



Figure 1: Owens Logo.

**Course Syllabus
SEMESTER
School of Nursing and Health Professions
Department of Sonography**

<i>Course Name:</i>	Cardiac Ultrasound IV
<i>Course & Section Number:</i>	DMS 232-XXX
<i>Meeting Day(s) & Time(s):</i>	
<i>Credits:</i>	3
<i>Contact Hours:</i>	3
<i>Instructor's Name:</i>	
<i>Office Hours & Location:</i>	
<i>OCC Phone:</i>	
<i>OCC Email:**</i>	
<i>Additional Contact Information:</i>	

****Please use only Owens email for course communications.**

Catalog description: Continuation of pathology and pathophysiologic conditions of the heart. Comparison of physical signs, symptoms, and indications for an echocardiogram will be reviewed for each major pathology. Correlation with history and physical examination, laboratory tests, pharmacology, invasive and non-invasive testing, and sonographic findings as it relates to various cardiovascular pathologies and disease processes. Doppler techniques and measurements of the diseased heart will be discussed. Further compares specialized cardiac imaging techniques and procedures, including ultrasound enhancing agents. Principles of quality assessment in cardiac sonography will also be introduced.

Prerequisite: DMS224, DMS 230

Corequisites: DMS 225, DMS 226

Course Materials:

Palma, Richard. Echocardiographer's Pocket Reference Fifth Edition. Arizona Heart Foundation School of Cardiac and Vascular Ultrasound. 2020 ISBN 0578687178

Dewitt, Susan. Echocardiography...From a Sonographer's Perspective. Launch Printing & Promotions. 2022

Microsoft Word 2010 and Microsoft PowerPoint 2010 (or viewers) will be necessary to access course materials in Blackboard.

Additional recommended material:

Lang, R., et al. ASE's Comprehensive Echocardiography, 3rd ed. Elsevier, 2021 ISBN-13 978-0323698306

*If a **print book, e-book, or access code** is required for class, you can access the Owens Community College e-Campus Bookstore by accessing the online link, called "Find Books" on the course schedule for each course section.*

What You Will Learn in the Course

Course Objectives:

This course will:

1. Examine pathology and pathophysiologic conditions of the heart in depth.
2. Correlate patient history and physical examination, laboratory tests, invasive and non-invasive evaluations, and sonographic findings as it relates to cardiovascular pathologies and disease processes.
3. Discuss Doppler techniques and measurements of the diseased heart.
4. Compare specialized cardiac imaging techniques and procedures, including ultrasound enhancing agents.
5. Introduce the principles of quality assessment for cardiac sonography.

Student Learning Outcomes:

Students will:

Outcome	Where Assessed
1. Compare signs, symptoms, and risk factors for discussed cardiac	Comprehensive Final, Tests, Quizzes, In-Class Activities, Case Presentation & Report, Homework
2. Describe disease processes and pathophysiologic conditions	Comprehensive Final, Tests, Quizzes, In-Class Activities, Case Presentation & Report, Homework
3. Interpret cardiovascular pathology on sonographic images.	Comprehensive Final , Tests, Quizzes, In-Class Activities, Case Presentation & Report, Homework
4. Differentiate between special cardiac imaging techniques and the use of enhancing agents.	Comprehensive Final, Tests, Quizzes
5. Demonstrate principles of quality assessment for cardiac sonography	Comprehensive Final, Tests, In-Class Activities

Technology, Lab, and File Requirements:

Microsoft Office 365

<https://www.owens.edu/office365/>

Respondus

<https://download.respondus.com/lockdown/download.php?id=139313370>

Academic Support

Disability Services Resource Center: If you have a disability or acquire one, you may be entitled to receive reasonable accommodations intended to assure you an equal opportunity to participate in and benefit from the program. To receive more information or to register for accommodations, please contact the Disability Resource Center at 567-661-7007, email disability@owens.edu, visit <https://www.owens.edu/disability/>, or stop by College Hall 124.

Tutoring Services: Owens Community College offers academic tutoring and assistance in a variety of subjects including: accounting, computing, economics, mathematics, science, and writing. For more information go to: <https://www.owens.edu/successcenters/>.

Counseling Services: Counseling Services provides assistance to students experiencing personal, educational, interpersonal/relationship, family, social, or psychological difficulties. If you feel you may benefit from this service, please contact them at counselingservices@owens.edu. More information is at <https://www.owens.edu/counseling/>.

Campus and Community Connections: The Center for Campus and Community Connections (College Hall 123) is a walk-in office created to provide retention support through resource stability initiatives and community connections. Go here for more information: <https://www.owens.edu/connection/> or contact connections@owens.edu

Owens Library: The Owens Library offers two locations (Toledo and Findlay) as well as online resources. For more information visit <https://www.owens.edu/library/>.

Students can find more information on campus resources, student support, student life, and security at this [link](#).

General Information

Student Code of Conduct: All students are expected to follow Owens Community College's [Student Code of Conduct](#), which includes academic honesty, encompassing plagiarism. See the [Board Policy](#) for more information.

Anti-Discrimination and Harassment & Title IX/Sexual Misconduct: All students, faculty, and staff are expected to follow Owens Community College's [Anti-Discrimination and Harassment Policy](#) and the College's [Title IX Policy/Sexual Misconduct Procedures and Guidelines](#). The College strictly prohibits and will not tolerate harassment, discrimination, intimidation, or hostile/offensive working or learning environments.

Religious Accommodations: A student seeking an accommodation for an absence permitted under Ohio's Testing Your Faith Act must provide the instructor with a written email notice with the specific dates for an absence, and must do so not later than fourteen (14) days after the first day of instruction. Alternative accommodations are not retroactive, and no academic penalty will be imposed for an absence under the policy*. The request for an alternative accommodation will be kept confidential. Students with questions about a religious accommodation under Ohio's Testing your Faith Act may contact the College's Office of Academic Affairs: provost@owens.edu. The policy may be found on the Owens website: [3358:11-2-63 Accommodation for a Student Absence for the Observance of Religious Beliefs and Practices Policy](#)

Document Collection: Throughout the semester, your instructors may ask for a variety of assignments including tests and/or quizzes for student learning of institutional general education competencies or program assessment. Please save all your class materials until the end of the semester.

Classroom Admittance: OCC classes shall only be attended by the officially registered OCC students or perspective students, instructor of record, guest lecturer, or substitute. Visitors are not permitted to be in the classroom and should not be invited to attend or participate in the class. See [FERPA](#) regulations for more information.

Use of AI Tools: This course permits you to use artificial intelligence (AI) tools, such as chatbots, text generators, paraphrasers, summarizers, or solvers, to get guidance on assignments, as long as you do so in an ethical and responsible manner. Essentially, you can think of these tools as ways to help you learn but not to entirely create work for assignments like discussion board posts, essays, presentation slides, and so on. AI is more like your tutor or TA, not a replacement for your independent thinking.

This means that you must:

- Not use AI tools to replace your own thinking or analysis or to avoid engaging with the course content.
- Cite or explain any AI tools you use. Provide the name of the AI tool, the date of access, the URL of the interface, and the specific prompt or query you used to generate the

output.

- Be transparent and honest about how you used the AI tool and how it contributed to your assignment. Explain what you learned from the AI tool, how you verified its accuracy and reliability, how you integrated its output with your own work, and how you acknowledged its limitations and biases.

You are accountable for any mistakes or errors made by the AI tool. Always check and edit the output before submitting your work. If you discover any inaccuracies or inconsistencies in the output after submission, notify the instructor immediately and correct them as soon as possible. Using AI tools in an unethical or irresponsible manner, such as copying or paraphrasing the output without citation or transparency, using the output as your own work without verification or integration, or using the output to misrepresent your knowledge or skills, is considered a form of academic dishonesty and will result in a zero grade for the assignment and possible disciplinary action. If you have any questions about what constitutes ethical and responsible use of AI tools, please consult with the instructor **before** submitting your work.

Student Responsibilities & Instructor Expectations

Student Responsibilities:

- You are expected to attend weekly classes and arrive on time. If you are going to be absent, please email your instructor before class begins. Afterward, review the assignment calendar to see what was missed and reach out if you have questions.
- You are expected to fully engage with the course material and consistently put forth your best effort in lecture and lab.
- If you are unable to complete an assignment on time, contact your instructor as soon as possible to discuss your options.
- Email is the preferred method of communication outside of office hours. Please include clear and specific details in your message so your instructors can respond efficiently.
- You are encouraged to ask questions or request clarification. Unless we hear otherwise, we will assume you understand the material. Each class builds on previous concepts, so staying current is important.
- Show respect for your instructors, classmates, and the learning environment.
- You are expected to follow all guidelines and procedures outlined in the Sonography Department Procedure Manual.
- For technical issues related to Blackboard, contact the Owens Help Desk.

Instructor Expectations:

- The instructor will be respectful of your time and begin and end class on time. If any changes to class times occur, you will be notified by email.
- Your instructor's goal is to review and return assignments that require student corrections within three days of submission. Assignments that do not require corrections or resubmission may take longer to be fully graded. If it has been more than three days and you are waiting on feedback for an assignment you believe may need revision, please email your instructor.
- Your instructor checks their email several times a day, but also has responsibilities outside of teaching this course. They will do their best to respond to your email with 24 hours on

weekdays and within 72 hours on the weekends.

- Office hours are available outside of class time to support you with any questions or concerns related to the course. Please don't hesitate to make use of this time.
- Your instructor welcomes and encourages questions.
- Teaching is a two-way process, and your instructor hopes to learn from your insights, questions, and feedback throughout the course.

How Grades are Determined and Major Assignments

Grading Procedure:

Grades will be calculated on the following scale.

93% and Above	A
85% to 92%	B
76% to 84%	C
60% to 75%	D
59% or Below	F

If the percentage earned is less than 76% for the course, the student will earn a grade of “**D or F**” for the course and be removed from the program.

The final grade for the course will be computed using the following weights.

Evaluation Measure	Value	Student Learning Outcome Assessed
Comprehensive Final	25%	1-5
Tests	25%	1-5
Homework/In-Class Activities	15%	1-5
Quizzes	15%	1-4
Case Presentation & Report	20%	1-4

****Please note that 1 point will be deducted from all homework, tests, and assignments for each spelling error. Using abbreviations will also result in a 1-point deduction. ***

Comprehensive Final

One comprehensive final exam will be given and will include all lecture content covered in DMS 232. It will be worth 25% of the total course grade. **If the student passes the Adult Echo ARDMS registry prior to the Final Exam, they will not need to sit for exam and will automatically receive a 100% for the score of the Comprehensive Final.** Any student who is tardy for the exam will receive a five (5) point deduction on the exam. The exam will still end at the scheduled time. Any student who is unable to attend to take the exam must notify the course instructor at least 30 minutes prior to the class period in order to receive full credit. If no notification is received prior to missing the test a ten (10) point deduction will be taken from the score of the make-up test. The makeup test will be taken in the testing center within three (3) days of the original test date. Note: a thorough understanding of content from previous DMS courses is essential to understanding pathophysiology presented in DMS 232. Please bring your laptop computer or tablet and be prepared to utilize Respondus.

Tests

Two tests will be taken in class and averaged at 25% of the total course grade. Any student who is tardy for the exam will receive a five (5) point deduction on the exam. Any student who is unable to take the test as scheduled must notify the course instructor at least 30 minutes prior to the date/time of the test to possibly receive full credit. Students are responsible for reaching out to the instructor. If no notification is received prior to missing the test a ten (10) point deduction will be taken from the score of the make-up test. The makeup test will be taken within three (3) days of the original test due date, or the score will be reduced by an additional ten (10) points. Make-up tests could have a format of multiple choice, true/false, essay, or fill-in. Please bring your laptop computer tablet and be prepared to utilize Respondus..

Homework/In-Class activities

Homework assignments can be found on Blackboard and will be submitted via Blackboard. Homework assignments and in-class activities will be worth 15% of the course grade. Late assignments will be accepted at half credit up to 24 hours past the due date. Beyond 24 hours after the due date they will not be accepted without prior approval from the instructor. Please bring your laptop computer or tablet to class as you will be doing research.

Quizzes

Quizzes will be completed on Blackboard. Quizzes are worth 15% of the course grade. Late quizzes will be accepted at half credit up to 24 hours past the due date. Beyond 24 hours after the due date, they will not be accepted without prior approval from the instructor. Students are responsible for reaching out to the instructor before the quiz due date.

Case Presentations and Report

Students will present interesting cases obtained from their clinical experiences. Case presentations with written report will be worth 20% of the course grade. Case presentations should cover topics discussed this semester and will be part of the review for the final comprehensive exam. Details about this assignment can be found on Blackboard. The Medical Records Removal form must be completed in Trajecsyst, uploaded in Blackboard, and turned in with each case study. Without this, a grade of "0" will be received. There will be no exceptions.

Lecture Assignment Calendar

Week	SLO	Topic	Reading/ Homework
One	1-3	Syllabus Transesophageal Echocardiography (TEE)	Univ of Utah Quiz on -line EPR Ch 18 DeWitt Ch 5
Two	1-3	Systemic Diseases with Cardiac Manifestations (amyloid, sarcoidosis, scleroderma, Marfan's syndrome, parasitic infection such as Chagas, muscular dystrophy, Systemic Lupus Erythematosus, Rheumatoid Arthritis, Diabetes Mellitus, Hemochromatosis)	Submit a CHART on each disease listed with signs and symptoms, any arrhythmias or EKG changes and Echo findings. See Blackboard for chart template. EPR- Ch 22
Three	1-3	Infective Endocarditis Start Masses, Tumors, Cardiac Source of Emboli (DVT, PFO)	Quiz on endocarditis EPR-Ch 10 p 269 DeWitt Ch X
Four	1-3	Masses, Tumors, Cardiac Source of Emboli (DVT, PFO)	Quiz on masses, tumors, cardiac source of emboli EPR- Ch 14 DeWitt Ch XVII
Five	4	Ultrasound Enhancing agents (UEAs) Saline Challenge ("bubble studies", saline contrast) Review for Exam	https://www.youtube.com/live/PfvAkSAoQKM?si=9nTvB-33fQZjsvPW Kahoot Review Game EPR- Ch 16 DeWitt- p.118
Six	1-4	Test 1	
Seven	1-4	Stress Echocardiography Prosthetic Valves- includes TAVR, Mitra clips, valve repair	Quiz on Stress echo/dobutamine echo Quiz prosthetic valves EPR- Ch 17 DeWitt Ch VI
Eight	1-4	Strain Echocardiography->> ??Guest speaker? George Awaad from Phillips Speckle Tracking Cardio-oncology	Get guest speaker EPR Ch 20 Cardio-oncology paper with videos: https://pmc.ncbi.nlm.nih.gov/articles/PMC5435878/
Nine	1-4	3-D Echocardiography ??Guest speaker George Awaad from Philips	EPR Ch 19 DeWitt Ch XX
Ten	1-4	Interventional/Intraoperative Echocardiography- (surgery, TAVR, Mitraclip, Watchman, pericardial centesis, biopsy, EP procedures (ICE)	In class activity- students will research these items and present a 5 minute presentation on what they are used for and how they appear on echo

		Cardiac Assist and Intracardiac devices- LVAD, Watchman, PFO closure devices, ECMO Review for exam 2 (may be on your own)	
Eleven	1-4	Test 2	
Twelve	1-5	Cardiac Transplant Quality Assessment	In class activity on Quality assessment EPR Ch 21
Thirteen	1-4	Case Presentations	
Fourteen	1-4	Case Presentations	
Fifteen	1-5	Review for Final Exam	Review games
Sixteen 5/4	1-5	Comprehensive Final Exam	

Disclaimer: The instructor reserves the right to amend this syllabus as deemed necessary and will communicate such amendment to the students in the course. Please note that while unlikely, there is a possibility courses might need to change the delivery method due to external issues like public health concerns, weather issues, etc. If this happens, the college will communicate any changes via email and/or other communication methods.