DMS A255: ADVANCED VASCULAR ULTRASOUND

Item	Value
Curriculum Committee Approval Date	12/02/2020
Top Code	122700 - Diagnostic Medical Sonography
Units	2.5 Total Units
Hours	63 Total Hours (Lecture Hours 36; Lab Hours 27)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

This is an advanced vascular course with laboratory exercises. It includes physiological arterial testing of the lower and upper extremities with pathological correlation. PREREQUISITE: DMS A155. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Integrate and analyze knowledge of arterial vascular sonography; differentiate between normal and abnormal findings.

Course Objectives

- 1. Apply Doppler and hemodynamics to arterial sonographic imaging.
- 2. Demonstrate and apply knowledge of normal anatomy of carotids and lower extremities for arterial scanning.
- 3. Understand pathophysiology of carotids and lower extremities.
- 4. Sonography following interventional procedures.
- 5. Treatment for lower extremity arterial disease.
- 6. Treatment for carotid artery disease.

Lecture Content

Hemodynamics Review Venous System Introduce Arterial System Physics of arterial flow Flow states Eddy currents Blood pressure relationships Energy gradients Technical Considerations Instrumentation Ultrasound Machine Color Doppler Pulsed wave Doppler Power Doppler Transducers Artifacts Review of Cross Sectional Anatomy Lower Extremity Arteries Carotid Arteries Vertebral Arteries Pathophysiology of Arterial System Atherosclerotic Disease Aneurysm Stenosis Occlusion Fibromuscular Disease (FMD) Collateral Circulation Risk Factors and Patient History for Arterial Disease Tobacco Diabetes Mellitus (DM) Obesity Genetics Sedentary Lifestyle Coronary Arterial Disease (CAD) Other Exams – Lecture and Discuss: Bypass Grafts Stents Sonographic Assessment Lower Extremities Gray-scale imaging Color Doppler Pulse wave Doppler

Lab Content

Scan tests of the lower extremities and carotid arteries are performed in lab. These consist of gray-scale anatomy, color Doppler and pulsed-wave Doppler.

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- Lab (04)
- DE Live Online Lab (04S)

Instructional Techniques

Lecture, PowerPoint presentations, printed handouts and classroom discussions to encourage critical thinking. Labs consist of actual scanning of the arteries.

Reading Assignments

The student will be required to read assigned chapters in the textbook. The required reading is 3 hours per week.

Writing Assignments

Students will be required to complete workbook assignments weekly. This is 1 hour per week.

Out-of-class Assignments

Students will be required to read from the textbook as well as complete assignments from the workbook.

Demonstration of Critical Thinking

Classroom discussions to encourage critical thinking Students will be required to complete workbook assignments which include short answers and image evaluation.Objective examinations, writing skill evaluation and skill demonstration.

Required Writing, Problem Solving, Skills Demonstration

Objective examinations, writing skill evaluation and skill demonstration.

Eligible Disciplines

Diagnostic medical technology-diagnostic medical sonography, neurodiagnosti...: Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Kupinski, Ann Marie. The Vascular System, Third ed. Baltimore, MD: Lippincott Williams Wilkins, 2018 Rationale: -

Manuals Resources

1. Kupinski, Ann Marie; Garbani, Nathalie; Kendoll, Rachel. A Guide to the Vascular System, Lippincott Williams Wilkins , 12-01-2018

Periodicals Resources

1. . Journal of Vascular Ultrasound, Journal of Society for Vascular Ultrasound Volume 2018

Other Resources

1. printed handouts