



# LINCOLN UNIVERSITY

## DI 265 – Advance Echo Scanning Fall 2016 Course Syllabus

<b>Course Title:</b>	Advanced Echo Scanning (Lab)
<b>Course Code:</b>	DI 265
<b>Credit:</b>	3 units = 90 hours lab
<b>Time:</b>	Tue & Thu 3:30 pm – 7:05 pm
<b>Instructor:</b>	Sayed Asghar Sadatian, MD, RDMS (Abd), RVT, RDCS
<b>Contact:</b>	sasadatian@yahoo.com or ssadatian@lincolnuca.edu
<b>Office Hours:</b>	Thursdays & Fridays by appointment

### REQUIRED TEXTBOOK:

**ASE's Comprehensive Echocardiography, 2<sup>nd</sup> 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

### **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:**

The goal of the homework is to help students achieve the course learning objectives. Homework consists of two parts. First part is to read the textbooks and materials to review and analyze the lecture given during a previous class session. Students are expected to spend six hours for each class session outside of class in completing the reading assignments related to each lecture. These assignments are graded through short quizzes given at the beginning of the following class session. Second part of the homework consists of a project presented at the end of the course. Each student will choose the topic for presentation or will be assigned one by the instructor. The presentation should be approximately 10 minutes long and with 5 minutes for a discussion. The presentation should include ultrasound images

related to the topic of presentation. The images need to be dated and should indicate the student's name. The topic and format for the presentation will be discussed in class for more details. A final draft of the presentation must be submitted for review one week prior to the presentation.

**Evaluation Criteria for Project:**

- Clinical statement: 2%
  - Background information: 2%
  - Slide content: 2%
  - Slide design: 1%
  - Resolution of the problem: 2%
  - Oral presentation in class: 1%
- Total: 10% of all the course grading elements

**Project: 10%**

Each student should scan 5 kids (under 13 years old) and 5 adults (over 40 years old) during course

**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**

<b>GRADING FACTORS</b>	<b>%</b>
Scanning Performance: Final Exam	30
Scanning Performance : Midterm Exam	30
Quizzes	10
Attendance	10
Homework and Presentation	20
<b>TOTAL</b>	<b>100</b>

<b>%</b>	<b>Grades</b>
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 – Advance Echo Scanning (Lab)**  
 Fall 2016

Date		Topics	Quiz
Week1	08/23/16	Review full protocol	
		Review full protocol	
Week2	08/30/16	M-mode of pulmonary & IVC	
Week3	09/06/16	Patient Scanning, LV Systolic evaluation	1
		Patient Scanning, LV Diastolic evaluation	
Week4	09/13/16	Patient Scanning, Mitral Valves evaluation	
		Patient Scanning, Aortic Valve evaluation	
Week5	09/20/16	Patient Scanning, Tricuspid Valve evaluation	
		Patient Scanning, Pulmonary Valve evaluation	2
Week6	09/27/16	Patient Scanning, Aorta Artery evaluation	
		Patient Scanning, Wall Motion evaluation	
	10/04/16	Patient Scanning, RV evaluation	
Week7	10/11/16 10/13/16	<b>Holiday</b> Stress Echo	
Week8	10/18/16	Patient Scanning, Pericardial Effusion evaluation	
		Patient Scanning, Pulmonary Hypertension evaluation	3
Week9	10/25/16	Patient Scanning, Cardiac shunt evaluation	
		Patient Scanning, Prosthetic Valve evaluation	
Week10	11/01/16	Patient Scanning, Arrhythmia & Echo	
		Color M-mode evaluation	
Week11	11/08/16	3-D / 4-D	4
		3-D / 4-D	
Week12	11/15/16	3-D / 4D	
		Pen doppler	
Week13	11/22/16	<b>Fall recess</b>	
		Transthoracic Coronary scanning	5
Week14	11/29/16	Full Protocol	
Week15	12/06/16	<b>FINAL EXAM</b>	

Syllabus updated: 08/12/2016

**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.