

Pathway to Become a Clinical Laboratory Scientist

What does a CLS do?

Clinical Laboratory Scientists work in laboratories of hospitals and other health organizations. They are responsible for performing tests related to the examination and treatment of patients, helping physicians to diagnosis and treat disease.

Using sophisticated instrumentation, technology, and highly skilled manual techniques, Clinical Laboratory Scientists:

- Examine and analyze body fluids, tissues and cells
- Identify infective microorganisms
- Identify blood-clotting abnormalities
- Cross-match donor blood for transfusions
- Test blood for drug levels to measure the efficacy of particular treatments
- Evaluate test results for accuracy and help interpret them for the physician

Careers in the field of Clinical Laboratory Science are open to those who have an interest in medical science. It is great for those who have an interest in the medical field, but may not desire to be hands-on with patients. Students who enter this profession should have an affinity for math and for chemical and biological sciences.

Where do I start?

The first step is to acquire a Bachelor Degree, including courses specific to academic requirements of the State of California Public Health Department:

- 16 semester or equivalent quarter units of chemistry, which must include clinical chemistry OR analytical and biochemistry.
- 18 semester or equivalent quarter units of biology, which must include hematology, immunology, and medical microbiology.
- 3 semester or equivalent quarter units of physics (light and electricity).

Local, unaffiliated schools with course programs that prepare students for a career in Clinical Laboratory Science:

California State University Fresno

https://www.fresnostate.edu/csm/arc/documents/CLSPROGRAMcourses_000.pdf

National University

<https://www.nu.edu/OurPrograms/SchoolOfHealthAndHumanServices/HealthSciences/Programs/BSCLS.html>

After you have acquired a Bachelor degree with the above requirements, the next step is to apply for a CLS Generalist training license through the California Department of Public Health Laboratory Field Services. Visit the LFS website to create an account and submit an application. You will need to send your official transcripts sent to LFS (instructions are included on the website).

<https://www.cdph.ca.gov/Programs/OSPHLD/LFS/Pages/CLS-Trainee.aspx>

Once you receive your training license, you are ready to apply for a training program/internship. Internships last 52 weeks, as required by the State of California. There are more than 800 approved schools of medical technology, which are located primarily in hospitals. Some schools provide the option of earning education with your internship included (see: Loma Linda University), and some schools offer internship as part of your four-year degree. Alternatively, there are independent training programs which are not affiliated with any university, giving you the freedom to complete your degree requirements at a school of your choice.

List of approved CLS training school programs & affiliates:

<https://www.cdph.ca.gov/Programs/OSPHLD/LFS/CDPH%20Document%20Library/P-Approved-CLS-Training-Programs.pdf>

Independent Training Programs

Independent training programs are great for anyone who obtained their degree at a school that is not affiliated with a training hospital. These programs typically include a stipend, and take a limited number of students per year. Luckily, the central valley has several CLS training programs to choose from:

Valley Children's Hospital, Madera, CA

<https://www.valleychildrens.org/medical-education/nursing-and-allied-health/clinical-laboratory-scientist-training-program>

Sierra View Medical Center, Porterville, CA

<https://www.sierra-view.com/Hospital-Services/Laboratory/CLS-Training-Program.aspx>

Community Regional Medical Center, Fresno, CA

Kaweah Delta Medical Center, Visalia, CA

Affiliated Internships

Affiliated internships are programs that allow you to complete your internship through your school and/or hospitals that are exclusively affiliated with that school, which can make getting an internship easier. Some examples:

University of California – Irvine: 52 week NAACLS accredited training program

Students are eligible to take the external exam leading to licensure as a California CLS and certification as a Medical Laboratory Scientist by the American Society for Clinical Pathology. There are no tuition fees. A scholarship is provided to admitted students, paid on a monthly basis; amount is dependent on annual budget. Program takes 6 students per year.

https://ce.uci.edu/areas/life_sciences/clsmf/

University of California – Davis: 52 week training program

The applicant must have a B.A. or B.S. degree and must be qualified to be issued a CLS training license by CDPH prior to the start of training. There are no tuition fees. There is a stipend that is variable and not guaranteed. Program takes 8-12 students per year.

https://www.ucdmc.ucdavis.edu/pathology/education/cls_training_program/

San Francisco State University: 56 week NAACLS accredited training program

The CLS program consists of a 16-week semester of didactic and laboratory work and a 40-week off-campus internship at affiliated clinical laboratory sites. Program takes 29-59 students per year.

<http://cls.sfsu.edu/>

San Jose State University: 52 week training program

The Clinical Laboratory Scientist Training Program at San Jose State University is a 12 month post-baccalaureate training program that prepares students to take the ASCP national exam for Clinical Laboratory Scientists. Students spend 32 hours training at a clinical site and 8 hours a week in lecture with no breaks in the training year. Program takes approximately 25 students per year.

<https://sites.google.com/a/sjsu.edu/cls/>

Loma Linda University: 2 year NAACLS accredited program

LLU offers a professional bachelors program. The freshman and sophomore years are taken at any accredited college or university. Entry to the program is at the junior-year level. After completion of the program, the student is awarded a Bachelor of Science degree and is eligible for state licensure and to take the national board examination. Program takes 18-21 students per year.

<https://alliedhealth.llu.edu/academics/clinical-laboratory-science-cls>

Getting Your License

After you complete your internship you are ready to take the exam to become a licensed Clinical Laboratory Scientist. Your training institution will submit the appropriate forms to the California Department of Public Health. You will need to register with ASCP and apply to take your exam for your CLS license; this can be done up to 2 weeks prior to completion of your internship.

After passing the exam, you can apply for a CLS license with CDPH. You will need to upload a certificate of training completion and letter of training verification (from your training facility), and verification of completion of exam.

Last but not least, applicants are required to take a tutorial and pass a quiz on California State laboratory law:

<https://www.cdph.ca.gov/Programs/OSPHLD/LFS/Pages/OnlineQuiz.aspx>

Lab Field Services will review your documents and issue a California CLS license.

Career Outlook

According to the Bureau of Labor and Statistics, the projected job growth for the CLS career is higher than average, at 13% between 2016 and 2026 (BLS.gov). The American Society for Clinical Pathology's 2017 wage survey of medical laboratories places California CLS at the highest paid, with an average hourly wage of \$48.70; Connecticut follows in second place at \$34.69. ASCP lists the average annual salary for CLS as \$61,112.31. The percent change in salary between 2013, 2015, and 2017 was an increase of 2.15% for CLS in states surveyed (<https://academic.oup.com/ajcp/advance-article/doi/10.1093/ajcp/aqy139/5112880>).

The following table contains data from 2015 from BLS.gov, comparing wages from national, state, and local levels:

	Hourly pay range	Median hourly pay	Annual pay range	Average annual wage
National	\$20.77 - \$48.44	\$29.74	\$43,324 - \$101,264	\$61,860
California	Not provided	\$39.91	Not provided	\$83,000
Fresno	\$32.00 - \$45.00	\$44.18	\$61,547 - \$102,097	\$91,890

Helpful Resources

Approved CLS Training School Programs & Affiliates:

<https://www.cdph.ca.gov/Programs/OSPHLD/LFS/CDPH%20Document%20Library/P-Approved-CLS-Training-Programs.pdf>

ASCLS: American Society for Clinical Laboratory Science

<http://www.ascls.org/>

ASCP: American Society for Clinical Pathology

<https://www.ascp.org/content>

CAMLT: California Association for Medical Laboratory Technology

<http://camlt.org/>

CDPH: California Department of Public Health

<https://www.cdph.ca.gov/Programs/OSPHLD/LFS/Pages/CLS.aspx>