



Imaging Science Education Programs
Echocardiography

West Virginia University Hospitals
Medical Center Drive
Morgantown, WV 26506

Echocardiography Student Handbook

Preface

Adult Echocardiography

WVU Hospitals offers a 12-month, 40-hour-per-week education program in Adult Echocardiography. It is designed to provide students with the basic knowledge and principles necessary to perform echocardiographic procedures in a clinical setting. The program is hospital-based. The essentials and guidelines for accreditation are available for students to read and can be found in the office of the Program Director/ Education Coordinator.

WVU Hospitals awards a certificate to each student who satisfactorily completes all courses of study and fulfills all clinical requirements of the program. Upon graduation, students are eligible to sit for the registry exams offered by the American Registry of Diagnostic Medical Sonographers (ARDMS) and the Cardiovascular Credentialing International (CCI). Applications to the program must hold an associate degree or higher.

The following information has been prepared to inform the students of both policies and procedures of the facilities, as well as the didactic and clinical requirements expected of them during their educational endeavor.



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Imaging Science Education Programs
Echocardiography

Revised: 6/16/2025
Reviewed:
6/16/2025

Medical Advisor: Dr. Lakshmi Muthukumar, FACC, FASE, FSCCT, FSCMR

Program Director/ Education Coordinator: Stephanie Hardy, RT(R)(Ret.), RBA, RCS

Mission Statement

The Echocardiography program at West Virginia University Hospitals serves to facilitate the growth and development of the student in cardiac sonographic imaging. Through continued technological advancement and a strong commitment to education, West Virginia University Hospitals serves as the foundation on which students can cultivate and expand their knowledge of the technical, professional, and philosophical aspects of medical imaging and the healthcare environment. The program strives to provide our students with an educational environment that fosters positive learning outcomes and offers comprehensive clinical experience and patient care opportunities.

Goals & SLO

1. To prepare competent entry-level Echocardiographers in the cognitive(knowledge), psychomotor (skills), and affective (behavior) learning domains for the Adult Cardiac Sonography concentration.
 - 1.1 Students will demonstrate appropriate patient positions for acoustic windows
 - 1.2 Students will select and manipulate appropriate machine settings
 - 1.3 Students will utilize pulse wave, continuous wave, and color Doppler to interrogate pathologies appropriately
2. To develop students with effective communication skills.
 - 2.1 Students will demonstrate effective verbal communication skills
 - 2.2 Students will demonstrate appropriate written communication skills
3. To instruct students on critical thinking and problem-solving skills.
 - 3.1 Students will assess patient needs and adapt clinical exams as required
 - 3.2 Students will describe modifications employed in compensating for exam variables
4. To encourage students to demonstrate professionalism.
 - 4.1 Students will demonstrate work ethics and responsibility to the imaging profession
 - 4.2 Students will summarize and reflect on the value of life-long learning

A handwritten signature in black ink, appearing to read 'S Hardy', written over a horizontal line.

Program Director/ Education Coordinator



Revised: 5/2026
Reviewed: 5/2026

IMAGING SCIENCE EDUCATION PROGRAMS
Echocardiography

Faculty

Stephanie Hardy, RT(R)(Ret.), RBA, RCS

Program Director/ Education Coordinator; Didactic
Instructor

Dawn Smith, A.A.S., RDMS, RCS

Clinical Coordinator; Clinical Instructor

Tonya Matthis, A.A.S., RCS

Lead Sonographer; Clinical Instructor

Emily Bailes, A.A.S., RCS

CV Sonographer; Clinical Instructor

Jillian Durigon, BS, RDCS

CV Sonographer; Clinical Instructor

Lisa Durznak, BS, RT(R), RDCS

CV Sonographer; Clinical Instructor

Maya Ervin, RT(R), RBA, CCMA, RDCS

CV Sonographer; Clinical Instructor

Jaslyn Frierson, RCS

CV Sonographer, Clinical Instructor

Sarah Goldsmith, A.A.S., RT(R), RCS

CV Sonographer; Clinical Instructor

Brian Houk, MS, RDCS

CV Sonographer; Clinical Instructor

Adam Reynolds, BA, RDCS

CV Sonographer; Clinical Instructor

Madelyn (Strait) Strietbeck, BS, RDCS

CV Sonographer; Clinical Instructor

Taylor (Richards) Williams, BS, RDCS

CV Sonographer; Clinical Instructor

Ali Persaud, RDCS(PE), RDMS(FE)

Pediatric Sonographer; Clinical & Didactic Instructor

Keli Strait, RDCS (AE, PE, FE)

Pediatric Sonographer; Clinical & Didactic Instructor

*Instructors may change throughout the year due to staffing and/or the addition of credentialed sonographers



Imaging Science Education Programs
Echocardiography

Reviewed: 2/2026

Revised: 2/2026

Education Faculty

Amanda Pechatsko, MBA, RT(R)(CT)

Radiology Administrator

Jay Morris, MA, RT(R)(CV)

Education Manager

Joy Mason, MA, RT(R)(QM)(M)

Radiology Clinical Education Coordinator

Debbie Ferencz, RT(R)

Radiology Education Clinical Instructor

Samantha Eakle, BA, RT(R)

Radiology Education Clinical Instructor

Neal Humphries, BA, RT(R)

Radiology Education Clinical Instructor

Christina Paugh, MA, RT(R)(T)

Radiation Therapy Education Coordinator

Tiffany Davis, MA, RT(R)(N), CNMT

Nuclear Medicine Education Coordinator

Brad Holbren, MSHA, RT(R)(MR)

MRI Education Coordinator

Kathleen Riley, MS, RT(R), RDMS

Ultrasound Education Coordinator

Caitlin Chrisler, RBA, RT(R), RDMS

Ultrasound Education Clinical Coordinator

Stephanie Hardy, RT(R)(Ret.), RCS, RBA

Echocardiography Education Coordinator

Dawn Smith, AAS, RCS, RDMS

Echocardiography Education Clinical Coordinator



IMAGING SCIENCE EDUCATION PROGRAMS

Echocardiography

Reviewed: 4/2026

Revised: 4/2026

Heart & Vascular Institute Clinical Administration

Lakshmi Muthukumar, FACC, FASE, FSCCT, FSCMR

Echocardiography Program Medical Advisor

Melissa Rose, MA, RT(N), CNMT

Director of Cardiac Imaging

Frances Spishock, BSN, RN

Manager of Noninvasive Cardiac & Vascular Services

Candise Kerns, CET

Manager of Noninvasive Cardiac & Vascular Services

Diana Stofcheck, RVS

Supervisor Cardiovascular Ultrasound

Dawn Smith, A.A.S., RDMS, RCS

Clinical Coordinator, Clinical Instructor

Tonya Matthis, A.A.S., RCS

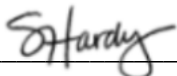
Lead Cardiac Sonographer

Madelyn Strietbeck, BS, RDCS

QA Coordinator, Clinical Instructor

Policy Change

The administration of West Virginia University Hospitals and the faculty of the West Virginia University Hospital's Imaging Science Education Programs reserve the right to change any of the stated policies as necessary and/or when advisable for improvement of or to meet new standards within the program.

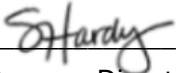


Program Director/ Education Coordinator

Recruitment Policy

As part of the policies and expectations of the West Virginia Community & Technical College System, the Echocardiography Program will conduct recruitment in an ethical, transparent, and consistent manner.

The Echocardiography Program provides accurate, complete, and non-misleading information to prospective students through approved recruitment materials, including program presentations, information flyers, and the WVU Medicine-sponsored website. Application packets are made available upon request. Recruitment communications, including letters and approved advertising materials, are distributed to radiography programs within the state and surrounding regions to ensure equitable access to program information.



Program Director/ Education Coordinator

Echocardiography Admissions Policy

Policy

West Virginia University Hospitals and those responsible for administering the Imaging Science Education Programs consider each applicant regardless of race, religion, color, national origin, ancestry, age, sex, sexual orientation, gender identity, disability, veteran status, or any other status protected by applicable law.

Program officials reserve the right to limit enrollment based on the quality of the applicant pool and current employment market conditions. Applicants must meet the following minimum admission requirements to be considered for admission to the Diagnostic Medical Sonography Program.

Requirements for Admission Consideration

All the following criteria are required for admission consideration, and documentation must be received on or before February 1st of the year in which the student is applying for admission.

1. The applicant must review the Essential Performance Standards form located on the program's website (<https://wvumedicine.org/radtech/echocardiography/>).
2. The applicant must possess, at minimum, an associate degree (or pending graduate) of a 2-year postsecondary, Allied Health education program that is patient care related. Allied Health occupations include but are not limited to Radiologic Technology, Respiratory Therapy, Occupational Therapy, Physical Therapy, Registered Nurse, and Licensed Practical Nurse.
3. The applicant must have a "C" or better in the following college courses to be considered for admission into the program.
 - a. Algebra, statistics, or higher mathematics course
 - b. General college-level physics and/or radiographic physics
 - c. Communication skills
 - d. Human anatomy and physiology
 - e. Medical Terminology
4. The applicant is required to provide documentation of patient care experience, which can be from clinical experience associated with their degree or through a job. A minimum of 500 direct patient care hours is required over a calendar year. The hours should be at a hospital. Volunteer and shadowing hours will not be considered patient care experience.
5. The applicant must submit the following by February 1st to be considered for the program starting in July each year:
 - a. Program Application
 - b. Three Personal Reference Forms
 - c. Clinical Experience Form
 - d. Official transcripts of all post-secondary education (radiography school, college, etc.)
 - i. International colleges and university transcripts must be submitted through the World Education Service (WES). Per policy 1.018 Validation of Foreign Educational Records.

6. American College Test (ACT) scores, Scholastic Aptitude Test (SAT) scores, or Testing of Essential Academic Skills (TEAS) scores
 - a. Minimum recommended composite score:
 - i. ACT (pre-April 2025) – 19 or ACT STEM – 19
 - ii. SAT – 900
 - iii. TEAS – 60
 - b. The post-April 2025 ACT exam **must include the Science section** to provide a STEM score, or it will not be accepted. All ACT exams taken before April 2025 will have the Science section included in the composite score.
 - c. The ACT or SAT Writing component is not required or included in the minimum score.
 - d. ACT / SAT / TEAS requirement is waived for applicants possessing an associate's degree or higher.
 - i. However, if the ACT, SAT, or TEAS score is provided and it satisfies or exceeds the minimum recommended composite score, additional points will be awarded.
 - e. School Codes to send exam scores/transcripts
 - i. ACT – 4549
 - ii. SAT – 3863
 - iii. TEAS – Select “West Virginia University Hospitals – Imaging Science Education Programs

Academic Evaluation

Program officials utilize an established, objective screening mechanism to assign academic points to a candidate based on their current level of academic achievement. The following categories are used to assign academic points.

1. ACT Composite or STEM score or SAT (Critical Reading & Math) score or TEAS score
 - a. Superscore is used for ACT Composite or STEM score
 - b. If multiple exams were taken (e.g. ACT & TEAS), only the highest one would be used
2. College-level coursework
 - a. Algebra, statistics, or higher mathematics course
 - b. General college-level physics and/or radiographic physics
 - c. Communication skills
 - d. Human anatomy and physiology
 - e. Medical Terminology
3. College / University Credit (based on GPA relative to number of hours completed)
4. College / University degree (BA, BS, MA, etc.)
5. Healthcare experience
 - a. Patient Care (clinical experience and /or current job experience accepted)
 - i. Hours earned through volunteer or shadow experiences will not be considered patient care experience.
 - ii. Clerical positions or other non-patient care experiences will not be considered patient care experience.
6. Military Service / VA Benefits Eligible: For applicants who will potentially be using VA educational benefits if accepted, WVUH will accept, review, and maintain a written record of previous education and training for each candidate. Such materials will be reviewed to determine if credit toward admission or program completion is possible.

Interview Evaluation

Interviews are granted to the top **(12)** academic candidates each year; however, the Education Coordinator/ Program Director reserves the right to limit or expand this number based on the quality of the applicant pool. Applicants not receiving an interview will be notified by mail. Interviews will be conducted in March of each year, and candidates will be notified of their admission status no later than April 1st of each year.

Interviews are conducted by an admissions committee consisting of at least three members selected by the education coordinator and may include faculty members, department managers, and /or clinical staff. Using a standardized form, total interview scores from each committee member will be calculated and averaged for each candidate. Candidates must score a minimum average of **25 interview points** (out of a possible 40) to be considered eligible for admission to the program. (See Interview Form).

Spatial Reasoning Puzzles

At the time of the interview, applicants may be asked to complete five spatial reasoning puzzles to assess their critical thinking, reasoning skills, spatial visualization, and problem-solving abilities. Points are assigned based on time to complete, completion of all puzzles, and accuracy.

Overall Evaluation

The Education Coordinator/Program Director will combine the Academic, Interview, and Puzzle points into a cumulative score for each candidate and rank them in descending order. The Admissions Committee will review the scores and finalize the assessment.

Selection

The Education Coordinator will rank the candidates in descending order and will extend offers to the top candidates having the highest Total Point scores (available seats in the program vary year to year, with an average of five students). Should there be a tie between two candidates, the average interview score for each candidate will be used as a tiebreaker. The candidate with the highest interview score will receive the higher ranking.

The remaining eligible candidates will be waitlisted in the event that one or more of the top candidates do not accept the position. Waitlisted positions expire once a class is filled and do not carry over to the next admission year.

The candidates selected for admission will receive:

- a. Acceptance letter
- b. A copy of the student handbook
- c. Statement of Intent to Enroll (must be signed and returned)
- d. Essential Performance Standards Form
- e. Invoice for Admission Fee

All other applicants interviewed will receive a written verification of their non-admission or waitlisted status.

Acceptance

The selected applicants are given 7-10 business days to respond to the offer of admission by completing the following prior to the established deadline:

1. Read the Student Handbook
2. Sign and return the Statement of Intent to Enroll form
3. Sign and return the Essential Performance Standards form
4. Submit a \$50.00 check to WVUH for the admissions fee.

If an applicant fails to respond to the offer of admission by the established deadline, program officials will consider the offer as null and void and will proceed by offering the position to a wait-listed applicant.

Enrollment

Enrollment is contingent upon the student satisfactorily completing the following screening and assessment procedures within the guidelines specified by West Virginia University Hospitals (WVUH). These screenings will be conducted during the orientation period or at a time specified by program officials. Students will be provided with additional information regarding these procedures prior to the start date of the program.

Students will be required to:

- (1) Complete a health assessment and a vaccination record review conducted by the Employee Health department.
- (2) Complete the criminal background investigation process. (See WVUH Policy V.036)
- (3) Complete the drug screening/testing process. (See WVUH Policy V.035)
- (4) Complete all other WVUH mandatory orientation procedures.



Program Director/ Education Coordinator

Weighted Values for Applicant Admission Points

The following values will be assigned to the applicant's previous academic achievements and the personal interview. Points assigned to each candidate will be summated and utilized as criteria for admission consideration:

I. ACT/SAT/TEAS scores

ACT Composite (pre-April 2025)	ACT STEM	SAT (CR+M)	TEAS	Points assigned
>31	>31	1360-1600	90-100	4
27-30	27-30	1210-1359	80-89	3
23-26	23-26	1050-1209	70-79	2
19-22	19-22	900-1049	60-69	1
<19	<19	<900	<60	0

II. College Coursework

Applicants are assigned points for each of the following categories relative to the grade the student achieved in the course(s). Multiple courses completed in each category are averaged.

Courses	Letter Grade	Points Assigned
College Algebra, Statistics, or higher (cumulative)	A	5
Physics	B	4
Human Anatomy & Physiology	C	3
Medical Terminology		
Sciences (cumulative)		

*Included science courses include biology and chemistry

Communication Skills (cumulative)

*Communication skills may be met with English, Speech, or Composition

III. Radiography / College / University Credits

Points are awarded to applicants based on the applicant's highest degree obtained and average GPA (cumulative college/university). Points are awarded based on the following scale:

Associate Degree*		Baccalaureate Degree*		Graduate Degree*	
GPA	Points Assigned	GPA	Points Assigned	GPA	Points Assigned
> 3.59	3	> 3.59	6	> 3.59	9
> 2.99	2	> 2.99	5	> 2.99	8
> 1.99	1	> 1.99	4	> 1.99	7
< 1.99	0	< 1.99	0	< 1.99	0

*Applicants holding a healthcare-related degree will receive an additional six points toward their admission score.

IV. Healthcare experience

Points are assigned to candidates who document healthcare-related work experience, not including their clinical education.

Category	Points Assigned
Healthcare-related work experience \geq 3 years or 1500 hours	6
Healthcare-related work experience \geq 2 years or 1000 hours	4
Healthcare-related work experience \geq 1 year or 500 hours	2

V. Spatial Reasoning Puzzles

Applicants will complete five spatial reasoning puzzles to assess their critical thinking, reasoning skills, spatial visualization, and problem-solving abilities. Points are assigned based on time to complete, completion of all puzzles, and accuracy. The range is listed below.

Total Puzzle Score	Points Assigned
36-39	5
32-35	3
25-31	1
<25	0

VI. Personal Interview

Individual interviewer points in the following categories are summated and averaged to obtain an overall average interview score (see interview form). Points are assigned based on the range below:

Category	Points Assigned (see Interview form)
Appearance	1 – 5 points
Affability/Attentiveness	1 – 5 points
Emotional - Stability	1 – 5 points
Personality	1 – 5 points
Communication Skills	1 – 5 points
Knowledge of Profession	1 – 5 points
Initiative & Drive to Succeed	1 – 5 points
Initiative towards Program Admission	1 – 5 points



Program Director/Education Coordinator

West Virginia University Hospitals
Imaging Science Education Programs
Echocardiography

Policy No. 2.005
Effective: 4/1999
Revised: 12/2002
Reviewed: 4/2026

Transfer Credit/ Advanced Placement/ Part-Time Student Policy

Transfer Credit Policy

This policy serves to identify the Program's philosophy relative to transfer of credit.

The Echocardiography program at West Virginia University Hospitals may consider accepting transfer credit at the discretion of program officials. Transfer credit will only be considered for certain prerequisite courses required for program admission. Transfer credit(s) under consideration must have been completed within the curriculum of an accredited college/university within five years of the date of transfer consideration. If transfer credit is approved by program officials, valid documentation (i.e., radiography school transcript, college transcript) must be provided to program officials as proof of satisfactory course completion prior to admission to the sonography program. Failure to provide valid documentation may result in the revocation of the transfer credit. Documentation of approved transfer credit will be retained permanently.

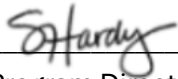
Advanced Placement/Part-Time Student Policy

This policy serves to identify the Program's philosophy relative to advanced placement of students and part-time student attendance.

With respect to the following considerations:

1. The Echocardiography program length is 12 months.
2. The specificity of the course content.
3. The precise correlation between the didactic curriculum and clinical education.
4. The sequential and progressive nature of the curriculum format.
5. The competitive nature of the enrollment process; and
6. The operational hours of the clinical facility.

The Echocardiography program at West Virginia University Hospitals does not make provisions for advanced placement status or part-time enrollment.



Program Director/ Education Coordinator



IMAGING SCIENCE EDUCATION PROGRAMS
Echocardiography

Reviewed: 5/2026

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General Information

Certificate

A certificate of completion of 12 months of schooling in Adult Echocardiography is awarded to each student upon successful completion of the program.

Transcript

The student will be provided a transcript of grades upon satisfactory completion of the Echocardiography Education Program. Additional transcripts of grades and other information will be forwarded upon written request.

Licensing

Upon successful completion of the Echocardiography Program, students are eligible to sit for registry exams offered by the American Registry of Diagnostic Medical Sonographers, Adult Echocardiography specialty, and the Cardiovascular Credentialing International. Registry applicants must provide documentation of an associate degree or higher.

Upon successful completion of the Pediatric Echocardiography Program, students are eligible to sit for registry exams offered by the American Registry of Diagnostic Medical Sonographers, Pediatric Echocardiography specialty.

Financial Aid

This program is not eligible for financial aid.

Semester Dates

Semester 1: July 1-December 31

Semester 2: January 2-June 30

Class and Clinical Schedule

Monday through Friday 7 am – 3:30 pm

Holidays and Vacation

The Echocardiography Program observes all official institutional holidays. Students are also granted three weeks of vacation during the 12-month program, typically consisting of two weeks in the winter and one week in the spring. Vacation dates are determined by the program and may be adjusted if necessary.

Outside Employment

Outside employment must not interfere with a student's ability to meet the academic and clinical requirements of the Echocardiography Program. Students are expected to remain available for all scheduled didactic and clinical education activities as outlined by program policies and guidelines. Programming hours during the first two weeks of July may vary due to orientation activities and may extend beyond normal daily schedules.

WVU Employee Tuition Reimbursement

Students in the Echocardiography Education Program may be eligible for the WVU Medicine Employee Tuition Reimbursement program. Students must meet all policy eligibility requirements and should follow program guidelines for submission. The Employee Tuition Reimbursement Policy is available on Connect > Policies and Protocols > WVUHS. To view eligibility requirements for tuition reimbursement and frequently asked questions, please visit HROneSource.org and click on the benefits icon. Click the Tuition Programs link for additional information. If you have any questions regarding this information, please get in touch with HROneSource at 833-599-2100 or submit a service request online at HROneSource.com.

Housing

Students are responsible for making their own living arrangements. University housing is not available.

Placement Service

The program cannot guarantee employment to the students based on program completion, but assistance is provided in obtaining employment through the posting of current job openings and listings.

Lockers

Each student is assigned a locker located outside of the Radiology Administration Suite (Ground level), as space is available. The department and WVU Hospitals are not responsible for lost or stolen items.

Attendance of Educational Opportunities

Students may be granted time off to attend educational meetings deemed valuable by Program Officials. Each student is expected to provide written documentation of their attendance. Each student is responsible for their own transportation and expenses. Travel to and from the educational opportunities is done on your own recognizance. Neither WVU Hospitals, the Radiology Department, nor the Echocardiography Education Program may be held responsible for your safety and well-being.

Libraries and Student Resources

Two libraries of reference books and periodicals are maintained by the Radiology Department Library and the WVU Health Science Center Library. You have the privilege of using these materials. Students also have access to the textbooks in the Education Coordinator's office. A list of textbooks and reference materials can be found in the Education Coordinator's office. All reference materials must be checked out and returned by the due date. A lost book or reference must be replaced at the student's expense prior to graduation. Upon completion of the Program, a "Library Release" form must be completed by the WVU Health Science Center Library and turned into the Education Coordinator. Students will not graduate if all books or reference materials have not been returned.

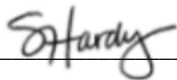
Mandatory Orientation Policy

It is the policy of the West Virginia University Hospital Education Program in Echocardiography to provide basic hospital and echocardiography department orientation information to new students. Orientation is mandatory for all students; however, in the extraordinary event that a student would not be able to attend, the student will be required to use their personal time off in accordance with the Attendance Policy. Personal time off (PTO) in the amount of 8 hours for each day missed will be charged. The student is solely responsible for obtaining any information missing during new student orientation.

Throughout the first several weeks of the program, additional mandatory orientation training events will be held, which include, but are not limited to:

- IV and Vitals Training
- Basic CPR
- EPIC/ CUPID Training
- Lift Training
- Any additional training scheduled by the Education Coordinator

In the event that a student would be absent for any training event deemed mandatory by the Education Coordinator, the Attendance Policy applies, and the student must make alternative arrangements to make up the training before continuing with their clinical rotation in August.

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West Virginia University Hospitals

Imaging Science Education Programs
Echocardiography

Policy No. 2.007

Effective: 7/2000

Revised: 1/2026

Reviewed: 5/2026

Attendance Policy

A student's daily attendance is vitally important in order for them to maintain satisfactory didactic and clinical performance. Students who miss exceptional amounts of clinic time will find it difficult to acquire the exams needed to fulfill their clinical education requirements. Students need to realize that poor attendance during their education can have a negative effect on their future. Employers tend to be wary of student applicants who have a record of excessive absenteeism. It is natural to relate absenteeism with a poor work ethic and a lack of commitment to the profession.

Personal Time Off: (PTO)

Personal time off (PTO) may be utilized for unscheduled absences (illness, personal emergency, etc.) and scheduled absences (job interviews, doctor appointments, etc.).

Twelve-month programs:

The student will be allotted 48 hours of personal time off for a twelve-month program. In addition, each school year will include three (3) weeks of leave to include: 2 weeks over the Christmas / New Year holiday, and one week in the spring.

Eighteen-month programs:

The student will be allotted 72 hours of personal time off for an eighteen-month program. In addition, each school year will include four (4) weeks of leave to include: 2 weeks over the Christmas / New Year holiday, one week in June, and a final week in the fall, which is determined by the education coordinator.

Compensatory Time Off: (Comp time)

Compensatory time off is awarded at the discretion of the program director for activities that may exceed an 8-hour school day and/or for extraordinary circumstances. Some examples include, but are not limited to, staying late to assist with a heavy workload, going above and beyond duties, and/or conference(s) that are outside of the typical time frame of a normal school day.

Scheduled & Unscheduled Absences:

1. It is the student's responsibility to notify both the Program Director and Clinical Rotation site when calling to report off for illness or other personal emergencies. Notification must be received by a Program Official no later than 30 minutes prior to the beginning of the student's assigned shift. Failure to notify a Program Official in a timely manner will result in the student receiving an unexcused absence for that day. Students are required to leave a message on the phone mail system of the Program Director and the clinical rotation site.

2. In addition to calling off, students must document their absence by completing a Time Off Request form in Trajecsys. Compensatory time may not be utilized for unscheduled absences.
3. Students who miss consecutive days due to an illness will only be charged 8 hours of PTO for every three (3) days of absence, providing the student has a valid medical excuse from a physician stating the amount of time that the student is excused. The provision only applies to the student and may not be used for the illness of other family members. The provision does not apply to time missed due to illnesses or incapacitation related to elective procedures or surgeries. Please refer to the Medical Leave of Absence policy regarding extended illnesses.
4. Scheduled PTO and comp time shall be granted in minimum increments of 1 hour, unless previously approved by the Program Director.
5. Students requesting time off for non-emergent reasons should pre-schedule PTO or comp-time with program officials by the end of their shift at least one (1) day before the requested time off. Students should complete a Personal Time Off Request form in Trajecsys and inform the Program Director as soon as the form has been submitted to ensure prompt review.

Excessive Absenteeism

This policy serves to identify the procedure and criteria implemented when a student exceeds their allotted number of hours of personal time off (PTO).

1. Excessive absenteeism will not be tolerated. If a student exhausts their allotted PTO days, they will be subject to the following disciplinary action.

Twelve-month programs:

- a. If the 48 hours of allotted PTO are exhausted, the student will receive documented counseling regarding their attendance, and 1 point will be deducted from their overall clinical grade.
- b. If 16 additional hours are missed (total 64 hours), the student will receive a second formal written warning regarding their position in the Program, and 2 additional points will be deducted from their overall clinical grade (total 3).
- c. If 16 additional hours are missed (total 80 hours), the student will receive a final formal written warning regarding their position in the Program, and 2 additional points will be deducted from their overall clinical grade (total 5).
- d. If the total amount of time absent exceeds 88 hours, the student will be dismissed from the Program if any additional time off occurs. Students will be evaluated on an individual basis as to the circumstances causing the absenteeism.

Eighteen-month programs:

- a. If the 72 hours allotted for PTO are exhausted, the student will receive documented counseling regarding their attendance, and 1 point will be deducted from their overall clinical grade.

b. If 16 additional hours are missed (total 88 hours), the student will receive a second formal written warning regarding their position in the Program, and 2 additional points will be deducted from their overall clinical grade (total 3).

c. If 16 additional hours are missed (total 104 hours), the student will receive a final formal written warning regarding their position in the Program, and 2 additional points will be deducted from their overall clinical grade (total 5).

d. If the total amount of time off exceeds 104 hours, the student will be dismissed from the Program if any additional absences occur. Students will be evaluated on an individual basis as to the circumstances causing absenteeism.

2. If a student exceeds their allotted personal time off, their clinical education will be extended beyond graduation so that all clinical requirements can be satisfied. However, the clinical education process cannot be extended beyond 5 days after graduation. All absences over the allotted personal time off will be considered as unexcused absences and will result in documentation of unsatisfactory attendance on the final transcript.

3. In accordance with the standards of the Joint Review Committee on Education in Diagnostic Medical Sonography (JRCDMS) and the Commission on Accreditation of Allied Health Programs (CAAHEP), concerning the maximum hours of clinical and didactic instruction, students will not be permitted to make up their excessive missed time by extending their hours in the clinic daily.

Unexcused absences

Unexcused absences are classified as follows:

1. Leaving the facility grounds without a program official's permission.
2. Leaving your assigned area without the program officials' or a staff technologist's permission.
3. Failure to notify program officials prior to your assigned shift of an unscheduled absence.
4. Absences that occur as a result of disciplinary action (e.g., suspension) or those in excess of the allotted 48 hours PTO for twelve-month programs or 72 hours PTO for eighteen-month programs.

If a student incurs an unexcused absence, the Disciplinary Action policy will be implemented. It is mandatory for all students to make up, after graduation, any time missed as a result of an unexcused absence so that all clinical requirements can be satisfied. As with the excessive absenteeism policy, the clinical education process cannot be extended beyond 5 days after graduation for unexcused absences.

Tardiness

Students are required to be in their assigned clinical or didactic area and fully prepared to begin the daily clinical assignments prior to or by their designated starting time. Students should be aware that falsifying attendance records is grounds for immediate dismissal.

Tardiness is subject to the following guidelines and provisions:

- a. Tardiness is considered any arrival time past the designated start of the student's shift.

Example: if your shift begins at 7:00 am, you would be considered tardy at 7:01 am.

- b. Tardiness beyond 30 minutes will result in the student being charged 0.5 days (4 hours) of PTO.
- c. Failure to notify program officials 1 hour beyond the designated time of arrival will result in the student being charged 1 day (8 hours) of PTO, marked as an unscheduled absence, and will result in a written warning.
- d. Excessive tardiness will not be tolerated and will result in a reduction in Clinical Points, which will negatively affect the student's clinical grade. Continued abuse will additionally result in disciplinary action and will result in documentation of “unsatisfactory attendance” on the final transcript.
- e. Exceptions to this policy will be at the program official’s discretion and will be limited to unforeseen events.

Tardiness will be governed by the following limits and corresponding corrective actions:

Twelve-month programs:

- a. Upon the occurrence of three incidences of tardiness, the student will be issued a verbal warning, and 1 point will be deducted from their clinical grade.
- b. Upon the occurrence of three additional incidences of tardiness (total of 6), the student will be issued a formal written warning, and 2 additional points will be deducted from their clinical grade (total 3).
- c. Upon the occurrence of three additional incidences or tardiness (total of 9), the student will be issued a second formal written warning, and 2 additional points will be deducted from their clinical grade (total 5). At this level, the student’s attendance will also be marked as “unsatisfactory” on their final grade transcript.
- d. Upon the occurrence of one additional incident of tardiness (total of 10), the student will be issued a third formal written warning, which will result in their subsequent dismissal from the program.

Eighteen-month programs:

- a. Upon the occurrence of three incidences of tardiness, the student will be issued a verbal warning, and 1 point will be deducted from their clinical grade.
- b. Upon the occurrence of three additional incidences of tardiness (total of 6), the student will be issued a formal written warning, and 2 additional points will be deducted from their clinical grade (3 total).
- c. Upon the occurrence of three additional incidences of tardiness (total of 9), the student will be issued a second formal written warning, and 2 additional points will be deducted from their clinical grade (5 total). At this level, the student’s attendance will also be marked as “unsatisfactory” on their final grade transcript.
- d. Upon the occurrence of three additional incidences of tardiness (total of 12), the student will be issued a third formal written warning, which will result in their subsequent dismissal from the program.

Funeral Leave

Students will be given a maximum of three (3) days of excused absence for deaths in their immediate family. Immediate family shall include husband, wife, child, mother, father, brother, sister, mother-in-law, father-in-law, and grandparents. Exceptions to this policy may be granted only by the Program Director.

Students needing to utilize funeral leave will be required to submit a Leave Request form in the Trajecsys Report System and notify a program official of submission as soon as possible, before being absent.

Military Leave

West Virginia University Hospitals supports the military services of the United States government and provides the following provisions for students serving in the Military Reserves during their enrollment in the program.

- a. Students serving in any branch of the U.S. Military Reserves are allotted 2 weeks (10 days) of leave per academic year to fulfill their required military commitment. Students who miss additional time (>10 days) due to military service will be required to utilize personal leave or arrange an acceptable time frame in which to make up the time missed so that the program's clinical requirements can be fulfilled. Make-up time is subject to the Education Coordinator's discretion and subsequent approval.
- b. Students are responsible for all didactic and clinical course materials presented during their absences related to military service.
- c. In the event that a student is called up to active military duty, the program will reserve a position for that student so that they can be re-enrolled upon the completion of their active-duty assignment.

Vacation and Holidays

Twelve-month programs:

Students are granted three (3) weeks of vacation during their 12-month enrollment in the Program. Vacations are scheduled as two (2) weeks over Christmas/New Year's and one week in the spring. Program officials reserve the right to alter vacation dates.

Students are granted seven (7) holidays per year, which include the following:

New Year's Day	Thanksgiving, and the Friday after Thanksgiving
Memorial Day	Labor Day
Independence Day (July 4th)	Christmas

Eighteen-month programs:

Students are granted one (1) week of vacation during each semester enrolled in the Program. Vacations are scheduled as two (2) weeks over Christmas/New Year's, one (1) week in June, and the final week of vacation is held in the fall. The final week in the fall is determined by the education coordinator. Program officials reserve the right to alter vacation dates.

Students are granted seven (7) holidays per year, which include the following:

New Year's Day	Thanksgiving, and the Friday after Thanksgiving
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Memorial Day

Labor Day

Independence Day (July 4th)

Christmas

Attendance Documentation

Clocking In/Clocking Out:

Students are required to document their attendance by using Trajecsyst. Students may not clock in more than 15 minutes prior to their designated start time and must clock out at the published end of their scheduled shift. Any clock-in/clock-out outside of the student's published scheduled shift will require approval from a program representative.

Using PTO or Compensatory Time:

Students desiring to use PTO or Compensatory Time will be required to submit a Time Off Request form in Trajecsyst and notify a program official of submission by the end of their shift at least one (1) day prior to the requested time off. The exact number of hours to be taken must be marked, an appropriate designation must be selected (PTO, comp, military, medical, funeral), and the student must provide the time of day they wish to use their time if not a whole day (i.e., 2 hours PTO, 2 pm-4 pm, leaving early). A comment box will be provided on the leave request form for further information, if necessary.

Please note that if requesting to use a half-day of PTO or comp time, you would be utilizing four (4) hours of PTO or comp time. For example, if you are scheduled from 7 am-3:30 pm and request a half day in the afternoon, you would work 7 am-11 am, using four (4) hours. If you are scheduled from 7 am-3:30 pm and request a half day in the morning, you would work 11:30 am-3:30 pm. Scheduled lunch time may not be used towards time off calculation.

Please note that same-day time off requests require PTO to be utilized. No compensatory time may be used for same-day time off requests. A minimum of 4 hours PTO will be removed from the student's PTO bank for all same-day time off requests. Students in twelve-month programs are allotted three (3) exemptions to this rule, while students in 18-month programs are allotted five (5) exemptions to this rule. The program director may use discretion when determining the number of PTO hours to remove from the student's PTO bank for certain circumstances. Compensatory time must always be scheduled in advance and may not be used for same-day requests, illness, and/or calling off.

Interview Time Off:

Students are allotted interview time off for the purpose of interviewing for a job in the area of advanced imaging for which they are currently enrolled. The amount of time allotted is dependent upon the location of the interview, not to exceed eight (8) hours, and is limited to one (1) time use, regardless of the amount of time used. For all interviews taking place on-site within students' respective departments or within a 40-mile distance, a total of 4 hours may be used if necessary. For all interviews taking place off-site and greater than a 40-mile distance, a total of up to eight (8) hours may be used to account for travel.

All interview time off must be pre-approved by the Program Director at least 24 hours prior to the interview date. Students desiring to use any amount of interview time off will be required to submit a Personal Time Off Request form in Trajecsyst by the end of their shift at least one (1) day prior to the interview date. The

student will also be required to complete necessary forms, which can be located and printed from the “Documents” section of Trajecsys. These forms must be signed by a member of the interview committee and returned to the Program Director the next school day, immediately following the interview. If the signed document is not returned, the absence will be considered unexcused, and PTO will be taken. If additional interview time is needed, PTO must be used.

Policy Enforcement:

Accurate evaluation and interpretation of student attendance can only be accomplished if students are methodical and precise in their documentation. For this reason, the following guidelines have been established and will be strictly enforced.

1. Each student must clock in and clock out in the Trajecsys Report System to document daily attendance times upon their arrival and departure from clinical duties.
2. Students who fail to document accurately and in a timely manner will be counted absent until they notify the designated Program official. All time not accounted for (missed documentation) will be deducted from the student’s PTO balance, and disciplinary action may be enforced in accordance with the excessive absenteeism policy.
3. Logging attendance must be performed on an approved hospital computer. Logging attendance with a mobile device is unauthorized and will be considered falsification of attendance documentation unless previously approved by a program official under special circumstances. Falsification of attendance documentation is grounds for immediate dismissal from the program in accordance with the disciplinary action policy.
4. Time exceptions will be considered unauthorized unless approved by a program official under special circumstances.
5. Any student failing to properly utilize the attendance system (failing to clock in and clock out in Trajecsys, failing to comment on early dismissals, etc.) will be subject to the following:

Twelve-month programs:

- a. Upon the occurrence of three incidents of failing to log attendance, the student will be issued an oral warning, and 1 point will be deducted from their clinical grade.
- b. Upon the occurrence of three additional incidences of failing to log attendance (total of 6), the student will be issued a formal written warning, and 2 additional points will be deducted from their clinical grade (total 3).
- c. Upon the occurrence of three additional incidences of failing to log attendance (total of 9), the student will be issued a second formal written warning, and 2 additional points will be deducted from their clinical grade (total 5). At this level, the student’s attendance will also be marked as “unsatisfactory” on their final grade transcript.
- d. Upon the occurrence of one additional incident of failing to log attendance (total of 10), the student will be issued a third formal written warning, which will result in their subsequent dismissal from the program.

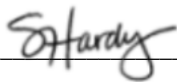
Eighteen-month programs:

- a. Upon the occurrence of three incidents of failing to log attendance, the student will be issued an oral warning, and 1 point will be deducted from their clinical grade.
- b. Upon the occurrence of three additional incidences of failing to log attendance (total of 6), the student will be issued a formal written warning, and 2 additional points will be deducted from their clinical grade (3 total).
- c. Upon the occurrence of three additional incidences of failing to log attendance (total of 9), the student will be issued a second formal written warning, and 2 additional points will be deducted from their clinical grade (5 total). At this level, the student's attendance will also be marked as "unsatisfactory" on their final grade transcript.
- d. Upon the occurrence of three additional incidences of failing to log attendance (total of 12), the student will be issued a third formal written warning, which will result in their subsequent dismissal from the program.

Online (Virtual) Didactic Course Attendance:

Online (virtual) didactic course instruction is not provided by our imaging science education programs under normal operating procedures. Some off-site clinical rotation sites may require the student to attend a didactic course via an online (virtual) platform. You are required to attend these scheduled sessions while at the off-site clinical rotation site. In the event the student takes PTO or COMP time during the timeframe of the scheduled in-person and/or online (virtual) didactic course(s) offering, the student is not required to attend the didactic course(s) (in-person or online (virtual)). If a student chooses to attend any didactic course(s) online (virtually) while utilizing PTO or COMP time, the student will not be reimbursed any PTO or COMP time to offset the time spent participating in the didactic online (virtual) lecture(s). Additionally, any student who attends an online (virtual) course lecture must be physically present at an approved clinical rotation site, unless arrangements were previously made with the instructor/program director.

The Program Director has the discretion to make changes to this policy at any time based on the situation.



Program Director/ Education Coordinator

Attendance Documentation

Students are required to document their attendance by using Trajecsys Corporation.

Using PDO or Compensatory Time:

Students desiring to use PDO or Compensatory Time will be required to submit a Leave Request form in Trajecsys and notify a program official of submission by the end of their shift at least one day before the requested time off. The exact number of hours to be taken must be marked, an appropriate designation must be selected (PDO, comp, military, medical, or funeral), and the student must provide the time of day they wish to use their time if not a whole day (i.e., 2 hours PDO, 2-4 pm, leaving early). A comment box will be provided on the leave request form for further information, if necessary.

Interview Day:

Students desiring to use the one allotted Interview Day will be required to submit a Leave Request form in Trajecsys by the end of their shift at least one day before the interview date. The student will also be required to complete necessary forms, which can be located and printed from the “Documents” section of Trajecsys. These forms must be signed by a member of the interview committee and returned to the Program Director on the next school day. If the signed document is not returned, the absence will be considered unexcused, and PCO will be taken. If additional interview days are needed, PDO must be used.

Policy Enforcement:

Accurate evaluation and interpretation of student attendance can only be accomplished if students are methodical and precise in their documentation. For this reason, the following guidelines have been established and will be strictly enforced.

1. Each student must clock in and out of Trajecsys to document daily attendance times upon their arrival and departure from clinical duties.
2. Students who fail to document accurately and in a timely manner will be counted absent until they notify a designated program official. All time not accounted for (missed documentation) will be deducted from the student’s PDO balance, and disciplinary action may be enforced in accordance with the excessive absenteeism policy.
3. Logging attendance must be performed on an approved hospital computer. Logging attendance with a mobile device is unauthorized and will be considered falsification of attendance documentation unless previously approved by a program official under special circumstances. Falsification of attendance documentation is grounds for immediate dismissal from the program in accordance with the disciplinary action policy.
4. Time exceptions will be considered unauthorized unless approved by a program official under special circumstances.

5. Any student failing to properly utilize the attendance system (failing to clock in and clock out in Trajecsys, failing to comment on early dismissals, etc.) will be subject to the following:

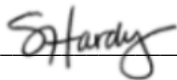
Twelve-month programs:

- a. Upon the occurrence of three incidents of failing to log attendance, the student will be issued an oral warning, and 1 point will be deducted from their clinical grade.
- b. Upon the occurrence of three additional incidences of failing to log attendance (total of 6), the student will be issued a formal written warning, and 2 additional points will be deducted from their clinical grade (total 3).
- c. Upon the occurrence of three additional incidences of failing to log attendance (total of 9), the student will be issued a second formal written warning, and 2 additional points will be deducted from their clinical grade (total 5). At this level, the student's attendance will be marked as "unsatisfactory" on their final grade transcript.
- d. Upon the occurrence of one additional incident of failing to log attendance (total of 10), the student will be issued a third formal written warning which will result in their subsequent dismissal from the program.

Eighteen-month programs:

- a. Upon the occurrence of three incidents of failing to log attendance, the student will be issued an oral warning, and 1 point will be deducted from their clinical grade.
- b. Upon the occurrence of three additional incidences of failing to log attendance (total of 6), the student will be issued a formal written warning, and 2 additional points will be deducted from their clinical grade (3 total).
- c. Upon the occurrence of three additional incidences of failing to log attendance (total of 9), the student will be issued a second formal written warning, and 2 additional points will be deducted from their clinical grade (5 total). At this level, the student's attendance will also be marked "unsatisfactory" on their final grade transcript.
- d. Upon the occurrence of three additional incidents of failing to log attendance (total of 12), the student will be issued a third formal written warning which will result in their subsequent dismissal from the program.

The Program Director has the discretion to make changes to this policy at any time based on the situation.



Program Director/Education Coordinator



Total Program Clock Hours

Course No.	Course Title	Clock Hrs.
UP-300	Ultrasound Physics & Instrumentation I	60
UP-301	Ultrasound Physics & Instrumentation II	42
UP-400	Ultrasound Physics Board Review	15
AE-300	Excellence in Patient Care	21
AE-301L	Echocardiography Simulation & Quality Control Practicum	36
AE-302	Echocardiography Fundamentals: Anatomy, Imaging, & Doppler Analysis	69
AC-400	Pathophysiology & Disease Mechanisms I	126
AC-401	Pathophysiology & Disease Mechanisms II	33
AC-402	Innovative Echocardiography & Cardiac Procedures	20
AC-403	Clinical Case Analysis & Presentations	13.5
AC-404	Congenital Cardiology	21
AC-405	Comprehensive Board Exam Review	29
PD-400	Professional Growth & Development	4.5
CP-300L	Clinical Practicum I: Adult Echocardiography	691
CP-400L	Clinical Practicum II: Adult Echocardiography	684
	Total Didactic	252
	Total Clinical	1375
	Total Program	1808



IMAGING SCIENCE EDUCATION PROGRAMS

Echocardiography

Reviewed: 5/2026

Revised: 5/2026

Semester 1 Total Clock Hours

Course No.	Course Title	Clock Hrs.
UP-300	Ultrasound Physics & Instrumentation I	60
AE-300	Excellence in Patient Care	21
AE-301L	Echocardiography Simulation & Quality Control Practicum	36
AE-302	Echocardiography Fundamentals: Anatomy, Imaging, & Doppler Analysis	69
AC-400	Pathophysiology & Disease Mechanisms I	126
CP-300L	Clinical Practicum 1: Adult Echocardiography	691
	Total Didactic	252
	Total Clinical	691
	Total Program Semester 1	943

Semester 2 Total Clock Hours

Course No.	Course Title	Clock Hrs.
UP-301	Ultrasound Physics & Instrumentation II	42
UP-400	Ultrasound Physics Board Review	12
AC-401	Pathophysiology & Disease Mechanisms II	33
AC-402	Innovative Echocardiography & Cardiac Procedures	20
AC-403	Clinical Case Analysis & Presentations	13.5
AC-404	Congenital Cardiology	21
AC-405	Comprehensive Board Exam Review	29
PD-400	Professional Growth & Development	7.5
CP-400L	Clinical Practicum 2: Adult Echocardiography	684
	Total Didactic	181
	Total Clinical	684
	Total Program Semester 2	865

Adult Echocardiography: Course Descriptions

UP-300 Ultrasound Physics & Instrumentation I

60 clock hours (semester 1)

A study of the physics and instrumentation principles essential to ultrasound. Topics include physical principles, transducers and sound beams, real-time imaging, pulsed imaging, display types, Doppler, hemodynamics, artifacts, bioeffects, quality assurance, and new technologies. The concepts covered are correlated to the operation of the ultrasound system as a sonographer.

AE-300 Excellence in Patient Care

21 clock hours (semester 1)

This course is an introductory course to help students understand their roles in patient care and medical ethics. This course is taken in conjunction with hands-on training in IV, vitals, and restraint training in the STEPS lab. It will include managing and caring for oxygen therapy devices, tubes, lines, and catheters, transducer care, infection control, isolation control, aseptic and sterile technique, response to medical emergencies, ultrasound contrast basics, basic pharmacology, professionalism, and medical ethics. The students will also be provided with proper lift training and basic life support. This will give them the knowledge to handle most situations they will face in the clinic.

AE-301L Echocardiographic Simulation & Quality Control Practicum

36 clock hours (semester 1)

This course introduces basic echocardiography skills to prepare students for a clinical patient setting. Students will review the anatomy of the heart, learn normal cardiac anatomy, practice scanning techniques, and understand patient positioning unique to echocardiography. The course includes participation in simulation labs and self-scanning exercises before imaging patients in a clinical setting.

AE-302 Echocardiography Fundamentals: Anatomy, Imaging, & Doppler Analysis

69 clock hours (semester 1)

This course introduces foundational echocardiographic skills and knowledge to prepare students for clinical practice. Emphasis is placed on the anatomy and physiology of the adult heart, principles of ultrasound physics, scanning techniques, and the use of echocardiographic instrumentation. Students will develop a working knowledge of normal cardiac anatomy, standardized imaging protocols, and core echocardiographic measurements based on current guidelines. The course also introduces cardiovascular hemodynamics, including pressure estimation and Doppler-based calculations. Proper ergonomics, patient care, and hands-on scanning practice are integrated to reinforce both technical and clinical competency.

AC-400 Pathophysiology & Disease Mechanisms I

126 clock hours (semester 1)

This course is to be taken immediately following the completion of AE-302. This course is for students specializing in Echocardiography. Abnormal cardiac anatomy and physiology will be studied. M-mode, two-dimensional, color flow Doppler, pulsed wave Doppler, and continuous wave Doppler will be studied in correlation with echocardiographic findings. Demonstrate knowledge of mechanisms of disease, cardiovascular pathophysiology, hemodynamics, sonographic technique, measurements, quantitative principles, and Doppler patterns in the diseased heart.

CP-300L Clinical Practicum: Adult Echocardiography 1

691 clock hours (semester 1)

The course is to be taken concurrently with AE-302 Echocardiography Fundamentals: Anatomy, Imaging, and Doppler Analysis and AC-400 Pathophysiology & Disease Mechanisms I. This course provides students with their initial hands-on clinical experience. In the clinical setting, emphasis is placed on familiarizing students with ultrasound equipment and controls, understanding transducer positioning relative to the anatomy being scanned, mastering scanning techniques and protocols, and adhering to patient care procedures.

UP-301 Ultrasound Physics & Instrumentation II

40 clock hours (semester 2)

A study of the physics and instrumentation principles essential to Ultrasound. Topics include physical principles, transducers and sound beams, real-time imaging, pulsed imaging, display types, Doppler, hemodynamics, artifacts, bioeffects, quality assurance, and new technologies. The concepts covered are correlated to the operation of the ultrasound system as a sonographer.

UP-400 Ultrasound Physics Board Review

15 clock hours (semester 2)

This course consists of reviewing the study of physics and instrumentation principles essential to Ultrasound in preparation for the ARDMS SPI or CCI adult echocardiography board exam. Topics include physical principles, transducers and sound beams, real-time imaging, pulsed imaging, display types, Doppler, hemodynamics, artifacts, bioeffects, quality assurance, and new technologies.

AC-401 Pathophysiology & Disease Mechanisms II

33 clock hours (semester 2)

This second-semester course builds on the foundational knowledge from AC-400 Pathophysiology and Disease Mechanisms I, focusing on advanced topics in cardiac pathology as visualized through echocardiography. Students will explore abnormal cardiac anatomy and physiology, including prosthetic valves, diseases of the aorta, pericardial disease, infective endocarditis, cardiac masses, and systemic diseases with cardiac manifestations. Utilizing M-mode, 2D imaging, color flow Doppler, and both pulsed wave and continuous wave Doppler, students will gain hands-on experience in identifying and understanding these conditions.

AC-402 Innovative Echocardiography & Cardiac Procedures

20 clock hours (semester 2)

This course introduces advanced echocardiographic modalities and their application in diagnosing and managing cardiac pathologies. Students will learn to integrate various imaging techniques, analyze clinical cases, and understand their role in guiding therapies and interventions. Hands-on activities and case-based learning will foster critical thinking and practical skills.

AC-403 Clinical Case Analysis & Presentations

13.5 clock hours (semester 2)

This course focuses on the review and analysis of unique and compelling echocardiographic cases encountered by the students during their clinical rotations. Through guided discussions, students will critically evaluate these cases with an emphasis on image optimization techniques and the application of ultrasound physics principles. Each student will select two particularly noteworthy cases to develop and present to their peers, showcasing their diagnostic reasoning and understanding of echocardiographic findings.

AC-404 Congenital Cardiology

21 clock hours (semester 2)

This course is a brief overview of common congenital heart defects, complex heart disease, and surgical and palliative procedures. This course will discuss the echocardiographic assessment of patients with congenital heart disease.

AC-405 Comprehensive Board Exam Review

29 clock hours (semester 2)

This course is designed to prepare students for successful completion of the Adult Echocardiography board examination through ARDMS or CCI. The course offers a structured review of major content areas, including cardiac anatomy and physiology, M-mode and 2D imaging, Doppler principles, valvular heart disease, cardiomyopathies, pericardial disease, congenital anomalies, and advanced echocardiographic techniques. Students will engage in interactive lectures, mock exams, case-based discussions, and review sessions focused on board exam-style questions and test-taking strategies. Completion of this course is a program requirement and a prerequisite for board exam eligibility.

PD-400 Professional Growth & Development

7.5 clock hours (semester 2)

The purpose is to develop the professional behavior and standards of a sonographer. This will be accomplished by using experts within their field who keep the radiology department running to a high standard. Subjects include administrative procedures, capital expenses, departmental budgeting, quality control and assurance, preparing for retirement, applications, resumes, and interviews, preventing burnout, professional organizations, and credentialing.

CP-400L Clinical Practicum II: Adult Echocardiography

684 clock hours (semester 2)

The course is to be taken subsequently, following the successful completion of CP-300L: Clinical Practicum 1: Adult Echocardiography from the first semester. This advanced practicum course is designed to build upon the foundational skills acquired in the first semester, providing students with in-depth clinical experience in echocardiography. Emphasis is placed on advanced techniques in ultrasound imaging, with a focus on recognizing and interpreting complex pathologies and physiological conditions. Students will refine their scanning techniques, enhance their understanding of echocardiographic protocols, and develop critical thinking skills necessary for accurate diagnosis and patient care in a clinical setting.

Adult Echocardiography: Sample Course Schedule

This Echocardiography Program is structured as a full-time, 40-hour per week training program. Didactic and clinical instruction will be scheduled Monday through Friday between the hours of 7 am and 3:30 pm. The Education Coordinator reserves the right to adapt and make changes to the schedule throughout the year for any reason.

Semester 1	Days & Time
Mandatory Orientation	First week of July
Ultrasound Physics	July-December Mondays 8-930; Thursdays 8-9
Excellence in Patient Care	July- August Thursdays 1230-230
Echo Simulation & Quality Control	July-August Wednesdays 730-330; Thursdays 10-2
Echo Fundamentals	July-August Mondays 10-3; Tuesdays 8-3
Pathophysiology & Disease Mechanisms	August-December Tuesdays 8-3
Clinical Practicum	August- December Students will be in the clinic setting when not in a didactic setting



IMAGING SCIENCE EDUCATION PROGRAMS

Echocardiography

Reviewed: 6/2025

Revised: 5/2026

Semester 2**Days & Time**

Ultrasound Physics

January- March
Mondays 8-930; Thursdays 8-9

Ultrasound Physics Board review
Pathophysiology & Disease Mechanisms 2

March-April (Time-TBD)
January-February
Tuesdays 8-2

Professional Growth & Development

January-February
Mondays (Time-TBD)

Innovative Echo & Cardiac Procedures

February-March
Tuesdays 1230-230

Congenital Cardiology

March-April
Mondays, Tuesdays, & Wednesdays 730-9

Clinical Case Analysis & Presentations

March-April
Mondays 130-3

Comprehensive Board Exam Review

April-May
Tuesdays 1230-230; Fridays 8-12

Textbook Ordering and Purchasing

Textbooks are selected based on recommendations from the Education Coordinator. The following sources are utilized in textbook evaluation and selection.

Sources: Curriculum Guide to Sonography Programs

Publisher advisement

Educational seminars

All textbooks are mandatory. Please contact the Program Director/Education Coordinator for guidance on purchasing.

Required Textbooks:

Title	Author
Understanding Ultrasound Physics	Sidney Edelman
Examination Review for Ultrasound: Sonographic Principles & Instrumentation	Steven Penny
The Normal Examination and Echocardiographic Measurements	Bonita Anderson
A Sonographer's Guide to the Assessment of Heart Disease	Bonita Anderson
Adult Echo Review	Davies (Mitchell & Willey)
Echocardiographer's Pocket Reference	Richard Palma

Course Lecture Sessions Makeup Policy

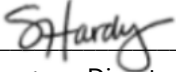
The program officials and instructors will abide by the following procedure for permitting students to make up coursework missed as a result of being absent from a scheduled lecture session. This policy serves to eliminate, as much as possible, any potential advantage that a student may achieve by being absent from a scheduled lecture session and thereby obtaining a greater amount of study and/or preparation time for the scheduled activities of the class than those students in attendance.

1. The student is solely responsible for the lecture material covered and for making up any examinations, quizzes, homework assignments, etc., which occur during their absence from the lecture session.
2. All examinations and/or quizzes must be made up on the student's first regular scheduled day of attendance (Monday through Friday) following their absence from the lecture session.

The student must follow the following procedure:

- a. Contact the course instructor by 7 am on the day of your return and inform the instructor that you are presenting yourself to make up the missed examination and/or quiz.
 - b. If the course instructor is not available, contact the program director or program clinical coordinator immediately and inform him/her to this effect.
 - c. Instructors may submit the examination and/or quiz to a program official who will proctor the make-up session for the instructor. Instructors who anticipate that they will not be available for the make-up session must arrange in advance for the program director and/or clinical instructor to proctor the session.
3. Failure of the student to follow the aforementioned make-up guidelines imposes a mandatory requirement upon the instructor to record a percentage grade of zero for the examination and/or quiz.
 4. A student who fails to meet an assignment (e.g., term paper) deadline as a result of being absent on the deadline day must submit the assignment on the first regular scheduled day of attendance following the absence. The equivalent of a 10% reduction in grades will be imposed as a penalty for missing the deadline. If the student fails to submit the assignment as described above, the instructor is required to enter a percentage grade of zero for the assignment.

This policy and procedure will be followed in all cases except when the Program Director and Instructor have agreed to waive it due to special extenuating circumstances.



Program Director/ Education Coordinator



Imaging Science Education Programs
Echocardiography

Master List of Adult Echocardiography Competencies

Semester 1

- Parasternal Views (Long & short axis)
- Apical Views (4, 5, 2, and 3-chamber views)
- Subcostal View
- Suprasternal Notch View
- Transthoracic Echocardiogram with Agitated Saline (Bubble Study)
- Transthoracic Echocardiogram with Contrast Enhanced Agent
- Complete Normal Transthoracic Echocardiogram

Semester 2

- Systolic Dysfunction
- Diastolic Dysfunction
- Aortic Valve or Root Pathology
- Mitral Valve Pathology
- Right Heart Pathology
- Cardiomyopathy
- Pericardial Pathology
- Prosthetic Valve – Mitral Valve Replacement or Repair
- Prosthetic Valve – Aortic Valve Replacement or Repair
- Coronary Artery Disease
- Stress Echocardiogram – Exercise (Observation)
- Stress Echocardiogram – Pharmacologic (Observation)
- Routine Transesophageal Echocardiogram (Observation)
- Structural Heart Transesophageal Echocardiogram – (Observation)

Clinical Education Standards, Supervision, Clinic Documentation, and Make-Up Policy

The Diagnostic Medical Sonography Education Program ensures that all clinical education experiences are conducted in accordance with the CAAHEP Standards and Guidelines and the expectations of the Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS) for the preparation of competent, entry-level diagnostic medical sonographers.

Clinical education is competency-based and requires students to demonstrate the integration of **cognitive knowledge, psychomotor skills, and professional (affective) behaviors** necessary for safe and effective patient care. Students must comply with all clinical standards, supervision requirements, and evaluation procedures while participating in clinical education.

Clinic Standards:

Students are expected to:

- Maintain professional and ethical behavior consistent with the sonography profession
- Protect patient privacy and confidentiality at all times
- Follow established patient safety, infection control, and ergonomic practices
- Adherent to clinical supervision requirements and scope of practice limitations
- Accurately document all clinical activity and evaluations in Trajecsys® Electronic Clinical Workbook.

Direct/Indirect Supervision:

Direct: The student will perform an imaging study with a clinical instructor; both the student and instructor will scan the patient. The clinical instructor will be present in the exam room for the entire length of the exam. The clinical instructor will be present to assist the student at all times. The sonographer is ultimately responsible for the exam.

Indirect: The student will perform an imaging study with a clinical instructor; the clinical instructor may or may not scan the patient. The clinical instructor may not be present in the exam room for the entire length of the study; however, the clinical instructor will be immediately available to assist the student. The clinical instructor will review the study with the students. The clinical instructor is ultimately responsible for the exam.

Immediately available is interpreted as the presence of a clinical instructor adjacent to the room or location where the sonogram is being performed

Clinical Instructor:

A credentialed sonographer who provides appropriate clinical supervision and completes student clinical evaluations. Qualified Clinical Instructors may conduct competency and proficiency exams.

Clinical Instructors guide students through department operations, scanning techniques, equipment use, normal anatomy, and pathology. Each student is assigned to a clinical instructor for one week.

Clinical Instructor responsibilities include:

1. Instructing and assisting students with required sonographic procedures
2. Supporting the mission and goals of the education program
3. Providing feedback on clinical performance through evaluations and discussion
4. Participating in Clinical Instructor meetings to enhance the program
5. Acting in a professional manner that reflects the profession and institution

*****Instructor Note:***** The term "Instructor" refers to any individual designated as a clinical instructor for CP-300L and CP-400L (Clinical Practicum 1 and 2: Adult Echo)

*****Responsibilities:***** A clinical instructor must be present and available to students while assigned to a clinical setting. They are responsible for providing appropriate clinical supervision and conducting evaluations of student performance.

*****Qualifications:***** Clinical instructors must possess the necessary credentials relevant to the specific concentration in which they are assessing student competency.

Clinic Evaluation and Grading:

A student's clinical grade is determined by successful completion of multiple required components, including but not limited to daily log sheets, sonographer evaluations, weekly clinical evaluations, clinical scanning lab competency, clinical competency examination, documented scanning participation, and the Clinical Coordinator evaluation.

Required examinations and corresponding grading sessions are identified within the clinical course syllabus. Failure to complete the required number of scanning and cognitive competencies or designated scanning lab assessments during the assigned grading session will result in a grade of zero for the incomplete examination(s). Any examination or competency not completed as scheduled will remain a program requirement and must be completed in the subsequent grading session.

All required competency examinations and clinical proficiencies must be completed by the end of the second semester to meet graduation requirements.

To achieve clinical competency, the student must complete 24 competency exams, two of which are proficiencies. Guidelines for completing clinical examinations in each semester are as follows:

Cognitive competency is assessed as an integrated component of each clinical competency evaluation and does not require a separate, standalone competency.

Competency Evaluation: Objectives and Methodology

Student clinical performance in CP-300L and CP-400L (Clinical Practicum 1 and 2: Adult Echo) is evaluated through a competency-based assessment process. Clinical competencies must be performed on actual patients, while proficiencies may be completed on patients or in the scanning laboratory. Performance is evaluated based on the student's ability to meet criteria independently, with assistance, or not meet criteria.

All evaluations are documented using the Trajecsys® Electronic Clinical Workbook.

Required Clinical Competencies

Students must complete all required clinical competency and proficiency examinations to demonstrate entry-level competence, in accordance with CAAHEP and JRC-DMS Standards. A complete list of required clinical competencies, proficiency requirements, and associated assessment criteria is published in the Clinical Handbook. An example of the competency grading sheet is provided in the course syllabus. These materials are made available to all students.

Scan Time Limitation:

To ensure patient safety, workflow efficiency, and educational appropriateness, West Virginia University Hospitals are committed to supporting student education while maintaining the highest standards of professional and optimal patient care. In order to prevent delays in patient care, students performing clinical examinations for graded evaluations are subject to the following limitations:

- The Student's time begins from the start of the exam in RIS until their last image.
- Exams with a 60-minute time slot:
Students are allotted 55 minutes to complete the exam; however, if by 40 minutes, more than half of the exam isn't complete, the sonographer will take over the exam so there will not be a delay in patient care.

Clinical Education Progression and Retention Policy:

Students enrolled in the Echocardiography Education Program are required to maintain a **minimum overall Clinical Education grade of 86% (B letter grade)** at the conclusion of each academic semester. This requirement supports the program's obligation to ensure students demonstrate competency consistent with CAAHEP Standards and JRC-DMS expectations for entry-level diagnostic medical sonographers.

Formal counseling will occur at mid-semester and at the end of each semester to review the student's clinical progress, competency development, professional behavior, and readiness for continued progression in the program. Informal counseling and feedback may occur at any time throughout the semester as part of the ongoing clinical evaluation process. While evaluations and feedback are provided regularly, it remains the responsibility of the student to remain informed of their clinical progress and current clinical grade.

Failure to achieve and maintain the required minimum clinical grade of 86% at the end of a semester indicates inadequate demonstration of required clinical competencies. Students who do not meet this requirement will be dismissed from the program due to failure to meet clinical education standards necessary for safe and effective practice.

All decisions regarding clinical dismissal are based on documented evaluations and competency outcomes and are considered final. Students retain the right to due process, as outlined in the Program's Due Process Policy contained in the Student Handbook, in accordance with institutional and accreditation standards.

Clinical Documentation and Tracking System (Trajecsys®)

The West Virginia University Hospitals School of Echocardiography Program utilizes the Trajecsys Report System® as the official electronic clinical documentation system. Trajecsys® is

a web-based platform that serves as the primary method to maintain student competency records, proficiency forms, evaluation forms, and clinical time and attendance reports.

Students are required to:

- Accurately document daily clinical activity, including procedures observed or performed, level of participation, and supervising personnel
- Record clinical competencies, proficiencies, and scan lab assessments as required
- Ensure all entries are complete, truthful, and submitted within established program timelines
- Review and acknowledge clinical evaluations posted in Trajecsys®
- Review and use didactic course materials in the documents section
- Review class, clinic, weekly, and monthly schedules

Clinical Instructors and **faculty** utilize Trajecsys® to:

- Complete student evaluations and competency assessments
- Verify clinical participation and progression
- Support clinic grading, clinic progression, and clinic completion decisions

Information documented in Trajecsys® constitutes the official clinical education record and is used to assess student performance, determine progression or dismissal, support eligibility for program completion, and demonstrate compliance with CAAHEP and JRC-DMS accreditation standards.

Clinic Make-up/Missed Clinical Time

Students are expected to complete all scheduled clinical hours as outlined in the Echocardiography Education Program curriculum. Any absences exceeding the six allotted clinical days must be made up by the student to complete the clinical education component of the program. Completion of all required clinical hours is necessary to ensure attainment of program competencies and compliance with accreditation standards and is required by the Program Director/Education Coordinator to recommend the student to sit for the Adult Echocardiography registry examinations.

1. Excused Absences

- Excused absences may include illness, family emergencies, or circumstances approved by the Program Director/ Education Coordinator.
- The student must notify the Program Director/ Education Coordinator and the clinical site according to program attendance procedures.
- Documentation is required.


2. Unexcused Absences

- Failure to follow notification procedures or absences without approval will be considered unexcused and may result in disciplinary action per program policy.
- All unexcused absences must be made up in accordance with program policy and may result in extension of the clinical education period beyond the scheduled program completion date.

Make-Up Clinical Time

- All missed clinical time must be made up to ensure completion of required contact hours.
- The student may convert compensation time to account for excess personal leave
- Make-up time must be scheduled in advance and approved by the Program Director/ Education Coordinator and clinical site. The make-up time may not interfere with didactic coursework.

- If the make-up time is not completed within the semester, then the student's clinical education will be extended beyond graduation to account for the number of days or hours in excess of the allotted six personal leave days, not to exceed five days.



Program Director/ Education Coordinator



Imaging Science Education Programs
Echocardiography

Clinical Instructor

A Clinical Instructor is defined as a credentialed sonographer who provides appropriate clinical supervision and is responsible for student clinical evaluation. Clinical instructors must possess the appropriate credential(s) for the concentration(s) in which they supervise and evaluate students. Appropriately credentialed Clinical Instructors may instruct, supervise, evaluate, and document required clinical competencies for students.

Clinical Instructor responsibilities include, but are not limited to:

- Providing demonstration of department functions, imaging processes, scanning techniques, instrumentation, normal anatomy, and pathology
- Instructing and assisting students in the accomplishment of required sonographic procedures
- Supporting the educational program mission and goals
- Providing feedback regarding student clinical performance to promote competency development through written evaluations and verbal communication
- Maintaining appropriate supervision of students during clinical education experiences

Each student will be assigned to a designated Clinical Instructor during clinical rotations as determined by the Clinical Coordinator.

Communication Channel

Trajecsys Report System is accessible to all sonographers. Student expectations, evaluations, competency examination, and emergency contact information are located within this electronic system. A sonographer can also contact the Education or Clinical Coordinator and/or provide comments via Trajecsys.



Imaging Science Education Programs
Echocardiography

Clinical Instructor Evaluation

The Clinical Instructor Evaluation process provides program officials with a mechanism for assessing the quality and effectiveness of clinical education provided by Clinical Instructors. These evaluations are completed by echocardiography students at the midpoint and conclusion of each semester. The purpose of this evaluation process is to identify strengths and opportunities for improvement related to clinical instruction and the student clinical learning environment.

The evaluation process will be conducted as follows:

- A. During student orientation, the components and purpose of the Clinical Instructor Evaluation process will be explained. At the completion of each semester, students will be required to complete an evaluation for each Clinical Instructor with whom they rotated during that semester. Students will be instructed to base their evaluations on the Clinical Instructor's instructional effectiveness, professionalism, supervision, communication, and support of student learning. The importance of maintaining objective and professional evaluation criteria will be emphasized.
- B. Students will evaluate Clinical Instructors using a rating scale of 1 to 5 in each category of the evaluation form.
 - Excellent = 5
 - Good = 4
 - Satisfactory = 3
 - Fair = 2
 - Poor = 1
- C. Completed Clinical Instructor evaluations will be submitted to the Clinical Coordinator and/or Program Director at the conclusion of each semester.
- D. Evaluation results will be reviewed collectively to identify overall trends, strengths, and opportunities for improvement related to clinical instruction and the clinical education environment.
- E. Clinical Instructor evaluations will be maintained by the Program Director and/or Clinical Coordinator in accordance with institutional policy. Aggregate evaluation results may be reviewed with department leadership as part of the program's ongoing assessment of clinical education effectiveness and instructional quality.
- F. If evaluation results identify concerns regarding clinical instruction, supervision, professionalism, or the clinical learning environment, the Program Director and/or Clinical Coordinator may investigate the concern further. When appropriate, discussions will occur with the Clinical Instructor and department leadership to promote improvement and maintain a positive educational experience for students.
- G. In order to preserve the integrity and confidentiality of the evaluation process, student identities will remain confidential whenever possible. Clinical Instructors will not have access to information identifying individual student evaluators. Students are encouraged to provide honest, constructive, and professional feedback regarding their clinical education experiences.

Pregnancy Policy

It is the policy of the West Virginia University Hospitals Diagnostic Medical Sonography Education Program to follow the steps outlined below, and provide three options to our students in the event that pregnancy should occur during the eighteen (18) month program.

1. A Diagnostic Medical Sonography student is not required to disclose a pregnancy; however, disclosure allows the program to provide appropriate pregnancy-related accommodations and safety considerations in accordance with Title IX and institutional policy.
2. Upon notification by the student that a pregnancy exists, the Education Coordinator will go over the options associated with a pregnancy declaration and the effects on their didactic and clinical education.
3. Students working in ultrasound are not exposed to radiation producing equipment, however if the student wishes a film badge will be issued to be worn at the level of the pelvis to monitor any possible fetal dose encountered while working in the Department of Radiology.

Option # 1 – Choose Not to Disclose Information Regarding Pregnant Condition

By choosing this option, the student implies acknowledgement that she will receive no pregnancy-related accommodations, support, or safety considerations. The student will be held to the same attendance, academic, and clinic requirements without any modifications. This can expose the student and her pregnancy to unanticipated health and safety risks in clinical settings. No policy or performance exceptions can or will be implemented should the student choose this option.

Option #2 - Leave of Absence during pregnancy. If the student so decides, she may elect to leave the Program under the following requirements:

- a. Upon accepting this option and leave the Program, she must notify the Education Coordinator immediately.
- b. The student shall re-enter at the beginning of the corresponding semester in which she left. (i.e., if the student left mid-way through the second semester she would be required to re-enter the program at the beginning of the second semester the following year).
- c. All didactic and clinical course work must be completed prior to graduation from the Program

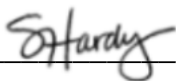
Option # 3 - Remain in Program throughout pregnancy. If the student so decides, she may continue in the Program under the following requirements:

- a. The student shall participate in all scheduled clinical rotation areas as assigned.
 - b. The student shall participate in all scheduled didactic courses and activities.
4. The Education Coordinator shall document the student's decision in regard to the two options described above.
5. The student shall complete and sign a form acknowledging receipt of information and associated documentation in regard to the pregnancy. All documentation shall be entered into the student's permanent personal file.

Withdrawal of Declaration of Pregnancy

The student has the right to withdraw their declaration of pregnancy due to birth or other complications with pregnancy and must fill out the attached Withdrawal of Declaration of Pregnancy form. By filling out the form, the student acknowledges that their pregnancy no longer exists.

All documentation shall be entered into the student's permanent personal file.



Program Director/Education Coordinator

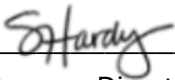
Graduation Requirements Policy

To be eligible for graduation and receive a certificate from the Echocardiography Program, students must successfully demonstrate competency in the cognitive (knowledge), psychomotor (skills), and affective (behavioral/professionalism) learning domains as defined by the program's mission, goals, student learning outcomes in accordance with CAAHEP/JRC-DMS Standards, and Academic and Clinical Standards policies.

Students must meet the following graduation requirements:

- Successfully complete all didactic and clinical course requirements as outlined in the Academic and Clinical Standards policies, including satisfactory completion of all competency evaluations, clinical proficiencies, examinations, and assigned coursework.
- Demonstrate competency in the performance of diagnostic echocardiographic examinations through appropriate patient positioning, image acquisition, Doppler interrogation, and optimization of imaging parameters.
- Demonstrate knowledge and application of ultrasound physics, instrumentation, hemodynamic principles, two-dimensional imaging, spectral Doppler, color Doppler, and related echocardiographic imaging techniques.
- Acquire, analyze, and document diagnostic-quality sonographic data in accordance with program standards and accepted professional guidelines.
- Demonstrate knowledge of cardiovascular anatomy, physiology, pathophysiology, and related disease processes necessary for accurate sonographic evaluation and patient assessment.
- Utilize critical thinking and problem-solving skills to assess patient conditions, adapt examinations appropriately, and recognize limitations that may affect diagnostic quality.
- Integrate patient history, clinical presentation, and sonographic findings to assist in the diagnostic evaluation of cardiovascular disease.
- Demonstrate professional and ethical behavior consistent with the standards of the medical imaging profession, including respect for patient confidentiality, diversity, and cultural sensitivity.
- Provide safe, effective, and compassionate patient-centered care while maintaining professional communication with patients, physicians, clinical instructors, and members of the healthcare team.
- Maintain satisfactory attendance and participation in all didactic, laboratory, and clinical education activities.
- Demonstrate current knowledge of ultrasound bioeffects, safety principles, and ALARA practices related to diagnostic medical sonography.
- Recognize emergency patient conditions and respond appropriately within the scope of training, including initiation of basic life support and emergency procedures when necessary.
- Demonstrate an understanding of related diagnostic imaging, laboratory, and cardiovascular testing procedures and their contribution to patient diagnosis and management.

- Identify normal and abnormal sonographic findings and correlate imaging results with clinical information and physician interpretation.
- Demonstrate professional responsibility, accountability, and a commitment to lifelong learning and continuing professional development.
- Develop effective verbal and written communication skills and demonstrate the ability to function collaboratively as a member of the interdisciplinary healthcare team.
- Fulfill all financial obligations to the Program and Institution prior to graduation.



Program Director/ Education Coordinator

Program Effectiveness/ Outcome Assessment Policy

The Imaging Science Education Program in Echocardiography evaluates programmatic effectiveness and performance by projecting and measuring outcomes relative to each academic year. These outcomes serve to provide assurance of successful achievement of the program's mission and goals. Programmatic goals are developed by evaluating past performance and establishing benchmarks on which to evaluate current performance. In the event a programmatic goal is not met, action will be taken in an attempt to facilitate performance improvement. The basis for these measurement procedures is derived from the Commission as provided by the JRC-DMS. The data collected is presented in the Program Effectiveness / Outcome Assessment report, which is compiled each year.

Quantitative Outcomes:

1. Student Retention / Attrition Rate

Description

Student retention is calculated as the percentage of students who have remained enrolled over the past twelve-month time frame. Attrition is calculated as the percentage of students who resign, withdraw, or are dismissed over the past program length.

Programmatic Goal

Retention = $\geq 70\%$

Attrition = $\leq 30\%$

Data Collection Mechanism

Current enrollment numbers

2. Credentialing Exam Pass Rate

Description

The Credentialing Examination Pass Rate is defined as the percentage of graduates, by academic year, who pass at least one national credentialing examination on their first attempt within the timeframe specified by CAAHEP.

A passing score is defined as:

- American Registry of Diagnostic Medical Sonography (ARDMS): a scaled score of 555 or higher (out of 700), or
- American Registry of Radiologic Technologists (ARRT): a scaled score of 75 or higher, or
- Cardiovascular Credentialing International (CCI): a scaled score of 650 or higher (out of 900)

Only examinations administered by the ARDMS, ARRT, and CCI are included in this outcome measure.

Programmatic Goal

Credentialing Exam Pass rate (within one year of graduation) $\geq 60\%$

Data Collection Mechanism

Official ARDMS Exam report

Official ARRT Exam report

Official CCI Exam report

3. Employment rate (Job placement rate)

Description

Employment rate is calculated as the percentage of graduating students who obtain employment in diagnostic medical sonography within six months of graduation. The calculation includes all graduates who are seeking employment as their primary endeavor. Students who electively pursue additional education and are not seeking initial employment are not included.

Programmatic Goal

Employment rate = $\geq 75\%$

Data Collection Mechanism

Exit Survey

Qualitative Outcomes

1. Graduate Satisfaction

Description

Graduate satisfaction is measured as the cumulative results of three skill categories: Knowledge Base, Clinical Proficiency, Behavioral Skills, and overall rating of the program on the JRC-DMS Graduate Survey, which reflects how the student feels about the quality of education received at WVU. Graduates rate the program on a 5-point scale (Strongly Agree = 5, Generally Agree = 4, Neither Agree nor Disagree = 3, Generally Disagree = 2, Strongly Disagree = 1).

Programmatic Goal

Graduate Satisfaction = Graduates' overall rating of the program as "Satisfactory," which is a 3.0 or higher

Return Rate = 50%

Data Collection Mechanism

JRC-DMS Graduate survey

2. Employer Satisfaction

Description

Employer Satisfaction is measured as the cumulative results of three skill categories: Knowledge Base, Clinical Proficiency, Behavioral Skills, and overall rating of the program on the JRC-DMS Graduate Survey, which reflects how the student feels about the quality of education received at WVU. Graduates rate the program on a 5-point scale (Strongly Agree = 5, Generally Agree = 4, Neither Agree nor Disagree = 3, Generally Disagree = 2, Strongly Disagree = 1).

Programmatic Goal

Employer Satisfaction of the overall rating of the graduate = ≥ 3.0 (satisfactory)
Return Rate of $\geq 50\%$

Data Collection Mechanism

JRC-DMS Employer Survey

3. Didactic Instructor Performance

Description

At the end of each semester, students are required to complete Instructor Evaluations for all didactic courses. The results for each instructor are compiled and averaged for the academic year. Students rate their instructors on a 5-point scale (Excellent = 5, Good = 4, Satisfactory = 3, Fair = 2, Poor = 1).

Programmatic Goal

Instructor Evaluations = ≥ 3.5 per instructor/year

Data Collection Mechanism

Didactic Instructor Evaluations

4. Clinical Instructor Performance

Description

At the end of each semester, students are required to complete Instructor Evaluations for all clinical instructors they have rotated with. The results for each instructor are compiled and averaged for the academic year. Students rate their instructors on a 5-point scale (Excellent = 5, Good = 4, Satisfactory = 3, Fair = 2, Poor = 1).

Programmatic Goal

Instructor Evaluations = ≥ 3.0 per instructor/year

Data Collection Mechanism

Clinical Instructor Evaluations

Actions for Unmet Criteria

The aforementioned outcomes provide program officials with a mechanism for evaluating the overall effectiveness of the program. Criteria that are met or satisfied can provide assurance that the mission and goals of the program are being achieved and maintained. In the event that the criteria are unmet, program officials will take the following steps to assess the results and implement a performance improvement plan.

Step #1:

Review findings/outcomes for accuracy and relevancy.

Step #2

Identify or rule out obvious rational explanations for unmet criteria.

Step #3

Identify individual reasons for unmet criteria (academic, clinical, programmatic, or personal).

Step #4

Contrast and compare data with previous outcomes to identify potential trends.

Step #5

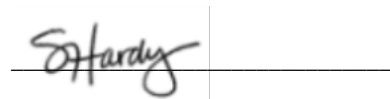
Use data to identify if a causal relationship between unmet criteria and programmatic attributes exists.

Step #6

Develop an improvement plan that attempts to address and correct the causal elements of the unmet criteria.

Step #7

Follow-up: Compare with the subsequent year's performance to identify potential improvements.

A handwritten signature in cursive script, appearing to read "S. Hardy", is written over a horizontal line. A vertical line intersects the horizontal line at the end of the signature.

Program Director/ Education Coordinator

Access or Release of Student Records Policy

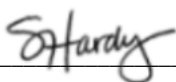
The Accreditation Standards for Echocardiography Education, released by the Joint Review Committee on Educational Programs in Echocardiography, requires that records be maintained permanently for all didactic and related courses attempted and/or completed by all students. The student's permanent record file shall contain the following (with designated time period):

1. Admission Documents: application, weighted values calculation sheet, signed acceptance letter, essential performance standards (7 years, or one accreditation cycle)
2. Previous transcripts and associated records (7 years, or one accreditation cycle)
3. Didactic examination records (7 years, or one accreditation cycle)
4. Counseling records (7 years, or one accreditation cycle)
5. Disciplinary action(s) (**permanently**)
6. Final transcripts of didactic, laboratory, and clinical achievement in nuclear medicine (**permanently**)
7. Records of attendance, clinical rotation, and grades for all courses in nuclear medicine (7 years, or one accreditation cycle)
8. Documented evidence of student clinical competency (7 years, or one accreditation cycle)
9. Copy of certificate from ARRT (R) certification (7 years, or one accreditation cycle)
10. Copy of CPR certification card (7 years, or one accreditation cycle)
11. Copy of associate's degree (7 years, or one accreditation cycle)
12. Copy of nuclear medicine certificate (**permanently**)

Our program is re-evaluated and re-accredited every seven years, provided full accreditation is maintained. A site-visit team assigned by the Joint Review Committee will re-evaluate the program at the end of the accreditation period. The site visit team will request access to student records to ensure that each student's records have been properly maintained. Due to the Family Education Rights and Privacy Act of 1974, also known as the "Buckley Amendment," it is necessary that we obtain prior authorization from the student to allow access to the student's personal records. Your signature on the attached "Authorization for Access or Release to Student Record Information" will provide our program with the aforementioned authorization.

The following provisions will be followed to ensure the students' privacy:

1. A record of disclosure will be maintained and kept with the educational records of the student whose personally identifiable information was released.
2. This record must identify the parties who obtained the information and the reasons why these parties needed the information.
3. In addition, the party to whom the information was disclosed must not disclose the information to any other party without the prior written consent of the student. The information taken from the records may be used by the organization only for the purpose for which the disclosure was made.
4. If the organization does release personally identifiable information for other purposes, it must also maintain a complete record of disclosures.



Program Director/Education Coordinator



Imaging Science Education Programs
Echocardiography

Educational Records Release Form

Student/ Graduate: _____

DOB: _____ Year of Graduation: _____

Institution, Program, or Individual receiving records:

Name: _____

Address: _____

City, State, Zip: _____

Educational records to be sent: (WVUH can only release WVUH transcripts to outside agencies)

Official Transcript

Copy of Certificate

“In accordance with the Family Education Rights and Privacy Act of 1974, my signature below authorizes West Virginia University Hospitals Radiologic Technology Education Programs to release the aforementioned 'Educational Records' to the institution(s) and/or individual(s) indicated above.

Student/Graduate Signature: _____ Date: _____

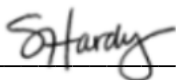
Program Director Signature: _____ Date sent: _____

Scan Lab Policy for Echocardiography Students

The West Virginia University Hospitals (WVUH) Echocardiography Education Program conducts scanning labs in a controlled laboratory setting under the direct supervision of the Education Coordinator and the Clinical Coordinator. Scanning labs are incorporated into the curriculum as a mechanism for developing psychomotor skills and clinical scanning techniques in a simulated patient environment. Volunteer imaging subjects are utilized and may include students and/or other members of the general population. Scanning labs are conducted for educational purposes only and are non-diagnostic. Student participation as an imaging subject is voluntary and is governed by the following:

Procedure

1. During orientation, the Educational Coordinator or Clinical Coordinator will review this policy and provide students with an information sheet describing the scanning lab procedure and specifics regarding participation and the anatomical areas generally imaged.
2. The Educational Coordinator or Clinical Coordinator will explain to the students that participation as an imaging subject is strictly voluntary and that refusal to participate will not affect the student's clinical grade and/or evaluations.
3. Students will be given the opportunity to discuss any concerns, questions, and/or reservations they may have regarding the scanning lab procedure and their potential participation as an imaging subject.
4. Students will be asked to complete the attached form reflecting their decision regarding their level of participation. A copy will be retained as part of the student's educational record.
5. Students will be advised that, during their participation as an imaging subject, should a situation arise in which they feel uncomfortable, they reserve the right to decline participation regardless of their indicated choice on the attached authorization form.
6. The supervising sonographer shall be guided by what he/she knows or reasonably should know to be the informational needs of the scan lab practice patient, and disclosure of said information will depend upon the existence and materiality of that information with respect to potential medical conditions/treatment. Students may be urged to seek a physician's order for a formal exam and report in situations where the supervising faculty feels findings are significant and worthy of follow-up.



Program Director/Education Coordinator



Imaging Science Education Programs
Echocardiography

Scan Lab Authorization Form

I, _____, as a student enrolled in the West Virginia University Hospitals Echocardiography Education Program acknowledge the following:

1. I have received a copy of the Scanning Lab Policy and the information sheet
2. I understand the procedures and practices inherent in scanning labs and the essential use of imaging subjects in the clinical education process.
3. I have been given the opportunity to ask questions and seek clarification on all aspects relative to the Scanning lab and my voluntary participation as an imaging subject.
4. I understand that my participation as an imaging subject is strictly voluntary and that my refusal to participate does not negatively affect my clinical grades and/or evaluations.
5. I understand that should a situation arise in which I feel uncomfortable, I reserve the right to decline participation regardless of my indicated choice on this authorization form.

Therefore, in consideration of the aforementioned criteria:

- I agree to voluntarily participate as an imaging subject during scanning labs while I am enrolled in the Echocardiography program at WVUH with no exceptions.
- I agree to voluntarily participate as an imaging subject during scanning labs while I am enrolled in the Echocardiography program at WVUH, with the following exceptions.

Please list:

- I do not wish to participate as an imaging subject during scanning labs while I am enrolled in the DMS program at WVUH.

Student Signature

Date

Education Coordinator or Clinical Coordinator

Date



Consent Form for Volunteer Models for Ultrasound Examination

I have read the information sheet accompanying this consent form. I understand the objectives of the learning exercise and what is required of me. I acknowledge I have been informed that:

- My participation in this teaching activity is entirely voluntary.
- I can request additional information or ask questions at any time.
- I am free to withdraw from this exercise at any time without any disadvantage.
- All images acquired and archived will not contain personal identification information.
- There is no discomfort from the procedure, and international consensus is that there is no risk from the procedure.
- There is no financial compensation for taking part in this teaching session.
- This is not an official diagnostic test, and the images obtained will not be reviewed by a radiologist or cardiologist. No official report of findings will be generated; therefore, the acquired images cannot be used for further medical purposes.
- I will be informed of any potential abnormal findings identified; however, it will be my responsibility to seek appropriate medical services if required.

By signing below, I agree to take part as a model for the ultrasound examination, and I release WVU Medicine, its affiliates, and their respective directors, officers, employees, and agents from any liability for damages, injuries, or diagnostic findings relative to my participation.

Signature

Date

Printed Name

Clinical Affiliate Assignment and Utilization Policy

The Echocardiography Education Program ensures that all clinical affiliate sites provide students with adequate clinical experiences necessary to achieve competency in accordance with CAAHEP Standards and Guidelines and JRC-DMS expectations.

Clinical affiliates must provide each student with access to a sufficient number and variety of echocardiographic examinations to support the development of competency in both normal and abnormal findings within the program's designated concentrations. The program is responsible for assigning students to clinical sites that offer a broad range of patient care environments and learning opportunities to support comprehensive clinical education.

Clinical Case Volume and Variety

Clinical affiliates are chosen based on:

- Their ability to provide access to an adequate volume and variety of sonographic examinations
- Ensure exposure to both normal and pathological conditions
- Support student progression from observation to supervised performance based on competency level
- Facilitate completion of all required clinical competencies as outlined in the program curriculum

The program will monitor clinical case volume and variety through:

- Trajecsys® clinical documentation
- Daily logs and participation levels
- Competency tracking
- Clinical instructor and student feedback

Variety of Clinical Settings

Students will be assigned to a variety of clinical environments to ensure exposure to diverse patient populations and clinical conditions. These settings include:

- Inpatient, emergency room, operating room, trauma, and intensive care settings:
 - Ruby Memorial Hospital
- Outpatient Heart and Vascular Imaging Services (HVIS) clinic
 - Ruby Memorial Hospital

Clinical rotations are structured to ensure that each student experiences both inpatient and outpatient workflows, as well as a range of clinical scenarios.

Student Assignment and Clinical Ratios

Student placement at clinical affiliates will be determined by the Clinical Coordinator and/or the Education Coordinator based on:

- Student knowledge, skill level, and competency level
- Clinical site capacity and available resources
- Volume and variety of examinations
- Availability of qualified clinical instructors
- Ability to maintain appropriate supervision

The program will maintain a student-to-clinical staff ratio that ensures:

- Adequate supervision at all times
- Equal access to scanning opportunities
- Fair and equitable clinical experiences
- Alignment of clinical assignments with the student's current level of training and competency development
- Achievement of required competencies and clinical outcomes

Students will not be assigned to a clinical site if sufficient supervision, case volume, or educational quality cannot be maintained.

Clinical Affiliate Evaluation

The program will routinely evaluate all clinical affiliate sites to ensure compliance with program expectations and accreditation standards. Evaluation methods include:

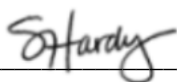
- Review of student clinical logs and competencies
- Student evaluations of clinical sites and instructors
- Clinical instructor feedback
- Program site visits and communication with department leadership
- Assessment of student progression and outcomes by clinical site

The clinical coordinator and/or education coordinator may change a student's clinic site if:

- The site does not meet program standards for case volume, variety, supervision, or educational quality.

The program will:

- Ensure all clinical affiliates meet accreditation standards
- Monitor clinical education quality and compliance
- Assign students to appropriate clinical sites
- Track student clinical experiences and competency progression
- Evaluate clinical sites and instructor effectiveness
- Ensure equitable distribution of clinical opportunities



Program Director/ Education Coordinator