El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA	**Diagnostic Medical Sonography**
COURSE RUBRIC AND NUMBER	**DMSO 1355**
COURSE TITLE	**Sonographic Pathophysiology**
COURSE CREDIT HOURS	**3 3: 0** **Credits Lec Lab**

I. Catalog Description

Studies the pathology and pathophysiology of the abdominal structures visualized with ultrasound. Includes abdomen and pelvis. A grade of "C" or better is required in this course to take the next course.
Prerequisites: DMSO 1441 and DMSO 2405. (3:0).

II. Course Objectives

Upon satisfactory completion of this unit, the student will be able to:

A. Unit I. Vessel Pathology

1. Describe the following types of aortic aneurysms:
   a. Dissecting
   b. Fusiform
   c. Saccular
   d. Mycotic
2. Define tortuous vessel.
3. Explain under what conditions collateral's form.
4. Define recanalized umbilical vein.
5. Define normal measurement values for the aorta and portal vein.
6. Assess the importance of recognizing the normal and abnormal values for the previously described structures.
7. Describe portal hypertension and any situations that arise from this condition related to the venous system.
8. Identify the method(s) for measuring aortic aneurysms.
9. Name other imaging modalities capable of detecting an abdominal aortic aneurysm.
10. Define the valsalva maneuver and a clinical application for this practice.
11. Identify another condition that could cause distension of venous vessels and a method to recognize this condition.
12. Explain a routine procedure that could be employed to examine the abdominal aorta.
13. Define when other abdominal structures should be evaluated through the use of ultrasound.

B. Unit II. Right Upper Quadrant/Gallbladder Pathology

1. Define the following terms and state the sonographic appearance and location where applicable:
   a. WES Triad
   b. Choleithiasis
   c. Choledochallithiasis

d. Gallbladder Sludge
e. Capillary Hemangioma
f. Hepatic Cysts
g. Hemangioma
h. Echinococcal Cyst
i. Hepatic Abscess
j. Cirrhosis
k. Fatty Metamorphosis
l. Hepatitis
m. Hepatocellular Disease
n. Budd-Chiari Syndrome
o. Klatskin's Tumor
p. Cholecystitis
q. Adenomyomatosis
r. Phrygian Cap
s. Reidel's Lobe
t. Ascites

2. Describe one method that can help distinguish the difference between a primary hepatic neoplasm and a metastatic neoplasm.
3. Define the following terms and discuss their importance in the role of sonographic diagnosis:
    a. Jaundice
    b. Pruritis
    c. Courvoisier's Sign/Law
    d. Acute Abdomen
    e. Pyrexia
    f. Miarizzi Syndrome
    g. Rokitansky-Aschoff
    h. Adenomyomatosis
    i. Polys
    j. Gangrenous Cholecystitis
    k. Choledochal cysts
    l. Caroli's disease
    m. Cancer of Gallbladder
        a. Primary gallbladder carcinoma
        b. Doppler assists-GB cancer demonstrates flow of higher velocities and resistance index than of benign disease
    n. Klatskin Tumor
    o. Choleslerolosis (stawberry gallbladder)
    p. HELLP Syndrome: rare complication of pregnancy; 20 % of mothers with severe pre-eclampsia (Haemolytic anemia)
        a. Elevate liver enzymes
        b. Low platelet count
        c. Cause abdomen pain, nausea, and fever
    q. Hydatid (echninococcal) cyst
    r. Candidiasis abscess, fungal infection
4. Explain what course of action should be taken if there is a questionable shadow produced near the neck of the gallbladder, but no stones are visible.
5. Define the following laboratory values and indicate what conditions they are screening as well as minimum and maximum limits for each:
    a. Total Bilirubin
    b. Indirect Bilirubin
    c. Direct Bilirubin
    d. Alkaline Phosphatase
    e. Serum Glutamic Oxaloacetic Transaminase
    f. Serum Glutamic Pyruvic Transaminase

g. Lactic Acid Dehydrogenese
h. Alpha-fetoprotein
i. Hematocrit

6. Identify another area to examine if the common bile duct is dilated and no apparent stone can be located.
7. Describe at least one method to differentiate between a hepatic abscess and a hepatic cyst.
8. Discuss the course of action that should be taken if a metastatic lesion is located within the liver.
9. Explain what condition is likely to be present if an ascites accumulation is located.

C. Unit III. Pancreas Pathology

1. Describe the appearance of a pancreatic pseudocyst.
2. Identify the most common cause of a pancreatic pseudocyst.
3. Define the methods necessary to differentiate a pancreatic pseudocyst from a pancreatic abscess.
4. Discuss the prognosis of primary neoplastic diseases involving the pancreas.
5. Describe methods that can be performed to differentiate acute pancreatitis from chronic pancreatitis.
6. Explain why lymphomas are often confused for pancreatic pseudocysts or primary pancreatic neoplasms.
7. Establish the condition present if an unknown fluid collection is located in the lesser sac.
8. Define the following laboratory values and their minimum and maximum values:
   a. Serum Amylase
   b. Serum Glucose
9. Identify which lab value is more accurate:
   a. Serum Amylase
   b. Urine Amylase
10. Identify which of the previous enzymes remains elevated longer.
11. Define what condition is being screened by the enzymes Serum Amylase and Urine Amylase.
12. Describe the sonographic appearance of the pancreas as compared to the following areas:
    a. Renal Sinus
    b. Liver
    c. Spleen
    d. Renal Parenchyma
13. Discuss possible methods to improve film quality when obscuring gas is present in the area of the pancreas.

D. Unit IV. Superficial Parts Pathology

1. Describe the clinical symptoms and pathologic basis for the following disease processes of the thyroid and parathyroid glands:
   a. cysts
   b. goiter
   c. thyroiditis
   d. Grave's disease
   e. benign and malignant neoplasms
   f. hyperplasia
2. Describe the clinical symptoms and pathologic basis for the disease processes of the breast:
   a. fibrocystic disease
   b. primary and benign neoplasms
   c. primary and metastatic carcinoma

3. Describe the clinical symptoms and pathologic basis for the disease processes of the following:
    a. Epididymis
    b. testis
    c. prostate, including inflammatory conditions and benign and malignant neoplasms
    d. varicocele
    e. spermatocele
    f. hydrocele
    g. testicular torsion

E. Unit V. Spleen Pathology

1. Describe the appearance of the following:
    a. Splenic Cyst
    b. Splenic Hemorrhage
2. Describe the clinical symptoms and pathologic basis for the following disease processes of the spleen:
    a. infectious processes
    b. splenomegaly
    c. simple cysts
    d. primary, benign and malignant neoplasms
    e. metastasis
    f. infarcts
    g. splenic rupture

F. Unit VI. Renal Pathology

1. Define the following conditions involving the kidneys:
    a. Renal Cysts
    b. Transitional Carcinoma
    c. Primary Carcinomas
    d. Metastatic Lesions
    e. Hydronephrosis
    f. Renal Calculus
    g. Polycystic Kidney Disease
    h. Renal Abscess
    i. Renal Failure
    j. "Horseshoe" Kidney
2. Explain the importance of determining whether or not a patient is undergoing peritoneal dialysis.
3. Identify normal and abnormal creatinine levels.
4. Identify the following renal anatomy:
    a. Renal Calyces
    b. Renal Pelvis
    c. Renal Arteries/Veins/Ureters
    d. Columns of Bertin
    e. Renal Cortex
    f. Renal Pyramids
5. Define the importance of the renal capsule.
6. Define the importance of the "Fat Line".

G. Unit VII. Adrenal Pathology

1. Differentiate between a neuroblastoma and a Wilm's Tumor.

2. Identify which primary anatomical site is likely to lead to metastases to the adrenal gland(s).
3. Describe the clinical symptoms and pathologic basis for the disease processes of the adrenal glands, including the following:
   a. adrenal cysts
   b. primary benign and malignant tumors
   c. metastatic carcinoma
   d. the effects of Addison's disease and Cushing's syndrome.

H. Unit VIII. Pelvic Pathology

1. Describe the clinical symptoms and pathologic basis for the disease processes of the uterus including myomas, carinoma, adenomyosis and pelvic inflammatory disease.
2. Describe the various types of uterine anomalies, and identify each on sectional sonograms.
3. Describe the clinical symptoms and pathologic basis for the disease processes of the ovaries, including:
   a. ovarian torsion
   b. cystadenomas and cystadenocarcinomas
   c. benign and malignant teratomas
   d. dysontogenetic neoplasms
   e. external endometrisosis
   f. fibroma
   g. Brenner tumors primary ovarian malignancy
   h. metastasis to the ovary
4. Describe the clinical symptoms and pathologic and physiologic basis for functional ovarian cysts, Turner's syndrome, and Stein-Leventhal syndrome.

III. THECB Learning Outcomes (WECM)

1. Identify abnormal sonographic patterns and pathological processes in the organs of the abdomen and pelvis.

IV. Evaluation

A. Grading Scale:

100 – 92 = A
91 – 83 = B
82 – 75 = C
74 – 67 = D
66 – 0 = F

Grades below "C" are not acceptable for successful completion of a professional DMSO course. Any grade of .5 or greater will be rounded off to the next whole number, and any grade less than .5 will be rounded to the next lower whole number.

B. Final Grade Determination

Take Home Exams and Pop Quizzes	10% of final grade
Unit Exams	40% of final grade
Worksheets/Homework	10% of final grade
Comprehensive Final	40% of final grade

C. Exams: **NO RE-TESTS WILL BE GIVEN**

All exams are written and consist of the following formats: multiple-choice, true-false, matching, essay, or a combination of any of the preceding.
An exam missed because of an excused absence must be made up on the day that the student returns to class. An exam missed because of an unexcused absence may not be made up, and the student will receive a grade of zero (0) for that exam.

Frequent, unannounced pop quizzes are given at the beginning of the class period. Tardiness or absence on these days results in a zero (0) on that particular pop quiz. No pop quizzes, under any circumstances, may be **made up.**

D. Cheating
Any student caught cheating will have his/her exam withdrawn and be given a zero (0) for that exam. See attached El Paso Community College cheating policy.

E. Attendance
An absence will be considered excused if you inform me of your absence before class or lab commences. Tardiness or absence on a day when a quiz is given will result in a grade of zero (0) for that quiz. No quizzes may be made up for any reason.

Make-up exams will only be allowed for students presenting a written U.S. doctor's excuse, death in the family, or prior permission with a valid reason. This exam must be made up the day student returns to class. An exam missed because of an unexcused absence may not be made up, and the student will receive a grade of zero (0) for that exam.

NO RETESTS WILL BE GIVEN.
AN ACCUMULATION OF THREE UNEXCUSED ABSENCES WARRANTS THE STUDENT BEING DROPPED FROM THE CLASS FOR EXCESSIVE ABSENCES.

F. Tardiness

Tardiness is defined as being 10 minutes or more late to class. Students tardy in excess of the above are considered absent.

G. Assignments

Assignments will NOT be accepted if they are submitted more than two (2) class meetings late, except in cases of illness.

V. Disability Statement (Americans with Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to

see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.