LINCOLN UNIVERSITY

DI 120 – OB/GYN Ultrasound I

Course Syllabus

Fall 2022

Instructor: Dr. Olesya Smolyarchuk

Instructor Lab: Dr. Olesya Smolyarchuk

Lecture Schedule: Monday, 12:30 PM – 3:15 PM (Lecture)
Monday, 3:30 PM – 6:15 PM **(Lab) 09/12/2022 – 11/14/2022**

Credits: 4 units: 3-unit lecture and 1-unit lab
(75 total hours: 45 hours of lectures and 30 hours of lab)

Pre-requisites: *DI 110*

Level: Developed (D)

Office Hours: by appointment
E-mail: osmolyarchuk@lincolnuca.edu

TEXTBOOKS:

1. OBSTETRICS AND GYNECOLOGY BY SUSAN RAATZ STEPHENSON THIRD EDITION
   ISBN—13 978-1-60831-117-0
2. CALLEN'S ULTRASONOGRAPHY IN OBSTETRICS AND GYNECOLOGY SIX EDITION ISBN 978-0-323-32834-0 ULTRASOUND IN OBSTETRICS AND GYNECOLOGY A PRACTIONER'S GUIDE; KATRYN A. GILL
   ISBN 978-0-941022-80-4

Additional recommended textbooks and instructional materials will be given during the classes.

Last Revision: August, 2022

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

This course for beginners is focusing on sonographic study of the normal gynecologic anatomy, fetal biometry, and fetal anatomy; developing fetus; patient history and laboratory data; scanning techniques, transducer selection and scanning protocols. *Prerequisite: DI 110*

COURSE OBJECTIVES

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

- Describe optimal sonographic techniques for Obstetrics and Gynecology exams.
- Present exam in a logical sequence.
- Perform Sonographic evaluation of the female pelvic, Describe the function of the uterus and ovaries.
- Identify normal and abnormal Ultrasound findings of the female reproductive organs.
- Differentiate the benign and malignant adnexal findings and sonographic appearance.
- Explain the role of Ultrasound in managing patients with Different Pathological Findings.
- List some normal anatomic structures that can be mistaken for pelvic pathology on clinical exam.
- Describe normal prenatal development from conception through the first three months of pregnancy, including fertilization, implantation, and cell division.
- Perform Sonographic evaluation in the First trimester of Pregnancy.
- Assessment of normal First Trimester Fetal Anatomy.
- Recognize the abnormal Fetal Anatomical findings during the First Trimester.
- Describe the complications of pregnancy during the first trimester.

COURSE LEARNING OUTCOMES[1]

	Course Learning Outcome	Program Learning Outcomes	Institutional Learning Outcomes	Assessment activities
1	Develop and demonstrate knowledge in principles of Ultrasound Diagnostic Imaging. Understand the theoretical basis and physiological implications of diagnostic ultrasound procedures in the OBGYN field. Prepare the student for further professional training, practical skills in OBGYN sonography.	PLO 1 PLO 3	ILO 1a ILO 2a, ILO 3a	Homework, midterm/final exams
2	Prepare the patient examining room, take patient history and assist the physician during the ultrasound guided procedures. Provide basic patient care and comfort. Describe the preparation necessary for the OBGYN examination.	PLO 2	ILO 1a	In-class activities, case studies

[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).

3	Utilize oral and written communication. Select required/documentary images; label images according to standard protocols.	PLO 3	ILO 1a, ILO 4a	Course project presentation, case studies
4	Demonstrate knowledge and understanding of Female pelvic anatomy, normal and pathological findings. Explain the role of ultrasound in managing patients with different pathological findings. Explain the advantages and limitations of ultrasound imaging related to the OBGYN studies. Demonstrate knowledge and understanding of the ultrasound physics and the probability of biological effects in Obstetrics clinical examinations. Demonstrate knowledge of using correct sonographic terminology. Ensure images/views are adequately recorded.	PLO 1	ILO 1a ILO 2a, ILO 3a	Homework/lab. class training
5	Employ professional judgment and discretion. Utilize available ultrasound machine setting to obtain appropriate images. Select the appropriate scan planes. Perform required measurements using calipers; uses software packages as applicable and/or perform manual calculations.	PLO 3	ILO 1a, ILO 4a	Lab. class training
6	Understand the fundamental elements for implementing a quality assurance and improvement program, and the policies, protocols, and procedures for the general function of the ultrasound office/department.	PLO 1	ILO 1a ILO 2a, ILO 3a	Lab. class training
7	Describe the basic operation, controls, and features of the entire sonographic unit. Demonstrate safe handling and appropriate operation of the ultrasound unit, keyboard, transducer, cables, and ancillary equipment. Clean transducer, cables and unit using appropriate methods and disinfection solution/wipes.	PLO 2	ILO 1a	Lab. class training

INSTRUCTIONAL METHODS

Instructional methods include lectures and 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.
- Lecture materials.
- Recommended study guide activities.
- Internet resources.
- Group discussions and ultrasound case analysis.
- Quizzes & examinations.
- Ultrasound laboratory live & video demonstrations.
- Students' ultrasound hands-on self-study.

Assignments and projects require students to actively use resources of the library. A 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

- This is a lecture course in which lecture topics are presented by the instructor.
- Students are expected to be prepared in advance of the class sessions.
- Preparation includes the following: having read text materials (e.g., textbook readings, and lecture outlines) assigned for each class session and bringing required work materials (e.g., textbook, handouts, writing supplies, etc.) to the session.
- Homework includes reading topics prior to the class.
- Students are expected to attend and participate in all course lectures and activities, and complete all quizzes, examinations, and course assignments 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.

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.

Attendance and Participation:

- **Students who arrive after roll is taken will consider absent.**
- **Students are not allowed to be more than 5 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.

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 – lectures and labs.**
- The term grade is based on attendance, class activity, project, quizzes, midterm, final examination, and lab. Individual projects will be assigned at the beginning of the semester.
- Project is due by the last meeting before the final examination. No project will be accepted after the last meeting.
- If students have missed a class without a valid reason, no make-up 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. 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.
- Instructor may dismiss a student from the course after missing 3 consecutive class meetings.

HOMEWORK

The goal of the homework is to help students achieve the course learning objectives. Homework consists of two parts. First part is to read the textbooks and materials to review and analyze the lecture given during a previous class session. Students are expected to spend six hours for each class session outside of class in completing the reading assignments related to each lecture. These

assignments are graded through short quizzes given at the beginning of the following class session. Second part of the homework consists of a project presented at the end of the course. Each student will choose the topic for presentation or will be assigned one by the instructor. The presentation should be approximately 10 minutes long and with 5 minutes for a discussion. The presentation should include ultrasound images related to the topic of presentation. The images need to be dated and should indicate the student's name. The topic and format for the presentation will be discussed in class for more details. A final draft of the presentation can be submitted for review one week prior to the presentation.

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.

TESTING

Quizzes:

Students will take 10 quizzes: 10-15 questions each. These quizzes will address the detailed content and major concepts presented in the lectures, lecture outlines and text readings to evaluate students' work outside of the classroom. If a student takes more than ten quizzes, only the best ten quiz scores will be used in calculating the student's total points. Each quiz will be timed; 1 minute for every question to complete. No make-up quizzes for missed quizzes will be administered (students will receive no score for missed quizzes).

GRADING

Evaluation		**Weighting**
Lecture	**Attendance**	**10%**
	Quizzes	**10%**
	Project	**10%**
	Midterm Exam	**20%**
	Final Exam	**20%**
	Lab: Scanning performance	**20%**
	Lab attendance	**10%**
Total		**100%**

GRADING SCALE

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

CLASSROOM PROTOCOL

- All students are expected to display professionalism, in preparation for hospital work. That means arriving on time, remaining quiet when others are speaking, and paying attention to whoever has the floor in the classroom.
- Students are expected to attend and be prepared for all regularly scheduled classes. If a student knows in advance that he or she will need to leave early, he or she should notify the instructor before the class period begins.
- Students are expected to treat faculty and fellow students with respect. For example, students must not disrupt class by leaving and reentering during class, must not distract class by making noise, and must be attentive to comments being made by the instructor and by peers.
- Never speak while the instructor is speaking.
- **Disruptive behavior will not be tolerated.**
- Students engaging in disruptive behavior in class will be asked to leave and may be subject to other penalties if the behavior continues.
- No eating, sleeping or personal grooming is permitted during lecture and ultrasound laboratory classes.
- Drinks only in closed container.
- Please turn off your cell phones.
- If you use a computer in class, please use it only to take notes, to access course materials from the course webpage, or to locate information relevant to the class discussion.
- Do not use your computer to surf the web, check emails, or send/receive text messages, as these activities are distracting to those around you (and decrease your chances of getting the most out of your time in class).
- To encourage the free flow of conversation, **no part of any class may be recorded on audio or video media without the permission of the instructor**. You may record notes by hand or by typing into a mobile computer.
- The presence of guests to listen to any part of a class requires the consent of the instructor.

LECTURE SCHEDULE

Lecture #	Dates	Topics	Quizzes
1	**08/22**	Principles of Scanning Technique in Obstetrics and Gynecology. Embryonic development of the Female Genital System.	
2	**08/29**	Congenital Anomalies of the Female Genital System.	**1**
3	**09/12**	The female cycle.	**2**
4	**09/19**	Normal Anatomy of the Female Pelvis.	**3**
5	**09/26**	Pediatric Pelvis. Doppler evaluation of the Pelvis.	**4**
6	**10/03**	Benign Disease of the Female Pelvis.	**5**
7	**10/10**	Malignant Disease of the uterus and Cervix. Malignant Disease of the ovary.	**6**
8	**10/17**	**Midterm Exam**	
9	**10/24**	Pelvic Inflammatory Disease and Endometriosis.	**7**
10	**10/31**	Assisted Reproductive. Technologies, Contraception and Elective -Abortion.	**8**
11	**11/07**	The use of Ultrasound in the First Trimester.	
12	**11/14**	Sonographic evaluation of the First Trimester Complications.	**9**
13	**11/21**	Sonographic assessment of the Ectopic Pregnancy.	**10**
14	**11/28**	**Final exam**	
15	**12/05**	**Presentation**	

DI 120 Fall 2022 Laboratory Syllabus

09/12/2022 – 11/14/2022

Monday, 3:30 PM – 6:15 PM

Ultrasound Hands-on Laboratory Training

Ultrasound hands-on laboratory training will involve:

- Using the theoretical material presented during lectures as a basis for hands-on training. Applying theoretical knowledge to practice.
- Learning to follow proper ultrasound scanning protocols.
- Acquiring optimal quality of diagnostic images.
- Proper operating of ultrasound machines and maximizing the us machines' capabilities.
- Gaining practical experience under the guidance of the lab instructor.

Instructional Methods

- In-class hands-on scanning, using ultrasound machines and other lab equipment.
- Live demonstration ultrasound imaging of the Female pelvis organs.
- The instructor's guidance to developing students' scanning skills.
- Group work, discussions, and ultrasound case analysis.
- Ultrasound laboratory video demonstrations.
- Students Self Study scanning: ***12 lab hours*** minimum of independent scanning throughout the semester.

Ultrasound Hands-on Laboratory Examination:

During the Hands-On Lab Examination, students should demonstrate:

1. The understanding of the information presented primarily during the lectures and hands-on laboratory training.
2. The knowledge of the anatomy, physiology, normal variations, and pathology of the Female pelvis
3. In-depth knowledge of the ultrasound scanning protocols and the ability to present images in a logical sequence.
4. The use of different acoustic windows to achieve the best picture quality possible.
5. The ability to select the proper transducer for the exam.
6. The knowledge of the ultrasound machine capabilities for the optimal quality of diagnostic images (frequency, TGC, B-mode, focal zones, color scale, gain, depth, etc.).
7. The ability to describe the optimal techniques related to the field size, power, gain, contrast for the interpretation.
8. Knowledge of the elements of the image labeling.
9. Explanation of the sonographic findings and differential diagnosis of Uterine and Adnexal Pathology.
10. Since the intent of the lab examination is for students to demonstrate the knowledge of the scanning protocol, it is not allowed to ask questions and discuss the scanning procedures with classmates. Reference materials are not allowed.

Midterm / Final Exam Grading System

Midterm and Final Exams will be performed on scheduled days in the presence of the lab instructor.

The length of the examination will depend on the type of the ultrasound protocol.
The score (%) will be determined by calculating the ratio of the correct / incorrect images acquired and recorded by the student.

Depending on the quantity, each image of the protocol will be valued at certain number of points.

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.

To successfully complete this exam, the student must pass it with a total score 70% or better.

Grading Scale

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 Term Grading (30% of the total DI 120 grade)
The term grade is based on:
--Midterm and Final examination grade (20%),
--Attendance (10%).

Lab schedule

Week1	Principles of scanning technique in OB/GYN Ultrasound
Week2	Database that stores radiologic images
Week3	Imaging female pelvic through the abdomen
Week4	Normal appearance of the female pelvic
Week5	Normal appearance of the female pelvic
Week6	Midterm Scanning exam
Week7	Identification of the Pathological findings of the female pelvis
Week8	First Trimester of Pregnancy, normal appearance
Week9	Review
Week10	Final scanning exam