

DMS 52A: PHYSICAL PRINCIPLES OF DIAGNOSTIC MEDICAL SONOGRAPHY I

Foothill College Course Outline of Record

Heading	Value
Units:	2
Hours:	2 lecture per week (24 total per quarter)
Prerequisite:	DMS 50A.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU
Grade Type:	Letter Grade Only
Repeatability:	Not Repeatable

Student Learning Outcomes

- Calculate/solve mathematical equations related to ultrasound physics.
- Describe propagation of sound waves characteristics.

Description

Principles of diagnostic ultrasound, wave characteristics, propagation, acoustic variables, and review of mathematical skills. Additional emphasis on transducers, pulsed waves, intensities, beam shaping, Huygens' principle, resolution, and display modes. Intended for students in the Diagnostic Medical Sonography Program; enrollment is limited to students accepted in the program.

Course Objectives

The student will be able to:

- utilize basic mathematical skills by solving equations.
- describe propagation of sound waves.
- discuss wave characteristics.
- explain beam intensities.

Course Content

- Math review
 - algebraic equations
 - metric system
 - logarithms
 - decibels
 - limited trigonometric functions
- Principles of sound waves and how they propagate
 - defining sound, ultrasound, and waves
- Sound parameters and acoustic variables
- Interaction of sound in various media
 - pulsed sound introduction
 - pulsed sound parameters
 - intensity
 - wave characteristics
- Beam intensities
 - sound interaction in media
 - range equation

Lab Content

Not applicable.

Special Facilities and/or Equipment

A. DVD/TV, internet access, computer, monitor.

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

- Written quizzes
- Midterm
- Comprehensive final

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

- Lecture presentations
- Classroom discussions
- Homework

Representative Text(s) and Other Materials

Edelman, Sidney. *Understanding Ultrasound Physics*. 5th ed. Woodlands, TX: ESP, Inc., 2018.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- Read text assignments as per syllabus - estimated as 20 pages per week.
- Complete written sections on tests.

Discipline(s)

Diagnostic Medical Technology