



# LINCOLN UNIVERSITY

## SYLLABUS

**Semester:** Fall 2011

**Course Title:** Doppler Vascular Imaging

**Instructor:** Dr. Jahan Orazova, MD, PhD, RVT, RDMS, RPVI

**Course:** DI 155 / UT 155

**Credit:** 4 units = 3 units (45 lecture hours) + 1 unit (30 lab hours)

**Class Hours:** Mondays & Wednesdays, 9:00 – 11:45 am

**Contact:** 510-628-8032; 510-628-8035; Email: jorazova@lincolnuca.edu

**Office Hours:** Mondays 1:00 – 2:00 pm, Room 408

### **REQUIRED TEXTBOOK:**

1. Hagen-Ansert: Textbook of Diagnostic Ultrasonography, 6th Edition, Vol#2  
(ISBN 0323042023, 9780323042024)

**Additional recommended text books and instructional materials will be given during classes.**

### **COURSE DESCRIPTION:**

A survey of methods based on Doppler Effect and used for ultrasound imaging.

Computerized interpretation of images for human vascular disorders is discussed as an application of the theory.

The anatomy, physiology and pathology of the arterial and venous circulation systems are covered in this course. Noninvasive vascular instrumentation, protocols and techniques are introduced to the student. *Prerequisite: DI 110/UT110 or DI 115/UT 115*

### **LEARNING OBJECTIVES:**

After completing this course, students should be able to:

- Identify by name and relative position, all vascular vessels and structures pertinent to the clinical non-invasive vascular studies and protocols covered in this course including: intracranial and extracranial cerebrovascular, upper and lower extremity arterial and venous, and abdominal arterial and venous studies
- Describe basic protocols and disease criteria for all of the different clinical studies covered in this course (see above)
- Identify basic pathology as relates to the different clinical studies covered in this course
- Describe hemodynamics as they relate to the vasculature, anatomy, pathology and interventional procedures
- Identify and quantify vascular disease via clinical case studies
- Understand the various regulatory/legislative issues affecting the vascular ultrasound profession

## **METHODOLOGY:**

The previously described topics will be presented through the following activities:

- Assigned text readings and lecture outlines (handouts)
- Demonstrations class lectures by using Power Point Computer presentations (handouts);
- Recommended study guide activities
- Internet resources
- Group discussions and ultrasound case analyses
- Quizzes & examinations
- Working with ultrasound machines
- Hands-on ultrasound laboratory trainings (protocols-handouts)
- Ultrasound laboratory live & video demonstrations
- Students' Vascular Imaging Power Point presentations
- Students' Ultrasound Hands-on self study trainings

## **REQUIREMENTS:**

- This is a lecture-lab course in which topics are presented by teacher and ultrasound – hands-on lab practice explaining and demonstrations by lab instructor
- The student is expected to be prepared in advance before the class sessions
- Being prepared includes the following: having read text materials (e.g., textbook readings, and lecture outlines) assigned for that day's activities and bringing required work materials (e.g., textbook, handouts, writing supplies, etc.) to the session
- Home works will include reading the topic (s) one week ahead of time
- The student is expected to attend and participate in all course lectures and activities, and complete all quizzes, examinations and course assignments on time. **Therefore an attendance and being on time are crucial** to your final grade
- **Doppler Vascular Imaging course** require considerably more study time than was required in the previous classes due to the difficulty of the subject and hard to recover even one missed lecture.
- The student should understand that "introductory" does not mean "easy"
- The student must budget time efficiently and be realistic about all personal and professional commitments that consume time

### **❖ Academic Honesty**

The University maintains a strict policy concerning academic dishonesty, which includes cheating, plagiarism, giving assistance on an examination or paper when expressly forbidden by the instructor, and any other practices which demonstrate a lack of academic integrity. It is the responsibility of the student to know and to adhere to principles of academic honesty. A student found guilty of academic dishonesty will be subject to academic sanctions ranging from failure on the assignment to failure in the course too.

### **❖ Ultrasound hands-on laboratory trainings**

Ultrasound hands-on laboratory is included demonstration of the understanding of information presented primarily during lectures. Practical experience will gain under the guidance of a supervisor-teacher.

The syllabus set out includes a competency assessment sheet for training. This should be completed the course of training, as it will help to determine in which area(s) the student can practice independently. Students are expected to arrive to class on time, and stay through the end of Ultrasound laboratory class.

### **ATTENDANCE AND PARTICIPATION:**

- Students who are tardy, who arrive after roll is taken or leave before the end of class will receive only half-credit for attendance
- **Student not allowed being late more than 15 min!**
- If you are late or absent, a valid excuse such as illness, family emergency, unforeseen heavy traffic or natural disaster is expected. Oversleeping, and working on films are not considered valid excuses
- No requirements to make up any work missed as a result of an absence. However, it is your responsibility to obtain class notes; you may have missed, from other class members

### **IN-CLASS PRESENTATION (PROJECT):**

Each student prepares a power-point presentation on ultrasound vascular diagnostic topic of his/her choice. The presentation should be approximately 10 minutes long, 5 minutes discussion. The topics and format for the presentation will be discussed in class. A final draft of the presentation must be submitted for review one week prior to the presentation. An article related to the presentation for students to review must also be submitted one week prior to the presentation. For the grading of students will be to prepare 3 questions from the topic submitted for the student presentation. The questions will be due on the day of each of the presentations and will be used to help guide class discussions of the presentation topics.

### **Evaluation Criteria for Presentation:**

- Clinical statement
- Background information
- Slide content
- Slide design
- Resolution of the problem
- Oral presentation

### **TESTING:**

#### ❖ **Quizzes:**

The student will take **10 tests 10-15 questions each**. These quizzes will address the detailed content and major concepts presented in the lectures, lecture outlines, text readings, and study guide activities. If the student takes more than ten quizzes, only the best ten quiz scores will be used in calculating the student's total points. An each quiz will be timed, **1 minute for every question to complete**. No make-up quizzes for missed quizzes will be administered (the student will receive no score for missed quizzes).

#### ❖ **Midterm & Final examination:**

- **The student will take written midterm test of 50 questions and final examination of 100 questions**
- The written examinations are proctored and will be closed-book exams
- Students will not be allowed to refer to texts, notes, nor other materials while taking the exams
- The scantron machines will be used in grading multiple-choice tests
- **Only one time RETESTS will be given**
- The student must take the exam during the scheduled time period
- A student missing an exam because of an illness or legitimate emergency may take a make-up exam as soon as possible after the student returns from the illness and as determined by the instructor. In such a circumstance, the student should make every reasonable attempt to contact the instructor before the exam period is over (or as soon as possible)

- While make-up exams will cover the same content area as a missed exam, the exam format and specific questions may be different
- ❖ **Ultrasound Hands-on Laboratory Examination:**
  - Final ultrasound hands-on examination student have to demonstrate understanding of information presented primarily during lectures and hands-on laboratory trainings
  - Student will schedule time and date 2-3 week ahead to Ultrasound hands-on laboratory examination
  - Student(s) need to be at the Ultrasound Lab – ready to start scanning at the exact time you scheduled your exam for. (It is recommended that you arrive about 15 minutes prior to your scheduled exam time)
  - If a student is late for his/ her scheduled exam time – Your time CANNOT be changed and you will NOT get a full hour! If you are late, you will only have the remaining time left in your hour
  - On exam days, you may come to class, but it is not mandatory until your scheduled exam time
  - **Only one time RETESTS will be given students with** a valid excuse such as illness, family emergency, unforeseen heavy traffic or natural disaster

Grading		%
Lecture	Final Exam	20%
	Midterm	20%
	Tests/Quizzes	10%
	Attendance lecture classes	10%
	Presentation	10%
laboratory	Performance of ultrasound scanning protocols	20%
	Attendance Lab classes	10%
Total		<b>100%</b>

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
<b>49≤</b>	F

## **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, he or she should notify the instructor before the class period begins
- Students are expected to treat faculty and fellow students with respect. For example, students must not disrupt class by leaving and reentering during class, must not distract class by making noise, and must be attentive to comments being made by the instructor and by peers
- Never speak while the teacher is speaking
- Always raise your hand to speak or to leave your seat, and wait for a response before speaking.
- **Disruptive behavior will not be tolerated**, including touching of other classmates or their belongings
- 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 lecture and ultrasound laboratory classes
- Drinks only in closed container
- Please turn off your cell phones, and refrain from activities that disrupt the class (such as eating and walking in and out of the room while class is in session)
- 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)
- To encourage the free flow of conversation, no part of any class may be recorded on audio or video media without the permission of the instructor. You may record notes by hand or by typing into a mobile computer
- The presence of guests to listen to any part of a class requires the consent of the teacher

**SCHEDULE:**

<b>FALL 2011 DI 155 / UT 155 – Doppler Vascular Imaging</b>				
<b>Mondays (Lecture) &amp; Wednesdays (Lab), 9:00 – 11:45 am</b>				
<b>Weeks#</b>	<b>Date</b>	<b>Lecture# / Topics</b>		<b>Test#</b>
Week 1	lec-1	22-Aug	Carotid & Vertebral Duplex Ultrasound (1)	Test#1
Week 2	lec-2	29-Aug	Carotid & Vertebral Duplex Ultrasound (2)	Test#2
Week 3		5-Sep	HOLIDAY	
Week 4	lec-3	12-Sep	Peripheral Arterial Vascular Imaging (1)	Test#3
	lab-1	14-Sep	Ultrasound hands-on lab	
Week 5	lec-4	19-Sep	Peripheral Arterial Vascular Imaging (2)	Test#4
	lab-2	21-Sep	Ultrasound hands-on lab	
Week 6	lec-5	26-Sep	Peripheral Arterial Vascular Imaging (3)	Test#5
	lab-3	28-Sep	Ultrasound hands-on lab	
Week 7	lec-6	3-Oct	Peripheral Venous Imaging (1)	Test#6
	lab-4	5-Oct	Ultrasound hands-on lab	
Week 8	lec-7	10-Oct	Peripheral Venous Imaging (2)	Test#7
	lab-5	12-Oct	Ultrasound hands-on lab	
Week 9	lec-8	17-Oct	<b>MIDTERM / PRESENTATION</b>	
	lab-6	18-Oct	Ultrasound hands-on lab	
Week 10	lec-9	24-Oct	Peripheral Venous Imaging (3)	Test#8
	lab-7		Ultrasound hands-on lab	
Week 11	lec-10	31-Oct	Peripheral Venous Imaging (4)	Test#9
	lab-8		Ultrasound hands-on lab	
Week 12	lec-11	7-Nov	Abdominal Blood Vessels Imaging (1)	Test#10
	lab-9	9-Nov	Ultrasound hands-on lab	
Week 13	lec-12	14-Nov	Abdominal Blood Vessels Imaging (2)	Test#11
	lab-10	16-Nov	Ultrasound hands-on lab	
Week 14	lec-13	21-Nov	Abdominal Blood Vessels Imaging (3)	Test#12
Week 15		28-Nov	<b>FINAL EXAM – WRITTEN</b>	
Week 16		5-Dec	<b>Review of FINAL EXAM – WRITTEN</b>	

The syllabus updated 08/22/2011

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