

# CLASS SYLLABUS



COURSE TITLE: MIDS 237: Vascular Sonography Procedures  
CLASS SECTION: BX01A & BX01B  
TERM: S2022  
COURSE CREDITS: 3  
DELIVERY METHOD(S): Blended Learning

Camosun College campuses are located on the traditional territories of the Lək̓ʷəŋən and W̱SÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here.  
Learn more about Camosun's [Territorial Acknowledgement](#).

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<https://camosun.ca/about/covid-19-updates>

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*Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.*

## INSTRUCTOR DETAILS

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NAME: Eleze Munro  
EMAIL: [munroe@camosun.ca](mailto:munroe@camosun.ca)  
OFFICE: CHW 317  
HOURS: By Appointment

*As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.*

## CALENDAR DESCRIPTION

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Students analyze anatomic and hemodynamic relationships in the vascular system while learning to recognize the normal and abnormal sonographic appearances of the aorta and other abdominal vessels, carotid arteries, upper and lower peripheral arteries, upper and lower peripheral veins, and superficial vasculature. Students enhance their understanding of the clinical applications of sonography as a diagnostic investigation tool by incorporating manual maneuvers to examinations to reveal physiologic and anatomic information. Students learn to select appropriate vascular scanning protocols based on patient history, physiologic data, laboratory values, and complementary imaging studies.

PREREQUISITE(S): C+ in both MIDS 181 and MIDS 197  
CO-REQUISITE(S): n/a  
PRE/CO-REQUISITE(S): C+ in MIDS 231

## COURSE DELIVERY

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ACTIVITY	HOURS / WEEK	# OF WEEKS	ACTIVITY HOURS
Lecture	3	14	42
Seminar			
Lab / Collaborative Learning	2	14	28
Supervised Field Practice			
Workplace Integrated Learning			
Online			
	<b>TOTAL HOURS</b>		<b>70</b>

## COURSE LEARNING OUTCOMES

Upon successful completion of this course a student will be able to:

- a) explain the significance of hemodynamics on the approach to vascular sonography and discuss the selection of protocols, transducers, and impact on resultant sonographic image quality.
- b) explain how the normal and abnormal sonographic appearance of the aorta and other abdominal vessels, carotid arteries, upper and lower peripheral arteries, upper and lower peripheral veins, and superficial vasculature are differentiated across gender, age, and habitus.
- c) define and apply the components of a diagnostic examination to vascular sonography.
- d) discuss the significance of obtaining accurate measurements and reliable technical impressions on long term surveillance, intervention, morbidity, and mortality for vascular pathologies.
- e) perform manual maneuvers, obtain measurements, and collect images necessary to formulate a complete technical impression of required vascular structures within the recommended Sonography Canada guidelines for scheduling and time allotments while scanning simulated patients, live subjects, or laboratory partners.

## COURSE OBJECTIVES AND MAPPED PROFESSIONAL COMPETENCIES

(also known as “sub-outcomes” or “learning objectives”)

### Sonography Canada Competencies

#### Appendix A

##### Urinary Tract

- 25 Renal Arteries
- 26 Renal Veins

##### Liver Vasculature

- 31 Hepatic Veins
- 32 Hepatic Artery
- 33 Portal Veins

#### Appendix D Extracranial Arteries and Peripheral Veins

##### Extracranial Arteries

- 1 Common carotid artery
- 2 Internal carotid artery
- 3 External carotid artery
- 4 Vertebral artery
- 5 Subclavian artery
- 6 Innominate (brachiocephalic) artery

Peripheral veins, upper extremity, for DVT

- 7 Jugular vein
- 8 Innominate vein
- 9 Subclavian vein
- 10 Axillary vein
- 11 Brachial vein
- 12 Basilic vein
- 13 Cephalic vein

Peripheral veins, lower extremity, for DVT

- 14 Iliac veins
- 15 Common femoral vein
- 16 Femoral vein
- 17 Popliteal vein
- 18 Sapheno-Femoral Junction
- 19 Sapheno-Popliteal Junction
- 20 Deep Calf Veins

Appendix F Vascular:

Abdominal Vascular:

- 1 Aorta
- 2 Celiac trunk
- 3 Hepatic artery
- 4 Superior mesenteric artery
- 5 Superior mesenteric vein
- 6 Inferior mesenteric artery
- 7 Inferior mesenteric vein
- 8 Renal artery
- 9 Renal veins
- 10 Hepatic veins
- 11 Portal veins
- 12 Splenic artery
- 13 Splenic vein
- 14 Inferior vena cava

Cerebrovascular

- 15 Common carotid artery
- 16 Internal carotid artery
- 17 External carotid artery
- 18 Vertebral artery
- 19 Subclavian artery
- 20 Innominate (brachiocephalic) artery
- 21 Intracranial arteries

Peripheral arteries, upper extremity

- 22 Innominate (brachiocephalic) artery
- 23 Subclavian artery
- 24 Axillary artery
- 25 Brachial artery
- 26 Forearm arteries

Peripheral arteries, lower extremity

- 27 Iliac arteries
- 28 Common femoral artery
- 29 Femoral artery
- 30 Popliteal artery
- 31 Calf arteries

Peripheral veins, upper extremity

- 32 Jugular vein
- 33 Innominate vein
- 34 Subclavian vein
- 35 Axillary vein
- 36 Brachial vein
- 37 Forearm veins
- 38 Basilic vein
- 39 Cephalic vein

Peripheral veins, lower extremity

- 40 Iliac veins
- 41 Common femoral vein
- 42 Femoral vein
- 43 Popliteal vein
- 44 Calf veins
- 45 Saphenous veins

5.2e Correlate results from oximetry and / or auscultation.

**REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION**

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**Required:**

Kupinski, A. (2017). The Vascular System (2nd ed.). Wolters Kluwer.

Kendoll, R. (2017). Workbook for diagnostic medical sonography: a guide to the vascular system (2nd ed.). Wolters Kluwer.

**Optional:**

Pellerito, J. & Polak, J. F. (2020). Introduction to vascular ultrasonography. Philadelphia, PA: Elsevier.

**COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION**

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The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

WEEK	DATE	TOPIC	READINGS	LEARNING OUTCOMES	SONOGRAPHY CANADA COMPETENCY
1					

WEEK	DATE	TOPIC	READINGS	LEARNING OUTCOMES	SONOGRAPHY CANADA COMPETENCY
2					
3	May 16 (asynchronous online)	1. Introduction to the course 2. Introduction to the Vascular System- Anatomy, Physiology of the Arterial and Venous Systems	Chapter 4, 5, 6	a, b	
	No Labs				
4	May 23 (online)	1 (a). Carotid Duplex Ultrasound-Scanning technique and protocol 1 (b) Intracranial Arteries  2. Pathology of the Carotid System & Interventions	Chapter 7, 10  Chapter 8, 9	a, b, d	Appendix D: 1, 2, 3, 4, 5, 6  Appendix F: 15, 16, 17, 18, 19, 20, 21
	May 25, 27	Lab: Carotid Doppler		c, e	
5	May 30 (online)	1. Aorta & Iliac Arteries- Anatomy, Pathology and Interventions 2. IVC and Iliac Veins- Anatomy, Pathology and Interventions	Chapter 23  Chapter 26	a, b, d	Appendix F: 1, 14
	June 1, 3	Lab: Carotid Skills Assessment		c, e	
6	June 6	1. Mesenteric Arteries & Renal Arteries and Veins 2. Hepatoportal System- Anatomy, Pathology and Intervention	Chapter 24, 25  Chapter 27	a, b, d	Appendix A: 25, 26, 31, 32, 33 Appendix F: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
	June 8, 10	Lab: Aorta/IVC Mesenteric & Liver Doppler		c, e	
7	June 13	1. Evaluation of Kidney and Liver Transplants 2. FLEX	Chapter 28	a, b, d	
	June 15, 17	Lab: Renal Doppler		c, e	
8	June 20	1. Review Session Workbook Activity 1 Due 2. MIDTERM			
	June 22, 24	Lab: Abdominal Doppler Skills Assessment		c, e	
9	June 27	1. Duplex Ultrasound of the Lower Extremity Venous System 2. Duplex Ultrasound of the Upper Extremity Venous System	Chapter 17  Chapter 18	a, b, d	Appendix D: 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20  Appendix F: 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45
	No Labs	July 1 Holiday			

WEEK	DATE	TOPIC	READINGS	LEARNING OUTCOMES	SONOGRAPHY CANADA COMPETENCY
10	July 4	1. Ultrasound Evaluation and Mapping of the Superficial Venous System 2. Venous Valvular Insufficiency Testing & Interventions	Chapter 19  Chapter 20, 21, 22	a, b, d	
	July 6, 8	<b>Lab:</b> Leg Vein & Arm Vein Doppler		c, e	
11	July 11	1. Indirect Assessment of Arterial Disease- ABI, Segmental Blood Pressures 2. Duplex Assessment of Lower Extremity Arteries	Chapter 11  Chapter 12	a, b, d	Appendix F: 27, 28, 29, 30, 31  5.2e
	July 13, 15	<b>Lab:</b> GSV & LSV Assessment		c, e	
12	July 18	1. Duplex Ultrasound of Upper Extremity Arteries 2. Ultrasound Assessment of Arterial Bypass Grafts	Chapter 13  Chapter 14, 15	a, b, d	<i>Appendix F: 22, 23, 24, 25, 26</i>
	July 20, 22	<b>Lab:</b> Arm & Leg Artery Doppler		c, e	
13	July 25	1. Non-Atherosclerotic Arterial Pathology 2. Hemodialysis Access Grafts <i>Workbook Activity 2 Due</i>	Chapter 16  Chapter 30	a, b, d	
	July 27, 29	<b>Lab: Leg Vein Skills Assessment</b>		c, e	
14	Aug 1	1. BC Day, No Classes 2. Review Session Asynchronous		a, b, d	
	Aug 3, 5	<b>Lab: Leg Artery Skills Assessment</b>		c, e	
15	TBD	<b>Cumulative Final*</b>			

*\*Do not book travel or flights until the final examination schedule has been published by the registrar.*

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced noticed is required. Deadlines scan be reviewed on the [CAL exams page](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

## STUDENT EVALUATION

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DESCRIPTION	WEIGHTING
Workbook Assignments	2%
Quiz	10%
Skills Assessments	28%
Midterm Exam	25%
Final Exam	35%
<b>TOTAL</b>	<b>100%</b>

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the [Grade Review and Appeals](#) policy for more information.

<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf>

## COURSE GUIDELINES & EXPECTATIONS

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## SCHOOL OR DEPARTMENTAL INFORMATION

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Health & Human Services Student Handbook: <http://camosun.ca/learn/school/health-human-services/student-info/index.html>

General Practicum Information: <http://camosun.ca/learn/school/health-human-services/student-info/practicum-info.html>

Allied Health & Technologies Department Handbooks:

- Certified Medical Laboratory Assistant: <http://camosun.ca/learn/school/health-human-services/student-info/program-info/cmla.html>
- Diagnostic Medical Sonography: <http://camosun.ca/learn/school/health-human-services/student-info/program-info/sono.html>
- Medical Radiography: <http://camosun.ca/learn/school/health-human-services/student-info/program-info/mrad.html>

Students enrolled in Allied Health & Technologies Programs must achieve a minimum of 65% or a “COM” in each of their courses to use their course as a pre-requisite and progress in their program.

Students enrolled in Allied Health & Technologies Programs must participate in learning activities that include intimate and direct personal contact with their classmates during supervised practice. Students are training to perform the duties of a healthcare professional. These duties usually require constant, close physical contact with patients and clients. Students may be required to simulate and perform these activities on one another during this course. Students may also be required to use special hygiene practices and protective gear to protect themselves from the transmission of communicable diseases (like COVID-19). Risks associated with learning and performing the physical duties of a healthcare profession cannot be entirely eliminated by any amount of caution or protection. Students who refuse, or are incapable of participating and performing these activities due to personal or medical limitations, may only continue to participate in their course work when supported by officially registered accommodations or temporary medical advisory.

## STUDENT RESPONSIBILITY

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Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

## SUPPORTS AND SERVICES FOR STUDENTS

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Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit <http://camosun.ca/students/>.

Support Service	Website
Academic Advising	<a href="http://camosun.ca/advising">http://camosun.ca/advising</a>
Accessible Learning	<a href="http://camosun.ca/accessible-learning">http://camosun.ca/accessible-learning</a>
Counselling	<a href="http://camosun.ca/counselling">http://camosun.ca/counselling</a>
Career Services	<a href="http://camosun.ca/coop">http://camosun.ca/coop</a>
Financial Aid and Awards	<a href="http://camosun.ca/financialaid">http://camosun.ca/financialaid</a>
Help Centres (Math/English/Science)	<a href="http://camosun.ca/help-centres">http://camosun.ca/help-centres</a>
Indigenous Student Support	<a href="http://camosun.ca/indigenous">http://camosun.ca/indigenous</a>
International Student Support	<a href="http://camosun.ca/international/">http://camosun.ca/international/</a>
Learning Skills	<a href="http://camosun.ca/learningskills">http://camosun.ca/learningskills</a>
Library	<a href="http://camosun.ca/services/library/">http://camosun.ca/services/library/</a>
Office of Student Support	<a href="http://camosun.ca/oss">http://camosun.ca/oss</a>
Ombudsperson	<a href="http://camosun.ca/ombuds">http://camosun.ca/ombuds</a>
Registration	<a href="http://camosun.ca/registration">http://camosun.ca/registration</a>
Technology Support	<a href="http://camosun.ca/its">http://camosun.ca/its</a>
Writing Centre	<a href="http://camosun.ca/writing-centre">http://camosun.ca/writing-centre</a>

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

## COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

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### Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc). If you have a disability, the [Centre for Accessible Learning](#) (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started:

<http://camosun.ca/services/accessible-learning/>

### Academic Integrity

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf> for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

### Academic Progress

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf> for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

### Course Withdrawals Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <http://camosun.ca/learn/fees/#deadlines>.

### Grading Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf> for further details about grading.

### Grade Review and Appeals

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

### Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the "Attendance" section under "Registration Policies and Procedures"

(<http://camosun.ca/learn/calendar/current/procedures.html>) and the Grading Policy at <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>.

### Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf> to learn more about the process involved in a medical/compassionate withdrawal.

### Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence and Misconduct Policy: <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf> and [camosun.ca/sexual-violence](http://camosun.ca/sexual-violence). To contact the Office of Student Support: [oss@camosun.ca](mailto:oss@camosun.ca) or by phone: 250-370-3046 or 250-370-3841

### Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

**Changes to this Syllabus:** Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.