International		3
MI 411 	Transcultural Healthcare (recommended)	
Capstone (see advanced modality track)		3
Major-Specific		
BSC 227	Human Anatomy	3
BSC 227L	Human Anatomy Lab	1
BSC 228 	Human Physiology	3
BSC 228L 	Human Physiology Lab	1
PHY 101 	Conceptual Physics	3
PHY 101L 	Conceptual Physics Lab	1
CLS 105 	Medical-Lab Terminology (CT)	3
MI 202	Patient Care Img Science	3
MI 204	Radiographic Anatomy	3
MI 208	Pharmacology for Imaging Sci	2
MI 211	Seminar Imaging Science	1
MI 212	Seminar Imaging Sciences II	1










MI 304	Radiographic Pathology	3
MI 306	Seminar Imaging Science	1
MI 311	Seminar Imaging Sciences III	1
MI 403	Adv Practice Medical Img	3
MI 410 	Research Medical Imaging	3
MI 411 	Transcultural Healthcare	3
SONO 210	Clinical Practice I	4
SONO 212	Abdominal Sonography I	4
SONO 213	Ultrasound Physics I	3
SONO 214	Intro to Sonography	3
SONO 216	Abdominal Sonography II	3
SONO 217	Ultrasound Physics II	3
SONO 220	Clinical Practice II	4
SONO 310	Clinical Practice III	4
SONO 315	Small Parts Sonography	3
SONO 318	Vascular Sonography I	4
SONO 320	Clinical Practice IV	4
SONO 410	Clinical Practice V	4
SONO 418	Registry Review I	1
SONO 420	Clinical Practice VI	4
SONO 424	Vascular Sonography II	3
SONO 436	Registry Review II	1
Adult Echocardiography Emphasis: 11 hours		
MI 407	Cardiovascular Anatomy	3
SONO 423	Adult Echocardiography I	4
SONO 425	Adult Echocardiography II	4

Semester Plan

 - General Education Course

 - Milestone course: a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.

First Year

First Semester		Credit Hours
FYS 100	First Yr Sem Critical Thinking	3
ENG 101 	Beginning Composition	3
CMM 103 	Fund Speech-Communication	3
BSC 227	Human Anatomy	3
BSC 227L	Human Anatomy Lab	1
MTH 121 	Concepts and Applications (CT)	3
Credit Hours		16
Second Semester		Credit Hours
ENG 201 	Advanced Composition	3
BSC 228 	Human Physiology	3
BSC 228L 	Human Physiology Lab	1
PHY 101 	Conceptual Physics	3
PHY 101L 	Conceptual Physics Lab	1
CLS 105 	Medical-Lab Terminology (CT)	3
Core II Social Science		3
Credit Hours		17



Second Year

First Semester		Credit Hours
SONO 214	Intro to Sonography	3
SONO 212	Abdominal Sonography I	4
SONO 213	Ultrasound Physics I	3
SONO 210	Clinical Practice I	4
MI 202	Patient Care Img Science	3
MI 204	Radiographic Anatomy	3
MI 211	Seminar Imaging Science	1
Credit Hours		21
Second Semester		Credit Hours
MI 208	Pharmacology for Imaging Sci	2
MI 304	Radiographic Pathology	3
SONO 216	Abdominal Sonography II	3
SONO 217	Ultrasound Physics II	3
SONO 220	Clinical Practice II	4
MI 212	Seminar Imaging Sciences II	1
Credit Hours		16

Third Year

First Semester		Credit Hours
MI 306	Seminar Imaging Science	1
SONO 315	Small Parts Sonography	3
SONO 318	Vascular Sonography I	4
SONO 310	Clinical Practice III	4
Core II Fine Arts		3
Credit Hours		15
Second Semester		Credit Hours
MI 311	Seminar Imaging Sciences III	1
SONO 320	Clinical Practice IV	4
SONO 424	Vascular Sonography II	3
MI 407	Cardiovascular Anatomy	3
Core II Humanities		3
Credit Hours		14

Fourth Year

First Semester		Credit Hours
MI 403	Adv Practice Medical Img	3
SONO 418	Registry Review I	1
SONO 410	Clinical Practice V	4
SONO 423	Adult Echocardiography I	4
Credit Hours		12
Second Semester		Credit Hours
MI 410 	Research Medical Imaging	3
MI 411 	Transcultural Healthcare	3
SONO 420	Clinical Practice VI	4
SONO 425	Adult Echocardiography II	4
SONO 436	Registry Review II	1
Credit Hours		15
Total Credit Hours		126