LINCOLN UNIVERSITY
DI 144 – Vascular Scanning (Lab)
Fall 2013 Course Syllabus

DATES: 08/26/2013 – 12/14/2013

COURSE TITLE: Vascular Scanning (Lab)

COURSE CODE: DI 144

CREDIT HOURS: 3 units (90 lab hours)

TIME: Wednesday 9:00 AM – 12:45 PM & Friday 12:30 PM – 4:15 PM

LAB. INSTRUCTOR: Marina Kay, RDMS, RVT

CONTACT INFORMATION: email: kaymarina@yahoo.com or mkay@lincolnuca.edu

COURSE DESCRIPTION:
The focus of this course is Peripheral and Cerebrovascular Doppler scanning. Laboratory sessions are provided to acquire intermediate scanning skills necessary to succeed in the clinical setting. **COURSE PREREQUISITE:** DI 134

READING ASSIGNMENT:
Introduction to Vascular Ultrasonography. William J. Zwiebel, John S. Pellerto. 5th Edition. ISBN-10: 0-7216-0631-8; ISBN-13: 978-0-7216-0631-6

SUGGESTED TEXTBOOKS:
Peripheral Vascular Sonography: A Practical Guide. Joseph F. Polak. ISBN-10: 0781748712; ISBN-13: 978-0781748711

Vascular Technology: An Illustrated Review, 4th Edition. Claudia Rumwell, Michalene McPharlin. ISBN-10: 0941022730; ISBN-13: 978-0941022736

Introduction to Vascular Scanning: A Guide for the Complete Beginner (Introductions to Vascular Technology), 3rd Edition. Donald P. Ridgway. ISBN-10: 0941022706; ISBN-13: 978-0941022705

Vascular Technology: An Illustrated Review, 4th Edition. Claudia Rumwell. ISBN-10: 0941022730; ISBN-13: 978-0941022736

GOALS AND OBJECTIVES FOR VASCULAR ULTRASOUND:

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

- Utilize the principles of instrumentation to set up the ultrasound equipment for scanning
- Describe the anatomy, physiology and normal variations of peripheral and cerebrovascular (extracranial) arteries and veins
- Differentiate normal from abnormal blood flow patterns
- Apply the diagnostic criteria for carotid artery disease
- Optimize the use of color Doppler and pulsed wave Doppler
- Establish protocols for successful performance of carotid examinations
- Recognize pitfalls of the carotid ultrasound study
- Diagnose cerebrovascular pathologies
- Link Doppler image information to the manifestations of cerebrovascular disease
- Apply the systematic protocol for physiologic assessment of the lower or upper extremity arterial tree by physiologic testing, using segmental pressures, volume pulse recording, and Doppler waveform analysis.
- Know a routine protocol for performing lower extremity arterial duplex/color and physiologic examination
- Describe standard measurements and diagnostic criteria for duplex/color evaluation of the lower extremity
- Understand normal venous physiology by the evaluation of Doppler imaging
- Recognize the significance of venous pathophysiology by the use of ultrasound imaging
- Compensate for common pitfalls in the diagnosis of venous thrombosis
- Know the different diagnostic criteria for peripheral arterial disease

CLASSROOM PROTOCOL:

All students are expected to display professionalism, in preparation for hospital work.

That means: arriving on time, remaining quiet when others are speaking, and paying attention to whoever has the floor in the classroom.

Students are expected to attend and be prepared for all regularly scheduled classes.

If a student knows in advance that he or she will need to leave early, the student should notify the instructor before the class period begins.

Students are expected to treat faculty and fellow students with respect.

Students engaging in disruptive behavior in class will be asked to leave and may be subject to other penalties if the behavior continues.

No eating, sleeping or personal grooming is permitted during ultrasound laboratory classes.

Drinks are allowed only in closed containers.

The cell phones should be turned off.

If you use a computer in class, please use it only to take notes, to access course materials from the course webpage, or to locate information relevant to the class discussion. Do not use your computer to surf the web, check emails, or send/receive text messages, as these activities are distracting to those around you (and decrease your chances of getting the most out of your time in class).

Clean up after yourself (table, transducer, putting chairs away, moving equipment, trash etc.).

Inform instructor or staff of needed supplies or broken equipment.

Never leave your personal property unattended. Lincoln University is not responsible for lost or stolen items, though Lincoln University does have a zero tolerance for theft; any students caught stealing will be prosecuted.

Please do not remove any objects from the lab room (books, study materials).

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 are allowed unless being scanned.

STUDENT RESPONSIBILITIES:

Students are expected to be prepared in advance before the class sessions. Being prepared includes the following: no cell phones in class, attend all classes, be on time at class, participate in scanning lab, ask questions, memorize protocols, bring appropriate materials to class (e.g. notebook, writing utensils, handouts), have read texted materials (e.g. textbooks, lectures & outlines), collect images for review, use class time effectively and efficiently.

Please shut down the machine after scanning class.

Do not erase any information on machines (only instructors or lab assistants are allowed to do that).

Please inform lab assistants of needed supplies (gloves, paper towels, gel).

Wipe down transducer after every patient using the Transeptic spray.

Change table paper after every patient.

Please be very careful when moving around equipment (ultrasound machines, patient tables).

Make sure the probe cords are lifted off the floor and placed on the hooks.

ULTRASOUND HANDS-ON LABORATORY EXAMINATION:

During the final ultrasound hands-on examination, students have to demonstrate understanding of information presented during lectures and hands-on laboratory training.

Students have to perform Vascular protocols and demonstrate scanning technique and images in B-, Color-Modes, and M-mode;

Students will schedule the time and date 2-3 weeks ahead of the ultrasound hands-on laboratory examination.

Students need to be at the Ultrasound Lab, ready to start scanning at the scheduled time. (It is recommended that you arrive about 15 minutes prior to your scheduled exam time.)

Each student will be assigned a partner and time.

Students have to perform and demonstrate finished ultrasound protocols according the requirements: proper using transducers, scanning modes (B-scan, Color- , Power-, and Spectral Doppler), Color mapping, accurate measurements of anatomical structures, and proper labeling of the images if needed.

A student must pass the final exam with **AN AVERAGE OF 72-69% (grade "C")**.

A student may be allowed to make up for the Laboratory examination if there is a valid excuse such as illness, family emergency or natural disaster.

GRADING:

Attendance	10%
Scanning performance	30%
Quizzes	20%
Mid-term exam	20%
Final exam	20%
Total	100%

100-93	A
92-89	A-
88-85	B+
84-81	B
80-77	B-
76-73	C+

72-69	C
68-65	C-
64-61	D+
60-50	D
49≤	F

SCHEDULE:

Weeks	Lab #	Dates	Topics	Quiz
Week 1	**1**	**28-Aug**	**Extracranial Duplex Imaging: Vascular Anatomy and Anatomical Variations**	
	2	**30-Aug**	**Extracranial Duplex Imaging: Scanning Techniques and Image Optimization**	**1**
Week 2	**3**	**4-Sep**	**Extracranial Duplex Imaging: Different Scanning Approaches**	**2**
	4	**6-Sep**	**Extracranial Duplex Imaging: Carotid Plaque Assessment and Image Analysis**	**3**
Week 3	**5**	**11-Sep**	**Upper Extremity Arterial Duplex Imaging: Vascular Anatomy**	**4**
	6	**13-Sep**	**Upper Extremity Arterial Duplex Imaging: Scanning Techniques and Image Optimization**	**5**
Week 4	**7**	**18-Sep**	**Upper Extremity Arterial Duplex Imaging: Ultrasound Assessment of UEA**	**6**
	8	**20-Sep**	**Lower Extremity Arterial Duplex Imaging: Vascular Anatomy**	
			Lower Extremity Arterial Duplex Imaging: Scanning Techniques	**7**
Week 5	**9**	**25-Sep**	**Lower Extremity Arterial Duplex Imaging: Scanning Approaches**	**8**
	10	**27-Sep**	**Lower Extremity Arterial Duplex Imaging: Waveform Analysis**	**9**
Week 6	**11**	**2-Oct**	**Lower Extremity Arterial Duplex Imaging: Ultrasound Assessment of LEA**	**10**
	12	**4-Oct**	**Non-Imaging Physiological Tests. Purpose and Applications**	**11**
Week 7		**9-Oct**	**MIDTERM HANDS-ON EXAM**	
		11-Oct	**Ankle-Brachial Index Instrumentation**	
Week 8	**13**	**16-Oct**	**Arterial Segmental Pressure Instrumentation**	**12**
	14	**18-Oct**	**Arterial Segmental Pressure and ABI Evaluation**	**13**
Week 9	**15**	**23-Oct**	**Lower Extremity Venous Duplex Imaging: Vascular Anatomy and Anatomical Variations**	**14**

	16	25-Oct	Lower Extremity Venous Duplex Imaging: Scanning Techniques	15
Week 10	17	30-Oct	Lower Extremity Venous Duplex Imaging: Scanning Approaches	16
	18	1-Nov	Lower Extremity Venous Duplex Imaging: Evaluation for DVT	17
Week 11	19	6-Nov	Lower Extremity Venous Duplex Imaging: Evaluation for Valvular Competency (Reflux Study)	18
	20	8-Nov	Lower Extremity Venous Duplex Imaging: Calf Veins Evaluation	
Week 12	21	13-Nov	Lower Extremity Venous Duplex Imaging: Superficial Veins	19
	22	15-Nov	Upper Extremity Venous Duplex Imaging: Vascular Anatomy	20
Week 13	23	20-Nov	Upper Extremity Venous Duplex Imaging: Scanning Approaches	21
	24	22-Nov	Upper Extremity Venous Duplex Imaging: Evaluation for DVT	22
Week14		27-Nov	Fall Recess	
		29-Nov	Fall Recess	
Week 15	25	4-Dec	Upper Extremity Venous Duplex Imaging: Superficial Veins	
	26	6-Dec	Quizzes, Protocols, Physiological Tests Make-Ups	
Week16	27	11-Dec	FINAL HANDS-ON EXAM	
	28	13-Dec	MAKE-UPS	

The syllabus updated: 08/09/2013

Note: Instructor may change this syllabus and course schedule at any time according to the needs of the class.