

CLASS SYLLABUS



COURSE TITLE: Cardiac Sonography 3
CLASS SECTION: BX01A-B
TERM: F2022
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](#).

<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 and Matthew Barbas
EMAIL: adamk@camosun.ca BarbasM@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): N/A
PRE/CO-REQUISITE(S): C+ in MIDS 281

COURSE DELIVERY

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			
TOTAL HOURS			

COURSE LEARNING OUTCOMES

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

- a) 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 cardiac defects), and body habitus in relation to their imaging appearance)
- d) define and apply the components of a diagnostic examination to exercise- and pharmacologically stressed echocardiography patients and their subsequent imaging.
- e) 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.

COURSE OBJECTIVES AND MAPPED PROFESSIONAL COMPETENCIES

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

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

Required Materials

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.

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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 Outcomes	Sonography Canada Competency	Assessments
1	Sept. 5/22	No class this week (Labor Day)	Ch. 3	a	3.2b, Appendix E: 16,17	
		No Labs this week				
2	Sept. 12/22	1. Transesophageal Echocardiography Views	Ch. 3	a	3.2b, Appendix E: 16,17	
		LAB: Parasternal Views Protocol		a,c-1		
3	Sept. 19/22	1. Intro to Cardiac Embryology 2. Cardiac Positions and the Segmental Approach		b		Quiz 1
		LAB: Parasternal Views Protocol		a,d	3.3f,4.1a,4.1b, 4.1c,4.2a, 4.2b: 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	
4	Sept. 26/22	1. Intracardiac Shunts (ASDs,VSDs,PDA) 2. Atrioventricular septal defects	Ch. 17. p. 474-479,484-491	b		Quiz 2

		LAB: Apical views protocol (Friday Lab group will be on Thurs. Sept. 29 at 2 PM because of Friday Holiday)		a,d	3.3f,4.1a,4.1b, 4.1c,4.2a, 4.2b: Appendix E: 6,14,15,22,23, 24,25,26,27, 30,31, 4.2g,5.1a,5.1c, 5.1d, 5.1e,5.3d,5.3i, 5.3j,5.4d,6.2b	Lab Assignment 1 Due
5	Oct. 3/22	1. Left Ventricular Outflow Tract Obstructions 2. Right Ventricular Outflow Tract Obstructions	Ch 17. p. 480-483	c	3.3e	Quiz 3
		LAB: Apical views protocol		c,d	3.3f,4.1a,4.1b, 4.1c,4.2a, 4.2b: Appendix E: 8,9,14,15,30, 31, 4.2g,5.1a,5.1c, 5.1d, 5.1e,5.3d,5.3i, 5.3j, 5.4d,6.2b	
6	Oct. 10/22	1. Thanksgiving (No lecture on Monday) 2. Conotruncal Heart Defects (TOF,DORV,TA)	Ch. 17 p. 497-498	b		Quiz 4
		LAB: Subcostal and Suprasternal Protocol, Apical and Right parasternal window (Pedoff Probe)		b,c		Lab Assignment 2 Due
7	Oct. 17/22	1. Midterm - Review		b		Quiz 5
		LAB: Echo Viewpoint Reporting Overview		a,d		
8	Oct. 24/22	1. Midterm		b		
		LAB: Clinical Goals Review		a,d		
9	Oct. 31/22	1. Transposition of the Great Arteries (d-TGA,I-TGA) 2. Venous Anomalies	Ch. 17 p. 484-491	b		

		LAB: Echo Reporting – Cases		a,d		
10	Nov. 7/22	1. Single Ventricle Lesions 2. Syndromes, ALCAPA, Cor-Triatriatum		b		Quiz 6
		LAB: No Labs – Remembrance Day		b,c,d	3.3f,4.1a,4.1b, 4.1c,4.2a, 4.2b: Appendix E:6, 20,21,22,23, 24,25,26,27, 4.2g,5.1a,5.1c, 5.1d, 5.1e,5.3d,5.3i, 5.4d,6	
11	Nov. 14/22	1. Stress, Dobutamine and Contrast Echocardiography 2. Advanced Heart Failure Therapies		b		Quiz 7
		LAB: 1. Portfolio Catch up		b	5.4c	Lab Assignment 3
12	Nov.21/22	1. Interventional Echocardiography Procedures (TAVI, MitraClip, LAA Occluder, Septal Defect Closure Devices)	Ch. 17 p.498	b		
		LAB: 1. Exercise Stress test simulation		a,d	3.3f,4.1a,4.1b, 4.1c,4.2a, 4.2b: Appendix E: 1,2, 3,5,6,7,10,11,12, 20,21,22,23,25, 26,28,30,31	
13	Nov.28/22	1. Work on Group Presentations		b		Quiz 8
		LAB: Echo Full Exam Due		b		
14	Dec. 5/22	1. Final Exam Review		b		
15	Dec. 12/22	FINAL EXAM		a,d	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	
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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

DESCRIPTION	WEIGHTING
Quizzes	15%
Lab Assignments	15%
Midterm Exam	25%
Echo Full Exam Portfolio	20%
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](http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf) 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

[INSERT TEXT HERE]

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.