

Advanced Echocardiography (DSAE 2335)

Credit: 3 semester credit hours (3 hours lecture)

Prerequisite/Co-requisite: Passed all previous sonography courses.

Course Description

Advanced echocardiographic procedures. Topics include stress echo, related diagnostic imaging, and related noninvasive cardiac testing.

Required Textbook and Materials

1. **The Notebook** and **The Workbook** 6.5 edition
by Susan King DeWitt, BS, RDCS, RCS
<http://echocardiographer.tripod.com> (912) 674-4784

Course Objectives

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

1. Describe the procedures and applications of stress echocardiography.
2. Identify alternate diagnostic modalities and their correlation with echocardiography.
3. Demonstrate the ability to write technical reports based upon the findings of the echocardiographic exam.

Course Outline

- A. LIT
 - a. Policies
 - b. Academic calendar
 - c. Classroom policies
- B. The Stress Echocardiogram
 - a. Cardiac response to stress
 - i. Wall motion
 - ii. Wall motion index
 - iii. Criteria for a positive SE
 - b. Types
 - i. Exercise stress echo
 - ii. Pharmacological stress echo
 - c. Contraindications
 - i. Advantages
 - ii. Disadvantages
- C. Cardiomyopathy
 - a. Types
 - i. Dilated CMO
 - ii. Hypertrophic CMO
 - iii. Restrictive/Infiltrative CMO
 - b. Pathophysiology and Hemodynamics

- D. Diseases of the Heart Wall
 - a. Myocarditis
 - i. Etiology
 - ii. Signs and symptoms
 - iii. Treatment
 - b. Pericarditis/constrictive pericarditis
 - i. Etiology
 - ii. Signs and symptoms
 - iii. Treatment
 - c. Pericardial effusion
 - i. Tamponade
 - d. Pathophysiology and Hemodynamics
- E. Myxomas, Tumors (Neoplasms), Masses and Missiles
 - a. Tumors
 - i. Primary benign tumors
 - 1. Myxoma
 - ii. Secondary tumors (metastatic)
 - iii. Extracardiac tumors
 - iv. Carcinoid disease
 - b. Thrombus
 - i. Types
 - c. Missiles
 - i. Trauma
 - d. Pathophysiology and Hemodynamics
- F. Diseases of the Aorta
 - a. Aortic dissection
 - b. Coarctation
 - c. Other diseases of the aorta
 - d. Pathophysiology and Hemodynamics
- G. Congenital anomalies
 - a. Septal defects
 - i. ASD
 - ii. VSD
 - iii. PDA
 - b. Endocardial cushion defect
 - c. Cleft Mitral valve
 - d. Pulmonic stenosis
 - e. Coarctation of the aorta
 - f. Ebstein anomaly
 - g. Tetralogy of Fallot
 - h. Transposition of the great arteries
 - i. Hypoplastic left heart syndrome
 - j. Pathophysiology and Hemodynamics

- H. 3D/RT3D Echocardiography
 - a. History
 - b. Real time
 - i. 4D echocardiography
- I. Alternate Diagnostic Modalities and correlation with echocardiography
 - a. Blackboard Assignment
- J. Review of :
 - a. Heart Anatomy
 - b. 2D Echo
 - c. M-Mode Echo
 - d. Coronary Arteries and Heart Walls
 - e. Cardiac Testing
 - f. Valvular Heart Disease
 - g. Prosthetic Valves
 - h. Cath Gradients
 - i. Ischemic Heart Disease
 - j. Heart Failure
 - k. Embryology
 - l. Technical Reports

Grade Scale

93 – 100	A
85 – 92	B
77 – 84	C
69- 76	D (not able to continue in sonography program)
68 or below	F

Passing the technology portion of Adult Echocardiography board exam constitutes an automatic “A” in this course (due to mastery of course information).

Course Evaluation

Semester grades will be calculated from the following criteria:

1. Unit tests/Final 90%
(Unit tests worth 70%/ Final Exam 20%)
2. Homework 10%

Course Requirements

1. Unit tests
2. Reading assignments
3. Worksheets/Homework/ Blackboard Assignment
4. Final Exam

Course Policies

1. No food, drinks, or use of tobacco products in class.
2. Beepers, cell phones, head phones and any other electronic devices must be turned off while in class.
3. Do not bring children to class.
4. If a unit test is missed, arrangements will be made with the instructor to take the test in a timely manner.
5. **All exams will be on the dates specified unless the instructor makes a change. In case of an absence on exam day, the student will have a 10 point reduction on his/her test score. The score will continue to drop 10 points for every class day missed following the test. Also, if the student attends any sonography classes on test day, he/she must take the test that day or a zero will be given.**
6. 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) lecture absences will result in a letter grade reduction. Two (2) lab absences will result in a 10 point grade reduction from the overall lab average. Excessive tardiness (more than 10 minutes/class or more than 2 consecutive classes)** will result in an absence being awarded. 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 the faculty regarding absences by telephone and/or email at all times.**
7. All assignments are due when stated. Late assignments will result in a drop of **10** points per late day, and more than five days past due will result in a grade of **0**. If a student has an excused absence with written documentation, assignments will be accepted at the beginning of class upon return. Missed in-class assignments receive a grade of **0**.

8. Whenever testing occurs, all books/ backpacks must be placed in the front of the classroom away from the entire class. Cellphones and any other electronic devices are to be placed in a basket in the front of the room and will be returned when the test is turned in.
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. You will have the length of the class to finish an exam. **No extra time** will be given.
11. 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.
12. There will be no extra credit assignments given in this course.
13. Students with special needs and/or medical emergencies or situations should communicate with their instructor regarding individual exceptions/provisions. It is the student’s responsibility to communicate such needs to the instructor.
14. Additional class policies as defined by the individual course instructor and sonography handbook.

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

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/studerv/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 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.



Course Schedule

Week	Topic	Reference
Week 1	Cardiomyopathy	DeWitt Chapter XII PowerPoint
Week 2	Cardiomyopathy	DeWitt Chapter XII PowerPoint
Week 3	Test 1 Diseases of the Heart Wall	DeWitt Chapter XIV, XV PowerPoint
Week 4	Pericarditis, Effusion and Tamponade	DeWitt Chapter XV, XVI PowerPoint
Week 5	Test 2 Myxomas, Tumors, Masses, and Missiles	DeWitt Chapter XIV PowerPoint
Week 6	Myxomas, Tumors, Masses, and Missiles Test 3	DeWitt Chapter XIV PowerPoint
Week 7	Congenital Anomalies Diseases of the Aorta Test 4 (Online)	DeWitt Chapter XIX PowerPoint DeWitt Chapter XVIII PowerPoint
Week 8	Congenital Anomalies	DeWitt Chapter XIX PowerPoint
Week 9	Congenital Anomalies Test 5	DeWitt Chapter XIX PowerPoint
Week 10	3D/RT3D Echocardiography: The Basics Test 6 (Online)	Dewitt Chapter XX PowerPoint
Week 11	Registry Review	
Week 12	Registry Review	
Week 12	Registry Review	
Week 13	Registry Review	
Week 14	Registry Review	
Week 15	Registry Review FINAL EXAM	

Contact information:

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