El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA	**Diagnostic Medical Sonography**
COURSE RUBRIC AND NUMBER	**DMSO 1451**
COURSE TITLE	**Sonographic Sectional Anatomy**
COURSE CREDIT HOURS	**4 4 : 1** **Credits Lec Lab**

I. Catalog Description

Studies the sectional anatomy of the male and female body. Includes anatomical relationships of organs, vascular structures, and body planes and quadrants. A grade of "C" or better is required in this course to take the next course. **Prerequisite: DMSO 2505. (4:1). Lab fee. ABD Mock Exam fee.**

II. Course Objectives

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

A. Unit I. Abdominal Vessels

1. Define the following terms associated with vessel structure:
   a. Lumen
   b. Tunica Intima
   c. Tunica Media
   d. Tunica Adventitia
2. Describe the differences between venous and arterial structure.
3. Explain why the difference in structure is necessary.
4. Identify the branches of the abdominal aorta from the most superior vessel to the most inferior vessel.
5. Define the branches of the celiac axis.
6. Describe the paths of both the right renal artery and left renal artery from the aorta to the kidney.
7. Define the areas that the following vessels supply and their exact location:
   a. Superior Mesenteric Artery
   b. Inferior Mesenteric Artery
   c. Splenic Artery
   d. Hepatic Artery
   e. Renal Arteries
   f. Common Illiac Arteries
   g. Gastroduodenal Artery
   h. Replaced Right Hepatic Artery
   i. Left Gastric Artery
8. Identify the tributaries of the Inferior Vena Cava
9. Describe the location of the Inferior Vena Cava as compared to the abdominal aorta.
10. Identify the tributaries of the Portal Vein
11. Describe the exact location of the following vessels:
    a. Portal Vein

b. Superior Mesenteric Vein
c. Inferior Mesenteric Vein
d. Splenic Vein
e. Hepatic Veins
f. Coronary Vein
g. Renal Veins

12. Explain the importance and location of the umbilical vein.
13. Define collaterals.
14. Compare the superior mesenteric artery to the superior mesenteric vein as far as location is concerned.

B. Unit II. Lower Extremity (Vessels)

1. Anatomy
   a. The common femoral vein (CFV) lies medial to the common femoral artery (CFA).
   b. The superficial vein (SFV) lies posterior to the superficial femoral artery (SFA) superiorly.
   c. The SFV follows a medial course along the inner curve of the thigh and at its inferior aspect, just superior to the knee, lies posterior to the SFA.
   d. The popliteal vein lies posterior and lateral to the popliteal artery.
   e. The saphenous vein is located medial to the SFV and CFV at the level of the SFV insertion.
   f. Valves are located in the larger veins to prevent the back flow of blood. These are commonly seen in the CFV, SFV, and popliteal veins.
   g. The deep femoral vein or profunda vein is found posterior to the SFV with its insertion at approximately the same level.
   h. All veins are thin-walled and collapse easily with a minimum of pressure.
2. Scanning Planes and Methods
   a. Explain the way ultrasound uses body or scanning planes to image the body.
   b. Define scanning planes and show how they divide the body.
   c. Define the anatomic areas of each scanning plane.
   d. Provide scanning techniques and methods.
   e. Define patient positions.
   f. Provide surface landmarks used as scanning reference.
3. Standards – Scanning Criteria
   a. Know the two-dimensional anatomic areas appreciated on each scanning plane.
   b. Use proper scanning methods.
   c. Be familiar with the surface landmarks used as scanning references.
   d. Follow the survey steps and take the required images recommended in the scanning protocol chapters.

C. Unit III. Liver Anatomy

1. Identify the location of the liver.
2. Define the number of lobes within the liver.
3. Describe arterial and venous flow through the liver.
4 Define and identify the exact location for the following structures:
   a. Portal Trial
   b. Glisson's Capsule.
   c. Hartman's Pouch
   d. Valve of Heister
   e. Phrygian Cap
   f. Ligamentum Teres
   g. Porta Hepatis
   h. Falciform Ligament
   i. Morrison's Pouch

j. Caudate Lobe
k. Quadrate Lobe
l. Sub-phrenic Space
m. Sub-hepatic Space
n. Common Hepatic Duct
o. Cystic Duct
p. Common Bile Duct
q. Gallbladder
r. Main Lobar Fissure
s. Pleural Space
t. Perinephric
u. Paracolic Gutter
v. Lesser Sac

5. Describe the location of the following liver structures:
   a. Left Lobe
   b. Right Lobe
   c. Lateral Segments
   d. Medial Segments
   e. Caudate Lobe
   f. (Quadrate) Medial Left Lobe
6. Identify the anatomical structures used to delineate the previous structures from one another.
7. Explain the function of the liver.
8. Discuss one of the unique structure differences of the liver as it relates to circulation.
9. Compare the sonographic appearance of the liver parenchyma to the following areas in terms of echogenicity:
   a. Renal Sinus
   b. Pancreas
   c. Spleen
   d. Renal Parenchyma
10. Compare the hepatic and portal veins in terms of echogenicity and appearance.
11. Identify one method used to determine normal liver size as far as measurements are concerned.
12. Describe the normal gallbladder wall thickness as it relates to ultrasound examination.
13. Discuss normal values for common bile duct measurements.
14. Present one condition that could influence this measurement as far as patient history is concerned.
15. Explain a routine procedure that should be employed in the examination of the following structures:
    a. Liver
    b. Gallbladder
    c. Biliary System
16. Discuss the correct patient preparation method(s) prior to ultrasonographic examination.

D. Unit IV. Gallbladder Anatomy

1. Identify the location of the Gallbladder.
2. Define the function of the Gallbladder.
3. Identify the Gallbladder anatomy.

E. Unit V. Pancreas Anatomy

1. Define the function of the pancreas.
2. Identify the exact location of the pancreas.
3. Discuss the position of the pancreas in relationship with the other abdominal organs.
4. Describe the proper method for visualization of pancreas and the required views.

5. Explain the correct patient preparation for examination of the pancreas through ultrasound.
6. Define the location of the following structures:
    a. Splenic Vein
    b. Superior Mesenteric Vein
    c. Superior Mesenteric Artery
    d. Pancreatic Duct
    e. Common Bile Duct
    f. Gastroduodenal Artery
    g. Stomach
    h. Duodenum
7. Define insulin and glycogen and their purpose.
8. Give approximate size values for the following pancreatic areas:
    a. Head
    b. Tail
    c. Body
9. Describe the sonographics appearance of a normal pancreas in the longitude and transverse planes.
10. Define the following laboratory values and their minimum and maximum values:
    a. Serum Amylase
    b. Serum Glucose
11. Identify which lab value is more accurate:
    a. Serum Amylase
    b. Urine Amylase
12. Identify which of the previous enzymes remains elevated longer.
13. Define what condition is being screened by the enzymes Serum Amylase and Urine Amylase.
14. Describe the sonographic appearance of the pancreas as compared to the following areas:
    a. Renal Sinus
    b. Liver
    c. Spleen
    d. Renal Parenchyma
15. Discuss possible methods to improve film quality when obscuring gas is present in the area of the pancreas.
16. Identify the anatomical areas in and around the pancreas.

F. Unit VI. Spleen Anatomy

1. Identify the location of the spleen.
2. Define the function of the spleen.
3. Identify the splenic anatomy.

G. Unit VII. Renal Anatomy

1. Identify the location of the kidneys in relation to the
    a. Liver
    b. Spleen
    c. Peritoneum
2. Describe the angulation of the long-axis of the kidneys to the long-axis of the body.
3. Explain the importance of determining whether or not a patient is undergoing peritoneal dialysis.
4. Identify normal and abnormal creatinine levels.
5. 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

6. Define the importance of the renal capsule.
7. Define the importance of the "Fat Line"

H. Unit VIII. Adrenal Anatomy

1. Identify the location of the adrenals.
2. Define the anatomy of the adrenals.
3. State the function of the adrenals.

III. THECB Learning Outcomes (WECM)

1. Identify organs and structures of the body in sectional planes.
2. Describe anatomical relationships.
3. Identify anatomical structures in standard and non-standard imaging planes.

IV. Evaluation

A. Grading Scale

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

No grade of less than "C" will be considered as successful completion of a professionally related course. Grades .5 or higher will be rounded off to the next whole number grade.

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
	100%

C. Exams -- **NO RE-TESTS ARE 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 given a zero (0) for that exam.

E. Attendance

An absence is considered excused if the student informs the instructor of his/her absence before that class period begins.

An accumulation of three unexcused absences warrants the student being dropped from the class for excessive absences.

F. Tardiness

Tardiness is defined as being ten (10) minutes or more late to class. Students tardy in excess 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.