FALL 2018 – SPRING 2020
CARDIOVASCULAR/ECHO TECHNOLOGY PROGRAM (CVT)

Content includes a focus on Adult Cardiac Ultrasound (Echocardiography): cardiac anatomy and physiology, 2D and M-Mode imaging, PW, CW and color flow Doppler, cardiac pathology and methods of interpretation. CVT course content includes: advanced rhythm interpretation, exercise stress testing, cardiac pharmacology, physics of ultrasound.

**Students MUST enroll in both CVT and ECHO courses each semester:**

Students must take all of courses in sequence within the two year program. Refer to the CVT/ECHO program packet for details about the program.

**CVT Program for Fall 2018** Four-semester (2-year) program. Upon completion of the CVT Program students can take the national registry exams: CCI or RDCS upon completion of the program.

<table>
<thead>
<tr>
<th>First Semester (Fall)</th>
<th>Second Semester (Spring)</th>
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</thead>
<tbody>
<tr>
<td>CVT 101</td>
<td>CVT 201</td>
</tr>
<tr>
<td>3 units</td>
<td>4 units</td>
</tr>
<tr>
<td>Monday 9am - 12pm</td>
<td>Monday 9am - 12pm</td>
</tr>
<tr>
<td>Echo 101</td>
<td>Echo 201</td>
</tr>
<tr>
<td>7 units</td>
<td>7 units</td>
</tr>
<tr>
<td>Tues/Thurs 9am-12pm</td>
<td>Tues/Thurs 9am-12pm</td>
</tr>
<tr>
<td>CVT 110 Cardiovascular Skills</td>
<td>CVT 210 Advanced Cardiovascular Skills</td>
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<tr>
<td>7 units</td>
<td>7 units</td>
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<tr>
<td>TBA</td>
<td>TBA</td>
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<table>
<thead>
<tr>
<th>Summer Semester</th>
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</thead>
<tbody>
<tr>
<td>CVT Clinical</td>
</tr>
<tr>
<td>5 units</td>
</tr>
<tr>
<td>TBA</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Semester (Fall)</th>
<th>Fourth Semester (Spring)</th>
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<tbody>
<tr>
<td>CVT 301 Physics of Ultrasound</td>
<td>CVT 410 Clinical Experience</td>
</tr>
<tr>
<td>3 units</td>
<td>11 units</td>
</tr>
<tr>
<td>Tues 6pm - 9pm</td>
<td>32 hours a week</td>
</tr>
<tr>
<td>Echo 301 Advanced Echo</td>
<td>Echo 401 Advanced Echo Studies</td>
</tr>
<tr>
<td>5 units</td>
<td>6 units</td>
</tr>
<tr>
<td>Thur 9am - 12pm</td>
<td>Tuesday 6pm - 9pm</td>
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<tr>
<td>CVT 310 Clinical Experience</td>
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<tr>
<td>9 units</td>
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<td>TBA</td>
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</table>

**Prerequisites:**
Due to increased educational requirements by the national registry organization, students should complete with the minimum educational units to equal an AS Degree with CVT/ECHO as their major.

1. Successful completion of college level anatomy (within the last 5 years or permission of the instructor): Anatomy 14 or Anatomy 25 with a grade of “C” or higher *Anatomy must be completed by the December before the application process. See information packet for additional requirements.

2. Completion of ESL 170 or English 96 or qualify to enter Eng IA. An AA/AS or bachelor’s degree fulfills this requirement.

3. Individual orientation will be part of application process.

**Suggested courses and experience to prepare for the CVT program:**
Medical Terminology, ECG classes, algebra, hospital or health care experience

**Tuition:** (subject to change without prior notice) 
Free City Program [https://www.ccsf.edu/freecity](https://www.ccsf.edu/freecity)

$46 per semester unit for California residents

$234 per unit for non-residents + $7 per unit for capital outlay fee + $46 per unit for enrollment fee

$17 Student Health Benefit Fee for ALL students

Students must pay for their own books and materials

**Financial Aid:**
To receive information about financial aid, call a counselor at Phelan Campus (415) 452-5207 and request an appointment or contact Winnie Yiu, Financial Aid Counselor, John Adams Center, Room 142, (415) 267-6565.

APPLICATION AND ENROLLMENT PROCEDURES ON REVERSE SIDE
ENROLLMENT PROCEDURES

All students must apply for admission into the Cardiovascular Technology/Echo Program. Students who are new to City College of San Francisco must also submit a separate application to the college. Enrollment procedures consist of the following steps:
1. CCSF CREDIT APPLICATION
2. CCSF CREDIT PLACEMENT TEST
3. ORIENTATION AND COUNSELING
4. INDIVIDUAL ORIENTATION APPOINTMENTS (this date made by student at orientation)
5. REGISTRATION

CCSF ADMISSION APPLICATION

All students who are new to City College of San Francisco must complete and file an application with the Office of Admissions and Records in person or by mail to: City College of San Francisco, 50 Phelan Ave., Room E107, San Francisco, CA 94112, or can be done also online: https://www.ccsf.edu

All applicants must complete an application to the Cardiovascular Technology Program. These applications will be provided at the orientation.

CREDIT PLACEMENT TEST(S)

All students who are new to City College of San Francisco must take a placement test in English/Math or ESL/Math. You must present a photo I.D. (driver’s license, passport, etc.) at the time you take the test. Please arrive 10 minutes before the schedule in order to be seated. Seating is limited to 30.

<table>
<thead>
<tr>
<th>Native English / Math / Algebra</th>
<th>English as Second Language (ESL) / Math / Algebra</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wednesday, October 11, 2017, 3:30 p.m.</td>
<td>Wednesday, October 11, 2017, 8:30 a.m.</td>
</tr>
<tr>
<td>Thursday, October 19, 2017, 8:30 a.m.</td>
<td>Thursday, October 19, 2017, 3:30 p.m.</td>
</tr>
</tbody>
</table>

You may print out your test results online at https://www.ccsf.edu/w4 or clicking under “Student Services” tab, go to “Student Records” after your CCSF admissions application has been processed. You are encouraged to attend a CCSF orientation to have your results and class registration explained. Feel free to call 415-561-1835 to speak with a Counselor at John Adams Center. Testing Office at Ocean Campus 415-239-3128.

Exemptions to the City College Placement Test(s) are as follows:
1. Interested in a class without math and/or English prerequisites. Check “Exemption from Matriculation” box in credit application
2. Already have an associate degree or higher from a U.S. accredited school.
3. Completed a college-level math and/or English 1A equivalent course.

To apply for this waiver, take a copy of your transcript to the Ocean Campus (50 Phelan Ave.), Admissions and Records, Conlan Hall, Room 107 OR provide a copy of your unofficial transcript to the John Adams Center, Student Services, Room 143 or Ocean Campus, Matriculation Office, Conlan Hall, Room 204.

For future credit placement testing dates (English, English as Second Language, and Math) go to www.ccsf.edu and type in the Search Box “Take a Placement Test”. Future testing dates, times, and locations will be listed a month at a time.

ORIENTATION AND COUNSELING

All applicants must attend an orientation. You must bring ONE of the following documents with you:
1. Copy of your CCSF Placement Test results or test waiver
2. Copy of your CCSF transcript
3. Copy of your college transcripts, diploma indicating an award of an Associate of Arts or Associate of Science degree or higher degree(s). Copies of any related certificates.
4. Two letters of professional recommendation.

All orientations are held at the John Adams Center, 1860 Hayes Street on the following dates:

<table>
<thead>
<tr>
<th>Orientation Dates</th>
<th>Time &amp; Room</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Tuesday, April 3, 2018, 5:00 p.m., Gym Bldg, Room 103</td>
<td>General college counseling held at start of orientation</td>
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<tr>
<td>Monday, April 9, 2018, 5:00 p.m., Gym Bldg, Room 103</td>
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<tr>
<td>Tuesday, April 10, 2018, 5:00 p.m., Gym Bldg, Room 103</td>
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</table>

Orientations last approximately 2 hours and 30 minutes. Due to limited space, we cannot allow visitors or children. For other testing dates, please telephone (415) 239-3128 or pick up a test schedule at one of the CCSF campuses or at http://www.ccsf.edu If you test during these months, you are responsible for picking up your own test results and bringing them to the orientation. Your results will be ready 5 working days after you take the test.

CVT/ECHO 9/15/17, MM/pk
Cardiovascular Technology / Echocardiography Program

Please check CVT website at ccsf.edu  HCT Programs

For Fall 2018
Please contact the CVT/ECHO Program for changes or updates: lcaul@ccsf.edu

Next Starting Class will be August 2018
The program begins a new class every two years: 2018

Cardiovascular Technology Program / Echocardiography (CVT/ECHO Program)

Offers courses and clinical training to learn the following skills

Cardiac Ultrasound (also known as adult echocardiography)
Cardiovascular courses include: Cardiac anatomy, cardiac ultrasound, physics of ultrasound, ECG’s interpretation, stress testing, pacemaker interpretation, stress echo, cardiac pharmacology. Echo Internships are arranged with regional echocardiography departments.

The ultrasound field is a sophisticated health care field that combines technology, independent analysis, patient and professional interaction.

Program Description

- **Next starting class is August, 2018.** The CVT/ECHO Program is a two-year program.
- The CVT/ECHO Program will intake students every two years: next intake is 2018.
- There is no option to take this program in one year or to extend it over multiple years.
- The CVT/ECHO Program is an impacted program so the number of students accepted is limited.
- This program is not currently accredited with CAAHEP, however the application has been submitted for accreditation.

- **Physical expectations for clinical internships:** Students must meet employment-determined-job-description requirements. Students must be able to perform ultrasound scans (sitting or standing) for an eight hour internship shift. Student must be able to perform patient care including transferring, positioning, and assisting patients, moving ultrasound systems weighing 300-350 pounds to patient rooms, emergency departments, & critical care units. Must be able to move and adjust patient beds and patient care equipment.

- Students must be able to provide their own transportation to clinical assignments which are located throughout the Bay Area

Program Advisor

Lisa Caul, BS, RDCS
Office: CCSF, John Adams Center, Gym Building, Room 113
lcaul@ccsf.edu  Phone (415) 561-1820  Fax: (415) 561-1999

Is the CVT Program Accredited by CAAHEP
The program is not currently accredited by CAAHEP, but we have submitted the application and plan to be accredited within the year
Prerequisites for entering the CVT ECHO Program August 2018

This program, like all health care programs, is impacted. Twenty students out of an expected 80-100 applicants will be accepted into the CVT/ECHO Program for August 2018. PLEASE CHECK WEBSITE FOR ANY CHANGES

1) Completion of college level anatomy (ANAT 25 or 14) with a “C” or better, completed within last 5-7 years.

   Anatomy course must be completed by Dec 2017 to qualify for the April 2018 orientation/application date.
   - Other college anatomy courses of equal content will be acceptable. Anatomy from technical schools WILL NOT be accepted, no on-line anatomy accepted.
   - Anatomy must be a full 18 week semester length or two college quarters in length
   - Equivalency of anatomy course from other colleges must be obtained by the applicant. Applicant must contact the program advisor for approval for course equivalence.
   - No anatomy completed in the spring of 2016 will be considered for acceptance to program.

2) Completion of ESL 170 or English 96 or qualify to enter Eng IA. An AA/AS or bachelor’s degree fulfills this requirement.

3) Any equivalency issues will require the applicant to have their course evaluated by CCSF counseling department OR the CVT / ECHO Program Advisor. This must be completed by the orientation date.

4) Attend one of the orientation/application meetings in April 2018. April dates will be made available in Fall 2017. No appointment or reservation is required for the orientation/application meetings.

5) The individual orientation the date is determined after attendance at one of the CVT/ECHO orientation meetings.

Highly recommended courses and health care experience

1) Work or volunteer experience in a health care facility (to confirm your interest in health care)
2) Physiology, algebra, physics, medical terminology
3) ECG course to obtain a “preview” into the course content of the CVT/ECHO Program

Steps for Applying to CVT / ECHO Program

1) Submit a completed CCSF application to the college. College applications available online.

2) Applications to the CVT / ECHO Program will ONLY be available at the orientation meetings on these days

3) Placement tests for CCSF are required if you do not have an Associates or Bachelor’s degree. Check with main office 415-561-1900 for this information and dates for the placement tests.

4) Attend a CVT/ECHO program orientation:
   Bring resume and college transcripts to orientation meeting

5) Complete the application to the CVT/ECHO Program (available only at the orientation meeting)

Orientation/Application Meetings

1) Orientation/Application dates to be determined in August 2017
   John Adams Center, 1860 Hayes Street, SF, CA 94117   Room location: Gym Building, Room 103

2) Information offered about program & employment opportunities

3) General counseling offered regarding college information

4) Appointments for individual orientation for CVT / ECHO candidates will be available at the orientation meetings

Individual Orientation Meeting

1) After the general orientation, qualified candidates will attend a brief individual orientation to submit application documents and review requirements for program.

2) Applicants will schedule the individual orientation meeting at the orientation meeting.

   Bring the following items to individual orientation
   1) Current resume
   2) Copy of all college transcripts (originals to be required if accepted to program.)
   3) Two letters of recommendation: letters are to be from a professional contact, typed and on professional letterhead. This may include professors, employers, professional contacts
   4) Copies of any relevant certificates
City College of San Francisco
Two Year CVT Program
2018-2020 Overview of Courses

CVT / Echo Curriculum and Internship Experience
Total Academic Units: 68 units
Total Clinical Hours Possible: 1164 hours

<table>
<thead>
<tr>
<th>Semester 1, Fall</th>
<th>Semester 2, Spring</th>
<th>Summer Semester</th>
<th>Semester 3, Fall</th>
<th>Semester 4, Spring</th>
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<tbody>
<tr>
<td></td>
<td>18 weeks</td>
<td>18 weeks</td>
<td>18 weeks</td>
<td>18 weeks</td>
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<tr>
<td>Echo 101 7 units</td>
<td>Echo 201 6 units</td>
<td>Echo 301 5 units</td>
<td>Echo 401 6 units</td>
<td></td>
</tr>
<tr>
<td>Echocardiography</td>
<td>Advanced Echo</td>
<td>Advanced Cardiac Abnormalities</td>
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<tr>
<td>Cardiac anatomy, physiologic findings. Echo basics: 2D views, Doppler basics: color, PW and CW</td>
<td>Cardiac abnormalities: 2D and Doppler findings: valvular disease, cardiomyopathies, pericardial disease, CAD, prosthesis, HTN, endocarditis. TEE basic views</td>
<td>Congenital abnormalities. Advanced TEE procedures from operating room</td>
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</tr>
<tr>
<td>CVT 101 3 units</td>
<td>CVT 201 4 units</td>
<td>CVT 301 3 units</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiovascular Technician</td>
<td>Advanced CVT</td>
<td>Physics of Ultrasound</td>
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<tr>
<td>Cardiac conduction system, ECG waveforms, normal rhythms, dysrhythmias, ischemia, infarction patterns, exercise stress testing</td>
<td>Advanced ECG interpretation: BBB, pacemakers, cardiac pharmacology, stress echo</td>
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<tr>
<td>CVT 110 7 units</td>
<td>CVT 210 7 units</td>
<td>CVT 310 9 units</td>
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<td></td>
</tr>
<tr>
<td>Cardiovascular skills</td>
<td>Advanced Cardiovascular Skills</td>
<td>Clinical Experience In Cardiac Ultrasound</td>
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</tr>
<tr>
<td>Perform ECGs, develop ultrasound scanning skills, echo system instrumentation, exercise stress testing</td>
<td>Practice stress echoes, application of formulas &amp; instrumentation for stenosis, regurg, other cardiac abnormalities. 8 hours/week</td>
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<tr>
<td>Echo 410 11 units</td>
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<tr>
<td>Clinical Experience in Advanced Echo</td>
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<tr>
<td>Work in echocardiography labs completing studies and reports. 32 -40 hours/week</td>
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<tr>
<td>Total units 17</td>
<td>Total units 17</td>
<td>Total units 17</td>
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<td>Total units 17</td>
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</tbody>
</table>

**Summary of Internship Hours** to be completed in a medical center or cardiology office

The program advisor will make the internship assignments

| Semester 1 | Semester 2 | Summer | Semester 3 | Semester 4 |
| No hospital internship hours | 8 hours / week | 32 hours / week | 32-40 hours/week |
First Year

First semester (Fall)

**Echo I01  Echocardiography**  7 units
Cardiac anatomy and physiology. Principles of cardiac ultrasound
Standard cardiac ultrasound images: 2-D and M-Mode
Identification of images & interpretation of normal cardiac structures & function
Cardiac Doppler: PW, CW and Color Flow Doppler

**CVT 101  Cardiovascular Technician**  3 units
Conduction system, Interpretative skills of rhythms: supraventricular & ventricular arrhythmias, axis, ischemia. Exercise stress testing: indications, protocols, procedure techniques.

**CVT 110  Cardiovascular Skills**  7 units
3 hours a week: In the John Adams Campus classroom echo / ECG lab
3 hours a week: Evening practice with fellow students: California Pacific Medical Center, John Muir Medical Center (Walnut Creek), Student is expected to provide her/his own transportation to these sites.

Second semester (Spring)

**Echo 201  Advanced Echocardiography**  7 units
Echo and Doppler evaluation of valvular abnormalities, cardiomyopathies, prosthesis, endocarditis, cardiac masses. Application of Doppler formulas to calculate systolic and diastolic function.
Transesophageal Echocardiography (TEE) views and Doppler findings

**CVT 201  Advanced Cardiovascular Technician**  4 units
Advanced ECG interpretation: myocardial infarction patterns, heart blocks, bundle branch blocks, heart block, and accessory pathway conduction abnormalities. Pacemaker technology

**CVT 210  Advanced Cardiovascular Skills**  7 units
Students will complete 6 hours a week of observation in the San Francisco Bay Area. Observation will be in ECG labs, exercise stress testing and echocardiography labs. The assignments will be made by the CVT Program Director. Students must be able to provide transportation to the assigned labs.
Second Year

Third Semester (Fall)

Echo 301  Advanced Cardiac Abnormalities  5 units
Cardiac embryology, congenital echocardiography, stress echocardiography, electrophysiology studies with cardiac imaging, surgical ultrasound, intracoronary ultrasound.

CVT 301  Physics of Cardiac Ultrasound  3 units
Principles of Ultrasound: components of a sound wave, pulse wave instrumentation, image storage display, color Doppler and color flow imaging, image characteristics and artifacts, ultrasound equipment quality assurance, bioeffects and safety considerations

CVT 310  Clinical Experience in Cardiac Ultrasound  9 units
Students will complete 24-32 hours week Echo internship in assigned echo labs in the SF Bay Area. Students will be expected to provide their own transportation. Assignments will be made by the CVT / ECHO Program Advisor.

Fourth Semester (Spring)

Echo 401  Advanced Echocardiography Studies  6 units
Review clinical experiences and application of new technology: strain, CRT, dyssynchrony, 3D, TEE in the OR, carotid ultrasound, abdominal ultrasound

CVT 410  Clinical Experience in Advanced Echo  11 units
Students will complete 24-32 hours/week of a clinical internship. This advanced clinical training will prepare students for employment at the completion of the program. Internships will be assigned by the program advisor.

Clinical Assignments
Assignment locations and dates are made by the CVT/ECHO Advisor. Assignments will be made in various hospitals and offices in the bay area. All students must comply with the assignments or risk missing a clinical rotation. Students are responsible for their own transportation. Students will comply with the hours for assignments that are designated by the clinical department (i.e. start/finish hours, lunch hours) and all hospital and departmental regulations.

Advancement in the Program
Each course must be passed with a “C or 75%” or better to continue in the program and advance into the next semester of courses. Classes can not be repeated or postponed to future years. All courses must be passed to gain a certificate in the program. Students will not be allowed to repeat the CVT / ECHO Program.
# CVT/ECHO Program Schedule

## 2018-2020

### Fall (First Semester)  Aug-Dec 2018

<table>
<thead>
<tr>
<th>Mon</th>
<th>Tues</th>
<th>Weds</th>
<th>Thurs</th>
<th>Friday</th>
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</thead>
<tbody>
<tr>
<td>9-12 lecture CVT 101</td>
<td>9-12 lecture Echo 101</td>
<td>9-12 lecture Echo 101</td>
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<td></td>
</tr>
<tr>
<td>Option: 12-3pm One 3 hour Lab a week at college Mon, Tues or Weds</td>
<td>Option: 12-3pm Lab at CCSF</td>
<td></td>
<td>Option: 12-3pm Lab at CCSF</td>
<td></td>
</tr>
<tr>
<td>Hospital NIGHT Lab 5-8pm, 4 times a month, student to select night lab at hospital in SF</td>
<td>Hospital NIGHT Lab 5-8pm Student to select 4 nights a month at hospital in SF</td>
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<td>Hospital NIGHT Lab 5-8pm Student to select 4 nights a month at hospital in SF</td>
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</tbody>
</table>

### Spring (Second Semester)  Jan-May 2019

<table>
<thead>
<tr>
<th>Mon</th>
<th>Tues</th>
<th>Weds</th>
<th>Thurs</th>
<th>Friday</th>
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</thead>
<tbody>
<tr>
<td>9-12 lecture CVT 201</td>
<td>Open for Internship</td>
<td>Open for internship</td>
<td>9-12 lecture Echo 201</td>
<td>Open for internship</td>
</tr>
<tr>
<td>Option: 12-3pm One 3 hour Lab at college Mon, Tues or Weds</td>
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<td></td>
<td>Option: 12-3pm Lab at CCSF</td>
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</tr>
<tr>
<td>Hospital NIGHT Lab 5-8pm, 4 times a month, student to select night lab at hospital in SF</td>
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<td></td>
<td>Hospital NIGHT Lab 5-8pm Student to select 4 nights a month at hospital in SF</td>
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<tr>
<td>Clinical Internship 8 hours a week</td>
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</table>
# CVT/ECHO Class, Lab, Internship Schedule

## Fall (Third Semester) Aug-Dec 2019

<table>
<thead>
<tr>
<th>Mon</th>
<th>Tues</th>
<th>Weds</th>
<th>Thurs</th>
<th>Friday</th>
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<tbody>
<tr>
<td>CLASS 9-12 CVT 301</td>
<td>Day Open for internship 24 hours week</td>
<td>Open for internship 24 hours a week</td>
<td>Day open for internship 24 hours week</td>
<td>Open for internship 24 hours a week</td>
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<td></td>
<td>CLASS Night class Echo 301 6-9p</td>
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<tr>
<td>Option: 12-3pm</td>
<td>One 3 hour Lab at college Mon, Tues or Weds</td>
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<tr>
<td>Hospital NIGHT Lab 5-8pm, 2-3 times a month, student to select nights at hospital in SF</td>
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<tr>
<td>Clinical Internship 24 hours a week</td>
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## Spring (Fourth Semester) Jan-May 2020

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<tr>
<th>Mon</th>
<th>Tues</th>
<th>Weds</th>
<th>Thurs</th>
<th>Friday</th>
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<tbody>
<tr>
<td>Open for internship 32 hours/week</td>
<td>Open for internship 32 hours/week</td>
<td>Open for internship 32 hours/week</td>
<td>Open for internship 32 hours/week</td>
<td>Open for internship 32 hours/week</td>
</tr>
<tr>
<td>(CLASS) Echo 401 5-9p Lecture at CCSF or CPMC</td>
<td>(CLASS) CVT 310 5-9p Lecture at CCSF or CPMC</td>
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<td></td>
</tr>
<tr>
<td>Hospital NIGHT Lab 5-8pm 4 times a month, student to select nights at hospital in SF</td>
<td>Hospital NIGHT Lab 5-8pm 4 times a month, student to select nights at hospital in SF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical internships 24-32 hours/wk</td>
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CVT /ECHO Career Opportunities
Opportunities for work in the Bay Area are very good but related to the overall regional and state economy. Best options for work opportunities are located outside the city of San Francisco. Employment from the CVT /Echo Program has been greater than 90% for each graduating class.

CVT/ECHO Program Certification: 2 options
CVT certificate: program is a two year program. A certificate is given if all courses have been completed with a "C" of 75% or better pass in all classes.

AS Degree: completion of CVT program and other general requirements can result in an AS degree with a CVT major.

All Applicants
All students will be notified of their acceptance status at the end of the second week of June.

Student Background Checks and Drug Testing
All students must complete a background and drug testing check within the first month of the start of the program. This is a requirement for clinical assignments. Students will incur this expense. This may have to be updated for the second year of the program if required by clinical internship site.

Medical Information Required within one month of start of program if accepted into program
- Current CCSF physical medical form signed by physician
- TB test (required at start of each academic year while in program)
- MMR: Measles, Mumps, Rubella: titer levels of each within last 5 years
- Hepatitis B Vaccine: titer level required within last 5 years
- Varicella Zoster (chicken pox) titer level required within the last 5 years
- CPR (may be completed at John Adams during fall semester)
- Dtap: Diphtheria / Tetanus/ Pertusis verification of vaccination within the last 5 years
- Flu shots required seasonally (each Fall)

Physical requirements for a student in the CVT/ECHO Program
Students will be expected to meet the physical requirements required of employment standards for cardiac sonographers: ability to transfer patients from wheelchair to bed, push and position ultrasound system to patient rooms, move patient furniture to accommodate ultrasound system, stand or sit for cardiac to perform ultrasound scans (sitting or standing) for an eight hour educational shift.
**Estimated Total Cost of Program** *(Fall 2020 and all costs are subject to change)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Each semester Subject to change</th>
<th>Totals Subject to change</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCSF College Tuition</td>
<td>$46/unit (17 units/semester)</td>
<td>$3,128.00</td>
</tr>
<tr>
<td></td>
<td>$782/semester</td>
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</tr>
<tr>
<td>Health Fee (mandatory for each semester)</td>
<td>$17.00/semester</td>
<td>$68.00</td>
</tr>
<tr>
<td>Fall 1&lt;sup&gt;st&lt;/sup&gt; year textbook</td>
<td>$300.00</td>
<td>$425.00</td>
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<tr>
<td>Fall 2&lt;sup&gt;nd&lt;/sup&gt; year textbook</td>
<td>$125.00</td>
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</tr>
<tr>
<td>Background check/drug screen <strong>This may be requested by clinical site to repeat/update</strong></td>
<td>$100.00</td>
<td>$100.00</td>
</tr>
<tr>
<td></td>
<td>$50.00 for 2&lt;sup&gt;nd&lt;/sup&gt; year</td>
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</tr>
<tr>
<td>Embroidered scrub shirt</td>
<td>$50.00 (top and pants)</td>
<td>$50.00</td>
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<tr>
<td>Student ID</td>
<td>$12.00</td>
<td>$12.00</td>
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<tr>
<td>Vaccinations, TB tests, Titer levels, Flu Shot</td>
<td>$150 (estimate)</td>
<td>$100-200.00</td>
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<tr>
<td><strong>TOTALS</strong></td>
<td>$1,536</td>
<td>$4,033</td>
</tr>
</tbody>
</table>
Frequently Asked Questions

1) Other ultrasound programs
   1. Kaiser Permanente School of Allied Health Services (General and cardiac ultrasound programs)
      938 Marina Way S
      Richmond, CA 94804              888-299-0077  www.kpsahs.org
   2. Foothill Community College (15 month Program in general ultrasound and vascular program)
      12345 El Monte Road
      Los Altos, CA 94022-4599         650-949-7777  www.foothill.edu/bio/programs/ultra
   3. Oregon Institute of Technology (They offer a distance-learning: Bachelor’s Degree Program in ultrasound)
      3201 Campus Drive
      Klamath Falls, OR 97601-18801    541-885-1676  www.oit.edu/dist
   4. Grossmont Community College (2 year CVT Program: cardiac, vascular ultrasound & cardiac cath)
      8800 Grossmont College Drive
      El Cajon, CA 92020-179            www.grossmont.edu/cardiovascular
   5. Community College of Spokane (2 year CVT Program)
      Noninvasive Cardiovascular Technology Program
      1810 N Greene St                  www.scc.spokane.edu/nct
      Spokane WA 99217-5399            800-248-5644 ext 7309

2) Private ultrasound programs
   You will need to investigate on your own. Be thorough and cautious, they are expensive and their clinical internships are often limited. I recommend speaking to graduates of the programs you are interested in. The CCSF CVT/Echo Program will not provide internships for other programs.

3) Can anatomy be taken in the summer before the program or concurrently with the first semester?
   Anatomy course must be completed by the December prior to the April orientation and application.

4) Are anatomy classes from other colleges acceptable? Are On-line Anatomy courses acceptable?
   Traditional anatomy courses offered in the standard 18 week, semester-format (or 2 quarters) from a college or community college are required. Anatomy from private technical programs/vocational colleges will not be accepted.
   On-line Anatomy courses will not be accepted. Students are expected to take an anatomy course with a lab, typically 4-5 units. If anatomy is not taken at CCSF, the applicant must contact CCSF’s counseling department for course equivalency to be approved by the time of the April orientation.

5) Can the CVT Program be condensed into a single year program or taken on a part-time basis?
   No. The academic program and clinicals can only be completed in the two year format. The program is considered a full time program.

6) Can students transfer from other ultrasound programs, including private programs, into the CCSF CVT/ECHO Program?
   No, transfer students will not be accepted into the program. This CVT/Echo program will not provide internships for any other ultrasound programs.
7) Registry / Credentialing in Ultrasound

General information

There are two registering organizations for ultrasound, see below. There is no state licensing required at this time. Most hospitals require cardiac sonographers to be registered most commonly by the ARDMS. Both the ARDMS and CCI are recognized by the AMA and most insurance providers.

1. ARDMS: American Registry of Diagnostic Medical Sonography
51 Monroe Street Plaza E 1
Rockville, MD  20852-8401 800-541-9754 www.ardms.org

This organization registers all ultrasound sonographers. For echocardiography the registry is RDCS: Registered Cardiac Sonographer. At the completion of the CVT Program, students will be qualified to take the RDCS exams.

2. CCI: Cardiovascular Credentialing International
1500 Sunday Drive, Suite 102
Raleigh, NC  27607 800-326-0268 www.CCI-online.org

CCI registers all categories of invasive and noninvasive cardiology. The echocardiography exam is the RCS: Registered Cardiac Sonographer. At the completion of the CVT Program, students will be qualified to take the RCS exams.

8) Echocardiography Clinical Experience / Internships Sponsored by the CVT/ECHO Program

General information: students are assigned to cardiology labs in the Bay Area. All students are assigned to multiple echo labs and are expected to provide their own transportation to these assignments. The variety of labs allows students to experience multiple types of echo labs. Students must be able to provide their own transportation to clinical assignments located throughout the Bay Area.

9) What are the physical requirements for a student in the CVT/ECHO Program

Students will be expected to meet the physical requirements required of the employed cardiac sonographers: ability to transfer patients from wheelchair to bed, push and position ultrasound system to patient rooms, move patient furniture to accommodate ultrasound system, stand or sit for cardiac to perform ultrasound scans (sitting or standing) for an eight hour educational shift.

10) What are the physical requirements for a cardiac sonographer

a. Hospital sonographers push ultrasound systems that weigh 350 pounds and more. Most sonographers have to move and arrange patient furniture, hospital equipment to position the ultrasound systems, and position and/or transfer patients.

Cardiology offices: usually do not require pushing equipment and moving furniture. During clinical rotations students will be expected to meet the hospital level requirements of moving equipment, patients and furniture.

b. At the current time sonographers complete 7-8 cases a day (1 per hour). This requires left (or right) arm and hand strength, while the opposite hand manipulates the ultrasound computer system. Students must be able to perform these standing or sitting.

c. Students must be able to transfer patients and position patients to obtain optimal image quality.

12) Job placement

The CVT/ECHO Program does not provide job placement, however CVT/ECHO students have been very successful in securing jobs in the SF Bay Area, due to the recognized caliber of the academic courses and clinical internships.

13) Salaries

Salaries vary depending if the location is a hospital or private office. Entry level will vary, the range is approximately $40-48/ hour approximately $ 70,000/year depending on the position and location.