

## Course Descriptions

### ***AE101 - Adult Echocardiography I***

***Clock Hours: 138***

This course provides detailed instruction of heart anatomy and physiology. It will discuss medical terminology, cardiac anatomy, ECG basics, introduction to the sonographic assessment and technical interpretation of heart disease, and the cardiac cycle. Additionally, this course discusses evaluation of right and left ventricular function, valve disease, prosthetic valve, diastology and hemodynamics.

*Pre-requisite:* Admission to the program

### ***AE101L - Adult Echocardiography I Lab***

***Clock Hours: 189***

This course compliments the didactic instruction of AE 101. Laboratory demonstration and student practice in scanning techniques and protocol related to the various heart structures are included. This course provides an orientation to clinical aspects of medical imaging by scanning each other and other volunteers. Under supervision, the students will become familiar with the imaging equipment controls, transducer positions relative to anatomy, and scanning techniques.

*Course Requirements:* Students must earn the minimum grade of 75% to progress to the next semester and continue the program.

*Pre-requisite:* Admission to the program

*Co-requisite:* AE101

### ***AE103 - Clinical Externship I***

***Clock Hours: 187***

This practicum enables the student to learn and obtain images in a clinical setting. It provides an orientation to clinical aspects of medical imaging in a hospital environment for students without significant previous experience in clinical health care. It includes an introduction with emphasis on the basic orientation to a hospital cardiology department, its function and its basic patient care techniques. Students will assist with routine echo lab procedures in all cardiac sonography studies and apply the skills learned in scanning lab.

*Course Requirements:* Students must earn the minimum grade of 75% to progress to the next semester and continue the program.

*Pre-requisite:* Admission to the program

*Co-requisites:* AE101, AE101L

***AE201 - Adult Echocardiography II***

***Clock Hours: 48***

This course is an extension of AE 101 Adult Echocardiography I, covering in depth pathophysiology of heart disease and the role of ultrasound diagnosis. Introduction of global longitudinal strain, three-dimensional imaging, transesophageal echo, structural heart disease and advanced valve disease.

*Course Requirements:* Students must earn the minimum grade of 75% to progress to the next semester and continue the program.

*Pre-requisite:* AE101

*Co-requisite:* AE201L

***AE201L - Adult Echocardiography II Lab***

***Clock Hours: 112***

This course compliments the didactic instruction of AE 201. Laboratory demonstration and student practice in scanning techniques and protocol related to the various heart structures are included. Under supervision, the students will be proficient with the imaging equipment controls, transducer positions relative to anatomy, and scanning techniques. This course will also involve echocardiography image review and preliminary reporting with ongoing question and answers. It is structured to increase in complexity and difficulty and the student progresses.

*Course Requirements:* Students must earn the minimum grade of 75% to progress to the next semester and continue the program.

*Pre-requisite:* AE101L

*Co-requisite:* AE201

***AE102 – Ultrasound Physics & Instrumentation I***

***Clock Hours: 32***

Fundamental principles of ultrasound physics including sound wave generation and propagation in tissue; factors affecting acoustical impedance and reflection. Transducer design, characteristics & construction and principles of Doppler ultrasound will also be covered. Integration of these theories, principles, and their clinical applications will be emphasized.

*Course Requirements:* Students must earn the minimum grade of 75% to progress to the next semester and continue the program.

*Pre-requisite:* Admission to the program

***AE203 - Clinical Externship II******Clock Hours: 408***

This practicum enables the student to learn and obtain images in a clinical setting. Students will continue to assist with routine echo lab procedures in all cardiac sonography studies and apply the skills learned in scanning lab.

***Course Requirements:*** Students must earn the minimum grade of 75% to progress to the next semester and continue the program.

***Pre-requisites:*** AE101, AE101L, AE103

***Co-requisites:*** AE201, AE201L

***AE301 - Adult Echocardiography III******Clock Hours: 45***

This course is an extension of AE 201 Adult Echocardiography II, and will be a comprehensive review of material covered throughout the year. New topics such as embryology and congenital pathologies will be introduced, and complex pathophysiology and ultrasound findings.

***Course Requirements:*** Students must earn the minimum grade of 75% to progress to the next semester and continue the program.

***Pre-requisite:*** AE201

***AE303 - Clinical Externship III******Clock Hours: 305***

This is the last of three consecutive clinical practicum courses in which the student is supervised in a clinical setting. Students will assist with routine echo lab procedures in all cardiac sonography studies. The final goal is to achieve a competency level of an entry-level cardiac sonographer upon completion of the clinical course sequence.

***Course Requirements:*** Students must earn the minimum grade of 75% to progress to the next semester and continue the program.

***Pre-requisite:*** AE203

***Co-requisite:*** AE301