ALVIN COMMUNITY COLLEGE
DIAGNOSTIC CARDIOVASCULAR
SONOGRAPHY

SYLLABUS
ECHOARDIOGRAPHIC EVALUATION OF
CONGENITAL HEART DISEASE II
DSPE 2349

INSTRUCTOR: Suzanne Poston, AAS, RDCS-AE, PE, RVS, FASE

FALL 2014

Alvin Community College
Cardiovascular Diagnostic Medical Sonography
Echo Eval of CHD II- DSPE 2349
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<td>Great Artery Abnormalities</td>
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<td>09/04/2014</td>
<td>Cont. Unit 1, Review</td>
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<td>DORV, DIRV, Ventricular Hypoplasia</td>
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<td><strong>Unit Two</strong></td>
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<td>10/9/2014</td>
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<td><strong>11/27/2014</strong></td>
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<td>12/4/2014</td>
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### Course Information

<table>
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<th>Course Code</th>
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<tr>
<td>DSPE 2349</td>
<td>Suzanne Poston, RDCS</td>
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<tr>
<td>Echo Eval of Congenital Heart Disease II</td>
<td>Office: 281-756-5651</td>
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<tr>
<td>Lecture – Thur 2-4pm</td>
<td>Labs – Thur 4:00-6:50pm</td>
</tr>
<tr>
<td>August 29-December 11</td>
<td>email: <a href="mailto:Sposton@alvincollege.edu">Sposton@alvincollege.edu</a></td>
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</table>

### Communicating with Your Instructor

The preferred method of communicating with your instructor is through the ACC email or you may call me at 281-756-5651. Please leave your first and last name, a phone number or an e-mail address where I can contact you and explain what you need to discuss with me. I will normally respond within 24 hours Monday-Thursday and by the next business day on Friday-Sunday.

### Course Description

A continuation of Echocardiographic Evaluation of Congenital Heart Disease I with emphasis on cardiac diseases which will include transposition of the great vessels, truncus arteriosus, congenitally corrected transposition of the great arteries, univentricular heart, extracardiac disease and post operative imaging.

### Classroom Protocol

It is the right of each student to participate in his or her learning, and it is the responsibility of each student to not interfere with the learning of other students. It is the expectation of the college that each student assumes the responsibility to follow college policies and procedures governing campus and classroom conduct. This information is published in the ACC Student Handbook [http://www.alvincollege.edu/resources/pdfs/student_handbook.pdf](http://www.alvincollege.edu/resources/pdfs/student_handbook.pdf)

### ACC Academic Success and Support Services:

**Americans with Disabilities Act**

ACC complies with ADA and 504 Federal guidelines by affording equal access to individuals who are seeking an education. Students who have a disability and would like classroom accommodations must register first with the Office of Disability Services, A 136, (281)756-3533. Instructors are not able to provide accommodations until the proper process has been followed.

The **ACC Library** is an excellent source for research and writing help. Quiet rooms are available for studying and doing class work. For more information, visit the [ACC Library Website](http://www.alvincollege.edu/resources/pdfs/student_handbook.pdf) or call 281-756-3559.

The **ACC Tutoring/Learning Lab**, located upstairs in building A, provides students with a variety of services including tutoring (math, writing, and other disciplines); computers and printers; a testing facility; and tables/carrels. Call 281-756-3566 or visit the [ACC Tutoring/Learning Lab Website](http://www.alvincollege.edu/resources/pdfs/student_handbook.pdf) for more information.

**MyBlackboard**

Support for **MYBlackboard** can be obtained by completing the [Online Support Form](http://www.alvincollege.edu/resources/pdfs/student_handbook.pdf).

**WEBACCESS, Passwords or ACC Computer Lab Information** - [Help Desk Website](http://www.alvincollege.edu/resources/pdfs/student_handbook.pdf) or contact the IT Dept. Help Desk at 281-756-3544.
CODE OF ACADEMIC INTEGRITY AND HONESTY
Alvin Community College students are members of an institution dedicated to the pursuit of knowledge through a formalized program of instruction and learning. At the heart of this endeavor, lie the core values of academic integrity which include honesty, truth, and freedom from lies and fraud. Because personal integrity is important in all aspects of life, students at Alvin Community College are expected to conduct themselves with honesty and integrity both in and out of the classroom. Incidents of academic dishonesty will not be tolerated and students guilty of such conduct are subject to severe disciplinary measures.

CLASSROOM PROTOCOL
It is the right of each student to participate in his or her learning, and it is the responsibility of each student to not interfere with the learning of other students. Policies governing the classroom are provided in the ACC Student Handbook and students who repeatedly violate one or more of these policies will be subject to disciplinary action. This information is published in the ACC Student Handbook. http://www.alvincollege.edu/resources/pdfs/student_handbook.pdf

Prerequisite
Acceptance into the DCVS Pediatric Program

Co-requisite
Clinical DMST-Echo Eval of CHD II – DSPE

COURSE RATIONALE
The purpose of this course is to integrate concepts and apply knowledge to understanding and evaluating advanced congenital heart disease utilizing echocardiography. Emphasis will be placed on transposition of the great vessels, truncus arteriosus, congenitally corrected transposition of the great arteries, univentricular heart, extracardiac disease and post-operative imaging.

Required Textbook:
Lai, Echocardiography in congenital heart disease, from fetus to adult

Additional References:
Ho, Echocardiography in Congenital Heart Disease made simple
Snider, Echocardiography in Pediatric Heart Disease, 2nd Ed.

ADDITIONAL MATERIALS
- USB/ Jump Drive or CD R/W
- Scantron exam answer sheets
- Colored markers
- ACC DCVS polo or T-shirt to wear to lab
- ACC DCVS Name Tag to wear to lab
- Ream of printer paper, ink cartridges for lab printer
- Ultralinq Access Renewal from the bookstore
- Pegasus Lectures Specialty Exit Exam E-Course Series from Pegasus
CLASS ATTENDANCE POLICY
Each student is expected to attend class regularly. It is the student’s responsibility to make up any assignments that are missed. Please call the instructor if you are absent to make arrangement for missed assignments, handouts, and/or tests.

IF A STUDENT MISSES MORE THAN FOUR (4) CLASSES YOU MAY BE REMOVED FROM THE PROGRAM!!!

STUDENTS MUST ATTEND CLASS AND LAB REGULARLY TO BE AWARDED COURSE CREDIT!!!

PARTICIPATION IN LAB ACTIVITIES IS ALSO REQUIRED. STUDENTS WHO COME LATE, LEAVE EARLY, OR WHO DO NOT STAY FOR LAB WILL BE COUNTED ABSENT FOR THAT CLASS!!!

TARDIES GREATER THAN 20 MINUTES late or leaving early WILL BE CONSIDERED AS AN ABSENCE.

NOTICE: If a student leaves class or lab early, they must submit a note with their name, date, time, and reason for leaving early to the instructor prior to leaving.

EXPECTATIONS:
1. Students are expected to obtain a textbook.
2. Students are expected to complete all BlackBoard and Lab assignments on time.
3. Students are expected to allocate a minimum of 10 hours per week on textbook readings, interacting with course materials, participating in class discussions, and completing assignments, quizzes and exams.
4. Students are expected to use the ACC campus computers or have a workable computer that can access the course website. Any technical problems on the student’s side WILL NOT be an acceptable excuse for late work.

Instructional Methods
This course consists of two hours of lecture and 3 hours of lab per week and will include discussions, work groups, demonstrations, and hands on practice.

COURSE COMPLETION REQUIREMENTS
In order to successfully complete this course and be awarded course credit, the student must:
1. Make a seventy-five (77) or better on the final average.
2. Complete (16) hours of outside scan time and turn in documentation form.
3. Have no more than four (4) absences.
4. Successfully challenge a Capstone scanning experience during lab at the end of the semester.
5. Participate in lab by scanning and submitting studies on tape to be critiqued by instructor.
6. Scan Eval due Mid-term.
7. Print Ultralinq Reports for all major scanning grades including scan evals and capstones.
8. Pass the specialty exit exam disk.

EXAM Policy
An exam will be given at the end of each unit. The exams will be averaged with the assignments to calculate the final grade. Any missed exams will be made up on the next class day!! NO EXCEPTIONS!!
The comprehensive final exam is required to complete the course; however, the grade will be used to replace the lowest test score. It will not be used against you if the grade is lower than previous test scores. Students may miss one exam and be allowed to make it up. If a second test is missed, the final will be used to replace that grade. Any missed tests after that will be a zero. Example: 1st missed exam - make up, 2nd missed exam - take the final to replace, 3rd missed exam Zero, and so forth.
GRADING SCALE SUMMARY
A = 91-100
B = 82 - 90
C = 77 - 81
F = Below 77

Students must make a grade of 77 or better to be awarded course credit. 77 is the minimal acceptable level for all courses in the DCVS program.

Grade Calculation – The final grade will be calculated as follows. Each of the unit exams will be averaged with the homework/quiz average. Major projects, capstone and scan tape average will count as exam grades. Your final grade will be available from WebAccess for you to review as soon as they are certified by the registrar. Instructors will not always be able to provide you with your final grade prior to that, so please keep track of your average. It is difficult for instructors to respond to multitudes of emails requesting grades.

RECORD YOUR GRADES HERE:

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<tr>
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<th>Projects/Scan Tests</th>
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<td>Unit 2 Exam</td>
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<td>Final Average</td>
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Keep track of your grades. Do not throw away any of your labs until the semester is over. If you notice a problem, contact your instructor. Do not let your grades get out of hand. Only one semester left after this one till graduation!!!!

I......Incomplete. No Incompletes or “I” grades will be given except for extreme circumstances. If an “I” grade is assigned and the course work is not completed by the pre-arranged time limit, this grade will convert to an “F”.

*W.......Withdrawal. It is recommended that the student talk to the instructor before withdrawing. Current course withdrawal information can be found in the printed version of the ACC Schedule for this semester or online at ACC Course Withdrawal Instructions. Students who file withdrawal requests by the published deadline and have not exceeded the withdrawal maximum will receive a grade of W.

MODELS
The Diagnostic Cardiovascular Sonography Program is in need of models/volunteers each night of class for the hands-on practice. If you, a family member, or friend would like to model, please have them call Susan at 281-756-5625 to schedule an appointment so a volunteer schedule can be made in advance whenever possible, and to ensure an adequate number of models for each lab.

BONUS POINTS – Maximum of Two (2) added to final average.
- Attend professional society meetings (over and above your one required meeting)
- Computer CME activities-MUST BE ULTRASOUND RELATED!!!!!!!
- Students can arrange for other bonus points – upon approval of Instructor.
- Other bonus point activities may be announced by the program director/instructor.

OUTSIDE SCAN TIME - Students are required to log in sixteen (16) hours of actual hands-on-probe-time by the end of the semester. This additional scanning practice is outside of class and lab. It can be completed here on campus
during supervised scanning labs. A schedule will be posted. The scan time must be verified and documented. **See attached documentation form. A total of the hours are required at the bottom of the form.

**Outside Scan Lab Sign Up Procedure:**

- **IF you sign up SHOW up.**
- **You may only sign up 2 weeks in advance.**
- **If you cannot make your scheduled time call the instructor assigned to that lab and let them know.** Also, call, text or email your classmates to let them know that time slot is available.
- **Failure to show up for scheduled scanning appointments will result in a 3 strikes and you are OUT policy.**
- **You must sign in properly by listing the date, start time, stop time, and machine you want to use. If you do not fill in the reservation completely, your spot will be taken. Do not turn off calendars. If you click on the color coded calendars it only turns the visibility on and off. Keep each calendar visible so you can see what is available and what is booked.**
- **You must sign in and out with security each time. Page or call the officer before you are ready to go so they can secure the area.**
- **You may sign up for a maximum of 2 hours per outside scan lab using gmail to reserve a machine.**
- Work on outside scan time every week to avoid over-crowding at the last minute. Make sure to document all scan time and DON’T LOOSE THE FORM!!!!
- **If you are here scanning when there is no instructor it does NOT count towards your outside scan time.**
- **ACC LAB USE - ACC has Acuson Sequoia C512, My Lab 30 Gold, Sonosite, IE33, GE Vivid 3 and Logiq 7 available to use after hours. You must first sign a lab use permission slip, and make an appointment to avoid over-crowding by signing up in the outside scan calendar on Google as to the day and time you are coming. If you sign up, show up. If you are habitually absent for the times you sign up for, you will no longer have sign up privileges and will just have to take whatever is left over. Three strikes rule…if you sign up but do not show up 3 times, you may be dismissed from the program. Please be courteous to your fellow students and the instructors who are working outside scan labs.**
- **BE sure to sign in and out with campus police EVERY TIME! **See attached lab use permission form for more details.
- **NO FOOD OR DRINKS IN THE SCANNING AREA OF THE LAB!! Children are NOT allowed in the lab unless they are attached to the machine and actively being scanned. Campus police will deny your access and may ban you from afterhours use if you violate lab policies. Clean up, restock, and wash, dry, and fold laundry. It is each student’s responsibility.**
- **Please make sure the equipment is there when you arrive and there when you leave and that the lab gets locked up before you go. You are responsible for the equipment in the lab while you are using it. Don’t leave it unattended and or unlocked PLEASE! Have the officer back lock the doors and open the restrooms for you**
- **You are required to reserve the machine that you want to use through G-mail. Your user name is Kleinhansdeb6@gmail.com with the password rileycat. How to sign up for a machine will be demonstrated on the first day of class. If you are not able to keep your reserved time you must email everyone to let them know that the machine is available.**

**Assignments: Unit Homework Assignments are listed below and additional assignments may be found on My BlackBoard.**

Additional ASSIGNMENTS MAY BE GIVEN DURING THE COURSE. THE DUE DATE WILL BE ANNOUNCED AT THAT TIME. OVERDUE ASSIGNMENTS WILL HAVE 5 POINTS DEDUCTED FOR EVERY CLASS DAY LATE. Unless noted otherwise all assignments will be submitted through MyBlackBoard.

**Scanning Lab Requirements:-**

Each week of lab, students should –

1. Remember to maximize the scan. Don’t clip trash. Use the digital storage wisely. Students will be required to upload all assignments using UPLINQ and review them via UTLRALINQ cloud based PACS system. UltralinQ access is purchased through the ACC bookstore.
2. Call volunteers to remind them of appointments. Set up patients, log them in, confirm signed consent forms, protect privacy, and wash hands, and clean transducer and equipment each time.

3. Take a history, perform a physical exam, and a blood pressure on every patient even if it is a fellow student. Treat this like an outpatient clinic and do the whole workup.

4. Perform a complete scan each lab and fill out a technical worksheet (patient initials only) to be turned in for a grade. Label each scan as full scan 1 (FS#1), full scan 2 (FS#2), and so on.

5. Complete any lab assignments due that week and turn in to lab instructor. These lab assignments may be done during lab or outside scan time. Make sure the work is your own and your name is in the system. Do not turn in any patient identified work! Lab assignments should be labeled lab 1 (LAB#1), lab 2 (LAB#2), and so on.

6. Sign in and out of lab each week on attendance form for morning/evening students.

7. Complete SCAN EVAL. See Schedule for due date

8. Wear your ACC t-shirt, polo, scrub top, nice slacks (beige or black) and name tag to lab each week. We may have volunteers scheduled.

9. Make sure you delete your studies after you have completed them.

Instructions for ALL Lab Assignments, including scan EVALS, labs, full scans and Capstones – Fill out the ACC student worksheet and scan it in to Ultralinq with assessment, BP, H&P and COMPLETE ASE interpretation. You may choose to do the Ultralinq. Be sure to clip the info page and all report pages each time. Students will assign their scans to be read by a student peer and a faculty member according to the schedule provided. See attached. You have 24 hours to complete the peer review of your classmate. Any comments brought to attention by a peer that are valid and constructive and not overly critical will NOT be deducted from the scan grade if the faculty member agrees with the peer comment. So do a good job on your peer reviews so your classmates will earn better grades and so you get better at picking out mistakes in scanning and you can then be more critical of your own scans and you will improve faster in the long run.

Notice: Lab assignments are due, submitted to Ultralinq with worksheet complete, interpretation and attachments, and assigned to the reading instructor by midnight on the day of lab, it is 15 points off for each day it is late. If they are turned in on time, students will receive a max grade of 100 (minus points for any problems). If it is late, it will be an 85 to start with. After a week late scans are not accepted and a grade of zero is entered into the grade book for that scan. Lab assignments can be done early, during the break before that semester and during outside scan time. There will be NO REDOS allowed on ANY assignments this fall. This includes labs, scan evals and full scans. However, We will allow students to complete 2 extra credit full scans that can be used to replace the two lowest full scan grades but that is all.

DAILY LAB ASSIGNMENTS
Each student will be required to complete a lab assignment at each lab. After completion of the lab assignment the student should complete one full scan each lab. It is mandatory for students to take a complete history and physical assessment on the person they are scanning (volunteer or another student). You must do this at least one time per lab. Students must wash linens, gowns, and towels each week, bring your own equipment including stethoscopes and BP kit to lab every week.

Other Scanning activities and drills may also be assigned. These are due at the end of lab for a daily grade. These will be averaged together and count as a test grade toward your final average.

LATE COURSE WORK POLICY
If a weekly lab assignment or scan eval is turned in late -15 points will be deducted. The definition of late is that it must be uploaded to Ultralinq by midnight on the due date and assigned to an instructor for interpretation including all required documentation/worksheet, H&P and interpretation.

If you cannot complete a full scan in about an hour then it is recommended you come to lab during outside scan time and complete your full scan ahead of the due date. If a student turns in a classroom assignment late 5 points will be deducted for each class day it is late.
FILE NAMING
Make sure you label properly: Example: FS# 1 or Lab #1, Scan Eval #1, or Capstone #1
Use the proper file naming protocol for Ultraling.
First Name: Your first and last name EX: Jessica Murphy
Last Name: The name of your assignment EX: FS# 1
PT ID #: Your three digit Ultraling code, date, patient initials with no spaces EX: JM4081912JAD, add another number or letter for any scans that are performed on the same day.
Sonographer ID#: Your three digit Ultraling code

BE SURE you put in your Ultraling code under the sonographer or you will not have access to fill out the worksheet and assign it to the instructor which could cause your study to be late.

Assignments that are not identified properly and assigned to their lab instructor will not be graded until they are properly labeled, late charges apply.

Scan EVAL
A complete pediatric echo protocol will be performed and clipped then sent to Ultraling for review. The protocol must be complete and thorough according to the latest ACC protocol. If there is pathology it should be appropriately interrogated. You will receive extra time if you find pathology as long as you properly evaluate it. You should time yourself and complete it within 1 hour and 45 minutes. Clip or Print the start and end time and scan that into Ultraling as an attachment so your time can be verified if you are using the Biosound. Be sure to clip the first image when you start and the last image when you finish even if it is after additional measurements are completed. 0.5 points will be deducted for each minute over time limit. Start/End time includes measurements. This will count as a major grade. The week you have a scan EVAL due it will count as your full scan. Make sure you label these assignments as Scan EVAL #1. The study must be performed and turned in for review so the instructor can correct any deficiencies prior to the capstone-scanning test. Please include basic and advanced measurements where applicable. This is to help you prepare for your capstones.
Follow ACC lab protocol. Include measurements that are required according to protocol, per patient body habitus, and per patient pathology. You will need to be able to think critically to determine what to include and why. What to measure and why. What not to measure and why. Do NOT report numbers that are incorrect. If you measure more than once, be sure to edit your report pages and only report the best numbers. Make GOOD decisions.
Images, M-Mode waveforms, color, and Doppler must be optimized. Report your start and stop time on the worksheet. Completely fill out ACC student echo worksheet and include an ICAEL interpretation. Show all calculations and comment on any variations or pathology.

On the weeks when a scan eval or capstone is due the students will NOT be required to complete an additional full scan.

CAPSTONE SCANNING
At the end of the semester, each student will be required to pass a Capstone scanning experience in order to be awarded course credit. This consists of a one-on-one session during lab with the student and instructor. The student will be asked to scan a volunteer that the student has never scanned before according to ACC DCVS protocol including proper optimization, routine measurements, and calculations.

Students will have 1 hour and 45 minutes each to complete a full, normal, routine scan. The standard ACC lab protocol should be followed (as discussed in the spring semester during Intro to Pedi Echo).
Grading will be based on timeliness of acquiring views, optimizations of views, M-Mode, color, and Doppler, proper measurements, and completing the study in the time allowed. Students will be given a maximum of 3 attempts to pass the check off, after that, the program director should be consulted.

Capstones, Check Offs and Competency Assessments are considered exams and fall under the jurisdiction of our academic integrity policy. Students are NOT allowed to use ANYTHING to assist them while performing skills or scan tests of any kind. Students may not have anything with them while they are testing and this includes but is not limited to the following: No phones, No backpacks, No purses, No books, No notes, No cards, No lists, No protocols, no nothing will be allowed while you are testing. The program expects students to know the procedure, protocol, formulas and any and all pertinent information in order to get the job done. If you need a pad to write information and values on while performing the procedure, the pad must be BLANK. No writing on the pad of any kind before you start. The only thing we will allow in the room with the student while performing a skill or scan test is the supplies needed, the patient’s chart, patient consent form, a blank pad or paper and the student report or hospital worksheet. This includes lab and clinical assessments. Additionally, students who are scanning or getting checked off on each other may not help each other, motion to each other, hint to each other, or position themselves or do anything to help their classmate in any way. As the patient, you need to do exactly as you are told when you are told and not before. The program has to be sure that each and every student is fully capable of explaining and performing procedures on patients without assistance from anyone. If you were the real patient you would have the same standard.

Grading Rubric for all scans:

- It is one (1) point off for each optimization mistake.
- 1 point off for each measurement mistake made.
- Missing View is 5 points off.
- Start and Stop time missing is 5 points off.
- Missing measurement is 1 point off.
- Anything left blank on a worksheet is -3 point per blank if it could have been measured. IE: The only exception to this is for TDS patients. Have the instructor back scan and label the images so we know they were unable to be obtained. This way, we will not penalize you for missing measurements and worksheet blanks.
- No interpretation is 10 points off.
- Incomplete interpretation is 5 points off.
- History, physical, or assessment missing 10 points off.
- NO back scan performed on lab patients – 25 points off. All lab patients should be back scanned by the instructor prior to letting them leave even if you do not plan to use that scan as an assignment.
- Pressures Diagram not filled out is 5 points off.
- Scan turned in late is 15 points off if it is late. Late scans will NOT be accepted after one week.
- Study labeled incorrectly is 5 points off. IE: Full Scan 1, Stress Echo 1, Scan Eval 1, Capstone 1, ect.. It is too difficult for faculty to try and match up studies that are not labeled properly in the grade book!!
- .5 point off for each minute over time limit for the scan eval.
- 1 point off for each minute over time limit of 1 hour for the Capstone.
- Be sure to clip your stop time if you do measurements at the end.
- 10 points off if Not logged into log book
- Bonus points: 1 point per minute you are under time will be added to the final grade as long as the overall quality of the scan is good.

- Don’t forget H&P, Assessment, and BP for all scans.
Medical Director Lectures
All students will attend any lectures given by the medical director each semester. Dates are TBA. Students may leave up to one hour early from their clinical site to attend these lectures if they fall on a clinical day and depending on where you are for clinical that day. The proper procedure regarding your time sheet and Trajecsys clock is to sign out on the paper time sheet with the actual time you left clinical and make a notation at the bottom of the time sheet as to why you left early, and then punch out on trajecsys when the inservice is over using a time exception. This way your Trajecsys times will not come up short.

Pedi Lecture Series- Required Meetings: No scheduled dates for this fall

Pedi and Fetal Echo Symposium: October 10 and 11

All Pedi Echo students are required to attend pedi echo and adult echo lectures and meetings as announced or scheduled. Students who do not attend these required meetings will be counted absent or they can write one mini-case study to present to the class which covers the material that was missed. It would be due the week of class following the missed meeting.

Specialty CD/Registry preparation:
It is required for accreditation purposes that all students demonstrate competence in both knowledge and psychomotor domains, therefore it is required that each student in this course pass a computer based exit exam for successful course completion. The final grade for this course, and thus the degree, will be held until the exit exam is passed. Students will be given ample opportunity to pass the exit exams and multiple attempts. For students graduating for the Pedi Echocardiography program the following exams must be passed in order to graduate:

1. Pedi Echo E Course Series - Fall
2. Ultrasound Physics/Cardiac Principles Exam - Summer

The pedi echo e courses are administered via Pegasus Lectures and need to be purchased right away. Each student has until November 28th to pass the pedi echo exit exam. HINT: DO NOT WAIT UNTIL THE LAST MINUTE! Furnish the printed grade report to Sue. You will need to score 85% or better. Make sure you calculate the grade BEFORE you turn it in. If there are any technical problems you will need to contact Pegasus Lectures. The first student who can present a passing score report (85% or better) will be given 5 bonus points added to the exam of their choice.

Course Outline
Unit 1 – Great artery abnormalities
Unit 2 – Ventricular hypoplasia
Unit 3 – extracardiac abnormalities
Unit 4 – Surgicals/imaging the post op heart

Course Competencies
Upon successful completion of this course, the student will be able to...

1. Recognize the anatomy found in standard 2D and Mmode echo views.
   (C3, C10, C5, C2, F3, F4, F5, F6, F7, F11, F12)
2. Understand the basic echo components and fundamentals such as 2D, Mmode, and Doppler functions.
   (C5, C6, C7, C8, F3, F4)
   List indications and contraindications for performing echocardiography.
   (C1, C2, C3, C4, F1, F2)
3. Understand positioning of patient, machine, and transducer.
   (C9, C10, C11, C12, C13, C14, F13, F14, F15, F16, F17)
4. Understand instrument adjustments to optimize image.
   (C15, C16, C17, C18, C19, C20, F7, F8, F9, F10, F11, F12)
5. Perform a routine cardiac scan protocol on a normal subject/volunteer.
   (F7, F8, F9, F13, F17, C7, C9, C16, C18, C19, C20)
6. Accurately perform measurements and calculations in each modality: 2-D, M-Mode, and Doppler by placing the calipers in the appropriate location and in the correct phase. (F3, F4, C5, C6, C7, C8, C13)

7. List and identify the normal features of an echocardiogram. (C1, F1, F2, F5, F10, F11)

8. Know the normal chamber dimensions, Doppler velocities, color direction, M-Mode measurement values, hemodynamic and calculated values. (C15, C16, C20, F8, F11)

10. List the normal variants found in echocardiography.

*See SCANS legend for more details about competencies.

**Unit 1 Objectives – Great artery abnormalities**

Upon completion of this unit, the student will be able to...

1. Know and understand the structural anatomy of the following defects: d-TGA, CCTGA (I-TGA) and truncus arteriosus.

2. Know how to identify d-TGA, CCTGA (I-TGA) and truncus arteriosus by echocardiography.

3. Utilize 2D, Doppler and Color flow mapping to evaluate great artery anomalies.

4. Understand image orientation and the planes of intersection used in evaluating great artery anomalies.

5. Define associated defects of d-TGA, CCTGA and truncus arteriosus.

6. Define and know how to recognize surgical repairs and palliations used in treating patients with great artery anomalies.

7. Understand the spatial relations of normal and abnormal great arteries.

8. Understand the embryologic development of the great arteries and how that contributes to great artery anomalies.

8. Know the syndromes that are associated with great artery anomalies.

**Unit 1 – Lab Assignments**

Each week complete a full pediatric echocardiography protocol, complete with interpretation. Make sure you include your begin and end time with all studies.

Two Fetal Echo Lab Assignments will be reviewed and graded in this course. One Fetal Competency (in Lab) Assessment will be documented for accreditation. One pediatric Competency (In Lab) Assessment will be documented for accreditation.

**HOMEWORK RULES**

*Images should be your OWN scans and not copies of other student’s work. You can obtain images while in lab, clinical, or outside scan time. Make sure you type your name in the machine while scanning.*

Homework Rules Apply Every time, every semester.

*Make sure your name is on the views. Work should be your own.*
Unit 2 Objectives – Ventricular hypoplasia

Upon completion of this unit the student will be able to...

1. Know and understand the structural anatomy of the following defects: hypoplastic left heart syndrome, tricuspid atresia, double outlet right ventricle and double inlet left ventricle.
2. Know how to identify HLHS, TA, DORV and DILV by echocardiography.
3. Utilize 2D, Doppler and Color flow mapping to evaluate HLHS, TA, DORV and DILV.
4. Understand image orientation and the planes of intersection used in evaluating ventricular hypoplasia.
5. Define associated defects of HLHS, TA, DORV and DILV.
6. Define and know how to recognize surgical repairs and palliations used in treating patients with ventricular hypoplasia.
7. Know the syndromes that are associated with great artery anomalies.

Unit 2 – Lab Assignments

Each week complete a full pediatric echocardiography protocol, complete with interpretation. Make sure you include your begin and end time with all studies.

Unit 3 Objectives – Extracardiac abnormalities

Upon completion of this unit, students will be able to...

1. Utilize traditional and off axis echocardiography views to find and evaluate extracardiac abnormalities including but not limited to: Persistent Left superior vena cava, retroaortic innominate vein, vascular ring and PA sling.
2. Understand the structural anatomy of the above extracardiac abnormalities.
3. Know which congenital heart lesions are associated with the above extracardiac abnormalities.
4. Know presenting sign, symptoms and history of patients with the above extracardiac abnormalities.

Unit 3 Lab Assignment –
Each week complete a full pediatric echocardiography protocol, complete with interpretation. Make sure you include your begin and end time with all studies.

Unit 4 Objectives – Imaging the post op heart

By the end of this unit the student will be able to...

1. Know and understand the surgical and palliative repairs used in CHD and the post op complications that are more common in CHD patients.
2. Know how to utilize traditional and off axis echocardiography views to evaluate the following repairs/palliations: systemic to pulmonary artery shunts, pulmonary artery bands, cardiac patches, valved and non-valved conduits, prosthetic valves, cardiac transplantation, diaphragmatic motion and extracorporeal membrane oxygenation.

3. Utilize 2D, Doppler and Color flow mapping to evaluate the post op heart.

4. Understand image orientation and the planes of intersection used in evaluating the post op heart.

**Unit 4 Assignment**

1. Turn in review of a Journal article in regards to evaluating a heart post repair for congenital heart disease. Turn in 1-2 page review with a copy of the article.
I. **Safety**  
A. Know where fire exits, fire hoses, extinguishers, and alarm pull stations are.  
B. Remember RACE - Remove patients that are in danger, Activate alarm, Confine fire by closing doors, Evacuate.  
C. Check all electrical cords for loose connections or frayed wires before plugging in.  
D. Do not leave any equipment blocking doorways or hallways, especially near exits.  
E. Watch for hazards that may cause trips or falls.

II. **Infection Control**  
A. Wash your hands before and after you scan.  
B. Check patient for broken skin and use a barrier device if necessary.  
C. Clean probes after each patient.  
D. If you are ill, please do not come to class until you are feeling better.

III. **Transducer Safety**  
A. **DO NOT DROP THE TRANSDUCER!!!!**  
B. Treat it like a child - very gently!!!!  
C. When you are finished scanning, wipe the probe off and hang it up.  
D. **DO NOT HAND OFF THE PROBE TO THE NEXT STUDENT!!!!**  
E. Keep the cords straight and untangled. Do not kink or bend the probe cable!! Do not run over the cords!!  
F. Hang the probes up after use each time.

IV. **Machine Use**  
A. Only adjust the controls needed for everyday scanning. These include the depth, gain, compress, and TGC's. You can use the Doppler and color functions as well as record and annotate.  
B. You may **NOT** try to adjust the programming!!!! Any attempt to access higher machine functions will result in your removal from lab!!!!  
C. We encourage you to optimize your image, but do not use a button that you are not sure about.  
D. When in doubt, ask the instructor for help.

V. **Model Etiquette**  
A. Introduce yourself and explain what you are going to do.  
B. Position the model and make them comfortable and warm.  
C. KEEP THEM COVERED!! Work under the gown, sheet, or towel.  
D. Try not to use excess probe pressure. Ask them to tell you if it is hurting.  
E. Do not make jokes. Be aware of sexual innuendo’s (harassment)  
F. **BE PROFESSIONAL!!!**  
G. Male students should have a female partner when working on female models and vise versa for male models.  
H. Preserve modesty. Keep curtains or doors closed. Keep lights low.  
I. Give models a break if necessary.  
J. Keep medical information confidential. Do not discuss any findings with the patient. Consult the instructor first.

VI. **Lab Clean-Up**  
A. Everybody should pitch in to help clean up. Students should not leave until the lab is in order.  
B. Start clean-up at about 15-minutes before the end of lab.  
C. Pull the curtain and have models get dressed.  
D. Clean transducers, machine, and room. Untangle the probe cords. Hang them up  
E. Refill gel jars from gallon jug.  
F. Restock paper, electrodes, and supplies  
G. Reposition furniture/equipment the way you found it.  
H. Pick up trash. Take it outside.  
G. Lock up lab.

VII. **Supplies**  
A. Use paper towels whenever possible.  
B. Try not to use too many linens. Use paper towels when possible  
C. Students must bring their own laundry to lab. Bring enough towels, pillow cases and sheets for each lab. The linen bucket is for instructors only. If you use ACC laundry, you must take it home and bring it back on the next lab.
Lab cleaning Guidelines:

1. The lab should look neat and tidy at the end of your time in the lab EVERYDAY.
2. Keep the beds made up and change out the cover sheet and or table paper in between patients. If the bedsprad gets dirty, wash it and re-make the bed.
3. CLEAN the machines DAILY. (I can’t begin to tell you how much dirt, grime, and goo grows on them.)
4. KEEP the machines covered when not in use. If the machines are covered they should be OFF so they do not over heat.
5. If you are going to use a machine later keep it in FREEZE mode so the crystals are not firing.
6. Proper Power Down - Go to the New Patient/Info or Begin/END Page before you power the machine down EVERYTIME.
7. KEEP cables untangled and OFF the floor.
8. CLEAN the microwave and coffee pot DAILY. (everyone uses it...so clean it)
9. CLEAN the fridge out. Label your items with your name and the date. Take it home or it will be thrown out, dishes and all. When it gets frozen – defrost it.
10. RESTOCK the gel, table paper, T-spray, sanitizer, electrodes, and other supplies DAILY. Check each station.
11. THROW away YOUR trash. Hello? Empty trash buckets next to each machine at the end of lab.
12. WASH/Dry/Fold/Put away linen DAILY. Keep the white linens together on the shelf and use those first. Save the ugly mismatched hand-me-down stuff for if we run out.
13. CHECK the bulletin boards regularly for news and important info. If something is out of date, pitch it.
14. Journals should be reviewed weekly for current articles and events. I try to flag the items that you all need to read so that should help some. At the end of the month, file the old Journals in the storage room on the shelf.
15. LOG book – log in ALL people who are scanned even fellow students. Leave a blank space in between days. INSTRUCTORS should initial the log book including outside scan labs. Use the patient’s full name.
16. PERMISSION forms should be signed by all participants (at least once per year) and by the instructor and filed in the folder on the counter top in the storage room. DO NOT LEAVE CONSENT FORMS WITH PATIENT info lying all over the lab.
17. If you clean something out in the sink rinse it out and don’t let food clog up the drain.
18. Instructors – LOG off the computers and LOCK up the labs EACH TIME.
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<tr>
<th>Professionalism</th>
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<td>Working with faculty</td>
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<td>Working with fellow students</td>
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<td>Working with patients/volunteers</td>
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<th>Willing to Learn</th>
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<tr>
<td>Attentive during demonstrations</td>
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<td>Accepts constructive Criticism</td>
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<td>Attempts to perform suggestions</td>
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<tr>
<td>Comes to lab with supplies needed</td>
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<tr>
<th>Compliance with lab policies</th>
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<tr>
<td>Cleans XDCR and equipment</td>
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<td>Keeps area clean and restocked</td>
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<td>Assists with laundry/trash detail</td>
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<tr>
<td>On time to lab, productive, completes duties</td>
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<tr>
<th>Technical proficiency</th>
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<td>Ergonomics / Safety/ Infection control</td>
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<tr>
<td>Knobology- knows equipment</td>
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<tr>
<td>Scanning abilities – transducer manipulation</td>
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<tr>
<td>Optimization -Quality of scans</td>
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<tr>
<td>Participation -Quantity of scans</td>
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<th>Cognitive Proficiency</th>
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<td>Completes reading assignments prior to lab</td>
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<td>Knowledge of topics being discussed in lab</td>
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<tr>
<td>Uses critical thinking</td>
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<td>Knows anatomy / pathology</td>
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**Comments:**

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**Lab Instructor:** ________________________________
**ALVIN COMMUNITY COLLEGE**  
**DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM**  
**OUTSIDE SCANNING VERIFICATION FORM**

IF YOU SIGN UP…SHOW UP!!  Students must cancel their scheduled time and email all students and the faculty member scheduled to cover that lab if they can’t make it. Failure to show up 3 times without proper notification will result in removal from the program. Students in the Adult Echo, Pedi Echo and Vascular tracks of the DCVS Program are required to gain one hour per week per semester of additional scanning practice time. This is 16 hours each spring and fall semester and 11 hours each summer semester. Scanning practice must be verified and witnessed by ACC DCVS Faculty during scheduled lab times. Please have witness verify the date and hours you were scanning, sign, and include a phone number/extension where they can be reached. Students should make every effort to complete all practice hours while the lab is staffed. Students may only practice on each other or a family member whose scans have been previously reviewed by faculty during open lab times if a faculty member is not directly present but this may not be counted as your practice time. Any time spent scanning when an instructor is not present is completely voluntary.

Reservations are made by signing up for the date, time, and machines using the google calendar. See instructions for reserving equipment in your course syllabus.

Hours can be accumulated in any increment from 30-minutes up to 2 hours at-a-time, as long as completed by the end of the semester. Students may not book appointments more than 2 weeks in advance.

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<th>Student Name:</th>
<th>Semester:</th>
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<td>Course Name:</td>
<td>Course Number:</td>
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TOTAL HRS ________________  Due at the time of the Final Exam
**STUDENT INFORMATION SHEET**

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<th>Last Name</th>
<th>First Name</th>
<th>Middle Name:</th>
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<tr>
<th>Home Phone #:</th>
<th>Emergency Contact Phone #:</th>
<th>Cell #:</th>
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**Email Address:**

**Home Address**

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**Work Info (optional)**

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**Your Background, i.e., credentials, What I did on summer vacation?**

**Additional Information?**

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<th>Yes ______, I would like my name, address and phone # on the roster.</th>
<th>No ______, Please do not include my information on the roster.</th>
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**PLEASE RETURN THIS FORM TO YOUR INSTRUCTOR so a roster may be made!**