

BERGEN COMMUNITY COLLEGE
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM
Division of Health Professions
DMS 113 SYLLABUS 2014

Course Title: DMS 113 - Abdominal Sonography I

2 lec. 3 lab. 3 credits (5 hours)

Required Textbooks:

Hagen - Ansert, Sandra Textbook of Diagnostic Ultrasound 7th Edition , Mosby Co.

Course Description:

Abdominal Sonography I is a comprehensive study of abdominal structures with emphasis on specialty organ examinations. Knowledge of the diagnosis, history and physical findings as they pertain to the pathophysiology of abdominal organs and systems is presented. Normal and abnormal tissue patterns are included within the discussions. Students will practice scanning in the lab in preparation for objectives required in Ultrasound Clinic I.

Course Objectives:

Upon completion of the course, the student will be able to:

1. Identify normal and abnormal anatomy using words, diagrams, and ultrasound scans of the following areas:
 - a. Vascular anatomy
 - b. Liver
 - c. Biliary system
 - d. Spleen
 - e. Gastrointestinal tract

FINAL GRADE CALCULATION

Lab Assignments	5% (2% bulletin board, 3% lab work sheets)
Lab Scanning	25%
Quiz Average	20%
Midterm	25%
Final	25%

PLEASE NOTE: Midterm and Final Exams are cumulative.

FINAL GRADE EVALUATION

92 to 100	=	A
88 to 91.9	=	B+
83 to 87.9	=	B
79 to 82.9	=	C+
75 to 78.9	=	C
0 to 74.9	=	F

All grading is “absolute” and will NOT be rounded off.

A “D” GRADE DOES NOT APPLY TO DMS COURSES

LABORATORY: Students are expected to practice scanning during lab time as directed by the instructors. By the end of the course, they are expected to perform limited abdominal ultrasound exam.

Lecture 1: Upon completion of this lecture, the student will be able to:

1. Know the requirements of the course.
2. Know the anatomic and physiologic relationships within the abdominal cavity.
3. Understand Anatomic directions, terms, and planes and body sections.
4. Know the retroperitoneum, the abdominopelvic membranes and ligaments.

Lab: Demonstrate scanning the proximal and distal abdominal aorta. Demonstrate scanning the proximal and distal inferior vena cava

Lecture 2: Upon completion of this lecture, the student will be able to:

1. Understand the basic abdominal scanning techniques and protocols.
2. Discuss the various sonographic medical terms.
3. Know the criteria for identifying sonographic abnormalities.

Lab: Demonstrate scanning three images of the longitudinal liver showing it in the portal hepatic region, in the area of the gallbladder, and lateral in the area of the right kidney. The student will document the results, and the films are reviewed with the instructor.

Lecture 3: Upon completion of this lecture, the student will be able to:

1. Recognize normal basic vascular anatomy.
2. Identify the branches of the abdominal aorta.
3. Discuss the various sonographic scanning techniques when trying to scan the vascular structures.

Lab: Demonstrate scanning the gallbladder in the longitudinal plane at its longest length. The student is required to practice the GB in various positions including supine and oblique in order to obtain the longest length. Students need to be NPO for the lab when scanning gallbladder.

Lecture 4: Upon completion of this lecture, the student will be able to:

1. Explain the pathology of the Aorta.
2. Discuss the classification of Aneurysms.
3. Describe aortic graft and its sonographic interpretation.
4. Discuss Marfan's syndrome.
5. Explain abdominal doppler techniques used in vascular imaging.
6. Discuss the definition of hepatofugal and hepatopedal flow.
7. Define resistance and nonresistance pattern.

Lab: Demonstrate scanning the CBD, once found magnifying it, and measuring it in an AP dimension. The CBD should attempt to be found in a longitudinal oblique plane.

Lecture 5: Upon completion of this lecture, the student will be able to:

1. State the branches of the IVC and its sonographic appearances.
2. Review the portal vein, its branches, and its significance as a landmark in the abdomen.
3. Distinguish the sonographic differences in recognizing the portal and hepatic veins.
4. State the IVC abnormalities that can be seen with various diseases.

Lab: Demonstrate scanning the pancreas in a longitudinal plane. The student needs to visualize the body of pancreas in the area of the aorta, and the pancreatic head anterior to the IVC on a long plane. Gains need to be adjusted to view pancreatic tissue.

Lecture 6: Upon completion of this lecture, the student will be able to:

1. Evaluate the normal anatomy of the liver.
2. Identify the various ligaments and fissures seen in the liver, and its sonographic evaluation.
3. Identify functional divisions of the liver.
4. Discuss the physiology of the liver.
5. Identify the hepatic enzymes and its reactions to liver disease.
6. Recognize several changes in hepatic enzymes with severe liver disease.
7. Explain the function of bilirubin and its importance to abnormal disease.

Lab: Upon completion of this lab, the student will be able to demonstrate scanning the liver in a transverse plane. Three images are recorded of the liver. The students are assisted in the lab where to obtain these images, and then the images are reviewed by the instructors.

Lecture 7: Upon completion of this lecture, the student will be able to:

1. Understand the Sonographic Evaluation of the Liver.
2. Recognize the various stages of fatty infiltration of the liver and its sonographic appearances.
3. Understand Hepatic Vascular Flow Abnormalities.
4. State the sonographic appearance of diffuse liver disease.
5. Identify Portal Venous Hypertension.

Lab: Demonstrate scanning the GB in a transverse plane at its widest.

Lecture 8: Upon completion of the lecture, the student will be able to:

1. Discuss focal liver diseases that can occur in the liver.
2. Recognize the inflammatory diseases of the liver.
3. Review and understand the differential diagnosis of liver metastases, hepatocellular disease, and hepatic tumors benign and malignant.

Lab: Demonstrate scanning the pancreas in a transverse plane. The student will take three images of the pancreas, visualizing the head, body, and tail. Measurements of the pancreas need to be done in AP dimension.

Lecture 9: Upon completion of this lecture, the student will be able to:

1. Identify the normal anatomy of the biliary system.
2. Know the laboratory data of the gallbladder and biliary system.
3. Discuss the normal measurements of the gallbladder and the CBD.
4. Recognize the concrete clinical symptoms when dealing with gallbladder disease.

Lab: Demonstrate scanning the aorta in a transverse image plane. The aorta can be obtained either proximal or distal, allowing the student to choose the best area to visualize it. The aorta needs to have strong borders and an echo-free center. It needs to be magnified when it is seen correctly, and a transverse measurement needs to be done. At this time practice the entire limited abdomen protocol in preparation for lab testing.

Lecture 10: Upon completion of this lecture, the student will be able to:

1. Discuss the various sonographic appearances when dealing with gallbladder disease.
2. Evaluate the sonographic appearance of gallstones, and the common pitfalls when interpreting them.
3. Recognize the sonographic appearance of the normal bile ducts.
4. Identify the criteria used when attempting to recognize biliary obstruction on ultrasound.
5. State the definition of the double barrel shot gun sign.
6. Distinguish the sonographic difference between dilated biliary ducts and hepatic ducts.

Lab: At this time the student should practice the entire limited abdomen protocol in preparation for lab testing.

Lecture 11: Upon completion of this lecture, the student will be able to:

1. Recognize the anatomy, physiology and laboratory data of the gastrointestinal tract.
2. Know the sonographic evaluations of the gastrointestinal tract.
3. Discuss the abnormalities of the appendix and acute appendicitis.
4. Recognize the sonographic appearances of the normal and abnormal appendix.
5. Know benign and malignant tumors of the gastrointestinal tract.
6. Discuss various abscess formation and pockets in the abdomen and pelvis and their sonographic findings.

Lab: At this time the student should practice the entire limited abdomen protocol in preparation for lab testing.

Lecture 12: Upon completion of this lecture, the student will be able to:

1. Recognize the normal anatomy and physiology of the spleen.
2. Recognize the sonographic appearance of the normal spleen and the accessory spleen.
3. Know the storage disease of the spleen.
4. Focal diseases of the spleen..

Lab: At this time the student should practice the entire limited abdomen protocol in preparation for lab testing.

Lecture 13: Upon completion of this lecture, the student will be able to:

1. Complete an abdominal study case.
2. Know how to write a report describing normal and abnormal sonographic appearance.
3. Comprehensive review.

Lab: LAB TESTING STARTS

FINAL EXAM (COMPREHENSIVE)

Multiple choice.

Abdomen films included

Lab: LAB TESTING

Students are required to keep their station and the lab neat and clean during each session, which includes probe cleaning, gel bottles filled, sheets clean and stacked, and all machines are turned off after lab. Nothing is to be left on the equipment. Failure to do so will result in points deducted from the lab final. Point determination is at the instructor's discretion. During any DMS classes throughout the program, when clinical practice is offered, whether during an open lab to practice or as a requirement for a lab competency test, students utilized their classmates in the program as patients to practice the objective for the specific clinical competencies. The following consent form needs to be read and signed before the start of any "hands on" scanning. NO instructors will be a substitute for a student who does not want to participate. A copy of this signed form will be kept in the student's handbook and in the Program Director's office.