LABETTE COMMUNITY COLLEGE BRIEF SYLLABUS

SPECIAL NOTE:
This brief syllabus is not intended to be a legal contract. A full syllabus will be distributed to students at the first class session.

TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE (if any):

Please check with the LCC bookstore, http://www.labette.edu/bookstore, for the required texts for this class.

COURSE NUMBER: DMS 234

COURSE TITLE: SONOGRAPHY AND PHYSICS REGISTRY REVIEW

SEMESTER CREDIT HOURS: 2

DEPARTMENT: Diagnostic Medical Sonography

DIVISION: Health Science

PREREQUISITES: DMS 211 Sonography Physics & Instrumentation

REVISION DATE: 08/2016

COURSE DESCRIPTION:
This is an online course which will provide a detailed review of principles of the production and propagation of sound waves as applied to diagnostic medical Sonography. Included will be acoustic physics, Doppler shift, acoustic parameters, waveform interference and Doppler ultrasound principles. This course will prepare the student for the SPI physics registry.

COURSE OUTCOMES AND COMPETENCIES:
Students who successfully complete this course will be able to:

1. Review the interactions of ultrasound on tissue.
   - Describe acoustic impedance.
   - Identify refraction and reflection.
   - Differentiate between scattering and diffraction.
   - Recognize absorption, attenuation, and scatter.
   - Describe the properties of acoustic waves.

2. Review and comprehend the interactions of ultrasound and tissue.
   - Describe acoustic impedance.
   - Identify refraction and reflection.
   - Differentiate between scattering and diffraction.

- Recognize absorption, attenuation, and scatter.
- Describe the properties of acoustic waves.

3. Identify general ultrasound instrumentation.

- Discuss ultrasound frequencies.
- Describe piezoelectric properties.
- Label transducer construction including element, backing material, and dampening.
- Identify bandwidth and its role in ultrasound.
- Discuss the ultrasound as an important imaging modality.

4. Know the different imaging mode principles

- Label A-mode images
- Describe B-mode imaging principles.
- Critique M-mode imaging principles.
- Recognize early imaging modes.
- Identify the correct transducer for the structure being imaged.
- Review Appleton and Lang registry review books.
- Recall questions from the Davie's CD rom.

5. Review real-time ultrasound imaging principles and instrumentation.

- Produce real-time ultrasound imaging principles and instrumentation.
- Give example of mechanical instrumentation.
- Describe electronic instrumentation.
- Evaluate the difference between mechanical and electronic focusing/steering.
- Identify electronic phased array instrumentation
- Explain the use of internal and external focusing techniques.

6. Review Doppler physics and instrumentation in the clinical setting.

- Explain the Doppler Effect including positive and negative shifts.
- Describe continuous wave Doppler vs. pulsed wave Doppler and their roles in the diagnostic field
- Discuss and manipulate color flow Doppler including power Doppler.
- Modify spectral analysis.
- Critique volume flow measurements including plethysmography and other volume measuring techniques.