JACKSON COLLEGE

2025

CARDIAC SONOGRAPHY

CLINICAL MANUAL

A GUIDE FOR STUDENTS AND CLINICAL INSTRUCTORS

Commission on Accreditation
of Allied Health Education Programs

Jackson College 2111 Emmons Rd. Jackson, MI 49201 www.jccmi.edu

INTRODUCTION

The Cardiac Sonography Program is one of three **CAAHEP** (Commission on Accreditation of Allied Health Education Programs) **Accredited** Sonography specialties offered at Jackson College.

The cardiac sonography courses are formatted for online presentation. This means that the student signs onto a course management system through JC's website for their lecture, discussion, and assessments. Students will also review videos, discuss case studies, and learn from educational websites on the Internet. Not to be confused, ***clinical courses*** are not performed online. Each student will obtain a total of 1136 hours over a span of nine (9) months in a qualified clinical education center.

With courses being formatted for online presentation, we can reach students in various parts of the country that lack the existence of an Associate Degree accredited cardiac sonography program. Clinical sites are established for these students and they receive an equivalent education as our local students here in the Jackson area.

All students are required to attend a pre-clinical course, DMS 196, which prepares them for hands-on scanning skills in the hospital setting. This course runs for nine (9) weeks, and the student will accumulate 105 hours of training within this time. In this lab course, students are scanning with experienced registered cardiac sonographers. Pre-clinical competencies that assess technical skills as well and affective domain properties are a requirement in this course.

The curriculum of the Cardiac Sonography program is based on the educational outlines set by the American Society of Echocardiography (ASE) and the American Registry for Diagnostic Medical Sonographers (ARDMS). It is meant to provide a structured, comprehensive education for the student.

CARDIAC SONOGRAPHY PROGRAM

Philosophy Statement

The philosophy of the Cardiac Sonography Program is unified by common goals, which include thoughtful and intentional course design, role modeling, and classroom and clinical experiences that provide the student with the knowledge, skills, and attitudes of an entry-level cardiac sonographer. The educational process conveys caring for the whole person and promotes a balance of knowledge, technical skills, spiritual awareness, emotional intelligence, and physical health in performing professional services. The program has set common goals for students; and upon successful achievement of these goals, program outcomes are fulfilled. The cardiac sonography overarching program goal is to prepare competent entry-level adult cardiac sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.

- **Program Goal 1: The graduate will exhibit a professional attitude and behavior appropriate to the healthcare setting (affective).**
- **Program Goal 2: The graduate will exhibit critical thinking skills during the performance of adult echocardiographic procedures providing diagnostic quality (cognitive).**
- **Program Goal: The graduate will have the ability to operate cardiovascular ultrasound equipment and determine proper techniques to produce quality sonographic images (psychomotor).**

TABLE OF CONTENTS

JACKSON COLLEGE CARDIAC SONOGRAPHY PROGRAM

The Jackson College Cardiac Sonography Program was established using the Standards and Guidelines published by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), which acts upon the recommendations of the Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS). The Program has been CAAHEP accredited since 2004.

Commission on Accreditation of Allied Health Education Programs
25400 U.S. Highway 19 North, Suite 158
Clearwater, FL 33763
Phone: 727-210-2350
Fax: 727-210-2354

MISSION STATEMENT

Jackson College Mission

Together we inspire and transform lives.

Jackson College Vision

Jackson College is a world-class institution of higher education where learners succeed and community needs are met

The mission of the Jackson College DMS Cardiac Sonography Program is to educate students in the science of diagnostic medical sonography and to prepare competent entry-level adult cardiac sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.

The program's mission is in concert with the Jackson College mission to inspire and educate world-class healthcare providers for the people of Michigan and our global community.

The philosophy of the Cardiac Sonography Program is unified by common goals, which include thoughtful intentional course design, role modeling, and classroom and clinical experiences that provide the student with the knowledge, skills, and attitudes of an entry-level cardiac sonographer. The educational process conveys caring for the whole person and promotes a balance of knowledge, technical skills, spiritual awareness, emotional intelligence, and physical health in performing professional services. The cardiac sonography overarching program goal is to prepare competent entry-level adult cardiac sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.

- **Program Goal: The graduate will exhibit a professional attitude and behavior appropriate to the healthcare setting (affective).**
    - **Student Learning Outcome:**
        - Demonstrate behaviors, attitudes and respect that show sensitivity, and acceptance of individual differences.
        - Demonstrate effective communication skills with patients and all members of the healthcare team.
        - Demonstrate compassionate patient care and education during sonographic procedures to promote overall well-being.
        - Demonstrate a commitment to lifelong learning.

- **Program Goal: The graduate will exhibit critical thinking skills during the performance of adult echocardiographic procedures providing diagnostic quality (cognitive).**
    - **Student Learning Outcome:**
        - Collect and combine, assess, and analyze cardiovascular sonographic images for the purpose of physician diagnosis.
        - Evaluate normal and abnormal cardiovascular anatomy and recognize cardiovascular pathologic conditions.
        - Collect, review and integrate pertinent patient data to facilitate optimum diagnostic results.
        - Compose complete and accurate sonographic findings for the interpreting physician to facilitate patient diagnosis.

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

JACKSON COLLEGE CLINICAL COORDINATOR'S ROLE, RESPONSIBILITIES

Responsibilities:

The clinical coordinator(s) must be responsible for coordinating clinical education with didactic education as assigned by the program director. The clinical coordinator must evaluate and ensure the effectiveness of the clinical affiliate/clinical education centers. The clinical coordinator's responsibilities must include coordination, instruction, and evaluation. The responsibilities of the clinical coordinator must not be adversely affected by educationally unrelated functions.

Clinical Coordinators will conduct routine site visits every 6 weeks (or sooner if needed) using multiple modes of engagement.

A. Monitoring students located at in-state clinical affiliate sites:

1) In-state students are monitored throughout each semester by the Clinical Instructor at the affiliate site and the JC Clinical Coordinator for assessment of educational progress in the clinical externship.
2) Throughout the semester, every 4 to 6 weeks, the JC Clinical Coordinator visits (either physical or teleconference) all in-state clinical sites to discuss student progress, and a report is submitted to the Program Director for evaluation. Reports of clinical site visits are stored in OneDrive. Additional phone calls, and email contacts are conducted as needed to reassess scanning progress and resolve problems that arise.
3) Throughout the semester, the JC Clinical Coordinator meets tri-weekly with each student via online communication in a Private Clinical Forum. Scanning progress, accomplishments, issues and concerns are presented in this private forum. Questions and concerns about scanning progress are addressed.
4) Log sheets and calendars are submitted electronically and reviewed monthly.

B. Monitoring students located at out-of-state clinical affiliate sites:

1) Out-of-state students are monitored throughout each semester by the Clinical Instructor at the affiliate site and the Jackson College Clinical Coordinator for assessment of educational progress in the clinical externship.
2) The Clinical Coordinator calls the affiliate site when the student arrives and every 6 weeks after (or sooner if needed) that to discuss student progress, and a report is submitted to the Program Director for evaluation. Reports of clinical site visits are stored in OneDrive. Additional phone calls, and email contacts are conducted as needed to reassess scanning progress and resolve problems that arise.
3) Throughout the semester, the Jackson College Clinical Coordinator meets triweekly with each student via online communication in a Private Clinical Forum. Scanning progress,

accomplishments, issues and concerns are presented in this private forum. Questions and concerns about scanning progress are addressed.

4) Log sheets and calendars are submitted electronically and reviewed monthly

CLINICAL INSTRUCTOR RESPONSIBILITIES

A clinical instructor must be identified for each clinical affiliate.

Responsibilities

Although students will work with many sonographers in the clinical setting, a **clinical instructor (CI)** shall be designated as the primary contact for the student and the program director or program coordinator. The clinical instructor must be available to students whenever he or she is assigned to a clinical site, provide appropriate clinical supervision, and be responsible for student clinical evaluation. If the assigned clinical instructor is not the sole individual working with the student, the clinical instructor is encouraged to compile feedback from all individuals who have the instructorship and interactions with the student prior to completing any JC clinical assessment form.

Qualifications

The designated clinical instructor must hold the RDCS (through the ARDMS) credential or the RCS (through CCI) credential and have appropriate education and experience to fulfill the responsibilities of the position. Individuals must be knowledgeable and experienced in clinical supervision and instruction. Individuals should be self-directed, compassionate, patient, and exhibit superior communication skills.

Expertise

Individual will provide expertise in sonographic curricular knowledge. The individual should be experienced in the use of diverse up-to-date sonographic equipment and instrumentation.

Attitude

A commitment to the mission and values of the college and to the vision of a learning college will be demonstrated. A willingness to participate in clinical instructor workshops and accreditation preparation will be exhibited. This individual will demonstrate flexibility and a willingness to assist in a variety of student clinical assignments. Responsible candidates will exhibit an open-mind, fairness, and superior listening skills. A history of on-going personal and professional growth will be present.

Abilities

Individual will possess abilities demonstrating good listening skills, patience and understanding of diverse student learning styles and timelines. Individual will be committed to instructional strategies focused on student learning and successful outcomes.

Best Practices

A student's clinical education is overseen by clinical instructors (preceptors). A clinical instructor is an experienced sonographer who takes on the role of mentor and teacher for students during their clinical education. Clinical preceptors play a vital role in the professional development of cardiac sonography students during clinical rotations. Their guidance and mentorship help bridge the gap between classroom knowledge and clinical practice. Although the primary clinical instructor will oversee the student's rotation, several sonographers should also assist in overseeing students during the clinical rotation. Below are "best practices" for clinical preceptors hosting students for cardiac sonography rotations:

1. **Orientation to the Department**
    - On the first day of the clinical component, students should be introduced to the department and appropriate staff members.
    - Students must become familiar with hospital and department policies and procedures.
    - The clinical instructor should support the student in locating resources and interpreting departmental guidelines.

2. **Provide Supervised Learning Opportunities**
    - Students should have an established clinical rotation schedule and be assigned to a sonographer or a room each clinical day.
    - Offer students a variety of scanning experiences, including basic to advanced echocardiographic studies.
    - Supervise and guide students as they perform hands-on scans, ensuring they follow proper protocols and safety measures. A minimum of four (4) patients per day is ideal.
    - Gradually increase the complexity of tasks assigned to students as they demonstrate competence.
    - Levels of Direction and Supervision
        i. The student's clinical experience begins by observing and assisting a practicing sonographer. This engagement gradually transitions from observation to pre/post scanning, to active assistance. The student's progress rate depends on their ability to understand and carry out assigned objectives including both the psychomotor and cognitive domains. Proper supervision is required at all times while students are progressing in clinical objectives and expectations. As the student gains experience in the

exam(s), they progress toward an independent performance level, performing exam(s) under the direct supervision of a sonographer. As the student advances, the clinical instructor will adjust the level of supervision based on the student's needs. Some procedures may be completed with greater independence, while others might still require assistance. After documented demonstration of competency and skill in the performance of the exam(s), students can be allowed to perform examinations independently. Even after demonstrating competence, a sonographer must always be available to the student.

3. **Ensure a Safe and Supportive Environment**
    - Create a welcoming atmosphere where students feel comfortable asking questions and seeking guidance.
    - Ensure patient safety by closely supervising all scans performed by students, especially in the early stages of their rotation. Ensure that students always prioritize patient comfort, safety, and dignity.

4. **Foster Skill Development and Critical Thinking**
    - Teach students proper scanning techniques, including ergonomics, probe positioning, imaging optimization, and Doppler application.
    - Emphasize the importance of anatomy, pathology recognition, and image acquisition in adherence to standard protocols.
    - Instruct students on proper cleaning and maintenance of ultrasound equipment.
    - Challenge students to analyze cases, identify abnormalities, and correlate findings with clinical symptoms.
    - Help students understand the rationale behind scan protocols, measurement techniques, and diagnostic criteria.

5. **Model Professional Behavior**
    - Demonstrate professionalism, including punctuality, effective communication, and empathy toward patients and colleagues.
    - Encourage students to develop strong patient interaction skills and emphasize the importance of confidentiality and ethical conduct.

6. **Offer Constructive Feedback**
    - Provide timely, specific, and actionable feedback on the student’s performance, identifying strengths and areas for improvement.
    - Encourage self-assessment by asking students to reflect on their performance daily or weekly.

7. **Document Student Progress**

- Complete any required evaluations or progress reports accurately and submit them to the program director or program clinical coordinator.
- For clinical check-in meetings, provide feedback of the student's performance in accordance with the program's clinical evaluation criteria.

8. **Communicate with the Academic Program**
    - Maintain open lines of communication with the program's clinical coordinator or director.
    - Notify the program promptly about any concerns regarding the student's performance, behavior, or attendance.

9. **Encourage Professional Growth**
    - Provide guidance on how to handle difficult situations, such as challenging patients or complex cases.
    - Share insights and experiences to inspire the student's interest and confidence in cardiac sonography.

10. **Support Program Requirements**
    - Allow students to fulfill required clinical competencies and proficiencies and achieve contact hour expectations as required.
    - Facilitate access to a variety of case studies, including both normal and abnormal findings.
    - Facilitate access to a variety of patient care settings in which sonographic procedures are performed on in-patients and outpatients.

CLINICAL COURSE POLICIES

Clinical Attire and Grooming:

Students will dress according to their assigned clinical site's guidelines. Aside from the dress requirements, students are required to appear presentable and professional. Clinical attire includes:

- Scrubs-well fitting, clean and wrinkle free
- A plain, fitted long-sleeved shirt under scrub top may be worn
- Appropriate comfortable shoes-clean, and socks worn
- Name tag-either provided by the clinical site or the student
- Jewelry-limited to rings on fingers (not excessive in size or number), small, pierced earrings, short necklace, wristwatch
- Fingernail polish if allowed by clinical site, to be clear or pale in color, clean and trimmed nails, no nail extensions

- No excessive makeup, perfume/cologne, or perfumed lotions as patients with asthma, allergies, or other lung conditions may be sensitive
- Hair-clean and well groomed, pulled back if long to avoid violation of the principles of medical asepsis
- Students may be sent home if clinical attire or grooming is inappropriate.
- If there are any questions regarding the clinical attire, please contact the Program Director or Program Clinical Coordinator.

Allowable Time Off:

Students are allowed **two sick days (16 hours)** and **four vacation days (32 hours)** during the program.

Absence:

Attendance at clinical assignments is part of the clinical grade. One (1) absence of eight (8 hours) is allowed in each of the second and third semesters of the program (2 sick days).

Students are in clinicals for four (4) days per week. This allows one (1) full day each week for any doctor appointments, dentist appointments, etc. Students are expected to schedule outside commitments on days other than clinical days.

Students are expected to treat their clinical externship as employment (or an extended interview) at the clinical site. Tardiness and attendance issues are taken very seriously. Your display of good or poor habits is being closely observed by your clinical instructor as well as your mentors at the clinical site, and these habits are indicative of your future work ethic.

Any absences beyond the allowed must be made-up within the same semester that the absence occurred. Vacation days can be substituted for make-up time.

A 'Clinical Time-Off Request' must be submitted to the clinical instructor and the Program Director for verification of the absence and make-up day. Lunchtime cannot be used for make-up time. You must make up the missed time on your clinical 'day off'.

More than one (1) absence per semester may affect the student's clinical grade and will result in the student warning process being initiated.

Vacation Hours:

A 'Clinical Time-off Request' form must be completed and approved by the clinical instructor and the Program Director within four (4) weeks of the requested time off. **Vacation hours are to be taken during the months of June through November.**

Unscheduled Absence (Sick Day):

If an unforeseen situation results in the student being absent from a clinical day, the student must notify the clinical site/clinical instructor **and** the Program Director at least 30 minutes prior to the designated start time of the workday. Contact must be by phone to the clinical instructor and contacting the Program Director can be by phone or via email. Failure to notify the clinical site and the Program Director will count as a 'no-call, no-show' occurrence. One such occurrence will result in the Student Warning process.

Tardiness:

Being tardy means: not being available to work at the designated start-time of the day. If your start-time is 8 am, then you should arrive well enough prior to 8 am to store your personal items etc., and be present in the echo lab at 8 am. More than one (1) tardy accrued in a four-week period will count as a four-hour (4) absence. This absence will need to be made up within the semester that the tardies occurred.

More than one (1) tardy accrued in a four-week period will result in the warning process being initiated.

If a pattern of tardiness becomes apparent, and/or persists across semesters, the student will attend a student/faculty consultation, and the student warning process may result in dismissal from the program.

Student Responsibilities at the Clinical Site

Student must follow all established rules or regulations of the clinical site.

Student must always maintain a professional appearance and attitude, as well as display appropriate behavior and work ethic. This is a fundamental expectation of the profession (SDMS Code of Ethics) and of the JC Cardiac Sonography Program.

Student is expected to arrive at their clinical site echo lab in proper attire and ready to scan at the time their shift begins. If the student's shift begins at 8:00 a.m., then the student is expected to be ready to scan at 8:00 a.m. Please see the tardiness policy above.

Time is not given for a 30-minute lunch, this means that a student must be at their clinical site for 8.5 hours per day to reach their 8-hour minimum requirement per day. Students must take a lunch break. Students are not permitted to skip lunch to leave their shift prior to the end time unless their Clinical Instructor approves the request.

All time accrued beyond the end-time of the day will be noted, but cannot be used for taking time-off or completing the program early. Students are expected to stay beyond their end-time to

finish an exam that was started or to finish department housekeeping duties, as any employee of the lab would also do. This is recognized as good work ethic.

Students may only log a maximum of 32 hours per week at clinical. This will be strictly enforced.

Any re-arrangement of clinical hours within the day or within the week must have been discussed and pre-approved by the CI (clinical instructor) **and** the Program Director. **Any** re-arrangement in the student's designated clinical schedule without consultation with the CI and the Program Director will warrant an initiation of the Student Warning Process. No exceptions.

Cell phones are to be kept with student belongings in a secure place. Cell phones are to be turned off or set to silent. Student can check cell phone for messages during designated breaks and lunchtime. Student should provide family and childcare providers with the clinical site's echo lab phone number for cases of emergency. If there are extenuating circumstances, on a case-by-case basis, this policy can be modified. For modification to this policy, student shall first contact the CI and the Program Director, explain the situation, and a decision will then be made.

Students that do not follow the cell phone policy are in jeopardy of clinical dismissal and dismissal from the program through the student warning process.

Computer Access: Students are not allowed to use the hospital/clinical site computer for any reason except hospital/clinical business, and then only with prior permission given by their clinical instructor.

Studying at the clinical site during clinical time is **ONLY** permitted if there are no patients, all housekeeping duties have been completed, AND the student has permission from the clinical instructor or the attending sonographer. Study location must be in an area that student can monitor whether a patient has arrived, or their presence is needed for other duties.

Materials to Have On-Site

Student must have the following materials available at their clinical site:

- Pocket sized notebook and pen.
- Richard Palma Echocardiographer's Pocket Reference.
- Student Clinical Book (scanning competencies, competency schedule).
- Copy of mid-term and end-semester evaluations.
- Log sheets
- Program Director and Clinical Coordinator contact information.

Clinical Record Keeping

Clinical assessment of learning in the clinical setting is conducted using multi modes of review. Jackson College uses a cloud system called Trajecsys: https://www.trajecsys.com/ to track and report clinical assessments, student time records, and student log sheets. Students will purchase access for one year to the Trajecsys cloud. Students are required to maintain documentation of clinical attendance and clinical performance using Trajecsys. Completeness and accuracy of these records is part of the clinical grade. These records become part of the student's official academic file upon completion of the program.

Attendance: Students will maintain attendance records via the Trajecsys cloud system. Students are required to record the exact start and end times for the clinical day. Attendance will be verified by Clinical Instructors weekly.

- **Clock In/Out** - Students will clock in and out each day at their clinical site and for their required lunch break. NOTE: Each day when students arrive at and depart from a clinical site, they will log in on a computer or their smartphone, and select the clinical site from a dropdown on the home page. Then the student will click the clock in / out button.

Log Sheets: Student must record all cases observed or scanned during scheduled clinical days within the Trajecsys cloud. The Trajecsys Report System allows students to report progress toward mastery of specific skill sets as designated by each program. Students may report the skill, level of participation (observed/pre- or post- scan/ scan with assistance/independent), supervising instructor or preceptor, time spent, pathology, or other available data points. **Log sheets are to be completed weekly.**

Evaluations and Comps: Student is responsible for following the directions of the Clinical Competency Schedule and the Clinical Evaluation Form for grading purposes. Student is required to notify and submit evaluations and competencies to their clinical instructor **two weeks prior** to the due dates of such evaluations. Waiting until the final week of the semester to be checked off on scanning task sheets, or to have semester evaluations completed by the CI is discourteous, unprofessional, and can result in initiation of the Student Warning Process. Complete documentation of required competencies that are submitted beyond the designated due date may result in the successful student receiving an 'Incomplete' (I) for their semester grade. This action keeps the student from progressing to the next clinical course. Evaluations and scanning competencies are tracked via the Trajecsys cloud.

Clinical Schedule and College Calendar

Clinical schedules do not follow along with the Jackson College academic calendar. It is the student's responsibility to be aware of their weekly and semester schedule regarding clinical days, holidays, and vacation time. Always refer to the CSON clinical calendar provided.

Inclement Weather

Should Jackson College be closed due to inclement weather, the student will continue to follow the clinical schedule provided to them by the Program Director. In the case of inclement weather in the student's geographical area, the student should use good judgment and attempt to arrive at their clinical site on time, if possible, but without placing risk on personal safety. Absence from the clinical rotation due to severe weather must be made up in the semester that it occurred. Extreme weather circumstances will be handled on a case-by-case basis. As with any absence, the student must notify the CI and the Program Director.

Compensation

While it is not customary, clinical sites may compensate students for their externship, provided they have established policies in place for such compensation. All program-related activities must remain educational, and students must not be used as substitutes for regular staff. The clinical affiliate must implement internal controls to ensure that students do not replace staff and receive appropriate supervision for their educational training.

Student Work Policy

The clinical component of the program shall be educational in nature. Students may not substitute or replace paid staff members of the clinical affiliate. Employment, volunteer services, or any other activities cannot interfere with clinical rotations or be used in lieu of clinical rotations. Students will not be allowed to use employment, volunteer services, or any other activities (except for CME conferences or seminars) as clinical experience.

Professional Organizations

Students are strongly encouraged to become a member of the professional societies that benefit education and career. The SDMS (Society for Diagnostic Medical Sonographers) and the ASE (American Society of Echocardiographers) are the professional societies for cardiac sonography students. Students are also encouraged to become a member of their local society for echocardiographers.

Student Safe Clinical Practice

Patient safety is a right and a need. Students must practice and adhere to safe practices.

Unsafe clinical practice, if demonstrated by the student, which threatens or violates the physical or emotional safety of the patients, caregivers, staff, or the student themselves, will result in implementation of the Student Warning Process as outlined in the JC CSON Handbook. If the practice warrants, a student may encounter immediate dismissal from clinical, which results in

removal from the program. Following are examples of unsafe behaviors. This is not an all-inclusive list.

- Inappropriate use of side rails, wheelchairs, or other equipment
- Lack of proper protection of the patient which could result in a fall or other injury
- Failure to correctly identify patient prior to initiating care
- Failure to perform safety checks of equipment or other devices prior to procedure
- Failure to adhere to universal precautions
- Failure to have appropriate supervision for performing tasks
- Student attends clinical while contagiously ill
- Student fails to recognize the need, or seek help when needed
- Student threatens or makes a patient, or any other person, fearful
- Student displays unstable emotional behaviors
- Student performs actions without appropriate supervision
- Student provides diagnostic information to patient or family
- Behavior non-becoming to the profession (see SDMS code of ethics)
- Verbal or non-verbal language, actions, or voice inflections which compromise rapport and working relations with patients, family members, staff, or physicians, or may compromise contractual agreement and/or working relations with clinical affiliates, or constitute violations of legal/ethical standards
- Violation of HIPAA regulations
- Falsifying data in a patient health record
- Not owning errors
- Leaving the clinical area without notification of faculty and clinical staff or supervisor

Health Information Confidentiality Policy: Health Insurance Portability and Accountability Act (HIPAA)

Students must maintain strict confidentiality of all health information of patients at clinical affiliate sites during and after the course of their clinical education. Students may neither use nor disclose health information of patients to which they have access, other than as expressly authorized by the clinical affiliate. Students may not record any patient identifiable information on their personal documents (clinical logs, case studies). Students must be familiar with and adhere to their clinical site HIPAA policy. Any HIPAA violation automatically results in permanent dismissal from the clinical site and therefore dismissal from the program.

Academic Performance

The Cardiac Sonography student must maintain a grade of 2.0 or higher in all courses in order to remain and continue on in the program. A student will be dismissed from the program if a required course in the program is unsatisfactorily completed.

Attendance of Conferences or Seminars

Jackson College and the Cardiac Sonography Program encourage continuing sonographic education. Students may wish to attend local, regional, or out-of-state conferences/seminars. Clinical credit will be given for each hour of conference courses attended. The Program Director MUST approve each conference prior to the student attending if the student is seeking clinical credit hours. The maximum hours for credit allowed are sixteen (16).

CARDIAC SONOGRAPHY ASSOCIATE DEGREE SCHEDULE

1st Year - Gen-Ed Core

Spring 15 Weeks

HOC	130	Introduction to Health Occupation	3 credits
BIO	132	Human Biology	4 credits*
ENG	131	Writing Experience	3 credits
PHY	131/145	General Physics	2 credits
			12 credits

Summer 15 Weeks

MAT	130	Quantitative Reasoning	4 credits
DMS	100	Intro to Diagnostic Medical Imaging	3 credits
MOA	120	Medical Terminology	3 credit
			10 credits

Fall 15 Weeks

DMS	104	Intro to Sonographic Instrumentation	3 credits
GEO 2 ***			3 credits
PSY	140	Introduction to Psychology	4 credits
GEO 6 **			3 credits
			13 credits

*Or BIO 132, or BIO 253 and 254

** GEO 6 - Choose one of the following: ART 111, ART 112, ENG 210, ENG 242, ENG 246, ENG 247, ENG 249, ENG 252, ENG 254, ENG 255, ENG 256, ENG 257, HUM 131, MUS 131, MUS 132, PHL 231, THR 116 *** GEO 2 – Choose one of the following: ANT 131, COM 250, ENG 249, ENG 254, HIS 125, HIS 211, HUM 131, PHL 243, PLS 262, PSY 152, SOC 152, SOC 246

2nd Year - Echo Core

Spring 15 Weeks

DMS	140	Echo Orientation and Technique	3 credits
DMS	141	Adult Echo I	4 credits

DMS 142	Echo Clinical I	2 credits
DMS 196	Intro to Cardiac Clinical	5 credits
		14 credits

Summer 15 Weeks

DMS 144	Cardiovascular Principles	3 credits
DMS 146	Echo Clinical II	3 credits
DMS 206	Sonographic Instrumentation	4 credits
		10 credits

Fall 15 Weeks

DMS 240	Adult Echo II	4 credits
DMS 246	Echo Clinical III	3 credits
		7 credits
	TOTAL CREDITS	**66 credits**

Required Texts

- Palma, Richard, Echocardiographer's Pocket Reference, Fifth Edition 2020, ISBN 978-0578687179, Arizona Heart Foundation.
- Otto, Catherine M. *Textbook of Clinical Echocardiography*, Seventh Edition 2023, ISBN 978-0323882088, Elsevier Saunders. www.elsevier.com
- Anderson, Bonita, Echocardiography, *The Normal Examination and Echocardiography Measurements,* Third Edition 2017, ISBN 978-0992322212, MGA Graphics, Australia, www.echotext.com, www.amazon.com
- Dewitt, Susan K. *Echocardiography from a Sonographer's Perspective: Notebook & Workbook Package,* 8th Edition 2022, www.echonotebook.com
- Narang, Akhil Echocardiography Formula Review Guide: Native Valves and Intracardiac Pressures, American Society of Echocardiography

Additional Texts (Not Required)

- Feigenbaum, Armstrong, Ryan, *Feigenbaum's Echocardiography*. Eighth Edition 2010, ISBN 978-1451194272, Lippincott Williams & Wilkins.

DMS 196 and CLINICAL SCHEDULE 2025

Spring semester 2025 DMS 196 - Approximately twelve (12) hours per week x 9 weeks.	January 13 – March 21 Total **105 hours**

Spring semester 2025 Four (4) 8.5 hour days x 8 weeks.	March 24 thru May 18 Total **256 hours**

*Student may count only 8 hrs daily. Cannot include **.5** hr lunch into clinical hrs.

Summer semester 2025 Four 8.5 hour days per week x 14 weeks.	May 19 thru August 24 Total **432 hours**

Fall semester 2025 Four 8.5 hour days per week x 16 weeks	August 25 thru December 11 Total **480 hours**

Total clinical hours = 1,168 (vacation and sick days included)

A minimum of 1,136 clinical hours must be performed to complete the Jackson College Cardiac Sonography program. Holidays: Memorial Day, July 4, Labor Day, Thanksgiving and day after.

CLINICAL COMPETENCIES (FORMATIVE EVALUATIONS)

To successfully complete the cardiac sonography program, all students must complete competencies identified below, including patients with pathology, patients without pathology with normal body habitus, and the technically difficult patient. It is possible that a student can meet two competencies with one patient.

Instructions for Clinical Instructors and Students

Students will be responsible for preparing themselves to successfully complete each competency within the semester that the competency is due. When viewing the competency documents, you will see a grid or table that identifies the objectives for the scanning competency. Failure to meet each competency will result in the student failing the respective clinical semester and the student will be dismissed from the program.

Please note that only RDCS or RCS registered sonographers may check off students for competency.

The following items must be met prior to awarding a student a competency:

1. Guidelines for check-off (signature) are listed at the beginning of each competency. A student must satisfy all objectives listed to receive a check-off (signature) for each competency.
2. Each student must present the competency form to the sonographer prior to meeting or scanning the patient they are attempting to perform the competency. In other words, the student can't ask for competency after they did a good job or after the patient scanned well for them.
3. If your student begins to scan for completing a competency, and you can see by their skill demonstration that they are not yet prepared to succeed at the competency, inform the student to obtain more practice, and return to the competency later in the semester. If the student does not demonstrate the ability to succeed in the competency by the due date, the competency is failed.
4. Once a competency is successfully completed, please sign off on the competency within the Trajecsys System. Six signatures are required in the system for most competencies (see Master List).
5. Students must maintain competency on 85% of all exams scanned. Failure to achieve 85% competency over the next 10 examinations will result in the removal of that competency and it must be attempted again. If the student has a competency revoked, the signature must be removed from Trajecsys, re-attempted, and completed before the competency due date.

6. **Students:** Do not wait until the final day of the semester to prove competency. Work diligently on completing a competency as you feel ready. Six different patients must be used for ***most*** competencies throughout the year.

Jackson College Competencies and Competency Indicators are defined by

Competency Standards

The Commission on Accreditation of Allied Health Education Programs and can be found at: CAAHEP STANDARDS

Demonstrate achievement of clinical competency through the performance of adult cardiac sonography, according to practice parameters established by national professional organizations and the protocol of the clinical affiliate. Clinical competencies must include evaluation and documentation of:

1) Identification of anatomical and relational structures
2) Differentiation of normal from pathological/disease process
3) Image optimization and measurement techniques with:
    a) 2D imaging
    b) M-mode
    c) Spectral Doppler: PW, CW and Tissue Doppler
    d) Color flow Doppler
    e) Use of non-imaging CW Doppler transducer
4) Adult cardiac sonography competencies
    a) Complete transthoracic echocardiogram – Normal
    b) Systolic dysfunction
    c) Diastolic dysfunction
    d) Aortic valve or aortic root pathology
    e) Mitral valve pathology
    f) Right heart pathology
    g) Cardiomyopathy
    h) Pericardial pathology
    i) Prosthetic valve
    j) Coronary artery disease
    k) Contrast-enhanced echocardiography (observe)

Definition of Clinical Competency

Competency is the demonstration of knowledge, skills, abilities, and personal attributes that meet minimum requirements for the performance of specific patient-focused exams or procedures accomplished within the clinical setting based on medically requested examinations.

The list of clinical competencies is the required examinations to be performed independently (under supervision) by the student in the clinical setting on a patient referred for the medical examination.

Definition of Clinical Proficiency

The purpose is to provide a foundation for the examinations with the need for further education or experience either while within the program or upon employment that skill is required. Proficiency is a pre-clinical application used for students to demonstrate skills for which there are limited or no clinical resources for developing competence. It may be used as a pre-clinical competency technique or tool to assure the student is prepared for clinical experiences. Proficiencies can be performed in the simulated lab or clinical setting if your clinical affiliates offer the examinations.

Specific to the cardiac concentration, proficiency of stress echocardiography – the expectation aligns with the information on proficiencies. In the simulated lab, there is no expectation to induce cardiac stress through exercise, inject contrast or use any pharmaceuticals. The expectation is for the student to know the indications and contraindications, protocols, special functions on the equipment to be used, and simulate the protocol of the examination for pre-and post-imaging without the maneuvers (stress exercise, contrast, etc.).

MASTER LIST OF CSON CLINICAL COMPETENCIES & PROFICIENCIES

Adult Cardiac	
PLAX – Competency 1 (6)	**May 16, 2025**
PSAX – Competency 2 (6)	**May 16, 2025**
PLAX & PSAX Color and Doppler – Competency 3 (6)	**May 16, 2025**
Apical 4 – Competency 4 (6)	**July 11, 2025**
Apical 2 – Competency 5 (6)	**July 11, 2025**
Apical 3 – Competency 6 (6)	**July 11, 2025**
Subcostal – Competency 7 (6)	**August 22, 2025**
Apical 4, 2 Color and Doppler – Competency 8 (6)	**August 22, 2025**
Apical 5, 3 Color and Doppler – Competency 9 (6)	**August 22, 2025**
Suprasternal – Competency 10 (6)	**August 22, 2025**
PLAX, A4C – Competency 11 (6)	**August 22, 2025**
TEE – Competency 12 (1)	**December 12, 2025**
UEA Echocardiography – Competency 13 (1)	**December 12, 2025**
Pathology - Systolic Dysfunction – Competency 14.1 (1)	**December 12, 2025**
Pathology - Diastolic Dysfunction – Competency 14.2 (1)	**December 12, 2025**
Pathology - AoV or AoR Pathology – Competency 14.3 (1)	**December 12, 2025**
Pathology - Mitral Valve Pathology – Competency 14.4 (1)	**December 12, 2025**
Pathology - Right Heart Pathology – Competency 14.5 (1)	**December 12, 2025**

Pathology - Cardiomyopathy – Competency 14.6 (1)	**December 12, 2025**
Pathology - Pericardial Pathology – Competency 14.7 (1)	**December 12, 2025**
Pathology - Prosthetic Valve – Competency 14.8 (1)	**December 12, 2025**
Pathology - Coronary Artery Disease (CAD) – Competency 14.9 (1)	**December 12, 2025**
Complete Adult Echocardiogram (Routine) – Competency 15 (6)	**(3) October 17, 2025** **(3) December 12, 2025**
PEDOFF Probe – Competency 16 (3)	**December 12, 2025**
Exercise Stress Echocardiogram Proficiency (1)	**December 12, 2025**
Pharmacologic Stress Echocardiogram Proficiency (1)	**December 12, 2025**

SUMMATIVE EVALUATIONS

Midterm and Final Evaluations will be assessed in all clinical rotations. All evaluations must be completed and signed by the Clinical Instructor.

Clinical I Tri-Weekly Evaluation (1)	**April 11, 2025**
Clinical I Affective Evaluation	**May 16, 2025**
Clinical I Final Evaluation	**May 16, 2025**
Clinical II Affective Evaluation – Midterm	**July 11, 2025**
Clinical II Midterm Evaluation	**July 11, 2025**
Clinical II Affective Evaluation – Final	**August 22, 2025**
Clinical II Final Evaluation	**August 22, 2025**
Clinical III Midterm Evaluation	**October 17, 2025**
Clinical III Final Evaluation	**December 12, 2025**

CRITICAL THINKING AND SPATIAL ABILITY

Spatial Abilities

Possession of spatial abilities is a critical component to master success in all facets of scanning the echocardiogram. To possess the ability to conceptualize structures without actually seeing them, but knowing their location due to the structures that ARE visualized is a necessity for succeeding in cardiac sonography. Students must display spatial abilities.

Critical Thinking Evaluation Guide For Students and Clinical Instructors

Successfully performing a complete echocardiogram requires a combination of required and/or innate skills and individual traits. These skills are used to **acquire, assess, and analyze the echocardiogram**. All three must be mastered in this cardiac sonography program. At various points in the program, certain objectives must be mastered in order to move on to more advanced areas. Inability to progress to these more advanced levels within a defined timeframe will result in failure of clinical. This failure can happen at any time in the program. Sometimes a

student is successful in early competencies, but is not successful in the more advanced competencies. Sometimes a student can acquire and assess the echo, but cannot demonstrate and apply critical thinking skills that are required for completing a study. A student might be successful until the final semester, only to fail due to lack of required higher-level critical thinking skills, or from a lack of understanding every facet of obtaining and comprehensively analyzing the echocardiogram. A student cannot be a graduate of the program and released into the profession without mastering the objectives.

A. Examples of skills required to **acquire images and clips.**

1. Skilled at maneuvering transducer appropriately.
2. Skilled at adjusting patient position to obtain and optimize image
3. Skilled at using machine functions to optimize images.
4. Skilled at obtaining images in a 2D plane, then constructing/conceptualizing a 3D image.
5. Innate or acquired spatial recognition skills (ability to know where structures are, in adjacent to visualized structures, and the ability to locate and image them if needed).

B. Examples of skills required to **assess images and clips**.

1. Skill and ability to learn and retain information.
2. Knowledge and skills to apply normal values, abnormal values, and equations.
3. Skilled at correct placement of 2D cursor placement, correct placement of Doppler gate, and correctly displaying color map and scale.
4. Skilled at obtaining and visualizing anatomy in a 2D plane, then constructing/conceptualizing a 3D image.
5. Innate or acquired spatial recognition skills.

C. Examples of skills required for **analyzing images and clips**.

1. Skilled at recognizing and verbalizing abnormal 2D, M-mode, Doppler, or Color Doppler images.
2. Skilled at reconstructing/conceptualizing 2D image planes into 3D structures.
3. Skilled at knowing/recognizing/verbalizing when the echo needs additional images.
4. Skilled at knowing/recognizing/verbalizing when further investigation is needed due to what is seen on routine imaging.
5. Skilled at application of learned information to the interpretation of the echo.
6. Skilled at asking appropriate questions to the teaching sonographer to learn.
7. Demonstrates inquisitive nature.
8. Skilled at recognizing and verbalizing a problem.
9. Skilled at problem solving.
10. Skilled at obtaining and visualizing anatomy in a 2D plane, then constructing/conceptualizing 3D images.

To demonstrate success at the above objectives and skill requirements, the following outcomes must be achieved.

1. Student must receive a passing grade on all Scanning Task Sheets.
2. Student must receive a passing grade on all Mid-term and Final Evaluation Forms.
3. Student must receive a passing grade on all Affective Evaluations.
4. Student must receive a passing grade on Critical Thinking Evaluations.

Any student who does not meet minimum requirements in any of the above four (4) assessment areas will fail clinical and not be able to continue in the program. As mentioned above, it is possible to fail at any time in the program as skills are built as building blocks, and sometimes a student cannot achieve the advanced level skills that are presented toward the end of the program.

Examples of situations that can result in **failure of clinical** are listed below. This is not a complete list, but this contains scanning and critical thinking requirements. Student demonstrates:

1. Ability to acquire images, but cannot (routinely) assess or analyze images.
2. Ability to acquire and assess images, but cannot critically analyze the images (single image, or combination of images) to create a complete diagnostic echocardiogram that is to be interpreted by the student for a preliminary report, and by the physician for a formal report.
3. Inability to routinely recognize echo abnormalities.
4. Inability to recognize the need to extend the exam upon discovery of echo abnormalities.
5. Inability to retain information and mentor's teachings for application to the hands-on performance.
6. Inability to (or does not) apply didactic learning to hands-on practice.

CLINICAL OBJECTIVES (Subject to Modification)

DMS 142 Echo Clinical I Weeks 1-4

- Student will begin pre-scanning, post-scanning or scanning with assistance.
- Students will learn names of fellow workers.
- Students will know emergency code system, emergency protocols and procedures.
- Students will know location of CRASH CART.
- Students will establish knowledge of where other departments within their clinical institution are located (Emergency dept., pharmacy, cardiac cath lab, intensive care units).
- Students will learn department policies and procedures (phone etiquette, scheduling protocols, exam preps, study documentation procedures, exam protocols, filing systems and required medical history acquisition).
- Students will demonstrate and practice proper ergonomics and good body mechanics.
- Students will observe staff sonographer testing of patients whenever possible.
- Students will keep a log of all exams observed, post examined by student and performed by student; keeping track of categories. This practice continues throughout all clinical courses.

- Student will aid sonographer in as many ways as possible, including transporting patients, restocking supplies and linens, refilling gel bottles, etc.
- Student will observe and recognize the standard windows and views used for visualizing the heart.
- Student will demonstrate knowledge of basic anatomy of the heart by recitation before, during, or after the exam (depending on supervising sonographer's preference).
- Student will learn and apply proper positioning techniques for echo exam (including supine, lateral decubitus, LPO, RPO).
- Student will learn proper draping (protecting patient's modesty) and gel application.
- Student will apply safe practices regarding patient care and comfort.
- Student will apply knowledge in proper EKG lead placement.
- Student will practice proper aseptic practices and personal hygiene throughout the entire clinical course.
- Student will recognize appropriate scan planes and the manipulation of the transducer.

Weeks 5 - 8

- Student will utilize various machine controls and functions for obtaining the proper echo image.
- Student will continue to pre-scan, post-scan and scan with assistance.
- Student will show ability to obtain proper images and views using the accompanying acoustic windows.
- Student will perform m-mode or 2D on AORTA/LA structures and apply measurements according to protocol, as well as recite normals.
- Student will perform m-mode or 2D measurements on RV/LV structures according to department protocol, as well as recited normal.
- Student will perform m-mode on the mitral valve apparatus.
- Student will continue to observe sonographer testing of exams.
- Student will become more successful at: obtaining proper image planes in 2D, correct m-mode alignment for accurate measurements.
- Student will demonstrate ability to set up a patient for exam, including complete history taking, proper EKG lead placement, correct patient positioning and patient entry into the machine.
- With aid of supervising sonographer, student will review patient's history and other chart records as needed to correlate with present exam.
- Student will continue to maintain proper interpersonal skills, patient care, attitude and professionalism in their clinical course.

DMS 146 Echo Clinical II Weeks 1-8

- Student will continue to practice and perfect objectives assigned to them in DMS 142, Clinical I.
- Student will become more aware of patient rights and responsibilities as stated by their practicing institution.
- Student will optimize the 2D image using depth, gain, DGC, zoom, and harmonics.
- Student will perform ejection fraction calculations using 2D, m-mode images, and volume measurements and correlating its accuracy with the 2D real time study.
- Student will begin performing volume measurements as required.
- Student will perform Doppler studies using correct placement of Doppler gate for each valve study.
- Student will perform with assistance, the Doppler and Color Doppler application for calculation of aortic and mitral stenosis, and all valvular insufficiencies. These include pressure half time, deceleration time, Bernoulli, PISA, and continuity equation.
- Student will recognize abnormal Doppler patterns such as valvular stenosis and regurgitation.
- Student will recognize the aliasing pattern and perform correction using baseline or velocity scale.
- Student will demonstrate knowledge of normal Doppler values for valves.
- Student will continue to recognize and acquire the routine imaging planes and anatomy for the complete echo. This will include not only the "easy to scan patient", but also the minimally difficult to scan patient.
- Student will recognize varying respiratory patterns in the IVC in the subcostal window, and apply these patterns to giving an estimation of RA pressure.
- Students will recognize common abnormal m-mode patterns, such as LAE, LVE, RVE, LVH, decreased mitral leaflet mobility, aortic leaflet calcification and decreased mobility.
- Student will demonstrate ability to take a visual look at the echo and recognize its attributes to being a normal vs abnormal study.

Weeks 9-14

- All of the above objectives for weeks 1-8.
- Student will continue to apply their knowledge and skills for patient care and communication.
- Student will continue to help sonographer in any way possible; such as patient transfer, portable scanning, and department maintenance.
- Continued confidence in scanning.
- Student will be more proficient in the accuracy of Doppler measurements and quantitative principles applied to echocardiographic images and flow data. Student will acquire the ability to perform these calculations more independently.

- Student will recognize wall motion abnormalities and decreased global systolic function.
- Students will demonstrate knowledge in the evaluation of normal and abnormal systolic and diastolic function.
- Student will perform wall motion index studies if the clinical site performs this task.
- Student will always remain professional and possess a positive attitude toward themselves, coworkers, physicians, and most important---the patients
- Student will demonstrate knowledge of lab protocol in reporting critical findings to attending and/or ordering physician.

DMS 246 Echo Clinical III Weeks 1-8

- Continue to practice and perfect objectives assigned to them in DMS 142 Clinical I, and DMS 146 Clinical II.
- Scan all TTE's with minimal assistance.
- Recognize and label abnormal patterns of the ECG
- Continue to recognize and acquire the routine imaging planes and anatomy for the complete echo. This will include all types of patients, including the 'difficult to scan' patient.
- Explain the abnormal appearances of the M-mode
- Analyze reasons for differences in the M-mode exam vs the 2D exam
- Evaluate and explain cardiac hemodynamic information using quantitative principles
- Explain procedure for evaluation of systolic and diastolic dysfunction
- Recognize abnormal cardiac appearance and pathology: right and left chamber enlargement, LVH, cardiomyopathies, tumors or masses, ASD, VSD.
- Perform independently, the Doppler and Color Doppler application for calculation of aortic and mitral stenosis, and all valvular insufficiencies. These include pressure half time, deceleration time, Bernoulli, PISA, and continuity equation.
- Demonstrate knowledge of normal and abnormal Doppler values for valvular flow
- Recognize varying respiratory patterns in the IVC in the subcostal window, and apply these patterns to giving an estimation of RA pressure.
- Assist the physician and/or the sonographer during the stress echo and TEE procedure.
- Demonstrate knowledge of the reasons "why" the stress echo or TEE is performed.

Weeks 9-16

- Continue performance of the above objectives for weeks 1-8.
- Student will continue to apply their knowledge and skills for patient care and communication.

- Student will continue to help sonographer in any way possible; such as patient transfer, portable scanning, and department maintenance.
- Student will demonstrate continued confidence in scanning
- Student will demonstrate entry level skills for their 2D and M-mode scanning
- Student will demonstrate entry level skills in routine Doppler/Color interrogation and calculation of formula
- Student will apply information and knowledge of additional pathological cardiac states as learned in DMS 240.
- Student will demonstrate knowledge through the use of quantitation principles in the evaluation of normal and abnormal prosthetic valves
- Student will demonstrate knowledge through the use of quantitation principles in the evaluation of assist devices and interventional procedures.
- Student will demonstrate proficiency in exercise and pharmacological stress echo. This may be demonstrated in a simulated environment.
- Student will always remain professional and possess a positive attitude toward themselves, coworkers, physicians, and most important---the patients

Curriculum Sequence with Rationale

Goal

The goal of the Cardiac Sonography program is for all students to develop and utilize curiosity, and achieve literacy and competency by:

1. Developing a balanced understanding of the concepts of sonography, sonographic physics, patient care as is presented in didactic courses.
2. Engaging rigorously with success in the process skills of sonography through real-world applications during the clinical experience.

Content

Course content blends the concepts and process skills of sonography. These concepts are taught through the process skills, which are classified under scientific inquiry, critical thinking, technology, applications, and history. Inquiry relies upon objectivity and an unbiased approach in making qualitative relationships. Sonography instruction recognizes the natural wonder/curiosity students bring to the classroom and weaves this curiosity into learning experiences. Students should do sonography, not just hear or read about it. Sonography is best experienced through open-ended, hands-on inquiry that promotes student-generated questions that result in students thinking and acting like a scientist.

Instructional Approach

Assessment is an ongoing process that guides instruction and monitors student progress to include mastery of science content and higher-level thinking skills. Pre-assessment, formative, and summative assessments provide opportunities for student, peer, and teacher evaluation.

Curriculum Sequence

The sequencing of learning experiences with the curriculum is dependent on the faculty's focus on an educational approach that actively engages the student in the occupation of learning, combined with the general curricular sequence that more heavily addresses the occupation theme prior to the practice, results in a gradual increase in self-directed learning and immersion in practice settings. Clinical courses are viewed as sites for integrated application of the didactic learning experience.

The curriculum sequence reflects a careful building of curriculum themes within didactic coursework that incorporates a gradually increasing immersion in real patient and practice setting experiences. The increasing complexity of the course objectives within the program demonstrates the progressive learning experiences that the curriculum offers to the student in the course sequence. General trends in curriculum sequence within each theme are as follows:

1. Understanding of normal anatomy and the sonographic appearance of structures within normal limits.
2. A progression towards understanding pathological processes and abnormal sonographic appearances is reflected in didactic coursework as well as clinical experience and evaluations.

Alignment of didactic lessons with corresponding clinical skills/objectives

SPRING SEMESTER				
WEEK #	**DMS 140 SONOGRAPHIC ORIENTATION & TECHNIQUE**	**DMS 141 ADULT ECHO I**	**DMS 196 Intro to Cardiac Clinical**	**DMS 142 ECHO CLINICAL I**
1	Intro to Echo (History) Windows and Views	Orientation, Anatomy of the chest and heart. Cardiac cycle	Introductions, Intro to machines, Lab Policies, Scan PLAX, Affective Domain Ergonomics PLAX, Ao, MV, PLAX, AO, MV, PSAX	**MANDATORY Clinical Orientation – Attend via BBB in Canvas Course. Begin COVID-19 Assignment (especially those enrolled in DMS196 ONLINE)**
2	Windows and Views-more Anatomy on 2D images Credentialing and Professional Organizations	Cardiac Conduction	PSAX, RVIT, RVOT All parasternal views, 2D Put it all together	Start Bloodborne Pathogen and HIPAA quizzes.
3	M-mode	Systole and Diastole, Normal cardiac physiology, and Coronary vessels.	All parasternal views, 2D Put it all together Apical 4, 5, 3, 2	Bloodborne Pathogen and HIPAA Quizzes – ***DUE***

				Review The echocardiogram, IAC Protocol
4	Assessment left chambers ASE Wall Segments	Catch up and odds and ends Review pressures, diastole, systole, IVRT, IVCT, Wigger's Diagram. Coronary arterial and venous circulation.	Apical 4, 5, 3, 2, Subcostal, SSN, Wall Segmentation	Review Patient Communication
5	Machine knobology Doppler	Valves, M-mode and 2D	PLAX M-Mode and 2D measurements	Review Sonographer Statement on COVID-19
6	Terms and Definitions, HIPAA, Sonographic Appearances	The Complete Exam and Regurgitation (what is it and what does it look like)	Spectral and color Doppler PLAX, PSAX, A4C Blood Flow	
7	Color Doppler, Clinical Indications for the Echo Patient care, Quality assurance and Clinical prep	Midterm	Spectral and color Doppler Apical 4, 5, 3, 2 Aortic Stenosis and Continuity Equation	Start Cultural Diversity in Healthcare Reflection – ***DUE***
8	Spring Break	Spring Break	Spring Break	Spring Break
9	Midterm	Aortic Valve Aortic Stenosis	Pedoff probe Putting it all together	
10	Diastology-Filling and Function	Continue week of Aortic Valve and Aortic Stenosis	Final Competency Record blood pressure, patient care, patient history	**MANDATORY Clinical Prep Meeting via BBB** Watch ASE Part 1 and II Webinars COVID-19 Preparedness for Echo Labs Assignment and Cultural Diversity Reflection ***DUE***
11	TEE SDMS Code of Ethics	Mitral Valve Part I		**CLINICAL BEGINS** **See DMS 142 Clinical Objectives Weeks 1-4** Please watch Guidelines for Performing a Comprehensive TTE in Adults Part 1 and 2 before attending clinical.
12	LV Function & Intro to Stress Echo Assessment Techniques for LV Systolic Function	Mitral Valve Part II		Post in Private Forum and Clinical Happenings I Forum this week – ***DUE***

13	ECG	Regurgitation, Prolapse and Pressures PISA		Caption Health AI and Lung Ultrasound – take a peek! **Tri-weekly Evaluation *DUE***
14	Right Heart WRMSDs and Sonography, Sonographer Responsibilities	ASE Guidelines for Native Valvular Regurge Webinar and ASE MR in MVP Case presentation		Post in Private Forum and Clinical Happenings II Forum this week – ***DUE***
15	Final Exam Review	Final Exam Review		See DMS 142 Clinical Objectives Weeks 5-8
16	Final Exam	Final Exam		Tri-weekly Evaluation ***DUE*** Post in Private Forum and Clinical Happenings III Forum this week ***DUE***
				Rapid Response/Code Blue Training Roles & Responsibilities for Team Members during Emergencies Competency 1 – 3, Affective and Final Evaluations ***DUE***

SUMMER SEMESTER			
WEEK #	**DMS 144 CARDIOVASCULAR PRINCIPLES**	**DMS 206 SONOGRAPHIC INSTRUMENTATION**	**DMS 146 ECHO CLINICAL II**
1	Aortic Insufficiency	Lesson: Mathematics	**See DMS 146 Clinical Objectives Weeks 1 - 8**
2	Tricuspid and Pulmonic Regurgitation Tricuspid and Pulmonic Stenosis, Pulmonary Hypertension	Lesson: Waves	Post #1 in Private Forum and Clinical Happenings I – ***Due***
3	Coronary Artery Disease Myocardial Infarction Stress Echo I	Lesson: Attenuation	
4	Cardiac Catheterization cont. Heart Sounds/Auscultation	Lesson: Pulsed Wave Operation	
5	Test I	Lesson: Transducers	Post #2 in Private Forum and Clinical Happenings II – ***Due***
6	Embryology Adult Congenital ASD, VSD	Lesson: System Operation	

	Cardiac Physiology		
7	Hemodynamics I Doppler Characteristics of Flow	Lesson: Doppler	
8	Hemodynamics II Wall motion detection Test II	Lesson: Artifacts	Competencies 4 -6, Midterm Affective Evaluation and Midterm Evaluation ***Due*** Post #3 in Private Forum and Clinical Happenings III **– *Due***
9	Related Modalities	Lesson: Bioeffects	See DMS 146 Clinical Objectives Weeks 8-15
10	Reporting Echocardiographic Findings Differential Diagnosis	Lesson: Contrast and Harmonics Lesson: Quality Assurance	Affects of HIPAA Assignment ***Due***
11	Professional Organizations and Resources, Recent Advancements, Research & Design	Lesson: Physiology & Fluid Dynamics Lesson: Venous Hemodynamics	Post #4 in Private Forum and Clinical Happenings IV **– *Due***
12	Review Test III	Lesson: Vascular Physical Principles	
13	TEST III	Final Exam	Group Case Presentation & Forum Post ***Due***
14			Competencies 7-11, final affective and final scanning evaluation **Due** Post #5 in Private Forum and Clinical Happenings V **Due**

FALL SEMESTER		
WEEK #	**DMS 240 ADULT ECHO II**	**DMS 246 ECHO CLINICAL III**
1	Lesson 1 Cardiomyopathy; Dilated and Hypertrophic	**SEE DMS 246 CLINICAL OBJECTIVES WEEKS 1-8** Posts Due: Goals Forum **Due** **PLEASE SEND ME YOUR ARDMS #**
2	Lesson 2 Cardiomyopathy; Restrictive Lesson 3 Hypertensive Heart Disease Lesson 4 Pulmonary Hypertension, Pulmonary Heart Disease	
3	Test I	Posts Due: Private Forum & Clinical Happenings I
4	Lesson 5 Pericardial Disease	
5	Lesson 6 Cardiac Tumors and Masses Lesson 7 Endocarditis	
6	Lesson 8 Congenital Heart Disease and Evaluation of The Adult With CHD	Posts Due: Private Forum & Clinical Happenings II **Due**
7	Midterm Exam	Midterm Evaluation and (3) of Competency 15 Cultural Diversity Reflection Assignment **Due** Midterm Achievements and new Midterm Goals post #2 due in Goals Forum **Due**
8	Lesson 9 Cardiac Transplantation and LVAD	**SEE DMS 146 CLINICAL OBJECTIVES WEEKS 9-16**
9	Lesson 10 Prosthetic Heart Valves	Posts Due: Private Forum & Clinical Happenings III **Due**
10	Lesson 11 Diseases of The Great Vessels	
11	Lesson 12 TEE, Ultrasonic Enhancing Agents, Clinical Indications for Echo, Cardiac Resynchronization Therapy (CRT), ICE, Point-Of-Care	
12	Lesson 13 Other Disease Processes – Iatrogenic, Traumatic, Immunologic, Other Systemic Lesson 14 Related Imaging and Procedures, Role of Sonography in Patient Management	Posts Due: Private Forum & Clinical Happenings IV **Due** **Surveys due also, please!** **Case Study rough draft – post to partner in the forum Due**
13	Lesson 15 3d Echo, Strain and Strain Rate	**Rough Draft checklist back to partner**
14	Review, Study for Final	Final Case Study **Due**
15	FINAL	Posts Due: Final Private Forum & Clinical Happenings V, and Final Goals and Achievements Post Valuing CME Assignment **Due**

16		ALL Competencies 12 – 14, (3) of 15, 16, ESE, PharmSE**,** Final Evaluation **Due**

Jackson College
Cardiac Sonography Program **Clinical Course:**
Clinical Log Sheet **Name:**

DATE	EXAM e.g. TTE, TEE, Contrast, etc.	Observed	Pre/Post Scanned	With Assistance	Independent	PATHOLOGY

JACKSON COLLEGE
CARDIAC SONOGRAPHY 2025
CLINICAL TIME OFF FORM

Student name _____ Date _____

Date of absence (sick) _____

Scheduled absence (Vacation) _____ Four weeks prior notice required.

Semester: DMS 142 _____ DMS 146 _____ DMS 246 _____

Clinical Education Center _____

Reason for Absence:

_____

_____

Is this the first absence in this semester? _____Y _____ N

Is this the first clinical absence this year? _____Y _____ N

This is my 1st 2nd 3rd 4th 5th 6th 7th absence this calendar year.

If not the first absence in this semester, state plans for make-up day _____

_____

_____

Student's signature _____

Student name (print) _____

Clinical Instructor signature _____

Clinical Instructor name (print) _____

This Clinical Manual for Clinical Site Instructors and students of the Jackson College Cardiac Sonography Program shall not take the place of the Diagnostic Medical Sonography Handbook that is given to students of all DMS Programs. Upon situations where policies are duplicated, the policy in **this** manual shall take precedence.

Student Acknowledgement of Receipt of the DMS Cardiac Clinical Manual

I hereby acknowledge that I have received, read and understand the Jackson College DMS Cardiac Clinical Manual. I further agree to follow all policies and procedures within the manual.

I understand while attending the clinical site of the DMS Cardiac program, I am expected to follow all reasonable rules and regulations of policies and procedures of the assigned clinical site.

I understand that failure to abide by these rules and regulations may result in dismissal from the DMS Cardiac Sonography program.

DATE: _____

NAME: _____

SIGNATURE: _____

This acknowledgement form needs to be completed and submitted to the Allied Health Office (JW 231) within **ten days after receipt** of the DMS CSON Clinical Manual.