Intro to Echocardiography Techniques  (DSAFE1303)

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

Prerequisite/Co-requisite: Acceptance into the cardiac Sonography program.

Course Description
An introduction to scanning techniques and procedures with hands-on experience in a lab setting. Emphasis is placed on the sonographic explanation of the normal adult heart.

Required Textbook and Materials
1. The Notebook and The Workbook
   By: Susan King DeWitt, BS, RDCS, RCS (author and publisher)
   Email: http://echocardiographer.tirpod.com Phone: (912) 674 – 4786

Suggested Textbook and Materials
1. Textbook of Clinical Echocardiography
   By: Catherine Otto MD
   ISBN#978-1-4160-5559-4
2. Sound Advice for the Ultrasound Lab: Echocardiographic Protocol
   By: Tom Whelan RT(R), RVT, RDCS, FASE
   The Advanced Health Education Center

Course Objectives
Upon completion of this course, the student will be able to:
1. Demonstrate proper routine scanning techniques on normal subjects.
2. Demonstrate appropriate and accurate measurements in each modality.
3. Describe the features of a normal echocardiogram.
4. Demonstrate appropriate scan ergonomics and patient care and positioning.

Course Outline
A. Cross sectional anatomy of the thorax
   a. Chest cavity
      a. Bony thorax
      b. Lungs
      c. Mediastinum
      d. Heart
      e. Breast

B. Normal Cardiac Anatomy and Physiology – Chapter 1
   a. Anatomy of the heart
      a. Cardiovascular Circulation
      b. Cardiac Anatomy and Terminology
      c. Pericardium
      d. Chambers vessels and valves

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e. Coronary circulation
b. Physiology of the heart
   a. Blood flow through the heart and lungs
c. Phases of the cardiac cycle
   a. Systole
   b. Diastole
c. Isovolumic times

C. Echocardiography Windows and Imaging Planes - Chapter 3
   a. Parasternal
   b. Apical
   c. Subcostal
   d. Suprasternal

D. Technique
   a. Knobology – (specific to echo) – Mostly taught in intro to Sonography.
      a. Artifacts – (specific to echo) – Mostly taught in intro to Sonography.
   b. Ergonomics
      a. Patient positioning
      b. Sonographer technique and positioning

Grade Scale
93 – 100    A
85 – 92     B
75 – 84     C
68 - 74     D (not able to continue in sonography program)

Course Evaluation
Semester grades will be calculated according to the following criteria:

Lab is 25% of Grade
Lecture is 75% of Grade

1. Unit tests 70%
2. Class Participation/Homework 5%
3. Lab 25%
   a. Lab Participation 50%
   b. Final Exam 50%
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Course Requirements
1. Unit tests
2. Blackboard assignments
3. Worksheets
4. Lab Assignments
5. Lab 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. Attendance Policy: 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. 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.
6. 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.
7. Cheating on any (lecture/lab) exam results in immediate dismissal from the program and an F for the course.
8. 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.

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.

**Course Schedule**

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<tr>
<th>Week</th>
<th>Topic</th>
<th>Reference</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Cross sectional anatomy of the thorax</td>
<td>Handout</td>
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<tr>
<td>Week 2</td>
<td>Cross sectional anatomy of the thorax/ Test I</td>
<td>Handout</td>
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<td>Week 3</td>
<td>Anatomy and physiology of the heart</td>
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<tr>
<td>Week 4</td>
<td>Anatomy and physiology of the heart</td>
<td>NOTEBOOK: Chapter III pgs. 1-24</td>
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<td>Week 5</td>
<td><strong>Test II</strong>/ Parasternal Views</td>
<td>NOTEBOOK: Chapter IV pgs. 49-58, 71,72-78,86,88, 90-92</td>
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<td>Week 6</td>
<td>Parasternal views</td>
<td>NOTEBOOK: Chapter IV pgs. 49-58,71,72-78,90-92</td>
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<tr>
<td>Week 7</td>
<td><strong>Test III</strong>/Apical Views</td>
<td>NOTEBOOK: Chapter IV pgs. 58-59,71,94-95,105,108-109</td>
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<td>Week 8</td>
<td>Apical Views/<strong>Test IV</strong></td>
<td>NOTEBOOK: Chapter IV pgs. 58-59,71,94-95,105,108-109</td>
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<td>Week 9</td>
<td>Subcostal /Suprasternal Views</td>
<td>NOTEBOOK: Chapter IV pgs. 59-60,71,111-119</td>
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<td>Week 10</td>
<td><strong>Test V</strong>/ Abbreviation Test</td>
<td>NOTEBOOK: pgs. xiv-xv/Handout</td>
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**Abbreviations for Test ---- will not be discussed in class. You are responsible for memorizing on your own**

**Contact Information:**

**Instructor:** Melissa Mann RDMS, RVT, RDCS  
**Office:** Office 204, Multipurpose Center
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**E-mail:**  mamann@lit.edu

**Office Hours:**  Posted on Door