



Adult Echo I

DMS141.11

Number of Credits: 4

Days Class Meets: Online

Meeting Times: Online

Location/Venue: JetNet

Instructor: Lindsay Mercer, BS, RDCS

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Contact Email: mercirlindsayl@jccmi.edu

Online Office Hours: Online Monday and Thursday 12:30 pm – 3:00 pm, Office Wednesdays 10 am – 1 pm.

Students should not hesitate to contact me as needed. The best method is through the JC email. I will reply within 24-36 hours unless notice is otherwise given.

Course Description

In this course, students learn fundamentals of cardiac pressures, cardiac cycle, and the cardiac conduction system. Studies include: cardiac valves-normal and abnormal conditions, flow abnormalities, and physiological complications from these conditions. These studies are for preparation of applying correct techniques in the acquisition of sonographic cardiac images.

Prerequisite(s)

Acceptance into the CSON program.

Co-requisite(s)

DMS 140, DMS 142, and DMS 196.

Course Goals

Program Overarching Goal: To prepare competent entry-level cardiac sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains. Successful graduates will:

- 1. Program Goal: The graduate will exhibit a professional attitude and behavior appropriate to the healthcare setting (affective).**

Student Learning Outcome:

1. Demonstrate behaviors and attitudes that show sensitivity and acceptance of individual and cultural differences, and respecting diversity.
2. Demonstrate effective communication skills with patients and all members of the healthcare team.
3. Demonstrate compassionate patient care and education during sonographic procedures to promote overall well-being.
4. Demonstrate a commitment to lifelong learning.

- 2. Program Goal: The graduate will exhibit critical thinking skills during the performance of adult echocardiographic procedures providing diagnostic quality (cognitive).**

Student Learning Outcome:

1. Collect and combine, assess, and analyze cardiovascular sonographic images for the purpose of physician diagnosis.
2. Evaluate normal and abnormal cardiovascular anatomy and recognize cardiovascular pathologic conditions.
3. Collect, review and integrate pertinent patient data to facilitate optimum diagnostic results.
4. Composition of complete and accurate sonographic findings to the interpreting physician to facilitate patient diagnosis.

- 3. Program Goal: The graduate will have the ability to operate cardiovascular ultrasound equipment and determine proper techniques to produce quality sonographic images (psychomotor).**

Student Learning Outcome:

1. Application of ultrasound principles and instrumentation relative to imaging and image quality to produce diagnostic adult cardiac sonography examinations.
2. Demonstrate adult cardiac sonography procedures appropriately and accurately recording all anatomic and physiologic information for interpretation by a physician.
3. Demonstrate achievement of clinical competency through the performance of adult cardiac sonography by meeting or exceeding measurable clinical scanning competencies.

Course Objectives

Learn and use proper nomenclature of the heart as it pertains to the echocardiogram.

Learn and apply hemodynamic equations as required in the echocardiogram.

Gain knowledge of the ECG and its application to the echocardiogram.

Learn about the cardiac cycle, cardiac pressures, and how they apply to the echocardiogram.

Understand aortic valve normal and abnormal function. Learn quantification methods for aortic valve stenosis.

Understand mitral valve normal and abnormal function. Learn quantification methods for mitral valve stenosis.

Understand valvular regurgitation. Learn quantification methods for regurgitation.

Textbook (chose appropriate options below, delete what does not apply)

- Palma, Richard, Echocardiographer's Pocket Reference, Fifth Edition 2020, ISBN 978-0578687179, Arizona Heart Foundation.
- Otto, Catherine M. Textbook of Clinical Echocardiography, Sixth Edition 2018, ISBN 978-0323480482, Elsevier Saunders. www.elsevier.com
- *Textbook Zero! This textbook is available in a digital format from amazon.com (Kindle). You can also check with the JC bookstore or your local library regarding possible digital formats.
- Anderson, Bonita, Echocardiography, The Normal Examination and Echocardiography Measurements, Third Edition 2017, ISBN 978-0992322212, MGA Graphics, Australia, www.echotext.com, www.amazon.com
- Harry, Mark J. Essentials of Echocardiography: An Illustrative Guide. Fourth Edition 2013, ISBN: 978-0989428002, Cardiac Ultrasound Consulting. www.cardiotextpublishing.com
- Dewitt, Susan K. Echocardiography from a Sonographer's Perspective: Notebook & Workbook Package, 7th Edition 2018, www.echonotebook.com

ADDITIONAL REQUIRED LEARNING RESOURCE

- Simulation Echocardiography by KeLabs. <https://www.kelabs.com/products/introduction-to-echocardiography> **This can only be purchased through the JC bookstore.

ADDITIONAL TEXT (NOT REQUIRED)

- Armstrong, Ryan, *Feigenbaum's Echocardiography*. Eighth Edition 2018, ISBN 978-1451194272, Lippincott Williams & Wilkins.

Text Book Zero. This text is available in a digital format. Please see the links posted on our class Jet Net site. This text is available to rent or purchase in digital format through the JC Bookstore.

Exam Process- Respondus

To protect the fairness and integrity of the exams, students will be required to take exams using Respondus Lockdown Browser and Monitor. This is an online test proctoring software that requires a download to your computer. Training and practice of Respondus technology will be provided in advance of the first exam. A Mac or PC that has a webcam and microphone is required to use Respondus. If you do not have this technology, please contact your instructor right away. Students are expected to complete the Respondus Practice quiz on time. This is to give our IT department time to help troubleshoot issues **before** exam 1 begins. Failure to complete the Respondus quiz on time may result in instructor-initiated drop.

Grading Procedure

ONLINE QUIZZES, TESTS, EXAMS: You must have a reliable internet connection to be successful in this course. If you do have Internet problems, you will need to take your assessments at the JC testing center, local library, or a college-testing center near you. Tests, quizzes and exams cannot be reset if you should lose your connection while taking your exam. The resetting of exams diminishes the integrity of the exam. ***Proctoring requirements will be required for some exams.*** If you have any questions regarding this, please speak to me ASAP.

****YOU MUST COMPLETE ALL QUIZZES, ASSIGNMENTS, AND EXAMS FOR THIS COURSE. FAILURE TO DO SO CAN RESULT IN AN INCOMPLETE GRADE. JPEG FILES ARE NOT ACCEPTED****

5 quizzes	95 pts.
M-Mode, Valve Worksheet	20 pts.
Mitral Worksheet	25 pts.
Mark Harry x 2 (AS and MS)	25 pts.
WorkBook 7 Questions	150 pts.
KeLabs Sim Echo Cases	35 pts.
2 tests at approx. 100 pts. each	200 pts.
1 mid-term exam	191 pts.
1 final exam	225 pts.
Total points possible	961 pts.

Grading Scale

GPA	GRADE RANGE
4.0	95-100%
3.5	90-94%
3.0	84-89%
2.5	80-83%
2.0	75-79%
1.5	70-74%
1.0	65-69%

Failure

GRADE POLICY: STUDENT MUST RECEIVE A 2.0 OR HIGHER IN ALL CORE CURRICULUM COURSES TO REMAIN IN THE PROGRAM. STUDENTS WHO EARN BELOW A 2.0 WILL BE UNABLE TO CONTINUE FURTHER COURSEWORK AND WILL BE REMOVED FROM THEIR CLINICAL EDUCATION CENTER.

A 2.0 is a passing grade. Only courses with passing grades count toward graduation. Other colleges transfer in only courses with passing grades. Many financial aid sources, including most employers, require passing grades. Additionally, earning less than a 2.0 in a class results in not being able to participate in the next level of courses in a discipline that requires this course as a prerequisite. If you attempt to register for the next course sequence and have not passed the prerequisite course, you will be dropped from that class.

Academic Honesty Policy

Academic Honesty is defined as ethical behavior that includes student production of their own work and not representing others' work as their own, by cheating or by helping others to do so.

Plagiarism

Plagiarism is defined as the failure to give credit for the use of material from outside sources. Plagiarism includes but is not limited to:

- Submitting other's work as your own
- Using data, illustrations, pictures, quotations, or paraphrases from other sources without adequate documentation
- Reusing significant, identical or nearly identical portions of one's own prior work without acknowledging that one is doing so or without citing this original work (self-plagiarism)

Cheating

Cheating is defined as obtaining answers/material from an outside source without authorization. Cheating includes, but is not limited to:

- Plagiarizing in any form
- Using notes/books/electronic material without authorization
- Copying
- Submitting others' work as your own or submitting your work for others
- Altering graded work
- Falsifying data
- Exhibiting other behaviors generally considered unethical
- Allowing your work to be submitted by others

Accessibility

Jackson College understands that cultivating a broadly diverse community is crucial to our educational mission and to our foundational commitment to leadership and service. Jackson College is fully committed to ensuring our courses are accessible to everyone including those with disabilities. We are currently working to increase accessibility and usability of our course materials in order to meet or exceed the requirements of Section 508 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1991 and Web Content Accessibility Guidelines (WCAG) 2.0. For more information about Jackson College's efforts to ensure accessibility please visit the [Jackson College accessibility web page](#).

If you have an accessibility need in any of our classes please e-mail the Center for Student Success at JCCSS@jccmi.edu or visit the [Center for Student Success web page](#).

Support

At the Center for Student Success (CSS), we are committed to providing all students the opportunity to achieve academic success by providing a variety of support services free of charge to Jackson College students. This includes, but is not limited to, peer and faculty tutoring, mental health referral, temporary assistance with transportation, various workshops/seminars, and the TRIO program.

In addition, the CSS staff is committed to adapting the College's general services to meet the individual needs of otherwise qualified students with disabilities, for the purpose of providing equal access to all programs and facilities.

Oasis Center

During a student's college experience, one might encounter situations that impact their learning environment. When these situations occur, support from the Oasis Center is available to provide short-term assistance. If the situation requires ongoing support, the Oasis Center staff can provide that level of support or will assist the individual in securing an outside agency to provide it.

For more information visit the Jackson College Oasis Center webpage <https://www.jccmi.edu/the-oasis-center/>

Health Clinic

Jackson College has partnered with Henry Ford Allegiance Health to offer healthcare to Jackson College students and employees. The Jackson College Health Clinic (JCHC) is located on Central Campus in the Justin Whiting Hall, Room 111. The caring and professional staff at the JCHC provides quality healthcare, including annual exams (physicals, program physicals and sports physicals), acute and chronic illness care and preventative health care (It's Your Life).

For more information visit the Jackson College Health Clinic webpage <https://www.jccmi.edu/health-clinic/>

Dental Clinic

Community members may utilize Jackson College Dental Hygiene Clinic, which offers dental hygiene services while helping students gain experience. Students work under the supervision of license dental hygiene instructor and dentist as they offer preventative services.

For more information visit the Jackson College Dental Clinic webpage <https://www.jccmi.edu/dental-hygiene/dental-hygiene-dental-clinic/>

Course Management

If a student feels they are struggling or may be unable to complete the course, they must contact the instructor/program director as soon as possible to discuss options for moving forward in the program.

Grades will be changed only for incomplete grades or faculty/clerical error. The last grade earned will be used in computing a student's cumulative grade point average. All grades will remain on the student's academic records and any grade not used to compute a student's GPA will be designated. The complete credit hours will be counted only once for each degree/certificate purposes.

The DMS student must complete all course/program requirements for graduation within a maximum of two (2) years.

Makeup Policy

No late assignments will be accepted unless prior arrangements have been made.

Help

Available learning services or opportunities for students seeking help with their course work. May include information about tutors, learning centers, reserved library materials, counseling services.

Academic Advising

Student success navigators serve not only as academic advisors but as a student's academic, financial, and total resource advocate or coach.

Students will have an assigned navigator to meet with for advising and any questions they may have. Navigators will serve as the "go-to" person to help students throughout the college experience.

It is important to know your Student Success Navigator. You may find your Navigator by visiting this website <https://www.jccmi.edu/academics/academic-advising/> and click on your pathway. You should also receive an email from your Navigator at the beginning of the semester.

Student Responsibilities

To be available and ready for each session to cover the necessary topics and to demonstrate their ability to meet performance objectives. It is expected by the instructor that all assignments and readings will be completed on time prior to class so that the student may have the best opportunity to understand the lecture material and make inquiries of difficult topics. The very nature of this program makes it very difficult for one to catch up once they have gotten behind.

It is also the student's responsibility to possess a secure Internet connection for testing purposes. If the students' ISP kicks them off the Internet during a test, the student will not be allowed to take test again and will receive a zero for that test. Students can find secure Internet connection at their local library or community college.

Attendance- Participation Policy

Regular class participation and keeping up on the reading and assignments is strongly correlated with survival in college. It is my recommendation that you plan to do your assignments and take your exams BEFORE the last day they are due. If problems occur, there is time to fix them before the deadline.

In compliance with Federal Title IV funding requirements, as well as college initiatives, I will be monitoring student participation on a regular basis and officially reporting student activity throughout the term to assure compliance with college policy and federal regulations. It is imperative that you log in to the course and actively participate within the first couple of days of the term to validate your enrollment in the course. After that, not actively participating in class may result in you being withdrawn from the course. Being withdrawn from a course can have an impact on financial aid, billing, athletic eligibility, and housing status. As a college student you are responsible for how your participation impacts your academic progress; the accountability lies with you.

Expectations and Requirements of Students

Please note: The format and timing of this course may need to change due to unforeseen circumstances.

In particular: school closings, instructor illness, weather, or other situations that may arise.

Courtesy toward everyone (instructor and fellow students) is expected and will be monitored and maintained at all times. Online forums are a place for learning, sharing, and communication with one another. If there is disagreement, that's fine, but we handle it with professionalism and courtesy.

Calendar

Reading assignments should be completed prior to each week's lesson in order to maximize learning.

See JetNet for assignment instructions and due dates. Reading assignments and/or assessments may be modified to enhance student learning.

***Syllabus is subject to modification as needed throughout the course. See JetNet for assignment instructions and due dates. Reading assignments and/or assessments may be added to enhance learning.*

WEEK #	DATE	TOPIC	HOMEWORK
1	Jan 10	Orientation, Anatomy of the chest and heart. Cardiac cycle	<i>Dewitt pgs 5-24 (stop at #9.), Palma pgs 7-14</i> WorkBook 7 Qs – See JetNet Quiz 1 – DUE Jan 16th
2	Jan 17	Cardiac Conduction	<i>Dewitt pgs 29-34, Harry pgs 15-16, 20, & 22, Palma pgs 15-16 (electrophysiology)</i> WorkBook 7 Qs – See JetNet Quiz 2 – DUE Jan 23rd
3	Jan 24	Systole and Diastole, Normal cardiac physiology, and Coronary vessels.	<i>Dewitt pgs 1-4, Palma pgs 16-17 (wiggers)</i> WorkBook 7 Qs pages 7-17 - DUE Jan 30th
4	Jan 31	Catch up and odds and ends Review pressures, diastole, systole, IVRT, IVCT, Wigger's Diagram. Coronary arterial and venous circulation.	<i>Otto pgs 204-207 & review Dewitt pgs 17-18</i> Test I – DUE Feb 6th
5	Feb 7	Valves, M-mode and 2D	<i>Anderson 75-80, Otto 49-52 and images, Harry 23-24</i> M-Mode, Valve Work Sheet – DUE Feb 13th
6	Feb 14	The complete Exam and Regurgitation (what is it and what does it look like)	<i>Part I – Anderson pgs 129-137, Dewitt pgs 164-166, 169-170</i> <i>Part II - Anderson 33-81, Harry 72-104, Dewitt pgs 65-106</i> WorkBook 7 Qs – See JetNet

			KeLabs Folder Lesson 6 – DUE Mar 20th
7	Feb 21	Aortic Valve Aortic Stenosis	Anderson pgs 233-240, Dewitt 155-157 (Bernoulli), 164-168, 187-194 Otto 288-305, Palma 196-208, 524, 525-526 (Bernoulli), 531-532 Mark Harry 105-113, 115-120, Mark Harry PDF extra reading on JetNet WorkBook 7 Qs – See JetNet KeLabs Folder Lesson 7 – DUE Mar 21st Quiz 3/Aortic WS & Mark Harry WS DUE Feb 27th
8	Feb 28	Midterm	Midterm Exam – DUE Mar 6th
9	Mar 7	Mid-Semester Break	
10	Mar 14	Continue week of Aortic Valve and Aortic Stenosis	Continue readings from week 7 on AS KeLabs Cases Lesson 6 & 7, WorkBook 7 Qs pages 57-65 & Quiz 4 – ALL DUE Mar 20th
11	Mar 21	Mitral Valve Part I	Otto 305-315, Anderson 244-247, Harry 149-161, Dewitt pgs 171-176, Palma 240-246 WorkBook 7 Qs – See JetNet Mark Harry Q&A WS - DUE Mar 27th
12	Mar 29	Mitral Valve Part II	Palma pgs 246 – 250, 521-522, 533, 548 WorkBook 7 Pages 58-60, Mitral WS & Test II – DUE Apr 3rd

13	Apr 4	Regurgitation, Prolapse and Pressures PISA	<i>Dewitt</i> pgs 177-186, 203 <i>Otto</i> pgs 324-336 ,345-359, <i>Harry</i> 163-169, 171-176 Addtl reading reference <i>Palma</i> pg 218-231 <i>PISA</i> - <i>Anderson</i> pgs 207, 211-212, 270-273, <i>Palma</i> 542-544 <i>WorkBook 7 Qs – See JetNet</i> <i>KeLabs Folder Lesson 10 – DUE Apr 24th</i>
14	Apr 11	ASE Guidelines for Native Valvular Regurge Webinar and ASE MR in MVP Case presentation	<i>WorkBook 7 Qs pages 60-62 & Quiz 5 - DUE Apr 17th</i>
15	Apr 18	Review for Final Exam	<i>KeLabs Cases Lesson 8/9 & 10 – DUE Apr 24th</i> <i>BBB Review Session - TBD</i>
16	Apr 25	Final Exam	<i>Proctored Final Exam – Opens April 22nd and closes April 29th</i>

Important Dates:

MONDAY 03/07/2022- FRIDAY 03/11/2022	MID-SEMESTER BREAK-NO CLASSES
SUNDAY 04/30/2022	END OF FALL SEMESTER