



Course Prefix/Number/Title: DMS 241 Vascular Sonography I

Number of Credits: 1 semester credits

Course Description: This course is the study of the anatomy, normal findings and technical principles of ultrasound utilization in the hemodynamic considerations for assessment of the cardiovascular system, cerebrovascular, peripheral and abdominal visceral vascular imaging.

Pre-/Co-requisites: DMS 241L

Course Objectives: The goal of this course is focused on the knowledge, skills and techniques for image acquisition of vascular structures, as well as the appropriate sonographic protocols and image optimization of the vascular structures. Color and spectral Doppler applications will be applied to the appropriate anatomy. This course is integrated with DMS 241L, a hands-on vascular sonographic scanning lab.

Objectives:

1. Describe fluid dynamics in volumetric flow, hydrostatic pressure, resistance applicable to human vasculature.
2. Describe physiology and hemodynamics involved in peripheral vascular and blood flow imaging.
3. Discuss normal carotid vessel anatomy.
4. Describe peripheral arterial and venous anatomy in relation to ultrasound evaluation and assessment of disease.
5. Describe abdominal vascular anatomy and ultrasound assessment and techniques to include aorta, native renal vessels, mesenteric and reproductive organs.

Instructor: Keshia Gathman, Amy Hofmann

Office: Trinity Health

Office Hours: 3-5 pm M-Th and by appointment

Phone: 857-5620

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Lecture/Lab Schedule: 9:00 – 2:00 pm Th September 22 to December 15, MAC Skywalk Rm A

Textbook: Diagnostic Sonography, Hagen-Ansert, 9th Edition; Workbook Diagnostic Sonography, Hagen-Ansert, 9th Edition; Pellerito J., Polak J. Introduction to Vascular Ultrasound, 6th ed; Understanding Ultrasound Physics, S. Edelman, 4th edition

Lab Manual: Trinity Health Clinical Education Handbook

Course Requirements:

Grading is based on completion of assignments, quizzes and test.

Assignments 15%

Quizzes 15%

Test 70%

Consistent with class attendance policy, the student is responsible for attending every class and for the material presented. If a student will not be attending a class, he/she must notify the Program Director prior to absence to plan for makeup time and activities.

Grading Criteria

A = 94-100% of the total points

B = 87 - 93% of the total points

C = 80 - 86% of the total points

F = <79% of the total points

Tentative Lecture Outline:

Date	Topic/Scanning	Assignment/Quiz/Test
9/25	Anatomy and Physiology Relationships of Thoracic Cavity PPT Lecture	Read Ch 30 Hagen-Ansert Assignment #1
10/2	Cont.	Complete Ch 30 Hagen-Ansert Workbook Exer 1-7
10/9	Cont	Assignment #2 Hemodynamics
10/16	Hemodynamics in vascular disease PPT Lecture	Quiz #1 Ch 30 A&P Thoracic Cavity Read Ch 31 Hagen-Ansert Complete Ch 31 Hagen-Ansert Workbook Exer 1-3
10/23	Hemodynamics Edelman Ch 18 PPT Lecture	Quiz #2 Ch 31
10/30	Extracranial Cerebrovascular Evaluation Ch 37 Hagen-Ansert PPT Lecture	Read Ch 37 Hagen-Ansert Extracerebral Vascular Assignment #3 Extracerebral vascular (definitions & short answer) Complete Ch 37 Hagen-Ansert Workbook Exer 1-8
11/6	Review Carotid Arterial Sonography SDMS Video	Assignment #4 Carotid Sonography SDMS Multiple Choice Worksheet
11/13	Intracranial Cerebrovascular Evaluation Ch 38 Hagen-Ansert PPT Lecture	Quiz #3 Ch 37 Extracranial Read Ch 38 Hagen-Ansert Intracranial Cerebrovascular Assignment #5 Intracranial Cerebraovascular
11/20	Cont.	Complete Ch 38 Hagen-Ansert Workbook Exer 1-8
12/4	Cont.	Quiz #4 Ch 38 Intracranial Cerebrovascular
12/11	Review for Final Test	
12/18	Test	Final Test

CTE Competency/Department Learning Outcomes:

CTE Competency #1: Employ industry specific skills in preparation for workplace readiness

Learning outcome #1 - Students will demonstrate critical thinking and problem-solving skills in the classroom and clinical setting. SLO 1.1

Learning outcome#2 - Students will demonstrate knowledge of normal vascular anatomy and critically evaluate related sonographic images for diagnostic quality. SLO 1.2

Relationship to Campus Theme:

This course addresses a DMS Program theme by developing the knowledge and psychomotor scanning skill sets necessary to perform cerebrovascular, extremity and abdominal visceral vascular imaging. Students will be instructed by utilizing the protocols and techniques that are currently used in sonographic imaging.

Classroom Policies

1. Cell phones and related devices are monitored in the classroom at all times. It is recommended that you do not bring your cell phone or other electronic devices into the classroom or, at the very least, get instructor permission to use approved devices as classroom learning resources.
2. Food and beverages are permitted in accordance with classroom policy.
3. Be respectful of other students, instructors, and guests.

Student Email Policy

The Dakota College at Bottineau campus community is increasingly dependent upon electronic communication among faculty, staff and students. A student's campus-assigned e-mail address will be the only one recognized by the campus for official mailings. The liability for missing or not acting upon important information conveyed via email because of a failure to access a campus-assigned e-mail address rests with the student. Additionally, student must provide Trinity Health DMS faculty with a personal email address for communication while in the program.

Academic Integrity

According to the DCB Student Handbook, students are responsible for submitting their own work. Students who cooperate on oral or written examinations or work without authorization share the responsibility for violation of academic principles and the students are subject to disciplinary action even when one of the students is not enrolled in the course where the violation occurred. The Code detailed in the Academic Honesty/Dishonesty section of the Student Handbook will serve as the guideline for cases where cheating, plagiarism or other academic improprieties have occurred. Additionally, dishonesty in the classroom or laboratory and with assignments, quizzes and exams is a serious offense and is subject to disciplinary action by the DMS Program Director. For more information, refer to the Trinity Health DMS Program Handbook policies.

Disabilities and Special Needs

Students with disabilities or special needs (academic or otherwise) are encouraged to contact the instructor, DMS Program Director and Disability Support Services.

Title IX:

Dakota College at Bottineau (DCB) faculty are committed to helping create a safe learning environment for all students and for the College as a whole. Please be aware that all DCB employees (other than those designated as confidential resources such as advocates, counselors, clergy and healthcare providers) are required to report information about such discrimination and harassment to the College Title IX Coordinator. This means that if a student tells a faculty member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty member must share that information with the College's Title IX Coordinator.

AI Student Policy:

Unless otherwise indicated in the course syllabus, or in individual instructions for course assignments, or in the absence of the express consent of the course instructor, students are not allowed to utilize generative AI to help produce any of their academic work. Any violation of this policy will be considered an act of academic dishonesty as outlined within the Dakota College Code of Student Life.

RESPONSIBILITIES

Students	• Responsible to follow the syllabus and assignment instructions regarding use of generative AI for all academic work. • Obtain permission of the instructor prior to the use of generative AI that is outside of the syllabus or assignment instructions. Provide appropriate rationale for how the use of generative AI will enhance the learning experience for the assignment. • In instances where generative AI is permissible, appropriately cite the generative AI program used and indicate where in the assignment it was used, in a brief submission statement.
Faculty	• Determine if the use of generative AI could enhance student learning in any assignment or project. • Clearly indicate in all course syllabi if generative AI is allowable for any academic work. • If allowable, give specific parameters for how and when generative AI may be used. • If a violation of generative AI for the individual course/syllabus is suspected, discuss the concern with the student. If violation is still suspected, inform the appropriate semester coordinator/program director.