



LINCOLN UNIVERSITY

DI 245 – Echo Scanning (Lab)

Fall 2014 Course Syllabus

DATES: 08/27/2014 – 12/11/2014

COURSE TITLE: Echo Scanning (Lab)

COURSE CODE: DI 245

CREDIT HOURS: 4 units (120 lab hours)

* 3 units (90 lab hours) for the students enrolled in Summer 2012 or later

TIME: Wednesdays 5:30 pm – 9:15 pm; Thursdays 5:30 pm – 9:15 pm

LAB INSTRUCTOR: Diana Wagle, RDCS

CONTACT INFORMATION: email: di.turrell.lu@gmail.com

COURSE DESCRIPTION: Scanning protocols and practices for the ultrasound examination of the heart.

COURSE PRE-REQUISITE: DI 235 – Echo Imaging

READING ASSIGNMENT: Attached

GOALS AND OBJECTIVES FOR ULTRASOUND ADULT HEART IMAGING:

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

- Utilize the principles of instrumentation to set up the ultrasound equipment for scanning
- Identify normal and abnormal anatomy of the adult heart
- Perform a standard Echo protocol
- Apply appropriate measurements scanning techniques: 2-D, Color Doppler, Spectral Doppler, CW, PW, Pedoff probe, M-Mode
- Determine the cardiac hemodynamic and detect the presence of pathology
- Perform an oral or written summary of preliminary findings to the interpreting physician

STUDENT RESPONSIBILITIES:

Students are expected to be prepared in advance before the class sessions. Being prepared includes the following: 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) having read texted materials (e.g. textbooks lectures & outlines), collect images for review, retrieve instructors signature to sign off organs & small-parts protocols, use class time effectively and efficiently, and PRACTICE, PRACTICE, more PRACTICE scanning during lab hours and self lab hours.

SCANNING LAB RULES:

Lab hours:

- **Lab hours are posted front door & bulletin board** (please respect class time, do not enter when class time is in session)
- **Each student has a maximum time of 35-45 min. (times may vary according to instructor or # of students waiting)**
- **Timer is used to track accurate time**
- **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 room if must use phone)
- **Clean up after yourself** (table, transducer, putting chairs away, moving 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 disrupting to student(s) who need their concentration for scanning)
- **Don't interrupt student scanning time** (ask the student is it okay to asked 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 student(s) 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 only bring 1 person with them, due to lab size, and number of students present)
- **No children allowed unless being scanned**

Machines (Acuson, GE, and Mindray):

- Please kindly shut down the machine after scanning class
- Do not erase any information on machines (only instructors or lab assistants)
- Please inform lab assistants of needed supplies (babywipes, paper towels, gel)
- Wipe down transducer after every patient using the Transeptic spray)
- Change paper after every patient, and place pillow under paper not on top
- Please be very careful when moving around equipment (ultrasound machines, patient tables)

IN-CLASS PRESENTATION

Students are to perform library research on a current topic in the field of Echocardiography and present their findings orally in a PowerPoint presentation (10 minute presentation; 5 minute question period). Students should include enough background information, ultrasound images, pictures and references for their peers to be able to understand the topic. The topic of each presentation will be chosen by the students with the approval of the teacher. Approvals must be obtained by October 1st, 2014. Presentation dates will be assigned on a first come, first served basis. You may do so in class, during office hours, by phone, or by E-mail. Student presentations will be spaced in every lab class throughout the semester. An oral presentation must be completed **AT LEAST TWO WEEK BEFORE your FINAL HANDS-ON ULTRASOUND LAB EXAMINATION** (see schedule below). In-class presentation will account for 5 percent of your final grade.

Evaluation Criteria for Presentation:

- Clinical statement
- Background information
- Slide content
- Slide design
- Resolution of the problem
- Oral presentation
- Confident knowledge of the presented topic
- Ability to answer question of the presented topic

GRADING SCALE

HANDS-ON LAB EXAM:

- Each student will be assigned a partner and time;
- Each partner will have his/her turn to perform parts of the Physical Exam covering any of the material taught during semester;
- ECHO protocol and all modalities will be demonstrated and trained students during semester;
- Student performs ECHO protocol independently from lab instructor
- Student 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), Color mapping, accurate measurements of anatomical structures, and proper labels on the images if needed
- Student have to submit final Performance of scanning all required by course ECHO protocol throughout of the semester;
- Student have to conduct **full Standard protocol** in final lab exam:
- Final exam dates is scheduled in the syllabus (see schedule below).
- Student must pass the final exam with **AN AVERAGE OF 70% (grade “C-”) OR BETTER OR YOU WILL FAIL THE ENTIRE COURSE AND WILL NEED TO TAKE LAB CLASS AGAIN.**

GRADING:

Attendance	10%
Presentation	5%
Performance of scanning protocols	30%
Final exam	55%
Total	100%

100-91	A
90	A-
89-85	B+
84-81	B
80	B-
79-75	C+

74-71	C
70	C-
69-65	D+
64-60	D
59≤	F

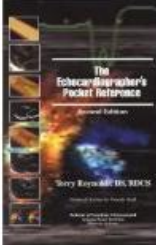
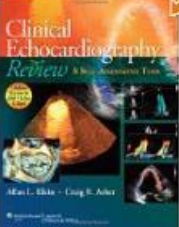
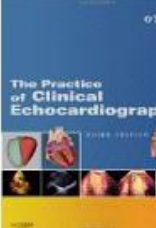
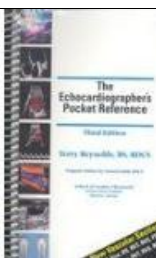
SCHEDULE: Fall 2014**DI 245 – Echo Scanning (Lab)**

WEEKS		DATES	ULTRASOUND HANDS-ON SCANNINGS
1	W	27-Aug	Review anatomical structures and normal measurements
	Th	28-Aug	Review ECHO protocol
2	W	3-Sep	Normal measurements of the heart structures (Quiz)
	Th	4-Sep	Diastology of the normal adult heart
3	W	10-Sep	Pathology of diastolic function of the heart
	Th	11-Sep	Evaluation of abnormal LV diastolic function
4	W	17-Sep	Diastology (hands-on test)
	Th	18-Sep	LV systolic function and geometry (measurements and evaluation)
5	W	24-Sep	Simpson method, dP/dT, and LV mass index
	Th	25-Sep	(LV systolic FXN and geometry hands-on test)
6	W	1-Oct	Evaluation of the left and right heart (measurements)
	Th	2-Oct	Stenosis (AS, MS)
7	W	8-Oct	Stenosis (TS, and PS)
	Th	9-Oct	Regurgitations (MR, TR, PI, and AI)
8	W	15-Oct	Review ECHO protocol (Valvular disease test)
	Th	16-Oct	Cardiomyopathy
9	W	22-Oct	Pericardial diseases
	Th	23-Oct	Hypertensive heart (Systemic)
10	W	29-Oct	Hypertensive heart (Pulmonic)
	Th	30-Oct	Stress ECHO- indication, results; Definity (Contrast Echo)
11	W	5-Nov	Presentations
	Th	6-Nov	Presentations
12	W	12-Nov	Prediction of the intra-cardiac pressure
	Th	13-Nov	Stress Echo – hands-on test
13	W	19-Nov	Congenital diseases
	Th	20-Nov	Prosthetic Valves
14		25-29 Nov	Fall recess
15	W	3-Dec	Preparation for the final exam
	Th	4-Dec	Preparation for the final exam
16	W	10-Dec	Final hands-on examination
	Th	11-Dec	Final hands-on examination

The syllabus updated 08/21/2014

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.

READING ASSIGNMENT:

1.		<p>The Echocardiographer's Pocket Reference, Second Edition [Spiral-bound] (July 2000)</p> <p><u>Terry Reynolds</u> (Author), <u>Pamela Kidd</u> (Author)</p> <p>Approximate price \$120</p>
2.		<p><u>Clinical Echocardiography Review: A Self-Assessment Tool</u></p> <p>by Allan L. Klein and Craig R. Asher (Mar 28, 2011)</p> <p>Approximate price \$118-\$120</p>
3.		<p><u>Practice of Clinical Echocardiography: Text with DVD-ROM, 3e</u></p> <p>by <u>Catherine M. Otto</u> (Nov 26, 2007)</p> <p>Approximate price \$200-\$100</p>
4.		<p><u>Feigenbaum's Echocardiography</u></p> <p>by William F. Armstrong and Thomas Ryan (Dec 16, 2009)</p> <p>Approximate price \$140-\$120</p>
5.		<p><u>Echocardiographer's Pocket Reference, 3rd edition</u></p> <p>by Terry Reynolds (Jan 1, 2008)</p> <p>Approximate price \$120</p>
6.		<p><u>Echocardiography</u></p> <p>by Mark Allen, Diane M. Kawamura, Marveen Craig and Mimi C. Berman (Jan 15, 1999)</p> <p>Approximate price \$70-\$30</p>
7.	ECHOpedia	<p>http://www.echopedia.org</p>