



Master Course Syllabus

Abdominal Ultrasound I – DMS 2101

Purpose of Document

This document contains important information for transfer. It may be helpful for you to retain a copy for your records, along with the class specific syllabus. This document will be especially helpful if you decide to later change your course of study.

Pikes Peak State College and the Colorado Department of Higher Education have determined that graduates should have a broad range of learning skills as well as discipline related skills. Both types of skills are detailed below.

Course Description

Offers a systematic study of the abdomen to include the function and development of the major organ systems with correlation to sonographic imaging and the surrounding environment. The student will master the foundations of sectional anatomy and abdominal sonography.

Credit Hours: 2

Contact Hours: 30

Required Course Learning Outcomes

1. List the scanning protocols of the upper abdomen and identify anatomic structures of the upper abdomen as presented in sonographic imaging.
2. Describe the embryology, anatomy, and physiology of the liver, gallbladder, biliary tree, and pancreas.
3. Correlate clinical laboratory findings with sonographic appearances of abdominal organs.
4. Identify normal sonographic variants and common pathologies of the upper abdominal organs.
5. Demonstrate proficiency in identifying abdominal vasculature and its relationship to organ structures.

Topical Outline

- I. Introduction to Abdominal Sonography
 - a. Anatomical terminology and abdominal planes
 - b. Patient preparation and history taking
 - c. Review of abdominal quadrants and regions
- II. Embryology and Anatomy of the Upper Abdomen
 - a. Development of the foregut and midgut
 - b. Relational anatomy of the peritoneum and retroperitoneum
- III. Sonographic Scanning Protocols and Techniques
 - a. Standardized imaging planes (Sagittal, Transverse, Coronal)
 - b. Breathing techniques and patient positioning
 - c. Image labeling and documentation standards

IV. The Liver

- a. Anatomy, physiology, and laboratory values
- b. Sonographic appearance and common pathologies

V. The Biliary System

- a. Gallbladder and bile duct anatomy
- b. Physiology of bile production and transport
- c. Sonographic evaluation of cholelithiasis and cholecystitis

VI. The Pancreas

- a. Exocrine and endocrine functions
- b. Sonographic landmarks and scanning techniques
- c. Acute vs. chronic pancreatitis appearances

VII. Abdominal Vasculature and Hemodynamics

- a. Aorta and Inferior Vena Cava (IVC)
- b. Celiac axis and Superior Mesenteric Artery (SMA)
- c. Portal venous system and Doppler fundamentals

VIII. Clinical Laboratory Values and Diagnostic Correlation

- a. Liver Function Tests (LFTs)
- b. Amylase and Lipase correlation
- c. Integrating clinical data with sonographic findings