

CLASS SYLLABUS



COURSE TITLE: MIDS 197 – Cardiac Sonography 1
CLASS SECTION: X01A-B
TERM: W2022
COURSE CREDITS: 3
DELIVERY METHOD(S): Blended

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](#).

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

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

NAME: Kendal Adam & Jason Wong
EMAIL: adamk@camosun.bc.ca | wongj@camosun.bc.ca
OFFICE: CHW 317
HOURS:

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 begin developing their understanding of clinical applications for cardiac sonography as a diagnostic investigation. Students observe dynamic anatomic relationships in the cardiac system while learning to recognize the normal cross-sectional sonographic appearances of the anatomy of the heart and the great vessels. Students learn to select appropriate scanning protocols based on patient history, physiologic data, laboratory values, and complementary imaging studies.

PREREQUISITE(S): **All of:** C+ in AHLT 266; C+ MIDS 167
PRE/CO-REQUISITE(S): C+ in MIDS 181

COURSE DELIVERY

ACTIVITY	HOURS / WEEK	# OF WEEKS	ACTIVITY HOURS
Lecture	3	14	
Seminar			
Lab / Collaborative Learning	2	14	

Supervised Field Practice
Workplace Integrated Learning
Online

TOTAL HOURS

70

COURSE LEARNING OUTCOMES

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

- a) explain the significance of cardiopulmonary hemodynamics on the approach to cardiac sonography and discuss the selection of protocols, transducers, and impact on resultant sonographic image quality.
- b) explain how the normal sonographic appearance of the heart and great vessels relates to the corresponding ECG and are differentiated across gender, age, and habitus
- c) define and apply the components of a diagnostic examination to routine cardiac sonography.
- d) discuss the significance of obtaining accurate measurements and reliable technical impressions on reporting, long term surveillance, intervention, morbidity, and mortality for cardiac pathologies
- e) perform uncomplicated cardiac ultrasound examinations and collect images and measurements necessary to formulate a technical impression of required cardiac structures 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

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

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.
- 4.2g: Use software calculation packages
- 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.
- 5.3l: 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, descending & aortic root
- 12 Left atrial appendage
- 13 Pulmonary artery & bifurcation
- 14 Atrial and Ventricular Septa
- 15 Aortic Valve
- 17 Mitral valve & annulus
- 18 Pulmonic Valve
- 19 Tricuspid Valve & Annulus
- 20 Right Ventricle
- 21 Left Ventricle
- 22 Inferior Vena Cava

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

[Otto, C. M. (2019). Textbook of clinical echocardiography. Philadelphia, PA: Elsevier/Saunders

Referenced Materials:

Lang, R. M., Goldstein, S. A. et al. (2016). ASE's comprehensive echocardiography. Philadelphia, PA: Elsevier/Saunders

Lang et al. (2015). Recommendations for Cardiac Chamber Quantification by Echocardiography in Adults: An Update from the American Society of Echocardiography and the European Association of Cardiovascular Imaging. Journal of the American society of echocardiography, 28(1), pp. 1-39.
<http://dx.doi.org/10.1016/j.echo.2014.10.003>

Ryding, A. (2013). Essential echocardiography. Edinburgh, UK: Elsevier]

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.

Expanded Learning Outcome(s)

c-1) define and apply the following key components of an ultrasound exam: professional conduct, interpret the request, plan the procedure, establish the patient relationship, execute the procedure and conclude the procedure in relation to cardiac sonography.

Week	Date	Topic	Readings	Learning Outcome s	Sonography Canada Competency	Assessments
1	Jan 10	1. Intro to Echocardiography				
		LAB: Parasternal Long Axis Imaging and Ergonomics		e	3.3f, 4.1a, 4.1b, 4.1c, 4.2a, 4.2b <i>Appendix E: 2, 6, 8,9,13,14,15,18, 19,21, 22, 23, 25,26,30</i> 6.2b	
2	Jan 17	1. Parasternal Views (PLAX and PSAX)	Ch. 2 p.33-44	a		Quiz #1
		LAB: Parasternal Long Axis Imaging		a, b, e	4.2b <i>Appendix E: 2, 6, 8,9,13,14,15,18, 19,21, 22, 23, 25,26,30</i>	
3	Jan 24	1. Apical Imaging 2. Ventricular Wall Segments	Ch. 2 p.44-49	a		Quiz #2

		LAB: Parasternal Short Axis Views		a, b, e	4.2b <i>Appendix E: 2, 6, 8,9,14,15,18,19, 20,21,22,23,25,26,30,31</i>	
4	Jan 31	1. Subcostal and Suprasternal views 2. Ergonomics Check	Ch. 2 p. 47-49	c, d		Quiz #3
		LAB: Parasternal Short Axis Views and Sweeping Intro to Apical Views		a, b, e	4.2b <i>Appendix E: 2, 6, 8,9,14,15,18,19, 20,21,22,23,25,26,30,31</i>	Pre-Scan Test (Parasternal Imaging) Lab Assignment #1 Due
5	Feb 7	1. M-Mode Acquisition and Quantification	Ch. 2	a		Quiz #4
		Scan Test 1 Parasternal Imaging		a, b, e	4.2b <i>Appendix E: 2,6,7,8,9,14,15,16,20,21,22,23,24,26,27,30,31</i>	Scan Test 1 Parasternal Imaging
6	Feb 14	1. 2-D and Volume Measurements in Echocardiography	Ch. 6 pp. 147-153			Quiz #5
		LAB: Apical Views		a, b, e	4.2b <i>Appendix E: 2,6,7,8,9,14,15,16,20,21,22,23,24,26,27,30,31</i>	
7		Break Week				
8	Feb 28	1. Mid-Term Review 2. Mid-Term Exam				Mid-Term Exam
		LAB: Intro to Subcostal and Suprasternal Window		a, b, e	4.2b <i>Appendix E: 2,6,7,8,9,14,15,16,20,21,22,23,24,26,27,30,31</i>	
9	Mar 7	1. Cardiovascular Hemodynamics (Cardiac Cycle, P-V curves, regulation of cardiac output, F-S mechanism, ventricular compliance)	Ch. 6 and Ch. 5	d	5.4c	Quiz #6

		2. Clinical Indications and Quality Assurance				
		LAB: Perform 2-D & M-Mode Measurements (LVIDd, LVIDs, LA dimension, LVOT, AoR, Pulmonary Artery, Asc. Aorta)		a, b, e	4.2b Appendix E: 1,2,5,6,10,11,12,14,15,18,19,20,21,22,23,25,26,28,30,31	
10	Mar 14	1. Normal Doppler Flow Patterns in Echocardiography 2. Abnormal Cardiac Doppler Flow Patterns	Ch. 2	c,d	5.4c	Quiz #7
		Scan Test 2 Apical Imaging		e	4.2b Appendix E: 2,6,7,8,9,13,14,15,16,18,19,20,21,22,23,24,25,26,27,30,31,4.2d,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,,5.4d,6.2b	Scan Test 2 Apical Imaging
11	Mar 21	1. Coronary Artery Disease	Ch. 8	b, d	5.3e, 5.3i	Quiz #8
		LAB: Apical Views and LA Volume Calculation		e	4.2b Appendix E: 6,8,9,11,13,14,18,21,30	
12	Mar 28	1. Specialized Echocardiography Applications	Ch. 4	a		Quiz #9

		LAB: 1. 2-D Measurements: RVIDd and RA 2. Perform Simpson's Bi-plane method of disks LV EF		e	4.2b Appendix E: 14,15,31	Lab Assignment #2 Due
13	Apr 4	Flex week		a		Quiz #10
		LAB: Review Lab Test		e		
14	Apr 11	1. The Complete Echo Exam 2. Review for Final Exam 3. Final Scan Test		e	4.2b Appendix E: 2,5,6,7,8,9,10,11 ,12,13,14,15, 16,18,19,20,21,2 2, 23,24,25,26,27,2 8, 30, 31,4.2d,4.2g,5.1 a ,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,,5.4d,6 .2b	Scan Test #3
		LAB: Final Scan Test		e		
15	Apr 18	EXAM WEEK				FINAL EXAM

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 can 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

DESCRIPTION	WEIGHTING
Quizzes	10%
Lab Assignments	10%

DESCRIPTION	WEIGHTING
Scan Tests	25%
Mid Term	25%
Cumulative Final Exam	30%
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](#) policy for more information.

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

COURSE GUIDELINES & EXPECTATIONS

[INSERT TEXT HERE]

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 <http://camosun.ca/students/>.

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

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

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. 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 <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.