Lincoln University

DI 241 – Advanced OB/GYN Scanning (Lab)

COURSE SYLLABUS
Fall 2024

Instructor: Dr. Olesya Smolyarchuk
Course Schedule: Monday and Thursday, 12:30 PM – 3:20 PM
Credits: 3 units / 90 hours of lab
Level: Advanced (Adv)
Office Hours: By appointment
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Textbook and Additional Sources:

1. Exam Prep Diagnostic Ultrasound: Sanders/Dolk/Miner. ISBN-10: 0781717787, ISBN-13: 978-0781717786

2. Obstetrics &Gynecology, by Susan Stephenson, 4th edition. ISBN-10: 1496385519 or ISBN-13: 978-1496385512

3. Ultrasounds Secrets, Vikram Dogra MD, Deborah J. Rubens MD. ISBN 1-56053-594-6

4. Ultrasound Scanning Principles and Protocols, 3rd edition, Betty Bates Tempkin. ISBN 978-0-7216-0636-1

5. Ultrasonography in Obsterics and Gynecology, by Callen's, 6th edition. ISBN: 9780323328340

Review anatomy, fetal position and presentation, imaging techniques, biometrics, and pathologies.

Websites: Sonoworld.com,
Ultrasoundpedia.com, Sonoaccess App.,
SonoSim.

Prerequisite: *DI 231*
Last Revision: 8/19/2024
NOTE: Instructor may change this syllabus and course schedule at any time according to the judgment as to what is best for the class. Any changes will be declared ahead of time in class.

CATALOG DESCRIPTION

The course includes interpretation of normal anatomy, sonographic and gross anatomy, demonstration of scanning techniques and identifying protocols for OB/GYN. *Prerequisite: DI 231*

EDUCATIONAL OBJECTIVES AND STUDENT LEARNING OUTCOMES

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

1. Prepare OB/GYN patients for exams and perform Ultrasound technical studies
2. Select proper transducer frequency and focal length
3. Evaluate sonograms for completeness and quality and prepare each scan for interpretation
4. Maintain the lab results and record of all performed examinations
5. Recognize normal and abnormal obstetric and pelvic anatomy
6. Identify the difference in techniques related to transabdominal and transvaginal pelvic scanning techniques

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

1. Identify fetal anatomy and complete the biophysical profile
2. Identify fetal anomalies and their ultrasound appearance
3. Apply appropriate measurement techniques in transabdominal and endovaginal scanning
4. Complete the entire obstetrical examination within the allotted time

COURSE LEARNING OUTCOMES[1]

Course LO	Program LO	Institution LO	Assessment activities
Perform the medical interview and physical examination of women incorporating ethical, social, and diversity perspectives to provide culturally competent health care. Apply recommended prevention strategies to women throughout the life span. Develop sonographer's role as a leader and advocate for women	PLO 3 PLO 4	ILO1a, ILO 3a	Midterm and final exams, case-studies in lab.
Analyze the impact of genetics, medical conditions, and environmental factors on maternal health and fetal development. Distinguish between normal and abnormal physiologic changes during pregnancy.	PLO 5	ILO 1a, ILO 3a, ILO 7a	Lab activities
Interpret common diagnostic studies. Differentiate between normal and abnormal bleeding using knowledge of menstrual cycle physiology, puberty and menopause	PLO 5	ILO 2a	Midterm and final exams

[1] Detailed description of learning outcomes and information about the assessment procedure are available at the Learning Outcomes Assessment section of LU website.

Construct differential diagnoses of patients with common benign gynecological conditions. Formulate a differential diagnosis of the acute abdomen and chronic pelvic pain	PLO 4 PLO 5	ILO 2a, ILO 6a	Midterm and final exams
Demonstrate knowledge of preconception care including the impact of genetics, medical conditions and environmental factors on maternal health and fetal development (preconception care; 1st trimester care; prenatal diagnosis)	PLO 7	ILO 6a, ILO 7a	Midterm and final exams, case-studies in lab.
Explain the normal physiologic changes of pregnancy including interpretation of common diagnostic studies (new OB prenatal visit; routine prenatal care follow-up visit; conduct, record and present OB patient history)	PLO 5	ILO 2a, ILO 6a	Midterm and final exams, case-studies in lab.

ASSESSMENT ACTIVITIES RELATED TO COURSE LEARNING OUTCOMES:

Students' scanning techniques, speed, and accuracy will be evaluated daily during scanning in the lab. Their knowledge of obstetrical pathology and syndromes will be examined and assessed orally two times a week, during the lab class.

INSTRUCTIONAL METHODS:

- Demonstration of the scanning techniques in normal OB/GYN ultrasound exam
- Demonstration of OB/GYN scanning protocols, data analyses and reporting
- Recommended study by AIUM Practice Guideline for the Performance of Obstetric Ultrasound Examinations
- Internet resources
- Group discussions and ultrasound case analyses
- Working with ultrasound machines
- Hands-on laboratory training (protocols handouts) and examination
- Ultrasound laboratory live and video demonstrations
- Students' PowerPoint presentations
- Students' ultrasound hands-on self-study training

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 LU Library website (lincolnuca.libguides.com).

STUDENT RESPONSIBILITIES

Students are expected to be prepared in advance before the class sessions. Being prepared includes the following: wear uniform (Lincoln University logo scrubs), do not use cell phones in class, attend all classes, be on time to class, participate in scanning lab, ask questions, memorize protocols, bring appropriate materials to class (e.g. notebook, writing utensils, handouts), having read course materials, collect images for review, retrieve instructor's signature to sign off organs and small parts protocols, use class time effectively and efficiently, and practice scanning during lab hours and self-lab hours.

SCANNING LAB RULES

Students must wear university uniform with logo and a face mask in the Lab.

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.
- Students are encouraged to use open lab time as needed. **Minimum *10 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.

Respect Others and Lab:

- **No eating or drinking in the lab.**
- **No cell phones** (exit the room if must use phone).
- **No long nails.**
- **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.
- **Students engaging in disruptive behavior in class will be asked to leave and may be subject to other penalties if the behavior continues.**
- 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 and study materials).
- **Leave personal conversation outside the lab.**
- **Outside patients:** reconcile with instructor or Lab assistant.
- **No children are allowed in the lab.**

Machines (Acuson, Phillips, 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 (baby wipes, paper towels, gel).
- Wipe down the transducer and cords after every patient, using the antiseptic 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).

Attendance and Participation:

- 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, or natural disaster is expected.
- Three late arrivals would affect the grade.
- If you are late because of unforeseen heavy traffic more than 1 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.

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.

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 student 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.

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 Advanced OB/GYN 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. Presentation should not contain a video from the internet but can include your ultrasound images.

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 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 and presented according to schedule (see the schedule below).

Evaluation Criteria for Presentation:

- Clinical statement, Background information, Slide content - 4%
- Slide design: 1%
- Resolution of the problem: 4%
- Oral presentation: 1%

Total: 10% of all the course grading elements.

HANDS-ON LAB EXAM:

- Each student will be assigned a partner and time.
- Each partner will have his/her turn to perform parts of the Exam covering any of the material taught during the semester.
- All OB/GYN protocols will be demonstrated, and the Instructor will train students during the semester.
- Students must conduct and demonstrate finished ultrasound protocols with the required quality of sonograms: proper use of transducers, scanning modes (B-scan, Color-, Power-, and Spectral Doppler), color mapping, accurate measurements of anatomical structures, and proper labels on the images, etc.
- Students must submit all the final performance of scanning required by the OB/GYN protocols learned in the course throughout the semester.
- Students must conduct OB/GYN protocols in the final lab exam.
- The final exam dates are scheduled in the syllabus (see schedule below).

GRADING CRITERIA

Attendance	10%
Presentation	10%
Mid Term	40%
Final Exam	40%
Total	100%

The points for missed (or completely incorrect) ultrasound images will be subtracted from the total 100% score.
The added score of the correct ultrasound images (according to the protocol requirements) will represent the total examination grade.

All activities will be graded according to the points as shown below.

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

Absences, late arrival, poor use of class times, early leaves will result in students poor or failing grade.
AN INSTRUCTOR MAY DISMISS A STUDENT FROM THE COURSE **AFTER MISSING 3 CONSECUTIVE CLASSES.**

COURSE SCHEDULE

WEEKS		ULTRASOUND HANDS-ON SCANNING
1 W	08/26-28	Sonographic Evaluation of Female Pelvis. Hands-on demonstration. Ergonomics.
2 W	09/04	Sonographic Evaluation of Female Pelvis. Hands-on scanning, transabdominal protocol and Image quality.
		Sonographic Evaluation of Female Pelvis. Hands-on scanning, protocols and Image quality.
3 W	09/09	Sonographic Evaluation of Female Pelvis. Hands-on scanning, protocols and Image quality.
	09/11	Sonographic Evaluation of Female Pelvis. Scanning and students' images evaluation. Study cases.
4 W	09/16	Doppler Evaluation of Female Pelvis. Hands-on demonstration.
	09/18	Doppler Evaluation of Female Pelvis, preliminary report writing practice.
5 W	09/23-25	Doppler Evaluation of Female Pelvis. Hands-on scanning, protocols and Image quality. Study cases.
6 W	09/30	Doppler Evaluation of Female Pelvis. Hands-on scanning, protocols and Image quality.
	10/02	Doppler Evaluation of Female Pelvis. Scanning and students' images evaluation.
7 W	10/07	Review of Fetal Embryology, First Trimester OB Anatomy and Pathology. Ergonomics.
	10/09	Sonographic Evaluation of First Trimester Pregnancy. Hands-on demonstration. Study cases.
8 W	10/14-16	Sonographic Evaluation of First Trimester Pregnancy. Hands-on scanning, protocols and Image quality
9 W	**10/21**	**Midterm Exam**
	10/23	Sonographic Evaluation of Second and Third Trimester Pregnancy. Hands-on demonstration OB measurements. Ergonomics
10 W	10/28	Sonographic Evaluation of Second and Third Trimester Pregnancy. Hands-on demonstration OB measurements. Ergonomics.
	10/30	Sonographic Evaluation of Second and Third Trimester Pregnancy. Hands-on scanning, OB measurements, writing protocols and evaluation Image quality.
11 W	11/04	Sonographic Evaluation of Second and Third Trimester Pregnancy. Scanning Placenta, Umbilical cord and Amniotic Fluid. Images evaluation.
	11/06	Sonographic Evaluation of Second and Third Trimester Pregnancy. Scanning Fetal Head and Neck. Images evaluation. Study cases.
12 W	11/13	Sonographic Evaluation of Second and Third Trimester Pregnancy. Hands-on scanning fetal Heart and Blood vessels. Writing preliminary report.
		Sonographic Evaluation of Second and Third Trimester Pregnancy. Hands-on scanning fetal Heart and Blood vessels.

13 W	11/18	Sonographic Evaluation of Second and Third Trimester Pregnancy. Scanning Fetal Abdominal Wall. Images evaluation. Study cases.
	11/20-25	Sonographic Evaluation of Second and Third Trimester Pregnancy. Scanning Fetal Urogenital system. Images evaluation.
14 W		
	11/26-30	Fall recess
15 W	12/02-04	Review and preparation for GYN and OB exam.
16 W	**12/09**	**Final Exam**
	12/11	Presentation