

COURSE SYLLABUS



COURSE TITLE:	MIDS 297 – Cardiac Sonography Procedures 3
CLASS SECTION:	BX01AB
TERM:	F2024
COURSE CREDITS:	3
DELIVERY METHOD(S):	Blended

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

INSTRUCTOR DETAILS

NAME:	Matthew Barbas & Eleze Munro
EMAIL:	BarbasM@camosun.ca 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

Students focus on enhancing their understanding of the clinical applications of cardiac sonography as a diagnostic investigation tool for accurately predicting morbidity and mortality following acute and chronic cardiac events. Students observe, record, and predict the dynamic anatomic relationships in the cardiac system while using advanced cardiac Doppler applications to correlate their findings. Using real time assessments, cardiac tissue measurements, and normal and abnormal images students learn sonographic appearances of pathologic anatomy of the heart and the great vessels.

PREREQUISITE(S):	All of: C+ in MIDS 231; C+ in MIDS 247
CO-REQUISITE(S):	C+ in MIDS 281
EQUIVALENCIES:	N/A

COURSE OBJECTIVES AND MAPPED PROFESSIONAL COMPETENCIES

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

- demonstrate the appearance of cardiac structures in 2-D real time assessment, measure (2D), M-mode assessment, measure - M-mode, pulsed wave Doppler assessment, measure - pulsed wave Doppler, continuous wave Doppler assessment, measure - continuous wave Doppler, colour Doppler assessment, measure - colour Doppler, tissue Doppler assessment, and measure - tissue Doppler

- b) analyze how and why abnormal sonographic appearance of the heart and great vessels develops in the presence of pathology
- c) investigate the etiology of cardiac pathologies across gender, age (including fetal, infant, and occult
- d) cardiac defects), and body habitus in relation to their imaging appearance)
- e) define and apply the components of a diagnostic examination to exercise- and pharmacologically stressed echocardiography patients and their subsequent imaging.
- f) obtain all images and measurements necessary to formulate an accurate technical impression of the required cardiac structures with abnormal and complex cardiac pathologies and within the recommended Sonography Canada guidelines for scheduling and time allotments while scanning simulated patients, live subjects, or laboratory partners.

Sonography Canada Competencies:

3.2b Understand role in transesophageal echocardiography

3.3f: Set up 3-lead electrocardiogram (ECG).

3.3e Understand the application of stress echocardiography

4.1a: Select optimum system and transducer for examination considering patient's age and size, structures being examined and specific indications for examination.

4.1b: Determine and select correct pre-set values.

4.1c: Input patient data.

4.2a: Orient and manipulate transducer.

4.2b: Perform sonographic examination of structures of interest using knowledge of sonographic principles, instrumentation and techniques listed in Appendices E.

4.2d: Adjust instrument controls to optimize image.

5.1a Interpret history, signs & symptoms and other relevant information.

5.1b Assess medical history and health status.

5.1c Modify scope of examination based on clinical history.

5.1d Formulate sonographic scanning strategies.

5.1e Integrate knowledge of anatomy and disease processes.

5.3a: Select optimal acoustic window.

5.3b: Optimize patient position.

5.3c: Employ breathing techniques.

5.3d: Interrogate anatomy in required planes of section.

5.3e: Evaluate images for orientation, identification, and labeling.

5.3f: Evaluate images for quality.

5.3g: Recognize sonographic appearance of normal structures.

5.3h: Recognize artifacts and normal variants.

5.3i: Differentiate artifact and normal variants from anatomic and pathologic findings.

5.3j Recognize and investigate abnormal findings.

5.3l: Ensure all applicable components of examination are complete.

5.4a: Produce diagnostic data documenting sonographic findings.

5.4c Understand the variables and their relationships within calculations.

5.4d: Use spatial reasoning to interpret images.

6.2b: Practice ergonomic techniques

Appendix E Cardiac:

1 Abdominal situs

2 Cardiac position

3 Chest & thorax (adjacent, extra-cardiac)

4 Coronary vessels

5 Hepatic veins

6 Outflow tracts

7 Pulmonary veins

8 Wall layers (endo, myo, pericardium)

9 Wall segments

10 Arch & branches

11 Ascending Aorta

12 Descending Aorta

13 Root

14 Left Atrium

15 Right Atrium

16 Left Atrial Appendage

18 Main pulmonary artery

19 Bifurcation

20 Atrial

21 Ventricular

22 Aortic Valve

23 Mitral Valve

24 Mitral (annulus)

25 Pulmonic Valve

26 Tricuspid Valve

- 27 Tricuspid annulus
- 28 Inferior Vena Cava
- 29 Superior Vena Cava
- 30 Left Ventricle
- 31 Right Ventricle

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Anderson, B. (2022). *A sonographer's guide to the assessment of heart disease*. Echotext.

Assigned D2L Readings

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

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	Learning Objectives	Sonography Canada Competency	Assessments
1	Sept. 2	1. Online – Ventricular Systolic Function 2. Online – Ventricular Systolic Dysfunction	Ch. 2	A, b			
		LAB: Review of Ventricular Systolic Function – Apical Imaging (Focus on Simpson’s Biplane)		a			
2	Sept. 9	1. Diseases of the Great Arteries	Ch. 11	a	1.0-1.14	3.2b, Appendix E: 16,17	Quiz 1
		LAB: Simulator activity – Aortic dissection AoV assessment Parasternal window protocol + Reporting		a,c-1			
3	Sept. 16	1. Pericardial Disease	Ch. 12	b	2.0-2.12		Quiz 2
		LAB: Simulator activity with		a,d		3.3f,4.1a,4.1b, 4.1c,4.2a, 4.2b:	

		Pericardial Effusion) Apical window protocol + Reporting				<i>Appendix E: 14,23,24,30 4.2g,5.1a,5.1c, 5.1d, 5.1e,5.3d,5.3i, 5.3j, 5.4d,6.2b</i>	
4	Sept. 23	1. Intro to Cardiac Embryology	Ch. 15 D2L Readings	b	3.0-4.5		Quiz 3
		LAB: SUB & SSN protocol and Right Parasternal Window + Reporting		a,d			
5	Sept. 30	Truth and Reconciliation 1. Cardiac Positions and the Segmental Approach - Online	Ch 15 D2L Readings	c	5.0-5.3		Quiz 4
		LAB: Echo Complete review		c,d			Lab Assignment Simulator 1 Due Oct 6
6	Oct. 7	1. Intracardiac Shunts (VSDs/PDA) 2. Atrioventricular septal defects	Ch. 15 D2L Readings	b	6.0-6.3		Quiz 5
		LAB: Echo Complete review		b,c			
7	Oct. 14	Thanksgiving 1. Intracardiac Shunts (ASDs) - Online	Ch. 15 D2L Readings	b	7.0-7.5		Quiz 6
		LAB: Strain protocol presentation & demo		a,d			
8	Oct. 21	1. Mid-term					
		LAB: Echo Protocol & Reporting (Case study reporting)		a,d	8.0		

9	Oct. 28	1. Left Ventricular Outflow Tract Obstructions Right Ventricular Outflow Tract Obstructions 2. Transposition of the Great Arteries (d-TGA,I-TGA)	D2L Readings	b	6.0-6.3		Quiz 7
		LAB: Assessment #1 – Complete Echo (50 min.) with report after exam (Tues + Wed.) (Thurs. + Fri.)		a,d	9.0		Lab Assignment Simulator 2 Due Nov 3
10	Nov. 4	1. Atrioventricular septal defects 2. Conotruncal Heart Defects (TOF,DORV,DOL V, TA,IAA)	D2L Readings	b	10.0-11.5		Quiz 8
		LAB: Echo Protocol & Reporting (Case study reporting)		b,c,d			
11	Nov. 11	1. Venous Anomalies Online	D2L Readings	b	12.0-13.24		Quiz 9
		LAB: Contrast demo		b		5.4c	
12	Nov. 18	1. Syndromes, ALCAPA, Cor-Triatriatum 2. Single Ventricle Lesions		b	14.0-15.4	Appendix E: 4	Quiz 10
		LAB: Stress echo demo (side-by side of clips)		a,d			
13	Nov. 25	1. Transesophageal Echocardiography Views	D2L Readings	b	16.0-16.4	Appendix E: 17	
		LAB: TEE demo		b		3.3f, 4.1a,4.1b,4.1c,4.2a, 4.2b Appendix E: 1, 3,5, 6,7,8,9,10,11,12,	

						13,14.15,16 20,21,22,23,24 25,26,27,28,30, 31 4.2d,4.2g,5.1a,5.1b, 5.1c,5.1d,5.1e,5.3a, 5.3b,5.3c,5.3d,5.3e, 5.3f,5.3g,5.3h,5.3i, 5.3l,5.4a,5.4b,5.4d, 6.2b	
14	Dec. 2	1. Final Exam Review		b			
		LAB: Final Skills Assessment – Echo in 45 min with report after exam (Tues + Wed.) (Thurs. + Fri.)					
15	Dec. 9	FINAL EXAM		a,d			

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 notice is required. Deadlines can be reviewed on the [CAL exams page. https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams](https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams)

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Quizzes	15%
Lab Assignments	10%
Midterm Exam	20%
Echo Scan Assessments	30%
Final Exam	25%
	TOTAL
	100%

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](https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf) policy for more information.
<https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf>

COURSE GUIDELINES & EXPECTATIONS

Refer to the [Diagnostic Medical Sonography \(SONO\) Program Handbook](#) for classroom and lab etiquette as well as professional behaviour expectations.

Skills Assessments

Students must successfully complete all critical criteria in the Professional Performance section, and achieve a minimum grade of 65% on the Interrogation and Image Quality section (and each subsection) of all Skills

Assessments in this course to be eligible to use this course as a pre or co-requisite. Students who are unsuccessful at meeting these requirements may receive a “NC” grade and may also risk suspension or removal from the Diagnostic Medical Sonography Program.

Final Skills Assessments are not eligible for repeat assessment.

Students must also achieve a minimum of 65% for their final grade to pass the course and to use this course as a pre or co-requisite.

SCHOOL OR DEPARTMENTAL INFORMATION

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 in order 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

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

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 camosun.ca/services.

Support Service	Website
Academic Advising	camosun.ca/services/academic-supports/academic-advising
Accessible Learning	camosun.ca/services/academic-supports/accessible-learning
Counselling	camosun.ca/services/health-and-wellness/counselling-centre
Career Services	camosun.ca/services/co-operative-education-and-career-services
Financial Aid and Awards	camosun.ca/registration-records/financial-aid-awards
Help Centres (Math/English/Science)	camosun.ca/services/academic-supports/help-centres
Indigenous Student Support	camosun.ca/programs-courses/iecc/indigenous-student-services
International Student Support	camosun.ca/international
Learning Skills	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills
Library	camosun.ca/services/library
Office of Student Support	camosun.ca/services/office-student-support
Ombudsperson	camosun.ca/services/ombudsperson
Registration	camosun.ca/registration-records/registration
Technology Support	camosun.ca/services/its
Writing Centre	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills

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.

Academic Integrity

Students are expected to comply with all College policy regarding academic integrity; which is about honest and ethical behaviour in your education journey. The following guide is designed to help you understand your responsibilities: <https://camosun.libguides.com/academicintegrity/welcome>

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.13.pdf> for Camosun's Academic Integrity policy and details for addressing and resolving matters of academic misconduct.

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:

<https://camosun.ca/services/academic-supports/accessible-learning>

Academic Progress

Please visit <https://camosun.ca/sites/default/files/2023-02/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 <https://camosun.ca/sites/default/files/2021-05/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <https://camosun.ca/registration-records/tuition-fees#deadlines>.

Grading Policy

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.5.pdf> for further details about grading.

Grade Review and Appeals

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

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 <https://camosun.ca/sites/default/files/2021-07/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: <https://camosun.ca/sites/default/files/2021-05/e-2.9.pdf> and camosun.ca/services/sexual-violence-support-and-education. To contact the Office of Student Support: 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 <https://camosun.ca/sites/default/files/2021-05/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

Looking for other policies?

The full suite of College policies and directives can be found here: <https://camosun.ca/about/camosun-college-policies-and-directives>

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.