NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
DMS 150 - ECHOCARDIOGRAPHY I (4 CR.)

Course Description

Presents the fundamentals of adult echocardiography including basic ultrasound scanning techniques of the heart. Students focus on anatomy, pathophysiology, and echocardiographic pattern recognition with real-time 2-D, 3-D & 4-D imaging, Doppler, and M-mode echocardiography. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

General Course Purpose

The purpose of this course is to introduce the fundamentals of echocardiography. Instruction and demonstration is provided for scanning the adult heart.

Course Prerequisites/Co-requisites

The student must satisfactorily complete all previous sonography courses with a grade of "C" or better.

Course Objectives

Upon completing the course, the student will be able to:

- Identify normal adult cardiac anatomy and physiology
- Identify normal adult cardiac pressures
- Identify echocardiographic controls.
- Describe the effect of the controls on the ultrasound image.
- Identify potential imaging artifacts.
- Discuss the indications for transthoracic and transesophageal echocardiography.
- Discuss the bioeffects that are associated with ultrasound.
- Identify standard transthoracic windows.
- Identify adult cardiac anatomy from standard transthoracic views.
- Obtain measure and calculate M-mode data.
- Obtain cardiac measurements from 2-D, 3-D and 4-D echocardiography.
- Describe a routine Doppler examination.
- Describe normal and abnormal Doppler profiles.
- Calculate hemodynamic data using Doppler data.
- Demonstrate all views obtained in a routine adult echocardiogram.
- Describe Dopppler physics.
- Describe normal Doppler flow patterns.
- Describe the use of Doppler echocardiography in assessing cardiac hemodynamics.
- Describe the use of Doppler echocardiography in calculating valve area.
- Recognize cardiac valvular pathology using echocardiography.
- Discuss the findings associated with valvular disease.
- Discuss constrictive pericarditis, effusions, cardiac tamponade.
- Discuss the role of echocardiography in the treatment of pericardial disease.
- Discuss the characteristics and echocardiographic findings of hypertrophic, dilated and restrictive cardiomyopathies.
- Discuss the differentiation between restrictive cardiomyopathy and constrictive pericarditis.
- Identify the left ventricular wall segments from routine echocardiographic views.
- Describe systolic wall motion abnormalities.

- Evaluate wall motion abnormalities in accordance with the recommendations of the American Society of Echocardiography.
- Discuss normal and abnormal diastolic function.
- Describe the findings of Right Ventricular Volume Overload (RVVO).
- Identify abnormal cardiac disease states that lead to RVVO.
- Understand the segmental approach to a cardiac echocardiogram.

Major Topics to be Included

a. Heart Anatomy and Physiology
b. Nomenclature
c. Technique
d. Valvular Heart Disease
e. Pericardial Disease
f. Systemic & Pulmonary Hypertensive Heart Disease
g. Cardiomyopathies
h. Ventricular Function
i. Diastolic Function
j. Wall Motion Abnormalities