Bossier Parish Community College
Master Syllabus

Course Prefix and Number: SONO 211 **Credit hours**: 2

Course Title: Abdominal Sonography II

Course Prerequisites: Enrollment in the DMS program and competition of SONO 202

Textbook(s):
Required Textbooks: Abdomen and Superficial Structures: Diane Kawamura 4th Edition
Textbook of Diagnostic Sonography Vol 1: Sandra L. Hagen-Asert 9th edition

Course Description:

This course will expand upon the anatomy and pathology learned in SONO 202 as well as introduce abdominal vascular anatomy and pathology. Students will increase their ability to discern abnormal findings by recognizing the absence of normal sonographic appearance. They will strengthen their critical thinking skills while assessing pathology and patient history.

Learning Outcomes:

A. **Identify anatomy, relational anatomy, anatomic variants, and sonographic appearances of normal anatomical structures**.

a) Aorta and branches
b) Great vessels and branches
c) Gastrointestinal tract
d) Lower urinary tract
e) Pediatric Abdomen
f) Pediatric Urinary System
g) Adrenal Glands

B. Demonstrate knowledge of the physiology, pathophysiology, sonographic technique, measurements, sonographic appearances, and Doppler patterns, where applicable, in both normal and abnormal structures.

a) Aorta and branches
b) Great vessels and branches
c) Gastrointestinal tract
d) Lower urinary tract
e) Pediatric Abdomen
f) Pediatric Urinary System
g) Adrenal Glands

C. Obtain, evaluate, document, and communicate relevant information related to sonographic examinations.

1) Clinical information and historical facts from the patient and the medical records, which may impact the diagnostic examination.

a) Clinical signs and symptoms
b) Laboratory tests
c) Imaging and diagnostic procedures
d) Oral and/or written summary of sonographic findings.

2) Deviation from practice parameters for the sonographic examination as required by patient history or initial findings
3) Changes from a previous examination
4) Examination findings that require an immediate clinical response and notify the interpreting physician.

E. Demonstrate knowledge of disease processes with application to sonographic and Doppler patterns.

1) Iatrogenic
2) Degenerative
3) Inflammatory
4) Traumatic
5) Neoplastic
6) Infectious
7) Obstructive
8) Congenital
9) Metabolic
10) Immunologic

To achieve the learning outcomes, the student will or will be able to:

- Identify the role of diagnostic medical sonography in the assessment of abdominal vascular structures.
- Perform sonographic evaluation of the abdominal vascular system.
- Describe the patient preparation, equipment considerations, and scanning techniques and Doppler protocols for normal and abnormal abdominal vascular structures.
- Identify circulatory anatomy, name the layers of blood vessels, and distinguish the difference between arteries and veins.
- Recognize the sonographic appearance and relational anatomy of the abdominal vascular system.
- Describe the pathology, etiology, clinical signs and symptoms, and sonographic appearance or aortic pathology to include atherosclerosis, aneurysms, dissection, rupture, inflammatory aneurysms, stenosis, and vascular insufficiency.
- Illustrate the anatomy of the gastrointestinal tract.
- Define the process for sonographic evaluation of the gastrointestinal tract, including the transabdominal and endoluminal approaches.
- List the five sonographic layers of the bowel wall.
- Describe the esophagus, stomach, small bowel, appendix, and colon.
- Discuss disorders of the esophagus, stomach, small bowel, appendix, and colon that can be visualized sonographically.
- Describe the embryologic development, normal anatomy, and function of the lower urinary tract.

- Discuss the various sonographic techniques that can be used for evaluation of the lower urinary tract.
- Identify the normal sonographic appearance of the lower urinary tract and common anatomic variants.
- List clinical indications associated with lower urinary tract disease.
- Describe the sonographic appearance of congenital lower urinary tract abnormalities such as exstrophy, duplication, posterior urethral valves, ectopic ureter, and ureterocele.
- List the common causes and sonographic appearance of cystitis.
- Identify the sonographic appearance of reflux, neurogenic bladder, and bladder wall abnormalities.
- Describe common mechanisms for bladder trauma and the appearance of pathologies related to trauma.
- List common causes of bladder wall thickening.
- Demonstrate the sonographic scanning techniques, technical considerations, and routine examination for the neonatal and pediatric abdomen to include the prevertebral vessel evaluation, liver, gallbladder and biliary system, pancreas, gastrointestinal tract, and retroperitoneum.
- Describe the pathology, etiology, and clinical signs and symptoms for anomalies and pathology of the aorta and inferior vena cava in the neonate and pediatric patient.
- Differentiate between the sonographic appearance of the normal prevertebral vasculature and the sonographic appearance for congenital vascular anomalies and acquired vascular pathology in the neonate and pediatric patient.
- Describe the pathology, etiology, and clinical signs and symptoms for hepatic congenital anomalies, cysts, hepatic trauma, infectious and inflammatory disease, diffuse liver disease, hepatic malignant neoplasms, and hepatic vascular disorders in the neonate and pediatric patient.
- Differentiate between the sonographic appearance of the normal liver and the sonographic appearance for congenital anomalies, cysts, hepatic trauma, infectious and inflammatory disease, diffuse liver disease, hepatic malignant neoplasms, and hepatic vascular disorders in the neonate and pediatric patient.
- Describe the pathology, etiology, and clinical signs and symptoms for the gallbladder and biliary congenital anomalies, abnormal size, cholelithiasis, hydrops, biliary obstruction, cholangitis, and biliary neoplasm in the neonate and pediatric patient.
- Differentiate between the sonographic appearance of the normal gallbladder and biliary system and the sonographic appearance for normal variants, congenital anomalies, abnormal size, cholelithiasis, hydrops, biliary obstruction, cholangitis, and biliary neoplasm in the neonate and pediatric patient.
- Describe the pathology, etiology, and clinical signs and symptoms for pancreatic developmental and congenital anomalies, pancreatic neoplasm, and acute and chronic pancreatitis in the neonate and pediatric patient.
- List the indications for the sonographic evaluation of urinary system and adrenal glands in the pediatric patient.
- Explain the protocol process for sonographic evaluation of the urinary system and adrenal glands in the pediatric patient.

- Identify the normal sonographic appearance of the urinary system and the adrenal glands in the pediatric patient.
- Describe the pathology, etiology, clinical signs and symptoms, and sonographic appearance of common congenital abnormalities, tumors, and acquired pathology in the upper and lower urinary system in the pediatric patient.
- Discuss three criteria for sonographic documentation of tumors on pediatric patients to include (1) origin of the mass, (2) extent of the mass, and (3) metastases.
- Describe the pathology, etiology, clinical signs and symptoms, and sonographic appearance of congenital abnormalities, tumors, hemorrhage, cysts, and abscesses of the adrenal glands in the pediatric patient.
- Identify technically satisfactory and unsatisfactory sonographic examinations of the urinary system and adrenal glands on the neonatal and pediatric patient.
- Identify the sonographic role in the evaluation of the adrenal glands.
- Describe the embryologic development of the adrenal glands.
- Discuss the anatomy and physiology of the adrenal cortex and medulla.
- List the hormones secreted by the adrenal cortex and medulla.
- Identify conditions caused by hyposecretion and hypersecretion of adrenal hormones.
- Identify the normal sonographic appearance of the adrenal glands.
- Describe adrenal gland scanning technique, patient positions, and scanning pitfalls.
- Discuss the differential diagnosis for solid adrenal masses.
- Discuss alternative imaging modalities used to evaluate the adrenal glands.

Course Requirements: **In order to pass the course, the student must earn 76% of the total possible points on the unit tests for the course and make a minimum score of 70% on the final exam. The student must achieve an overall course average of 76%. Grades will not be rounded. Failure to complete any of the course requirements listed below will result in an "F" for the course.**

The student will:

- Participate in/complete all classroom/laboratory experiences (such as discussion questions; quizzes; section test; case studies; concept mapping; DVD, video, web-site, or reading assignments).
- Be held responsible for the content of the entire course. The final exam is mandatory, will be cumulative, and worth 25% of the overall grade for the course.

Course Grading Scale:

93 –	100%=	A
85 –	92%=	B
76 –	84%=	C
68 –	75%=	D
0 –	67%=	F

Attendance Policy: The college attendance policy (for the classroom) is available at http://catalog.bpcc.edu/content.php?catoid=5&navoid=369#class-attendance

Course Fees: (if applicable)

Nondiscrimination Statement

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