DMS 50A: DIAGNOSTIC MEDICAL SONOGRAPHY PRINCIPLES & PROTOCOLS

Foothill College Course Outline of Record

Heading	Value
Units:	4
Hours:	4 lecture, 1 laboratory per week (60 total per quarter)
Prerequisite:	BIOL 40A, 40B and 40C.
Corequisite:	DMS 50B, 60A and 72A.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU
Grade Type:	Letter Grade Only
Repeatability:	Not Repeatable

Student Learning Outcomes

- Recognize normal and abnormal anatomical structures.
- Apply fundamental skills in the technique and diagnostic interpretation.

Description

An intensive course about fundamentals of ultrasound principles, protocols, and scanning involving the major abdominal organ structures, gynecology, obstetrics, and vessels. Sonographic terminology, orientation and descriptions of normal and abnormal structures. It is assumed the student has a thorough knowledge of gross and sectional anatomy. 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:
A. recognize the sonographic appearance of normal anatomy and in various body positions and planes.
B. recite directional transducer movement as perceived by spatial recognition skills.
C. explain key control functions of sonography equipment.
D. apply elementary acquisition skills utilizing appropriate technique and diagnostic interpretation.
E. define medical and sonographic terminology.
F. demonstrate excellent communication skills with patients, physicians, staff and the public.
G. define ethical and professional values related to sonography and medicine and its impact on patient/workers from various cultures.
H. explain the physical principles applied to image acquisition and quality.
I. recognize types of doppler applications.

Course Content

A. recognize sonographic appearances of normal anatomy and in various body positions and planes
1. scan planes, including sagittal, transverse, coronal, and for EV
2. scan orientation
3. monitor relationship to body planes and body positions
4. technical quality of normal anatomy
5. use of technical factors including keyboard function keys
B. transducer directional movement, including spatial recognition skills
1. use of rocking, sliding, angling, pivoting for acquisition of human anatomy
2. subcostal and intercostal acquisitions
3. spatial recognition to determine anatomy location and acquisition
C. key control functions of US equipment
1. keyboard
2. TGC
3. gain
4. doppler controls
5. FOV
6. focal zones
7. image storage
8. advanced knobology
9. physical principles applied to sonography, including mathematical skills solving algebraic equations, metric systems, logarithms, decibels
D. skills to acquire appropriate images using acceptable technique for interpretation
1. image quality during performance of patient examination
2. image quality during assessment of recorded examination
3. image quality from text examples
4. image quality for diagnostic interpretation
E. medical and sonographic terminology
1. review of medical terminology, combining forms, prefixes, suffixes, abbreviations
2. specific sonographic nomenclature
F. communication skills with patients, physicians, staff, and public
1. listening skills
2. verbal skills
3. nonverbal skills
4. written skills
5. interpersonal communication skills
G. ethics and professional values relating to sonography, medicine, patients, co-workers, including those from various cultures
1. role play scenarios to define excellent and appropriate communication skills
2. role play scenarios to understand and improve communications and interaction with patients, staff, physicians, and the public with various cultural backgrounds
H. doppler applications
1. color doppler
2. power doppler
3. pulsed and continuous wave doppler
I. vascular applications with doppler
1. hemodynamics
2. normal vascular
3. flow patterns in arterial and venous systems

Lab Content

A. Participate in online assessments
B. Testing
C. Case analysis

Special Facilities and/or Equipment

A. DVD/TV-monitor, view boxes, medical sonography equipment.
B. When taught via Foothill Global Access, on-going access to computer with email software and hardware; email address.

Method(s) of Evaluation

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

A. Demonstration of mastery of material by written quizzes and final exam
B. Essay exams
C. Online exams
D. Online research

Method(s) of Instruction

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

A. Lecture presentations
B. Classroom discussions
C. Cooperative/interactive activities
D. Online content, assessments and homework

Representative Text(s) and Other Materials

Curry, R., and B. Tempkin, B. Sonography: Introduction to Normal Structure and Function. 4th ed. Philadelphia, PA: Elsevier Publishing, 2016.

Curry, R., and B. Tempkin, B. Sonography: Introduction to Normal Structure and Function Workbook and Lab Manual. 4th ed. Philadelphia, PA: Elsevier Publishing, 2016.

Netter, F. Atlas of Human Anatomy. 7th ed. Philadelphia, PA: Saunders-Elsevier, 2018.

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

A. Reading materials from texts and website research on patient anatomy and pathology. Estimated pages to read per week is 50.

B. Critical analysis of patient examinations and sonographic findings.

C. Review of relevant published data as related to sonographic evidence of pathology and/or variants.

Discipline(s)

Diagnostic Medical Technology