

## **Sonography of High Risk Obstetrics (DMSO 2342)**



**Credit:** 3 semester credit hours (2 hours lecture, 3 hours lab)

### **Course Description**

Maternal disease and fetal abnormalities. Includes scanning techniques, patient history and laboratory data, transducer selection, and scanning protocols.

### **Required Textbook and Materials**

1. *Diagnostic Medical Sonography: Obstetrics and Gynecology*; by Susan Raatz Stephenson and Julia Dmitrieva
  - a. ISBN-978-1-4963-8551-2
2. Workbook for *Diagnostic Medical Sonography: A Guide to Clinical Practice, Obstetrics and Gynecology*

### **Course Objectives**

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

Identify and differentiate normal and abnormal fetal and maternal structures; demonstrate pertinent measurement techniques and scanning techniques using standard protocols; evaluate patient history and laboratory data as it relates to ultrasound; and select appropriate transducer for area of interest.

## **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

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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

## **Grade Scale**

93-100	A
85-92	B
75-84	C
68-74 (not passing)	D
67-0	F

## **Course Evaluation**

Final grades will be calculated according to the following criteria:

### **Lecture is 85% of Grade**

5% Class participation/Homework assignments  
85% Exams  
10% Case Studies

### **Lab is 15% of Grade**

50% Lab Quizzes  
50% Lab Final

## **Course Policies**

1. No food, drinks, or use of tobacco products in class.
2. Cellphones and any other electronic devices must be turned off while in class.
3. Do not bring children to class.
4. 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. Two (2) 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.
  - a. In the event that LIT is forced to cancel classes due to inclement weather, DMS classes and clinical rotation will also be canceled. Notification of closures will be made through local radio and TV stations. Students out of the immediate broadcast area should contact the Program Director for information. It is extremely important that students communicate with faculty regarding absences by telephone and/or email at all times.
5. 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.
6. Each lab missed by the student must be made up. If it is not made up, 25 points will be deducted for every absences from the lab average for this course.
7. All assignments are due when stated. Late assignments are not accepted. If a student has absence assignments will be accepted at the beginning of class upon return. Missed in-class assignments receive a grade of zero.

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8. All exams will be on the dates specified unless the instructor makes a change. In case of an absence on exam day, the exam must be completed on the day the student returns to class or a grade of zero will be awarded.
9. 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.
10. During testing the student will place his/her backpack, books, etc. in the area designated by the instructor. Also, the student will put his/her cellphone into the provided basket and the cell phone will be returned after the test is turned in.
11. Class roll is taken by the sign in sheets. If you did not sign in you will be counted absent.
12. 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.
13. 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
14. There is no extra credit given for this course.
15. You will have the length of the class to finish an exam. No extra time will be given.

If you wish to drop a course, the student is 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

*Please see the Sonography Student Handbook for program specific policies.*

**Technical Requirements (for courses using Blackboard)**

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:

[https://help.blackboard.com/en-us/Learn/9.1\\_2014\\_04/Student/015\\_Browser\\_Support/015\\_Browser\\_Support\\_Policy](https://help.blackboard.com/en-us/Learn/9.1_2014_04/Student/015_Browser_Support/015_Browser_Support_Policy) A

functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

### **Disabilities Statement**

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building. You may also visit the online resource at <http://www.lit.edu/depts/stuserv/special/defaults.aspx>

### **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) or obtained in print upon request at the Student Services Office. 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.

