



LINCOLN UNIVERSITY

DI 254 – Transcranial Doppler Imaging Course Syllabus

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| Semester: | Spring 2015 |
| Course No. & Title: | DI 254 – Transcranial Doppler Imaging |
| Instructors: | Dr. Dusica Ristic, MD, RDMS, RVT, RDCS; Lecture Ms. Jacqueline Anderson, RDMS; Lab |
| Units: | 4 units = 3 units of lecture and 1 unit of lab (75 total contact hours = 45 lecture hours + 30 lab hours) |
| Class Hours: | Mondays, 3:30 PM – 6:15 PM (Lecture) Mondays, 12:35 PM – 3:20 PM (Lab) |
| Contact: | Diagnostic Imaging Lab Phone No. 510-238-9744 |
| Email: | Dr. Ristic: dristic@lincolnuca.edu Ms. Anderson: janderson@lincolnuca.edu |
| Office Hours: | By appointment only, M & F |

REQUIRED TEXTBOOK:

Hagen-Ansert: Textbook of Diagnostic Ultrasonography, Vol. 1&2

7th Edition (2011), ISBN-10: **0323073018**, ISBN-13: **978-0323073011**

Previous edition (6th) is acceptable:

6th Edition (2006), ISBN-10: **0323028039**, ISBN-13: **978-0323028035**

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

COURSE DESCRIPTION:

This course covers the techniques and interpretation of transcranial Doppler sonography as a safe and non-invasive modality. It includes the review of normal cerebral vascular anatomy, pathology, clinical symptoms of the cerebrovascular diseases, and scanning techniques.

(4 units) **Prerequisite: DI 244**

LEARNING OBJECTIVES:

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

- Demonstrate knowledge and understanding of cerebrovascular anatomy.
- Recognize sonographic signs of vascular obstruction.
- Correlate sonographic and laboratory data;
- Describe physiology and pathology of the intracerebral arteriovenous malformations;
- Describe the proper TCDI technique and commonly used sonographic “windows” and probe sites.
- Explain the importance of pre- and peri-operative monitoring of the middle cerebral artery (MCA) flow.
- Demonstrate knowledge of presenting sonographic images in a logical sequence;
- Justify the ultrasound images.

METHODOLOGY:

The previously described topics will be presented through the following:

- Reading assigned textbooks and lecture outlines (handouts);
- Demonstration of lectures by using the Power Point;
- Recommended study guide activities;
- Internet resources;

- Group discussions and ultrasound case analyses;
- Quizzes & examinations;
- Working with ultrasound machines;
- Students' ultrasound hands-on self-study training.

REQUIREMENTS:

- The student is expected to be prepared in advance before the class sessions.
- Being prepared includes the following: having read text materials (e.g., reading textbooks and lecture outlines) assigned for that day's activities and bringing required work materials (e.g., textbook, handouts, writing supplies, etc.) to the session.
- Homework assignments 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.
- 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.

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.
- **Students are not allowed to be more than 15 minutes late.**
- 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 notes from other class members regarding the class session you missed.

IN-CLASS PRESENTATION (PROJECT):

Each student prepares a PowerPoint presentation on an ultrasound 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, students will be asked 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. 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 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 Scranton machine will be used in grading multiple-choice tests.
- **Each student will be allowed to re-take one exam only.**
- 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 and as determined by the instructor. In such circumstances, 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

- During the final ultrasound hands-on examination, students will have to demonstrate understanding of information presented primarily during the lectures and hands-on laboratory training.
- Students will have to 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 exact time you scheduled your exam for (It is recommended that you arrive about 15 minutes prior to your scheduled exam time).
- If you are late for your scheduled exam time, your time CANNOT be changed and you will NOT get a full half hour! If you are late, you will only have the remaining time left in your half hour.
- On exam days, you may come to class, but it is not mandatory until your scheduled exam time.
- **Only one time TEST will be given to students with a valid excuse** such as illness, family emergency, unforeseen heavy traffic or natural disaster. But not after semester end date.

GRADING:

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|------------|--|------|
| Lecture | Attendance | 10% |
| | Midterm | 20% |
| | Final Exam | 20% |
| | Tests/Quizzes | 10% |
| Laboratory | Attendance | 10% |
| | Presentation | 10% |
| | Performance of ultrasound scanning protocols | 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 |

CLASSROOM and LAB 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 the lecture and discussion, no matter who 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. 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 instructor 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 a 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 instructor.
- Medical clothing must be worn in class (Lincoln University blue medical scrub).

LECTURE SCHEDULE: Mondays 3:30-6:15 pm (Dr. Ristic)

| Weeks | Dates | | Topics | Tests |
|--------------|--------------|------------------|---|--------------|
| 1 | Mo | 1/26/2015 | Cerebrovascular Anatomy Review - Extracranial | |
| 2 | Mo | 2/02/2015 | Cerebrovascular Anatomy Review - Intracranial | Test #1 |
| 3 | Mo | 2/09/2015 | TCDI and its Diagnostic Applications | Test #2 |
| 4 | Mo | 2/16/2015 | Presidents' Day (Holiday) – No Class | |
| 5 | Mo | 2/23/2015 | The Transtemporal Approach (1) | Test #3 |
| 6 | Mo | 3/02/2015 | The Transtemporal Approach (2) | Test #4 |
| 7 | Mo | 3/09/2015 | The Transorbital Approach (1) | Test #5 |
| 8 | Mo | 3/16/2015 | The Transorbital Approach (2) | Test #6 |
| 9 | Mo | 3/23/2015 | The Transforamen Magnum Approach | Test #7 |
| 10 | Mo | 3/30/2015 | MIDTERM EXAM | |
| 11 | Mo | 4/06/2015 | Cerebral Vascular Signature (1) | Test #8 |
| 12 | Mo | 4/13/2015 | Cerebral Vascular Signature (2) | Test #9 |
| 13 | Mo | 4/20/2015 | Benefits and Limitations of TCDI | Test #10 |
| 14 | Mo | 4/27/2015 | Review of Lectures | |
| 15 | Mo | 5/04/2015 | FINAL EXAM — WRITTEN (100 questions) | |
| 16 | Mo | 5/11/2015 | Review of Final Exam | |

LAB SCHEDULE: Mondays 12:35-3:20 pm (Ms. Anderson): TBA

Lab Grading:

***Scanning performance: 30%**

Effective use of lab time, demonstrates development of scanning skills, applying scan techniques, effective use of ultrasound machine controls, IE: TGC, Depth PRF, Freq. Transducers, and to improve images on each patient. Complete/full participation and working during class time is expected. Students are encouraged to use open lab time as needed.

***Attendance: 10%**

Absences, late arrival, poor use of class times, early leaves will result in students' poor or failing grade.

***Mid Term: 30%, Final Exam: 30%**

Grade will focus on protocols, annotations to anatomy images, quality of images, demonstrating proper use of ultrasound machines in control adjustments to obtain best anatomy images, basic knowledge of anatomy recognition and location. Exams protocol to images must be completed within allowed time, no retest. Non-completion of exam, poor behavior disruption, requiring assistants or dishonesty will result in failing exam and course.

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. Medical clothing must be worn in Lab (Lincoln University blue medical scrubs). No cell phones are allowed. No eating or drinking.

No cell phones are allowed during lab sessions.

Students' use of lab scanning time is critical in your skills development and will affect grades. No retake of lab exams.

Lab Phone for appointments: 510-238-9744

Syllabus Revised: 1/13/2015