

Sonographic Pathophysiology (DMSO 1355)



Credit: 3 semester credit hours (3 hours of lecture)

Prerequisite/Co-requisite: DMSO 1110

Course Description:

Pathology and pathophysiology of the abdominal structures visualized with ultrasound. Includes abdomen and pelvis.

Required Text and Materials

1. *Human Diseases, A Systemic Approach*; 8th edition; Zelman, Tompary, Raymond, Holdaway, and Mulvihill; ISBN# 978-0-13-342474-4

Course Objectives

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

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

Course Outline

- I. Introduction to Disease
 - A. Terminology
 - B. Manifestations of Disease
 - C. Disease and Diagnosis
 - D. Risk Factors
 - E. Treatment
- II. Immunity
 - A. Terminology
 - B. Lymphatic System
 - C. Specific and Non-specific
 - D. Hypersensitivity
 - E. Autoimmunity
 - F. Immune Deficiency
 - G. Sonographic Patterns
- III. Neoplasia
 - A. Terminology
 - B. Types of Neoplasms
 - i. Benign
 - ii. Malignant
 - C. Structure of Neoplasms
 - D. Biology of Neoplasms
 - E. Spread of Neoplasms
 - F. Sonographic Patterns
- IV. Infectious Disease
 - A. Terminology
 - B. Infection
 - C. Contagion
 - D. Microbiologic Injury
 - E. Pyogenic Bacteria
 - F. Aids-Related Infections
 - G. Sonographic Patterns
- V. Developmental, Genetic, and Pediatric Diseases
 - A. Terminology
 - B. Congenital Malformations
 - C. Congenital Deformations
 - D. Genetic Disorders
 - i. Chromosomal
 - ii. Genetic diagnosis
 - E. Pediatric Diseases
 - i. Perinatal Disease
 - ii. Neonatal Disease
 - F. Hemolytic Disease of Newborn
 - G. Sonographic Patterns
- VI. Disorders of Fluid Balance and Blood Flow
 - A. Terminology
 - B. Blood Pressure
 - C. Osmotic Pressure
 - D. Circulation of Lymph and Blood
 - E. Anatomy
 - F. Body Water and Fluid Compartments
 - G. Edema
 - H. Hyperemia and Congestion
 - I. Hemorrhage, Thrombosis, Embolism
 - J. Blood flow obstruction
 - K. Shock
 - L. Sonographic Patterns
- VII. Diseases of Blood Vessels
 - A. Terminology
 - B. Normal Vascular System
 - C. Blood Pressure
 - D. Lipid Classification and Metabolism
 - E. Blood Vessel Disease
 - F. Hypertension
 - G. Aneurysms and dissections
 - H. Diseases of veins
 - I. Tumors of blood and lymphatics
 - J. Sonographic Patterns
- VIII. Diseases of the Heart
 - A. Terminology
 - B. Arrhythmias
 - C. Congestive Heart Failure
 - D. Coronary Artery Disease
 - E. Valvular Heart Disease
 - F. Endocarditis
 - G. Myocardial Heart Disease
 - H. Congenital Heart Disease
 - I. Sonographic Patterns
- IX. Diseases of the Gastrointestinal System
 - A. Terminology
 - B. Intestinal bleeding
 - C. Obstruction and ileus

- D. Diseases of Esophagus
 - E. Diseases of Stomach
 - F. Non-neoplastic Diseases
 - G. Neoplastic Diseases
 - H. Diseases of the appendix
 - I. Sonographic Patterns
- X. Diseases of the Liver and Biliary Tract
- A. Terminology
 - B. Liver's response to injury
 - C. Cirrhosis
 - D. Hepatitis
 - E. Abscess
 - F. Toxicity
 - G. Alcoholic liver disease
 - H. Hereditary liver disease
 - I. Disease of Intra-hepatic Bile Ducts
 - J. Circulatory disorders
 - K. Tumors
 - L. Diseases of gallbladder and extra-hepatic bile ducts
 - M. Sonographic Patterns
- XI. Diseases of the Kidney
- A. Terminology
 - B. Normal urine and urinalysis
 - C. Clinical syndromes
 - D. Glomerular disease
 - E. Vascular disease
 - F. Acute tubular necrosis
 - G. Nephritis
 - H. Stones
 - I. Tumors
 - J. Sonographic Patterns
- XII. Male Genitalia/Reproductive System
- A. Terminology
 - B. Diseases of lower urinary tract
 - C. Diseases of genitalia
 - D. Sexually transmitted diseases
 - E. Sonographic Patterns
- XIII. Female Genitalia/Reproductive System
- A. Terminology
 - B. Menopause
 - C. Sexually transmitted diseases
 - D. Vaginal conditions
 - E. Vulvar disease
 - F. Diseases of Uterus and Ovaries
 - G. Diseases of Reproduction
 - H. Sonographic Patterns
- XIV. Diseases of the Endocrine System
- A. Terminology
 - B. Hormones
 - C. Diagnostic procedures
 - D. Diseases of the anterior pituitary
 - E. Hypofunction of the posterior pituitary
 - F. Diseases of the thyroid
 - G. Diseases of the adrenal gland
 - H. Diseases of the parathyroid
 - I. Abnormalities in secretion of sex hormones
 - J. Sonographic Patterns

Grade Scale:

93 – 100	A
85 – 92	B
77 – 84	C
69 - 76	D (not able to continue in sonography program)
68 and below	F

Course Evaluation

1. Unit Exams	75%
2. Final Exam	20%
3. Web searches/Homework assignments	5%

Course Policies

1. No food, drinks, or use of tobacco products in class.
2. Cellphones and any other electronic devices must be turned off while in class.
3. Do not bring children to class.
4. Students are expected to be in class unless prior arrangements have been made. Absences must be limited to serious illness and/or immediate family emergencies; unexcused absences are not allowed. Three (3) absences will result in a letter grade reduction. Excessive tardiness (more than 10 minutes/class or more than 2 consecutive classes) will result in an absence being awarded.
 - a. In the event that LIT is forced to cancel classes due to inclement weather, DMS classes and clinical rotation will also be canceled. Notification of closures will be made through local radio and TV stations. Students out of the immediate broadcast area should contact the Program Director for information. It is extremely important that students communicate with faculty regarding absences by telephone and/or email at all times.
5. All assignments are due when stated. Late assignments are not accepted. Missed in-class assignments receive a grade of zero.
6. All exams will be on the dates specified unless the instructor makes a change. In case of an absence on exam day, the exam must be completed on the day the student returns to class or a grade of zero will be awarded
7. There is no extra credit given for this course.
8. You will have the length of the class to finish an exam. No extra time will be given.
9. It shall be considered a breach of academic integrity (cheating) to use or possess on your body any of the following devices during any examination unless it is

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required for that examination and approved by the instructor: Cell phone, smart watch/watch phone, laptop, tablet, electronic communication devices (including optical), and earphones connected to or used as electronic communication devices.

- a. Cheating on any (lecture/lab) exam results in immediate dismissal from the program and an F for the course.
10. Four hours of community service will be required this semester in this course. It will be a homework grade.
11. Topics for research paper and case study must be cleared with the instructor. If a student does a topic that is not approved he/she will be given a zero.
12. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an 'F' in the course.
13. Please refer to the Diagnostic Medical Sonography Handbook for further policies.

Technical Requirements (for courses using Blackboard)

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:

https://help.blackboard.com/en-us/Learn/9.1_2014_04/Student/015_Browser_Support/015_Browser_Support_Policy A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building. You may also visit the online resource at <http://www.lit.edu/depts/stuserv/special/defaults.aspx>

Student Code of Conduct Statement

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu or obtained in print upon request at the Student Services Office.

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Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document

Starfish

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

