

# DMSO 2342 Advanced Obstetric Sonography

## CREDIT

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

## MODE OF INSTRUCTION

Face to Face

## PREREQUISITE/CO-REQUISITE:

## COURSE DESCRIPTION

Maternal disease, pregnancy complications, and fetal abnormalities. Includes scanning techniques and protocols, patient history, and laboratory data.

## COURSE OBJECTIVES

- Upon completion of this course, the student will be able to
  - Differentiate normal and abnormal fetal and maternal structures
  - Evaluate patient history and laboratory data as it relates to ultrasound.

## INSTRUCTOR CONTACT INFORMATION

Instructor: Lacey Stinebrickner, BGS, RDMS

Email: [lfstinebrickner@lit.edu](mailto: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 Raatz Stephenson and Julia Dmitrieva ISBN 978-1-4963-8551-2

## ATTENDANCE POLICY

Students are expected to be in class. Absences must be limited to serious illness and/or immediate family emergencies. 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.



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- 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)
6/4	Syllabus; Sonographic Evaluation of the 1 <sup>st</sup> Trimester Complications	Chapter 18	
6/6	Sonographic Assessment of Ectopic Pregnancy	Chapter 19	
6/11	Abnormalities of the Placenta & Umbilical Cord	Chapter 22	
6/13	Continued		Unit I Quizzes Due
6/18	Test #1		Opens at 2:00 on 6/18 and closes 6/20 at 7:00 pm
6/15	U/S of the Abnormal Fetal Chest, Abdomen and Pelvis	Chapter 26 Chapter 27 Chapter 28	
6/20	Fetal Echocardiography	Chapter 25	
6/25	Continued		Unit II Quizzes Due
6/27	Test #2		Opens 6/27 2:00 pm and closes at 6/29 at 7:00 pm
7/2	Sonographic Assessment of the Fetal Head	Chapter 23	
7/9	Sonographic Assessment of the Fetal Neck and Spine	Chapter 24	
7/11	Continued		Unit III Quizzes Due

7/16	Test #3		Opens on 7/16 at 2:00 and closes 7/18 at 7:00 pm
7/18	Effects of Maternal Disease on Pregnancy	Chapter 34	
7/23	Patterns of Fetal Anomalies/IUGR	Chapter 33	Unit IV Quizzes Due
7/25	Fetal Growth Restriction	Chapter 32	Opens 7/25 and closes 7/27 at 7:00 pm
7/30	Test #4		
8/1	Multiple Gestations (Abnormal) Interventional U/S	Chapter 31 Chapter 36	
8/6	Normal and Abnormal Limbs	Chapter 29	
8/8	Continued		Unit V Quizzes Due
8-13	Post Partum Uterus	Chapter 35	
8-15	Test V		<b>Test opens 2:00 pm 8/15 and closes 8/16 at 7:00 pm</b>

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

Lab Schedule	
Week 1	2 <sup>nd</sup> /3 <sup>rd</sup> Trimester OB; TA Pelvic; BPP; 1 <sup>st</sup> Trimester OB
Week 2	2 <sup>nd</sup> /3 <sup>rd</sup> Trimester OB; TA Pelvic; BPP; 1 <sup>st</sup> Trimester OB
Week 3	2 <sup>nd</sup> /3 <sup>rd</sup> Trimester OB; TA Pelvic; BPP; 1 <sup>st</sup> Trimester OB
Week 4	2 <sup>nd</sup> /3 <sup>rd</sup> Trimester OB; TA Pelvic; BPP; 1 <sup>st</sup> Trimester OB
Week 5	2 <sup>nd</sup> /3 <sup>rd</sup> Trimester OB; TA Pelvic; BPP; 1 <sup>st</sup> Trimester OB
Week 6	2 <sup>nd</sup> /3 <sup>rd</sup> Trimester OB; TA Pelvic; BPP; 1 <sup>st</sup> Trimester OB
Week 11	2 <sup>nd</sup> /3 <sup>rd</sup> Trimester OB; TA Pelvic; BPP; 1 <sup>st</sup> Trimester OB

## **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. 1<sup>st</sup> Trimester Complications
  1. Complete and Incomplete Abortions
  2. Fetal Demise
  3. Anembryonic Pregnancy
  4. Abnormal Gestational Sac
  5. Gestational Trophoblastic Disease
  6. Viability
  7. Clinical Signs and Symptoms
    - i. Patient history
  8. Sonographic Appearance
  9. Related imaging & Other testing
  10. Labs
  11. Differential Diagnosis
- B. Ectopic Pregnancy
  1. Etiology
  2. Clinical Presentation
  3. Sites of Ectopic Pregnancies
  4. Sonographic Protocol
  5. Treatment
  6. Clinical Signs and Symptoms
    - ii. Patient history
  1. Sonographic Appearance
  2. Related imaging & Other testing
  3. Labs
  4. Differential Diagnosis
- C. Abnormalities of the Placenta & UC
  1. Abnormal placental size
  2. Size and Shape variations
  3. Abnormal locations
  4. Abnormal attachment
  5. Placental tumors
  6. Placental abruption
  7. Membrane abnormalities
  8. Abnormal umbilical vessels
  9. Abnormal cord insertions

10. Umbilical cord cysts
  11. Abnormal cord position
  12. Sonographic appearance
  13. Clinical presentation and patient history
  14. Amniotic fluid
    - a. Normal
    - b. Polyhydramnios
    - c. Oligohydramnios
- D. Patterns of Fetal Anomalies
1. Chromosomal Abnormalities
  2. Prenatal Screening
  3. Prenatal diagnostic procedures
  4. Syndromes, sequences, and associations
  5. Sonographic appearance
  6. Etiology
  7. Clinical presentation and patient history
- E. Effects of Maternal Disease on Pregnancy
1. Infections
  2. Endocrine and metabolic disorders
  3. Hematologic disorders
  4. Pre-Eclampsia and HTN
  5. Drug use and nutritional disorders
  6. Patient history and clinical presentation
  7. Etiology
  8. Related imaging and other testing
  9. Differential diagnosis
- F. Interventional Ultrasound
1. Amniocentesis
  2. Chorionic Villus Sampling
  3. Cordocentesis
  4. Fetal Blood Sampling
  5. Fetal transfusion
  6. Fetal therapy
  7. Fetal tissue sampling
  8. Multifetal pregnancy reduction
  9. Ultrasound-guided endovaginal procedures
  10. Patient history and clinical presentation
  11. Etiology
  12. Related imaging and other testing
  13. Differential diagnosis
- G. Sonographic Assessment of the Fetal Neural Tube Structures
1. Abnormalities of the skull
  2. Abnormalities of the upper lip and nose
  3. Abnormalities of the orbit
  4. Facial Clefts
  5. Abnormalities of the neck
  6. Fetal Spine Defects
  7. Patient history and clinical presentation
  8. Etiology
  9. Related imaging and other testing

10. Differential diagnosis
- H. Ultrasound of the Abnormal Fetal Chest, Abdomen and Pelvis
  1. Abnormalities of the lungs
  2. Congenital diaphragmatic hernia
  3. Abdominal wall defects
  4. Peritoneum and ascites
  5. Bowel obstructions
  6. Renal abnormalities
  7. Genital abnormalities
  8. Beckwith-Wiedemann Syndrome
  9. Cloacal Exstrophy
  10. Patient history and clinical presentation
  11. Etiology
  12. Related imaging and other testing
  13. Differential diagnosis
- I. Fetal Echocardiography
  1. Arrhythmias
  2. Septal defects
  3. Hypoplastic left heart
  4. Rt ventricular hypoplasia
  5. Tricuspid atresia
  6. Coarctation of the aorta
  7. Tetralogy of Fallot
  8. Ebstein's anomaly
  9. Transposition of the great arteries
  10. Truncus arteriosus
11. Double-Outlet Right Ventricle
  12. Patient history and clinical presentation
  11. Etiology
  12. Related imaging and other testing
  13. Differential diagnosis
- J. Normal and Abnormal Fetal Limbs
  1. Skeletal dysplasias
  2. Limb abnormalities
  3. Maternal conditions and associated limb abnormalities
  5. Patient history and clinical presentation
  6. Etiology
  7. Related imaging and other testing
  8. Differential diagnosis
- K. Multiple Gestations
  1. Vanishing twin
  2. Fetal complications
  3. TRAP sequence
  4. TTTS
  5. Conjoined twins
  6. Monoamniotic twins
  7. Selective reduction
  8. Patient history and clinical presentation
  9. Etiology
  10. Related imaging and other testing

11. Differential diagnosis
- L. Intrauterine Growth Restriction
  1. Definition
  2. Prevalence
  3. Adverse effects
  4. Etiology
  5. Doppler Assessment of IUGR
  6. Ultrasound findings
  7. Patient history and clinical presentation
  8. Etiology
  9. Related imaging and other testing
  10. Differential diagnosis
- M. Post-Partum Uterus
  1. Definition
  2. Appearance
  3. Hemorrhage
  4. Puerperal Infection
  5. Types of Infections
  6. Endometritis
  7. Polyps
  8. Retained Products of Conception
  9. Adnexal Varicosities
  10. Thrombophlebitis
  11. Cesarean Section Complications

## **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](mailto:specialpopulations@lit.edu). You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](https://lit.edu/specialpopulations).

## **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](http://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.
- The exams will be online. You will be using LockDown Browser with Webcam Monitoring if the exam is done at home. 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 6 (there are only 9 labs) lab assignments. This is will 85% of your lab grade. You will be required to bring 4 OB patients and complete (2) OB anatomy scans, (1) OB Limited and (1) Biophysical Profile. The other assignments will be (1) 1<sup>st</sup> trimester transvaginal ultrasound on the simulator, (1) transabdominal pelvic. These images are to be put into Blackboard under the correct assignment for the protocol. They must be submitted the day that the exam is performed. Insert the images into the provided Microsoft PowerPoint template under the protocol assignment. Occasionally, we will have
  - 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). You will be given a zero.
      - 2. The exam must be submitted the day that it is done.
      - 3. You may not attend extra labs to complete the assignments.
        - a. If your patient can only attend on the lab day that you are not assigned, you will need to get permission to attend the other lab. No one will get extra labs.
    - ii. On the OB anatomy scan you have a three-image leeway. You can mark on the slide that you didn't take the image or didn't think you did well on the image so that it doesn't count against you.
      - 1. **Worksheets are required for each protocol – they should be added into the PowerPoint.**
    - iii. 2 of your OBs and the transabdominal pelvic are due by July 17<sup>th</sup>
    - iv. The other 2 OBs and 1<sup>st</sup> trimester are due by August 8<sup>th</sup>.
    - v. Any exams that the grade is less than a 77 must be repeated until a passing score is achieved. All scores will be averaged together for one grade for that assignment. If you do not repeat the exam, you will receive a zero.
    - vi. You will have a chance to redo both anatomy exams one time and the higher of the two grades will be taken.
- Lab 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 or every time that you are studying when another student is scanning an OB patient.
    - i. **EVEN IF YOU HAVE COMPLETED EVERY ASSIGNMENT, YOU MUST SCAN EVERY LAB!**

d. 5 points will be deducted for not helping clean the lab every lab