Lincoln University

DI 170 – Abdomen and Small Parts Scanning (Lab)

COURSE SYLLABUS
Fall 2022

Instructor:	Dr. Olesya Smolyarchuk
Lecture Schedule:	Tuesday and Friday, 9:00 AM – 11:45 AM
Credits:	3 units / 90 Lab hours
Level:	Developed (D)
Office Hours:	By appointment
	e-mail: osmolyarchuk@lincolnuca.edu
Textbooks and Resource Materials:	**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**
Prerequisite:	*DI 160*
Last Revision:	8/09/2022

COURSE DESCRIPTION:

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

COURSE LEARNING OUTCOMES:

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

COURSE LEARNING OUTCOMES[1]

	Course LO	Program LO	Institution LO	Assessment activities
1	Understand the anatomy, physiology, and normal variations of abdominal organs.	PLO 1 PLO 2	ILO 1a, ILO 2a, ILO 3a	Lab activities
2	Recognize sonographic signs of pathological findings and differential diagnosis.	PLO 2 PLO 3 PLO 4	ILO 1a	Lab activities, midterm examination
3	Be able to perform the basic Doppler waveform analysis.	PLO 1 PLO 3 PLO 4	ILO 1a, ILO 4a	Lab activities, midterm examination, final examination

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

Assignments and projects require students to actively use resources of the library. Detailed guide to business resources *of the library* as well as the description of Lincoln University approach to *information literacy* are available at the Center for Teaching and Learning website (ctl.lincolnuca.edu).

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

[1] Detailed description of learning outcomes and information about the assessment procedure are available at the Center for Teaching and Learning website (ctl.lincolnuca.edu).

(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, SonoSim.com, SIMTICS.**

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.

SCANNING LAB RULES

Lab Hours:

- **Lab hours are posted on the front door.** Please respect class time, try not to enter when a class is in session, or be quiet if you come late.
- **Use student subjection envelope for questions or concerns.**
- **Sign in on the preferred machine** with your name, start time and finish time. You must re-sign in if you want to continue to scan after you finish it. Ask a lab assistant.
- **Respect Others.**
- **Students must wear university uniform with logo and a face mask in the Lab.**

- **No eating or drinking in the lab.**
- **No cell phones** (exit the room if must use phone).
- **Clean up after yourself** (table, transducer, put away chairs and other equipment, trash, etc.).
- **Inform instructor or staff of needed supplies or equipment broken.**
- **Keep a low tone of voice.** The lab is small; speaking loudly can be very disruptive to students who need their concentration on scanning.
- **Do not interrupt students' scanning time.** Ask the students whether it is okay to ask them questions while they are scanning.
- Never leave your **personal property** unattended. Although Lincoln University does have a zero tolerance for theft, the university is not responsible for lost or stolen items. Any students caught stealing will be prosecuted.
- **Please do not remove any objects from the lab** (books, study materials, and medical phantoms).
- **Leave personal conversation outside the lab.**
- **Outside patients:** reconcile with your instructor.
- **No children are allowed in the lab.**

Machines (Acuson, Philips, and GE):

- Please kindly shut down the machine after the scanning class and check cords, they should not be on the floor.

- Do not erase any information on machines (only instructors and lab assistants may do).
- Please inform lab assistants of needed supplies (wipes, paper towels, gel).
- Wipe down the transducer after every patient, using the Antiseptic/antibacterial spray/wipes.
- Change paper after every patient, and place pillow under paper, not on top.
- Please safely move around the equipment (ultrasound machines, patient tables, patients).

COURSE GUIDELINES:

- To successfully complete this course, the students must pass the midterm and final exam portions with a 70% or better. **Students should attend all the class meetings - labs. However, considering possible urgent situations, students may be absent from maximum one class meeting with prior notice to the instructor.**
- The term grade is based on attendance, class activity, project, midterm, and final examination. Individual projects will be assigned at the beginning of the semester. **Project is due by the last meeting. No project will be accepted after the due date.**
- If students have missed a class without a valid reason, no make-up for presentations will be allowed. **Midterm cannot be retaken. Final examination, if failed, can be retaken only once. If failed second time, the subject is considered failed. The course is considered failed if student fails Lab final examination.** Dictionaries can be used during the class time. No electronic devices during the test time. A student must take the exam 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 exam, any student observed in a situation that could be considered suspicious (e.g., an open book or notebook within his/her field of vision, looking around or checking a cell phone, or other wireless devices, helping the examinee-sonographer to take images by guiding manually or verbally, etc.) but no cheating is observed, will be warned. Once warned, any applicant found cheating on the exam will be failed for the exam and prohibited from retaking the exam without permission from the dean**.
- Students cannot leave the room during the test/exam. As soon as a student leaves, his/her exam is considered finished.
- Lecture is not a substitute for textbooks. Students should read textbooks, review lectures from previous course, and use other sources to be prepared for the exam. Lecture is to guide the students to prepare for the course subjects.
- Students are encouraged to use open lab time as needed. **Minimum *15 lab hours* of the** independent scanning throughout the semester should be recorded in a log sheet as a part of each student's hands-on self-study training.
- **AN INSTRUCTOR MAY DISMISS A STUDENT FROM THE COURSE AFTER MISSING 3 CONSECUTIVE CLASSES.**

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 1-2 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, demonstrating development of scanning skills, applying scan techniques, effective use of ultrasound machine controls i.e.: TGC, Depth PRF, Freq. Transducers, and improving images on each patient. Complete/full participation and working during class time is expected.
No Cell Phones Allowed.

Attendance:

- **Students who are tardy, who arrive after roll is taken will consider absent.**
- **Students are not allowed to be more than 10 minutes late.**
- **If you are late or absent, a valid excuse such as illness, family emergency, unforeseen heavy traffic or natural disaster is expected.**
- **Three late arrivals would affect the grade.**
- **If you are late because of unforeseen heavy traffic more than one time during the semester it will consider as absence.**
- **If a student arrives twice late for a one session (at the begging of the class and after break more than 5 minutes late) would consider absent.**
- **No requirements to make up any work missed as a result of an absence. However, it is your responsibility to obtain notes from other class members regarding the class session you missed.**

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, only one-time retest will be given to students with a valid excuse such as illness, family emergency, unforeseen heavy traffic, or natural disaster.
Non-completion, poor behavior, disruption, requiring assistants or dishonesty will result in failing exam and course.

Evaluation Criteria for Project:

- Clinical statement: 2%
- Background information: 2%
- Slide content: 2%

- Slide design: 1%
- Resolution of the problem: 2%
- Oral presentation in class: 1%

Total: 10% 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%**

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Points	94-100	90-93	87-89	84-86	81-83	78-80	76-77	74-75	72-73	70-71	0-69

LAB SCHEDULE: DI 170 (Lab)

Week #	Dates	Topics:
Week 1	08/23-08/26	Abdomen Ultrasound Protocols & Principles
Week 2	08/30-09/02	Liver 1
Week 3	09/06-09/09	Liver 2
Week 4	09/13-09/16	Liver 3
Week 5	09/20-09/23	GB & Biliary System
Week 6	09/27-09/30	Portal Venous System
Week 7	10/04-10/07	Pancreas
Week 8	10/11-**10/14**	Spleen. **Mid-Term exam**
Week 9	10/18-10/21	Aorta & IVC
Week 10	10/25-10/28	Kidneys
Week 11	11/01-11/04	Kidneys
Week 12	11/08	Thyroid, Parathyroid and Neck
Week 13	11/15-11/18	Breast, Scrotum
Week 14	11/22-11/25	Fall recess
Week 15	11/29-12/02	Bladder & Prostate
Week 16	12/06-12/09	**Final Exam.** Presentation

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.