



# LINCOLN UNIVERSITY

## DI 170 – Abdomen and Small Parts Scanning (Lab)

### Course Syllabus

Academic Term: **FALL 2017**

Course Number: **DI 170**

Lab Instructor: Dr. Jaimini Shah, MD.  
RDMS(AB,OB/GYN),RVT

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Credit: 3 Units of Lab = 90 Lab Hours

Class Lab Hours: THURSDAYS & FRIDAYS 9:00 am – 11:50 am

#### **COURSE DESCRIPTION:**

Scanning protocols and practice for ultrasound examination of abdomen and small parts.  
(3 units) *Prerequisite: DI 160*

#### **LEARNING OBJECTIVES:**

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

- Assist patients to and from the exam area
- Explain the examination and instruct the patient properly
- Describe a scanning survey and explain its importance prior to taking images
- Explain the selection of the proper transducer for the exam
- Explain the elements of film labeling
- Describe optimal techniques related to field size, power, gain, and contrast for image interpretation
- Present images in a logical sequence
- Describe the anatomy, physiology, normal variations, and pathology of the peritoneum, abdominal wall, retroperitoneum, peripheral and abdominal lymph nodes, thyroid and parathyroid glands, breast, scrotum, prostate, GI tract with appendix and identify the normal and abnormal sonographic appearances of these structures
- Demonstrate knowledge of abdominal pathological findings
- Explain the significance of clinical tests relevant to pathology within the abdomen
- Explain the sonographic findings and differential diagnosis of abdomen pathology

#### **INSTRUCTIONAL METHODS:**

Instructional methods include in-class hands-on scanning. Classroom activities are collaborative — students may and should help each other. The instructor will be available to help students with all tutorials and other assignments. The previously described topics will be presented through the following activities:

- Assigned text reading
- Course materials
- Recommended study guide activities

- Internet resources
- Group discussions and ultrasound case analysis
- Practice using ultrasound machines
- Hands-on ultrasound laboratory protocols
- Ultrasound laboratory live & video demonstrations
- Students' ultrasound hands-on self-study
- Live demonstration ultrasound imaging of organs and vessels

### **REQUIREMENTS:**

Students are expected to be prepared in advance of the lab sessions.

Preparation includes the following: having read course materials assigned for each lab session and bringing required work materials (e.g., textbook, handouts, writing supplies, etc.) to the session.

Homework includes reading topics prior to the class and the preparation for a presentation (details are described below).

Students are expected to attend and participate in all the lab activities, and complete homework and the final examination on time. Therefore attendance and being on time are crucial for final grade. Students must budget time efficiently and be realistic about all personal and professional commitments that consume time.

### **RECOMMENDED SELF-STUDY:**

- Review anatomy location, patient's position, images techniques.
- Additional sources: **Sonoworld.com, Ultrasoundpedia.com, Sonoaccess App.Ultrasoundcases.info**

### **STUDY MATERIALS / RESOURCES:**

Textbook of Diagnostic Sonography: Vol. 1& vol.2 Sandra L. Hagen-Ansert, 7th Edition (2011). ISBN-10: **0323073018**, ISBN-13: **978-0323073011**

**Sonography Scanning Principles & Protocol Betty Bates Tempkin (ELSEVIER)**

**SDMS: Society of Diagnostic Medical Sonography**

**AIUM: American Institute of Ultrasound in Medicine**

### **ACADEMIC HONESTY:**

The University maintains a strict policy concerning academic dishonesty, which includes cheating, plagiarism, giving assistance on an examination or paper when expressly forbidden by the instructor, and any other practices which demonstrate a lack of academic integrity. It is the responsibility of the students to know and to adhere to principles of academic honesty. A student found guilty of academic dishonesty will be subject to academic sanctions ranging from assignment failure to course failure.

### **COURSE GUIDELINES:**

To successfully complete this course, students must complete homework and final exam portions with a 70% or better. Students should attend all the class (lab) meetings. However, considering possible urgent situations, students may be absent from maximum four class meetings with prior notice to the instructor. Three late arrivals will lower your grade. The term grade is based on attendance, class activity, homework and presentation, final examination, and lab. Homework is due by the last meeting before the final examination. No homework will be accepted after the due date.

If a student misses a class without a valid reason, no make-up exam is allowed. With a valid

document, a student is allowed to take missed tests within one week. There is no make-up/retest

for a failed final exam. Dictionaries can be used during the class time. No electronic devices during the test time. The exam must be taken during the scheduled time period. A student missing an exam because of an illness or legitimate emergency may take a make-up exam as soon as possible after the student returns from the illness and as determined by the instructor. In such a circumstance, the student should make every reasonable attempt to contact the instructor before the exam period is over (or as soon as possible). While make-up exams will cover the same content area as a missed exam, the exam format and specific questions may be different. During the written exam, any student observed in a situation that could be considered suspicious (e.g., an open book within his/her field of vision, looking around or checking a cell phone or other wireless device, etc.). If cheating is observed, the student will be warned. Once warned, any applicant found cheating on the written exam will be failed for the exam and prohibited from retaking the written exam without permission from the dean. Students cannot leave the room during the exam. As soon as a student leaves, his/her exam is considered finished. Students should read textbooks and use other sources to be prepared for the test.

### **TESTING:**

#### **Ultrasound Hands-on Laboratory Examination:**

During the final ultrasound hands-on examination, students will have to demonstrate understanding of information presented during the hands-on laboratory training.

Students have to perform different ultrasound protocols and demonstrate scanning technique and images in B-mode, M-mode, Color and Spectral Doppler.

Students are required to schedule the time and date 2-3 weeks ahead of the ultrasound hands-on laboratory examination.

Students need to be at the ultrasound lab, ready to start scanning at the exact scheduled time. (It is recommended that students arrive about 15 minutes prior to the scheduled exam time.)

If a student is late for the scheduled exam time, the time CANNOT be changed and the student will NOT get a full-allowed time! The student will only have the remaining time left as schedule. Only one time retest will be given to students with a valid excuse such as illness, family emergency, unforeseen heavy traffic or natural disaster.

### **LAB GRADING:**

**Scanning performance:** Effective use of lab time, development of scanning skills, applying techniques, effective use of ultrasound machines controls, IE: TGC, Depth PRF, Freq. Transducers, and to improve images on each patient. No Cell Phones Allowed.

**Attendance:** Being punctual, participation and working during class time. Absences, late arrivals, non-use of class times, and early leaves will result in student's poor and/or failing grade.

**Final Exam** will focus on protocols, annotations to anatomy images, quality of images, demonstrating proper use of the ultrasound machines in control adjustments to obtain best anatomy images, basic knowledge of anatomy location and recognition. The exam protocol to images must be completed within allowed time, no retest. Non-completion, poor behavior, disruption, requiring assistants or dishonesty will result in failing exam and course.

## **HOMEWORK AND PRESENTATION:**

Students will analyze images received during each lab session. Images containing anomalies should be selected and kept for the future presentation to others. Then each student will perform library research on a selected topic in the field of Abdomen and Small Parts Scanning, and present the findings during a lab class orally with a PowerPoint presentation consisting of a 10-minute presentation and a 5-minute question period. Students should include enough background information, ultrasound images received during classes, pictures and references for their peers to be able to understand the topic. Each student will choose the topic of his/her presentation with the instructor's approval. The approval must be obtained by February 2017. The presentation time for each student will be assigned on a first come, first served basis during class hours or instructor's office hours, by phone, or by E-mail. The oral presentation must be completed **at least two weeks before your final hands-on lab examination** (see schedule below).

## **Evaluation Criteria for Presentation:**

- Clinical statement: 4%
- Background information: 4%
- Slide content: 4%
- Slide design: 2%
- Resolution of the problem: 4%
- Oral presentation: 2%

Total: 20% of all the course grading elements

## **GRADING:**

Attendance	10%
Scanning Performance in the Lab Sessions	20%
Mid Term Exam	30%
Project	10%
Final Exam	30%
Total	100%

% Achieved	Grades
100-94	A
90-93	A-
87-89	B+
84-86	B
81-83	B-
78-80	C+
76-77	C
74-75	C-
72-73	D+

70-71	D
69≤	F

**SCHEDULE: DI 170 (Lab) THURSDAYS & FRIDAYS 9:00-11:50 am**

<b>Week #</b>	<b>Dates</b>	<b>Topics:</b>
Week 1	08/24 -25Thursday -Friday	Introduction of Abdomen Ultrasound Protocols & Principles.
Week 2	08/31Thursday-09/01 Friday	Liver 1
Week 3	09/07-08	Liver 2
Week 4	09/14-15	Liver 3
Week 5	09/21-22	Portal Venous system
Week 6	09/28-29	GB & Biliary System
Week 7	10/05-06	Pancreas
Week 8	10/12-13	Spleen
Week 9	10/19 Thursday 10/20 Friday	MID TERM EXAM Aorta & IVC
Week 10	10/26-27	Kidneys
Week 11	11/02-03	Bladder & Prostate
Week 12	11/09 Thursday 11/10 Veterans Day Holiday	Thyroid, Parathyroid and Neck
Week 13	11/16-17	Breast
Week 14	11/23-24	Fall Recess
Week 15	11/30-12/01	Scrotum, Anterior abdominal wall, Appendix
Week 16	12/07-08	<b>Final Exam</b>

**Note:** The lab instructor may change this syllabus and course schedule any time according to the judgment as to what is best for the class. Any changes will be declared ahead of time in class. Students will scan to liver, internal body parts to protocol, and body parts will be available for lab discussion in weeks listed above.

Syllabus updated: August 2017

**Appendix. Program and Institutional Learning Outcomes.**

<b>Institutional Learning Outcomes (ILOs)</b>	
<i>Graduates of the BS program of Lincoln University should be able to:</i>	
<b>1a</b>	Develop the habits and skills necessary for processing information based on intellectual commitment, and using these skills to guide behavior.
<b>2a</b>	Raise important questions and problems, and formulate them clearly and precisely in oral or written communication
<b>3a</b>	Act with dignity and follow the principles concerning the quality of life of all people, recognizing an obligation to protect fundamental human rights and to respect the diversity of all cultures.
<b>4a</b>	Focus on individual and organizational benefits; communicate to co-workers and company's leadership in facilitation of collaborative environment; to be honest and transparent with regard to their work, and to be respectful of the work of others.
<b>5a</b>	Display sincerity and integrity in all their actions, which should be based on reason and moral principles; to inspire others by showing mental and spiritual endurance
<b>6a</b>	Show creativity by thinking of new and better goals, ideas, and solutions to problems; to be resourceful problem solvers.
<b>7a</b>	Define and explain the boundaries, divisions, styles and practices of the field, and define and properly use the principal terms in the field

<b>Program Level Outcomes (PLOs)</b>	
<i>Students graduating our BS in Diagnostic Imaging program will be able to:</i>	
<b>1</b>	Develop and demonstrate knowledge in principles of UT, medical terminology, physiology, sonography, and echocardiography.
<b>2</b>	Demonstrate ability of accurate patient positioning techniques, and use of imaging technology
<b>3</b>	Adapt imaging procedures based on patient's needs and clinical limitations.
<b>4</b>	Practice effective oral and written communication skills in the clinical setting