

DMSO 2405 Sonography of Obstetrics and Gynecology 3A1

CREDIT

4 Semester Credit Hours (3 hours lecture, 2 hours lab)

MODE OF INSTRUCTION

Face to Face

PREREQUISITE/CO-REQUISITE:

COURSE DESCRIPTION

Detailed study of the pelvis and obstetrics/gynecology as related to scanning techniques, patient history and laboratory data, transducer selection, and scanning protocols.

COURSE OBJECTIVES

- Upon completion of this course, the student will be able to
 - Identify the sonographic appearances of normal and abnormal female pelvis
 - Identify the normal and abnormal obstetrical findings
 - Demonstrate ergonomic scanning techniques using standard protocols
 - Evaluate patient history and laboratory data as it relates to sonography

INSTRUCTOR CONTACT INFORMATION

Instructor: Lacey Stinebrickner, BGS, RDMS

Email: lfstinebrickner@lit.edu

Office Phone: 409-257-0061

Office Location: Gateway

Office Hours: Please see Starfish to schedule an appointment

REQUIRED TEXTBOOK AND MATERIALS

- *Diagnostic Medical Sonography: Obstetrics and Gynecology*; by Susan Ratz Stephenson 5th edition
- *You need Lippincott Connect for this book. It comes with an ebook. Use the access code 11KR3S196V5T*
- Webcam and computer for taking online tests



ATTENDANCE POLICY

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. **This includes lab!**

- The terminology excused or not excused absence does not apply to this class. All absences are equal. Therefore, no matter the circumstances involved in the student's absence it will be counted towards the total for the semester.
- The sign in sheet will be taken up 15 minutes after class starts. If you are more than 15 minutes late to class you will be counted absent. Also, if you leave the classroom for more than 15 minutes you will be counted absent.
- When absent, the student is required to contact the instructor to obtain make-up assignment for missed class. It is the student's responsibility to make up lab assignments or a grade of zero will be given

DROP POLICY

If you wish to drop a course, you are 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.

COURSE CALENDAR

DATE	TOPIC	READINGS (Due on this Date)	ASSIGNMENTS (Due on this Date)
1/16	Syllabus; Orientation and Labeling in OB/GYN Imaging	Chapter 1	
1/18	Principles of Scanning Techniques in OB/GYN U/S	Chapter 3	
1/23	Normal Anatomy of the Female Pelvis	Chapter 9	Reading assignments for chapter 1 & 3
1/25	The Female Cycle	Chapter 8	
1/30	Embryonic Dev & Congenital Anomalies of the Female Pelvis	Chapter 6 & 7	
2/1	Doppler Evaluation of the Pelvis (Online Lecture)	Chapter 10	Reading assignments for chapters 6-10 Chapter quizzes for each chapter due by 11:59 pm

2/6	Review during class; Unit I Exam day		Unit I Exam opens at 4:00 pm – 2/6 closes on 2/9 at 7:00 pm
2/8	The Use of Ultrasound in the 1 st Trimester	Chapter 17	Trophon training due by 11:59 pm
2/13	Continued		
2/15	Assessment of the Fetal Age and Size in the Second & Third Trimester	Chapter 20	
2/20	Continued		Reading assignments; Chapter 17 & 20 Quiz due by 11:59 PM
2/22	Complete Unit II; Exam day		Test opens on 2/27 at 3:30 closes 3/1 at 7:00 pm
2/27	Normal Placenta and Umbilical Cord	Chapter 21	
2/29	Sonographic Assessment of the Fetal Head	Chapter 23	
3/5	Sonographic Assessment of the Fetal Neck and Spine	Chapter 24	
3/7	Sonographic Assessment of the Fetal Chest; Sonographic Assessment of the Fetal Abdomen	Chapter 26 & 27	
3/19	Sonographic Assessment of the Fetal Genitourinary System	Chapter 28	
3/21	Continue		Reading assignments; Chapter 21, 23, 24, 26, 27 & 28 Quizzes Due by 11:59 PM
3/26	Complete Unit; Exam Day		Test opens 3/26 at 3:30 pm closes 4/2 at 7:00
3/28	Fetal Echocardiography	Chapter 25	
4/2	Continued		
4/4	The BPP; 3D/4D Imaging in OB/GYN	Chapter 30 & 39	
4/9	Multiple Gestations	Chapter 31	Reading assignments; Chapter 25, 30, 31, & 39 Quizzes due

4/11	Complete Unit; Exam day		Unit IV Test (in class)
4/16	Benign Disease of the Female Pelvis	Chapter 12	
4/18	Malignant Disease of the UT & CX	Chapter 13	
4/23	Malignant Disease of the Ovary	Chapter 14	
4/25	PID & Endometriosis; Post-Partum Uterus	Chapter 15; Chapter 35	Reading assignment; Chapter 12-15, & 35 quizzes due by 11:59 pm Ovarian Pathology Chart Due
4/30	Review for final; Exam day		Opens 4/30 and closes 5/3 at 7:00 pm

* This schedule is subject to change at the discretion of the instructor.

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

Lecture is 85% of Grade

Lab is 15% of Grade

5% Quizzes/Participation/HW Assignments

85% Lab Protocols/Assignments

95% Exams

15% Participation

GRADE SCALE

- 93-100 A
- 85-92 B
- 77-84 C
- 69-76 D
- 0-68 F

Course Outline

A. The Female Cycle

1. Anatomy
2. Physiology
3. Female Reproductive Hormones
4. Ovarian Cycle
5. Abnormal Menstrual Cycle

B. Normal Anatomy of Female Pelvis:

1. Pelvic Skeleton
2. Pelvic Muscles
3. Pelvic Organs
4. Peritoneal spaces

5. Pelvic ligaments

6. Pelvic Vascular System

7. Endovaginal Technique, Transducer Preparation, Orientation and Manipulation

8. Follicular & Luteal Blood Flow

9. Sectional anatomy

10. Proper sonographic measurements

C. Doppler Evaluation of the Female Pelvis

1. Patient History & Preparation

2. Doppler Techniques

3. Flow Pattern

4. Normal Uterine Doppler

5. Ovarian Doppler
6. Pelvic Vasculature
7. Doppler within the pelvis
8. Sonographic technique
 - a. Transabdominal
 - b. Transvaginal
9. Post partum uterus
- D. Embryonic Development of the Female Pelvis
 1. Fetal Period
 1. Neonatal Period
 2. Premenarch through adulthood
 3. Gender formation
 4. Formation of the female pelvis
- E. Congenital Anomalies of the Female Pelvis
 1. Agenesis
 2. Septums
 3. Unicornuate uterus
 4. Bicornuate
 5. Uterus didelphys
 6. Arcuate uterus
 7. DES exposure
 8. Sectional anatomy
- F. Assessment of Fetal Age & Size 2nd & 3rd Trimesters
 1. Sectional anatomy
 2. BPD
 3. HC
 4. Cephalic Index
 5. AC
 6. FL
 7. Ultrasound report
 8. Proper sonographic measurements
 9. Measurement ratios
 10. Lateral ventricles
 11. Cisterna Magna
 12. Cerebellum
 13. Nuchal fold
 14. Fetal Anatomy
 15. Use of 3D/4D in OB/GYN
- G. The Use of Ultrasound in the First Trimester
 1. Early development
 2. Placenta development
 3. Pregnancy tests
 4. Sonographic findings in early pregnancy
 5. Sonoembryology
 6. Determining GA early
 7. Nuchal translucency
8. Sonography first trimester
- H. The Fetal Environment
 1. Uterus: Lower UT segment & cervix
 2. Placenta
 3. Placenta grading
 4. Placenta location
 5. Umbilical cord
 6. Amniotic fluid
 7. AFI
 8. Scanning Techniques
- I. Sonographic Assessment of the Neural Tube Structures
 1. Brain embryology
 2. Anatomic landmarks & biometry
 3. Scanning planes
 4. Sectional anatomy
 5. Face
 6. Fetal neck
 7. Fetal spine
 8. Fetal head & brain
 9. Measuring lateral ventricles & cistern magna
 10. Measuring size & shape of fetal head
- J. Ultrasound of the Normal Fetal Chest, Abdomen & Pelvis
 1. Scan planes
 2. Fetal presentation
 3. Fetal thorax
 4. Fetal abdomen
 5. Fetal genitals
- K. Fetal Echocardiography
 1. Embryology
 2. Circulation
 3. Sonographic techniques & anatomy
- L. Doppler Ultrasound of the Normal Fetus
 1. Bioeffects
 2. Principles of Doppler
 3. Scanning Technique
 4. Doppler of Umbilical artery
 5. Doppler of fetal aorta
 6. Ductus venosus
 7. IVC
 8. Cerebral blood flow
 9. Wave forms
- M. The Biophysical Profile
 1. Fetal breathing
 2. Fetal movements
 3. Fetal tone

4. Amniotic fluid volume
 5. Scoring
 6. Nonstress test
 7. Clinical applications
- N. Multiple Gestations
1. Clinical information
 2. Clinical associations
 3. Anatomy & Physiology
 4. First trimester scanning
 5. Second & Third trimester scanning
- O. 3D & 4D Imaging in OB/Gyn
1. History
 2. Volume ultrasound
 3. Acquisition techniques
 4. Obtaining a 3D volume
 5. 3D multiplane reconstruction
 6. Tomographic Ultrasound imaging
 7. Render modes
 8. 3D vs 4D
 9. Clinical uses
- P. Benign Disease of the pelvis
1. Benign cervix pathology
 2. Benign endometrial pathology
 3. Benign vaginal pathology
 4. Benign ovarian pathology
 5. Etiology
 6. Clinical Signs and Symptoms
 - i. Patient history
 7. Sonographic Appearance
 8. Related imaging & Other testing
 9. Labs
 10. Differential Diagnosis
- Q. Malignant Disease of the Uterus & Cervix
1. Endometrial carcinoma
 2. Leiomyosarcoma
 3. Fallopian tube carcinoma
 4. Carcinoma of the cervix
 5. Gestational trophoblastic neoplasia
 6. Clinical Signs and Symptoms
 - i. Patient history
 7. Sonographic Appearance
8. Related imaging & Other testing
 9. Labs
 10. Differential Diagnosis
- R. Malignant Diseases of the Ovary
1. Risk Factors
 2. Pathology
 3. Spread and staging
 4. Clinical considerations
 - i. Patient history
 5. Imaging diagnosis
 6. Sonography of ovarian cancer
 7. Differential diagnosis
- S. Pelvic Inflammatory Disease & Endometriosis
1. Pelvic inflammatory disease
 2. Endometriosis
 3. Adenomyosis
 4. Clinical Signs and Symptoms
 - i. Patient history
 5. Sonographic Appearance
 6. Related imaging & Other testing
 7. Labs
 8. Differential Diagnosis
- T. Assisted Reproductive Technologies (ART), Contraception, and Elective Abortion
1. Conception
 2. Infertility
 3. Sonographic assessments of pelvic organs
 4. Assisted reproduction types
 5. Treatment of infertility
 6. Contraception types
 - i. Normal and abnormal sonographic appearance
 7. Elective abortions
 8. Clinical Signs and Symptoms
 - i. Patient history
 9. Sonographic Appearance
 10. Related imaging & Other testing
 11. Labs
 12. Differential Diagnosis

TECHNICAL REQUIREMENTS

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at <https://lit.edu/online-learning/online-learning-minimum->

[computer-requirements](#). A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email specialpopulations@lit.edu. You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](#).

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. 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.

ADDITIONAL COURSE POLICIES/INFORMATION

- No food, drinks, or use of tobacco products in class.
- Cellphones and any other electronic devices must be turned off while in class.
- Do not bring children to class.
- All assignments are due at the beginning of class when stated on the addendum. Late assignments will have a 10 point deduction for every class day that the assignment is late. Missed in-class assignments receive a grade of zero.

- All exams will be on the dates specified unless the instructor makes a change. If the student misses an exam due date, the student will be given a 0 after midnight on the day that it was due. Before midnight the day of the test, the score will drop 10 points for every hour the exam is late beginning with the time it was due. For example, if the test is due at 7:00 and the student turns in the exam at 7:01 the grade drops 10 points. At 8:00 pm, the grade will drop 20 points, etc. The time is set by the individual instructor so 7:00 pm is only an example.
- 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 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.

- Exams will be online. You will be using LockDown Browser with Webcam Monitoring for your exams. The rules for the tests are:

Disable all notifications on your computer. This is how LockDown Browser is used to take a test.

- Locate the “LockDown Browser” shortcut on the desktop and double-click it. (For Mac users, launch “LockDown Browser” from the Applications folder.)
- If prompted to close a blocked program (e.g. screen capture, instant messaging) choose Yes.
- Log into the course, navigate to the test and select it.
- A Startup Sequence will guide the student through a webcam check and other items required by the instructor.
- The test will then start.

20-point deductions for each occurrence:

- Where you are taking your exam must be well lit. If it is not well lit, you will have 20 points deducted from your test.
 - Your face must be visible the entire length of the test. If your face cannot be seen even for a few seconds you will have 20 points deducted from your test.
 - No music should be playing nor should a TV/radio/video be on in the background.
 - You may not read the questions out loud. If you do so, you automatically receive a 20-point deduction.
 - You may not wear sunglasses, hats, hoodies, earbuds, headphones, etc. during the exam. Your ears must be fully visible the entire exam, failure to comply with this will be a 20-point deduction. If you do this on another exam it will turn into a 50-point deduction

50-point reduction or a zero on the entire test

- You must be in a private location. If another person is seen or heard while you are taking your test this could be misconstrued as cheating resulting in a 50-point reduction or a zero. That is up to the situation and your instructor.

- All phones, notes, books, and other papers must be removed from the testing location. If these items are seen during your exam, you receive an automatic zero on the exam.
 - Do NOT leave the exam room for any reason, if you do, it is an automatic 50-point deduction.
 - Any suspicious activity that appears to be cheating will result in a zero.
 - Testing Tips
 1. You must use Google Chrome browser.
 - You must have a webcam and a microphone attached to your computer
 - Be prepared to scan the room with a camera, if you cannot move your computer, you will need to have a mirror available to assist with scanning the room.
 2. It is the student's responsibility to ensure that ALL of the above requirements are met. By completing the verify signature portion of the exam, you are accepting responsibility for your actions during the exam. Failure to follow the requirements will result in deductions from your exam grade when reviewed by your Instructor.
- There is no extra credit given for this course.
 - You will have the length of the class to finish an exam. No extra time will be given.
 - You will have 8 lab assignments. This is will 85% of your lab grade. You will be required to bring 4 OB patients and complete (3) OB limited protocols and (1) measurements on the practice baby in the lab. The other assignments will be (1) 1st trimester transvaginal ultrasound on the simulator, (1) transabdominal pelvic and (1) thyroid ultrasound, (1) RUQ Abdominal Ultrasound. These images are to be put into Blackboard under the correct assignment for the protocol. Insert the images into the provided Microsoft Powerpoint template under the protocol assignment.
 - a. The rules are:
 - i. The entire exam needs to be done at one time during your scan time in lab.
 1. Therefore, all images must be on the same machine with the same date and time. Images that are missing the date and time is cheating (refer to the Sonography lab rules for more information).
 2. **Worksheets are required for each protocol.**
 - ii. Four of the exams are due by March 28th – you can decide which ones you want to turn in first.
 - iii. The other 4 assignments are due by April 29th by midnight – Please submit these exams as you do them. DO NOT WAIT UNTIL APRIL 29TH to turn in all of your OB exams. You will get a 10 point deduction from your grade if all of your OBs are turned in at the same time!!!!
 - iv. If your patient can only come on the other lab day, get with me and I will be sure to allow you to switch with one other students on that day. Please be aware that you cannot come to more labs than you are scheduled for.
 - The other portion of this grade will be determined by participation. (15%)
 - a. You will begin with a 100

- b. 20 points will be taken for missing lab unless it is made up
- c. 10 points will be taken for every lab that you do not scan
- d. 5 points will be deducted for not helping clean the lab every lab