



LINCOLN UNIVERSITY

DI 265 – Advanced Echo Imaging (Lab) Spring 2016 Course Syllabus

Course Title:	Advanced Echo Imaging (Lab)
Course Code:	DI 265
Credit:	3 units = 90 hours of lab
Time:	Mon & Th 3:30 pm – 6:15 pm
Instructor:	Seyed Asghar Sadatian, MD, RDMS (Abd), RVT, RDCS
Contact:	sasadatian@yahoo.com or ssadatian@lincolnuca.edu
Office Hours:	Thursdays & Fridays by appointment

REQUIRED TEXTBOOK:

**ASE's Comprehensive Echocardiography, 2nd edition, 2016, Roberto M. Lang et al
ISBN: 978-0-323-26011-4**

Textbook of Clinical Echocardiography, 4th edition, Catherine M. Otto, MD, 2009

ISBN-10: 1416055592, ISBN-13: 978-1416055594

Echocardiography Review Guide: Companion to the Textbook of Clinical Echocardiography
2nd edition, Catherine M. Otto and Rebecca G. Schwaegler, 2011

ISBN-10: 1437720218, ISBN-13: 978-1437720211

Echocardiographer's Pocket Reference, 3rd edition [Spiral-Bound], 2008, Terry Reynolds
ISBN-10: 001405101X, ISBN-13: 978-0014051014

Additional recommended textbooks and instructional materials will be given during classes.

Pre-Requisite: DI 255

Course Description

Students will learn advanced echocardiograph procedures. Topics include stress echo, related diagnostic imaging, 3D/4D, and related noninvasive cardiac testing.

Learning Objectives

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

- Utilize the principles of instrumentation to set up the ultrasound equipment for scanning
- Perform a standard ECHO protocol
- Apply appropriate measurements and scanning techniques: 2-D, 3-D, 4-D, Color Doppler, Spectral Doppler, CW, PW, Ped-off probe, M-Mode
- Determine the cardiac hemodynamic and detect the presence of pathology
- Perform Stress Echo Test
- Obtain knowledge of Contrast Echo and Bubble Study
- Perform an oral or written summary of preliminary findings to the interpreting physician

Instructional Methods:

- Demonstration of echo protocol, data analyses and reporting
- Internet resources
- Group discussions and case analyses
- Working with echocardiograph machines
- Hands-on laboratory training (protocols handouts) and examination
- Live & video demonstrations
- Students' PowerPoint presentations
- Students' hands-on self-study training

Students Responsibilities:

Students are expected to be prepared in advance before the class sessions. Being prepared includes the following: wear uniform (Lincoln logo scrubs), don't use cell phones in class, attend all classes, be on time to class, participate in scanning lab, ask questions, memorize protocols, bring appropriate materials to class (e.g. notebook, writing utensils, handouts) have reading materials (e.g. textbooks lectures & outlines), collect images/studies for review, use class time effectively and efficiently, and PRACTICE, PRACTICE, more PRACTICE scanning during lab hours and self lab hours. The harder you work in the school lab the easier it will be in the real one.

Scanning Lab Rules:**Lab hours:**

- ✓ Lab hours are posted front door & bulletin board (please respect class time, try not to enter when class time is in session or be quiet if you came late.)
- ✓ Each student has a maximum time of 35-45 minutes. (times may vary according to instructor or the number of students waiting)
- ✓ Use student subjection envelope for questions or concerns
- ✓ Sign in on preferred machine (see clipboards) (with your name, start time & finish time) (after finish must resign in if you want to continue to scan)

Respect Others and Lab:

- ✓ No eating or drinking in lab (only water)
- ✓ No cell phones (exit the room if you must use phone)
- ✓ Clean up after yourself (table, transducer, put away chairs & other equipment, trash, etc.)
- ✓ Inform instructor or staff of needed supplies or equipment broken
- ✓ Keep a low tone of voice (lab room is small, speaking loudly can be very disruptive to students who need their concentration for scanning)
- ✓ Don't interrupt students' scanning time (ask the students if it is okay to ask them questions while their scanning)
- ✓ Lecture scanning (ask questions at appropriate time only; ask instructor not other students)
- ✓ Personal property (never leave your personal property unattended. Lincoln University is not responsible for lost or stolen items, although Lincoln University does have a zero tolerance for theft; any students caught stealing will be prosecuted)
- ✓ Please don't remove any objects from lab room (books, study materials)
- ✓ Leave personal conversation outside lab room
- ✓ Outside patients (please inform your outside patients to bring only 1 person with them, due to lab size, and number of students present)

- ✓ No children allowed unless being scanned

HOMEWORK AND PRESENTATION:

Students will analyze images received during each lab session. Images containing anomalies should be selected and kept for the future presentation to others. Then each student will perform library research on a selected topic in the field of Advanced Echo Imaging, and present the findings during a lab class orally with a PowerPoint presentation consisting of a 10-minute presentation and a 5-minute question period. Students should include enough background information, ultrasound images received during classes, pictures and references for their peers to be able to understand the topic. Each student will choose the topic of his/her presentation with the instructor's approval. The approval must be obtained by February 18th, 2016. The presentation time for each student will be assigned on a first come, first served basis during class hours or instructor's office hours, by phone, or by E-mail. The oral presentation must be completed at least two weeks before your final hands-on lab examination (see schedule below).

Evaluation Criteria for Presentation:

- Clinical statement: 3%
 - Background information: 3%
 - Slide content: 3%
 - Slide design: 2%
 - Resolution of the problem: 3%
 - Oral presentation in class: 2%
 - Confident knowledge of the presentation topic: 2%
 - Ability to answer the questions about the presented topic: 2%
- Total: 20% of all the course grading elements

TESTING:

Quizzes:

Students will take 5 quizzes; 10-20 questions each. These quizzes will address the detailed content and major concepts presented in the lectures, lecture outlines and text readings to evaluate students' work outside of the classroom. If a student takes more than ten quizzes, only the best ten quiz scores will be used in calculating the student's total points. Each quiz will be timed; 1 minute for every question to complete. No make-up quizzes for missed quizzes will be administered (students will receive no score for missed quizzes).

HANDS-ON LAB EXAM:

Each student will be assigned time;

Each partner will have his/her turn to perform parts of the Physical Exam covering any of the material taught during the semester;

ECHO protocol and all modalities will be demonstrated and trained students during the semester;

Student performs ECHO protocol independently from lab instructor;

Students have to conduct and demonstrate finished ultrasound protocols with required to sonograms qualities: proper using transducers, scanning modes (B-scan, Color-, Power-, and Spectral Doppler), accurate measurements of anatomical structures, and proper image labels if needed;

Students have to submit final Performance of scanning all required by course ECHO protocol throughout the semester;

Students have to conduct full Standard protocol in the final lab exam:

Final exam dates are scheduled in the syllabus (see schedule below).

Grading

GRADING FACTORS	%
Scanning Performance: Final Exam	40
Scanning Performance in the Lab Sessions	20
Quizzes	10
Attendance	10
Presentation	20
TOTAL	100

%	Grades
100-94	A
93-90	A-
89-87	B+
86-84	B
83-81	B-
80-78	C+
77-76	C
75-74	C-
73-72	D+
71-70	D
69<	F

Schedule: DI 265 – Advanced Echo Imaging (Lab) Spring 2016

Date		Topics	Quiz
Thu	01/21/16	Review full protocol	
Mon	01/25/16	Review full protocol	
Thu	01/28/16	M-mode of pulmonary & IVC	
Mon	02/01/16	Patient Scanning, LV Systolic evaluation	1
Thu	02/04/16	Patient Scanning, LV Diastolic evaluation	
Mon	02/08/16	Patient Scanning, Mitral Valves evaluation	
Thu	02/11/16	Patient Scanning, Aortic Valve evaluation	
Mon	02/15/16	Holiday	
Thu	02/19/16	Patient Scanning, Pulmonary Valve evaluation	2
Mon	02/22/16	Patient Scanning, Aorta Artery evaluation	
Thu	02/25/16	Patient Scanning, Wall Motion evaluation	
Mon	02/29/16	Patient Scanning, RV evaluation	
Thu	03/03/16	Stress Echo	
Mon	03/07/16	Patient Scanning, Pericardial Effusion evaluation	
Thu	03/11/16	Patient Scanning, Pulmonary Hypertension evaluation	3
Mon	03/14/16	Patient Scanning, Cardiac shunt evaluation	
Thu	03/17/16	Spring recess	
Mon	03/21/16	Patient Scanning, Prosthetic Valve evaluation	
Thu	03/24/16	Patient Scanning, Arrhythmia & Echo	
Mon	03/28/16	Color M-mode evaluation	
Thu	03/31/16	3-D / 4-D	4
Mon	04/04/16	3-D / 4-D	
Thu	04/07/16	Pen Doppler	
Mon	04/11/16	Transthoracic Coronary scanning	
Thu	04/14/16	Transthoracic Coronary scanning	
Mon	04/18/16	Transthoracic Coronary scanning	

Thu	04/21/16	Transthoracic Coronary scanning	
Mon	04/25/16	Patient Scanning, Full protocol	5
Thu	04/28/16	Patient Scanning, Full protocol	
Mon	05/02/16	FINAL EXAM	
Thu	05/05/16	FINAL EXAM	

Syllabus updated: 01/27/2016

Note: Instructor may change this syllabus and course schedule at any time according to the judgment as to what is best for the class. Any changes will be declared ahead of time in class.