Course Objectives/Course Outline
Spokane Community College

Course Title:	**Noninvasive Cardiovascular Fundamentals**
Prefix and Course Number:	**ECHO 1313**

COURSE DESCRIPTION:
Introduction to the basic principles and application of the Doppler and echocardiographic procedures. The anatomy, image assessment, hemodynamics and clinical applications of cardiac ultrasound are emphasized. Laboratory experiences are provided.

Course Learning Outcomes:
By the end of this course, a student should be able to:

Unit I – Gross and Tomographic Anatomy
- Label anatomic images (real and graphic presentations) with appropriate names and abbreviations.
- State the morphologic structures associated with each cardiac chamber.
- Identify cardiac structures according to their shape and location.
- Describe in anatomical terms the location of different anatomic structures in relationship to other anatomic structures.

Unit II – Transthoracic Echocardiography (TTE)
- Relate the physical principles of ultrasound to the information displayed in the TTE image.
- Describe TTE 2D image orientation and label the sequential imaging views using standard terminology.
- Label TTE 2D image with appropriate anatomic names and abbreviations.
- Label M-mode image with appropriate anatomic names and abbreviations.
- Label myocardial wall segments with appropriate terms.

Unit III – Doppler Techniques
- Identify and analyze PW, CW and CFI.
- State the advantages and disadvantages of the various Doppler techniques
- Identify normal and abnormal flow patterns of the various Doppler techniques
- Identify appropriate sampling locations for normal and abnormal flow through the heart
- Recognize artifacts in the Doppler display

Unit IV – Hemodynamics using Doppler Echo techniques
- Measure pressure gradients and cardiac flow using Doppler echo techniques
- Relate pressure gradients and valve area to pressure recordings
- Identify valvular pathologies identified in Doppler echo techniques
- Perform a qualitative and quantitative assessment of the 2D and m-mode echo
- State normal values for measurements obtained

Course Outline:

I. Gross and Tomographic Anatomy
II. Transthoracic Echocardiography (TTE)
III. Doppler Techniques
IV. Hemodynamics using Doppler Echo techniques
V. Introduction to Clinical Application