

BERGEN COMMUNITY COLLEGE  
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM  
Division of Health Professions  
DMS 213 SYLLABUS

**Course Title: DMS 213 - Abdominal Sonography 2**

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 II is a continuance of Abdominal Sonography I in studying abdominal structures where an emphasis is placed on specialty organ examinations. Knowledge of the diagnosis, history, and physical findings as they pertain to the pathophysiology of abdominal and small parts organs is presented. Normal and abnormal tissue patterns are included within this course. Students will practice and master a full abdominal procedure in the lab to prepare them for Ultrasound Clinic II -Abdomen rotation.

**Course Objectives:**

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

1. Identify normal anatomy on diagrams and on ultrasound scans of the following areas: Pancreas, Urinary System, Adrenal glands, Retro peritoneum, Scrotum, Prostate, Thyroid parathyroid glands, Abdominal wall, Superficial and Muscular structures.
2. Describe the ultrasound appearance of congenital abnormalities and pathologies of the area listed in #1.
3. Compare laboratory and diagnostic tests related to the areas listed in #1.
4. Practice weekly a simulated abdominal exam including all abdominal organs.
5. Practice thyroid scanning on a simulated subject in the lab.
6. Create high diagnostic quality scans of all abdominal organs indicated in Abdominal I and II.

**Assessment:**

Knowledge of the course objective will be assessed by quizzes, tests, and lab work sheets. Students will be required to perform a complete abdominal ultrasound examination.

**Course Policies:**

Students are expected to attend each class session. Lab scanning classes **cannot be made up.**

Missed a quiz or exam must be made up within one week.

Students are expected to be NPO (nothing by mouth) for the lab scanning. Failure to be prepared will cause your classmates to lose precious scanning time.

**FINAL GRADE calculation:**

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

## 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

A "D" GRADE DOES NOT APPLY TO DMS COURSES

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

1. The normal anatomy and physiology of the Pancreas.
2. Blood supply and vascular landmarks of the Pancreas.
3. The function of Pancreas as an exocrine, endocrine gland.
4. The sonographic evaluation of the pancreas.

**Lab:** Demonstrate scanning the left lobe of liver in the longitudinal and transverse planes. Demonstrate scanning four images of the longitudinal and transverse liver. Learn how to measure the Liver, the proximal, mid, distal abdominal aorta in the longitudinal and transvers planes. The student will document the results, and the films are reviewed with the instructors.

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

1. The neoplasms of the pancreas.
2. Understand acute and chronic pancreatitis.
3. The complications of acute and chronic pancreatitis.
4. Sonographic findings of an abnormal pancreas and pancreatic neoplasms.

**Lab:** Demonstrate scanning the pancreas in a transverse plane. The student will take three images of the pancreas, visualizing the head, body, and tail with measurements. Demonstrate scanning the gallbladder in the longitudinal and transverse plane. Demonstrate scanning the CBD, once found magnifying it, and measuring it in an AP dimension. The student will document the results, and the films are reviewed with the instructors.

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

1. Recognize normal anatomy and physiology of the urinary system.
2. Identify the branches of renal vascular supply.
3. Discuss the lab tests for renal disease.
4. Discuss sonographic evaluation of urinary system.
5. Identify renal variants and Anomalies.

**Lab:** Demonstrate scanning the right kidney in the longitudinal plane with the longest measurement. Demonstrate scanning three images for the right kidney in the lateral, mid, and medial planes. Demonstrate scanning three images in the transverse plane, upper, mid (with the width measurement) and lower pole of the right kidney.

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

1. Explain the pathology of the renal system.
2. Discuss the sonographic evaluation of a renal mass.
3. Understand renal cystic disease.
4. Discuss renal neoplasms and malignancy.
5. Discuss benign renal tumors and their sonographic appearance.

**Lab:** Demonstrate scanning the spleen in the longitudinal plane with the longest measurements. Demonstrate scanning the spleen in the transverse plane with the widest measurements.

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

1. Understand renal disease and its sonographic appearances.
2. Distinguish the sonographic differences between acute and chronic renal failure.
3. Discuss the causes, grading and the sonographic appearance of hydronephrosis.
4. Explain the pitfalls for evaluating hydronephrosis.

**Lab:** Demonstrate scanning the left kidney in the longitudinal plane with the longest measurement. Demonstrate scanning three images for the left kidney in the lateral, mid, and medial planes. Demonstrate scanning three images in the transverse plane, upper, mid (with the width measurement) and lower pole of the left kidney.

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

1. Understand the causes and sonographic appearance of renal infections.
2. Discuss renal artery stenosis, renal vein thrombosis.
3. Identify functional normal transplanted kidney.
4. Identify bladder diverticulum and its sonographic appearance.
5. Recognize the sonographic appearance bladder tumors.

**Lab:** Demonstrate scanning the spleen in the longitudinal and transverse plane with interface of the upper pole of left kidney.

### **Mid Term Exam**

**Lab:** Demonstrate scanning the complete abdominal protocol.

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

1. Recognize normal anatomy and physiology of the adrenal glands.
2. Recognize the neonatal adrenal glands.
3. Recognize adrenal hemorrhage, adrenal neuroblastoma, pheochromocytoma and its sonographic appearances.

**Lab:** Demonstrate scanning the complete abdominal protocol.

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

1. Recognize the normal anatomy of the scrotum.
2. Identify the spermatic cord the vas deferens and their functions.
3. Know the vascular supply of the scrotum.
4. Know the proper patient positioning and scanning protocol for the scrotum.
5. Evaluate acute scrotal trauma, scrotal hematoma and their sonographic appearance.
6. Identify ruptured testis and fractured testis.
7. Discuss epididymo-orchitis and its sonographic appearance.

**Lab:** Students will be introduced to scanning protocol of the scrotum. Students will learn the proper patient positioning for ultrasound examination of the scrotum.

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

1. Recognize the sonographic appearance of testicular torsion.
2. Recognize extratesticular masses.
3. Evaluate the sonographic appearance varicocele.
4. Recognize and discuss hydrocele, pyocele, and hematocele.
5. Identify benign and malignant testicular masses.
6. Know the anatomy and physiology of the prostate gland.
7. Identify benign and malignant prostate masses.

**Lab:** Demonstrate scanning the complete abdominal protocol.

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

1. Identify the normal relational anatomy, physiology and lab data of the thyroid gland.
2. Recognize the symptoms associated hypothyroidism and hyperthyroidism.
3. Recognize the sonographic evaluation of the thyroid gland.
4. Discuss pathology of the thyroid gland.
5. Identify benign and malignant lesions of the thyroid gland.

**Lab:** At this time the student should practice scanning the thyroid gland in the longitudinal and transverse plane.

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

1. Discuss the various diffuse thyroid disease.
2. Evaluate the sonographic appearance of thyroiditis and hashimoto's thyroiditis.
3. Recognize the anatomy of the parathyroid glands.
4. Discuss the parathyroid physiology and laboratory data.
5. Know the pathology of the parathyroid glands.
6. Identify various miscellaneous neck masses and there sonographic appearance.

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

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

1. Discuss the abdominal wall, superficial and muscular structures.
2. Describe the sonographic appearance of abscess, urinoma, achilles tendon rupture, thorax (non-cadriac chest), baker's cyst and rectus sheath hematoma.
3. Identify retroperitoneal pathology (Ormond's Disease).

**Lab:** Demonstrate scanning the complete abdominal protocol.

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

1. Review and complete a thyroid gland, scrotum and an abdominal study case.
2. Comprehensive review in preparation for the final exam.

**Lab:** lab testing starts.

## **FINAL EXAM**

**Lab:** lab testing.

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