



**HLWI Advisory Group Meeting**  
**Thursday, March 23, 2017**  
**10:00 am – 2:00 pm**

**CHA Board Room**  
 1215 K Street, #800  
 Sacramento, CA 95814

*For Those Participating Via Conference Call*  
 Call-In Number: 1-800-882-3610  
 Passcode 6506506#

**AGENDA**

<b><u>ITEM</u></b>	<b><u>TIME</u></b>	<b><u>SUBJECT</u></b>	<b><u>REPORTING</u></b>	<b><u>PAGE</u></b>
<b>I.</b>	10:00-10:15 am	<b>WELCOME AND INTRODUCTIONS</b>	Co-Chairs	3
		A. Introductions and welcome to new members Erica Padilla, Danielle Pollard, Anh Ta, Rowena Vito, John Ferguson, and Shohreh Ershadi.	Hamill/Foltz	
<b>II.</b>	10:15-10:20 am	<b>APPROVAL OF THE MINUTES</b>	Hamill/Foltz	7
		A. Approval of the minutes from the November in-person meeting.		
<b>III.</b>	10:20-11:00 am	<b>LANDSCAPE UPDATES</b>		
		A. All members	All	
		B. MLT Report Mar. 16 Conference Call Update	Martin	
		C. Update from Lab Field Services	LFS	
<b>IV.</b>	11:00-11:45 am	<b>UPDATE FROM CSU STANISLAUS</b>	CSU Stanislaus College of Sciences	12
		A. Introductions and discussion	Dr. Worley Dean David Evans	
<b>V.</b>	11:45-12:15 pm	<b>BREAK FOR LUNCH</b>		
<b>VI.</b>	12:15-12:45 pm	<b>ANTIMICROBIAL STEWARDSHIP</b>	Dr. James McKinnell	
		A. Dr. McKinnell from LA County will be presenting and gathering feedback on laboratory practices related to stewardship, including the development of the antibiogram and current breakpoints for isolates		

<b>VII.</b>	12:45-1:15 pm	<b>LEGISLATIVE UPDATE</b> A. Review lab and health care workforce bills	Martin	24
<b>VIII.</b>	1:15-1:30 pm	<b>THE IMPERATIVE FOR TRAINING DRAFT DOCUMENT</b> A. Group will review draft table of contents related to the need for increased clinical training in the lab	Martin  All	
<b>IX.</b>	1:30-1:45 pm	<b>OTHER BUSINESS</b> A. Next conference call, May 18, 10-11 am	Martin	27
<b>X.</b>	1:45-2:00 pm	<b>FINAL COMMENTS &amp; ADJOURNMENT</b>	Hamill/Foltz	



March 23, 2017

TO: HLWI Advisory Group  
FROM: Cathy Martin, Vice President, Workforce Policy  
SUBJECT: Welcome and Introductions  
HLWI Roster

**I. ACTION REQUESTED**

Review contact information and titles contained in the roster on the following pages.

**II. SUMMARY AND BACKGROUND**

Attached please find the most recent HLWI Advisory Council Committee Roster. Please review your contact information for accuracy. Forward all corrections to Michele Coughlin at [mcoughlin@calhospital.org](mailto:mcoughlin@calhospital.org).

**III. NEW MEMBERS**

Please welcome our new members to the HLWI:

**JOHN P. FERGUSON**  
*System Director, Laboratory and  
Diagnostic Imaging*  
Adventist Health

**ROWENA VITO, CLS (ASCP), MHA**  
*Point of Care Testing/ Education  
Coordinator*  
Santa Clara Valley Medical Center

**ERICA PADILLA**  
*Clinical Laboratory Educator*  
Sutter Health Sacramento-Sierra Region

**SHOHREH ERSHADI, PhD**  
*LFS Section Chief*  
Personnel Licensing Section, California  
Department of Public Health

**DANIELLE POLLARD**  
*Workforce Planning & Development  
Consultant*  
Kaiser Permanente

**ANH TA, CLS, MLS (ASCP)**  
*Point of Care Testing/ Education  
Coordinator*  
Santa Clara Valley Medical Center

## HLWI ADVISORY GROUP ROSTER

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### MEMBERS

**SHARON ARASE**

*Education Coordinator*  
Dignity Health Sacramento  
Office: 916-423-6171  
[sharon.arase@dignityhealth.org](mailto:sharon.arase@dignityhealth.org)

**DONATO “DANNY” ARIMBOANGA**

*Administrative Director, Laboratory Director*  
John Muir Health  
Office: 925-941-4005  
[donato.arimboanga@johnmuirhealth.com](mailto:donato.arimboanga@johnmuirhealth.com)

**MARK A. ARNESON**

*Director, Laboratory Services*  
Saint Agnes Medical Center  
Office: 559-450-3818  
[mark.arneson@samc.com](mailto:mark.arneson@samc.com)

**JOHN P. FERGUSON**

*System Director, Laboratory and Diagnostic Imaging*  
Adventist Health  
[John.Ferguson2@ah.org](mailto:John.Ferguson2@ah.org)

**TIM HAMILL, MD (CO-CHAIR)**

*Professor emeritus, UCSF*  
Department of Laboratory Medicine  
UCSF Medical Center (Retired)  
Cell: 925-330-3724  
[timhamill@me.com](mailto:timhamill@me.com)

**LYNETTE HANSEN**

*Program Director, Clinical Laboratory Scientist Training Program*  
Cottage Hospital of Santa Barbara  
Office: 805-879-8184  
[lhansen@sbch.org](mailto:lhansen@sbch.org)

**CAROLA HOWE**

*Education Coordinator, Kaiser Regional Laboratories*  
Kaiser Permanente  
Office: 510-559-4923  
[carola.howe@kp.org](mailto:carola.howe@kp.org)

**HEATHER KENWARD**

*Workforce Development*  
John Muir Health  
Office: 925-674-2348  
[heather.kenward@johnmuirhealth.com](mailto:heather.kenward@johnmuirhealth.com)

**PEGGY KOLLARS**

*Senior Specialist, Lab Education*  
Sharp Healthcare  
Office: 619-295-0821  
[peggy.kollars@sharp.com](mailto:peggy.kollars@sharp.com)

**AMY LUONG, MHA, CLS, MT (ASCP) CM**

*Program Manager*  
Pacific Diagnostic Laboratories,  
Serving Cottage Health  
454 S. Patterson Avenue  
Santa Barbara, CA 93111  
Phone: 805-879-8103  
[aluong@sbch.org](mailto:aluong@sbch.org)

**ELISABETH MAILHOT, MD**

*Director of Pathology and Laboratory Medicine*  
Santa Clara Valley Medical Center  
Office: 408-885-6551  
[elisabeth.mailhot@hhs.sccgov.org](mailto:elisabeth.mailhot@hhs.sccgov.org)

**SONIA MALJIAN**

*Laboratory Director*  
Methodist Hospital  
Office: 626-574-3493  
[sonia.maljian@methodisthospital.org](mailto:sonia.maljian@methodisthospital.org)

**CINDY MARTIN**

*Chief CLS, Director of the Clinical Laboratory*  
Henry Mayo Newhall Hospital  
Office: 661-200-1294  
[martincm@henrymayo.com](mailto:martincm@henrymayo.com)

**CHERYL MORRIS**

*Laboratory Manager*  
Plumas District Hospital  
Office: 530-283-2121  
[cmorris@pdh.org](mailto:cmorris@pdh.org)

**VALERIE NG**

*Department of Laboratory Medicine &  
Pathology and Laboratory Director  
Director, Transfusion Service  
Highland Hospital  
Office: 510-437-5045  
[vang@alamedahealthsystem.org](mailto:vang@alamedahealthsystem.org)*

**CHRIS NICHOLSON**

*Sr. Director, Laboratory/Pathology Services  
Scripps Health  
Office: 858-554-9631  
[nicholson.chris@scrippshealth.org](mailto:nicholson.chris@scrippshealth.org)*

**EMMETT O'CONNELL**

*Laboratory Director  
Mendocino Coast District Hospital  
Office: 707-961-1234  
[eoconnell@mcdh.net](mailto:eoconnell@mcdh.net)*

**ERICA PADILLA**

*Clinical Laboratory Educator  
Sutter Health Sacramento-Sierra Region  
Office: 916-733-4609  
[padillen@sutterhealth.org](mailto:padillen@sutterhealth.org)*

**DANIELLE POLLARD**

*Workforce Planning & Development Consultant  
Kaiser Permanente  
[Danielle.A.Pollard@kp.org](mailto:Danielle.A.Pollard@kp.org)*

**JENNIFER SCHIFFGENS**

*Vice President, Operations  
Sutter Shared Laboratory  
Sutter Health  
Office: 415-600-3730  
[schiffj@sutterhealth.org](mailto:schiffj@sutterhealth.org)*

**LINDA STRICKLIN**

*Manager, Laboratory Services  
Memorial Care  
Office: 929-452-3047  
[lstricklin@memorialcare.org](mailto:lstricklin@memorialcare.org)*

**ANH TA, CLS, MLS (ASCP)**

*Point of Care Testing/Education Coordinator  
Santa Clara Valley Medical Center  
Office: 408-885-6322  
[anh.ta@hhs.sccgov.org](mailto:anh.ta@hhs.sccgov.org)*

**KARLA THEIS**

*Laboratory Director  
Lodi Memorial Hospital  
[ktheis@lodihealth.org](mailto:ktheis@lodihealth.org)*

**ROWENA VITO, CLS (ASCP), MHA**

*Point of Care Testing/ Education Coordinator  
Santa Clara Valley Medical Center  
Office: 408-885-6312  
[rowena.vito@hhs.sccgov.org](mailto:rowena.vito@hhs.sccgov.org)*

**SHARON WAHL, M.ED., CLS**

*Partners in Education Program Director  
UC Davis Health System  
Office: 916-.734-0231  
[skwahl@ucdavis.edu](mailto:skwahl@ucdavis.edu)*

**CINDY WONG**

*Education  
Dignity Health (retired)  
Office: 209-601-4487  
[c478wong@gmail.com](mailto:c478wong@gmail.com)*

**INVITED GUESTS:****LINDA BENO**

*Regional Sales Manager  
Beckman Coulter, Inc.  
[ljbno@beckman.com](mailto:ljbno@beckman.com)*

**PATRICIA BUCHNER**

*MLT Program Director  
DeAnza College  
Office: 408-864-8790  
[buchnerpatricia@fhda.edu](mailto:buchnerpatricia@fhda.edu)*

**LAURIE BYRNE**

*Manager, Sample Collection Services  
BD Biosciences  
Office: 408-954-6069  
[laurie\\_byrne@bd.com](mailto:laurie_byrne@bd.com)*

**SHOHREH ERSHADI, PHD**

*LFS Section Chief  
Personnel Licensing Section, California  
Department of Public Health  
[shohreh.Ershadi@cdph.ca.gov](mailto:shohreh.Ershadi@cdph.ca.gov)*

**SUE FOLTZ (CO-CHAIR)**

Abbot Diagnostics (retired)  
Office: 408-724-1963  
[suefoltz@yahoo.com](mailto:suefoltz@yahoo.com)

**DORA GOTO**

*Immediate Past President*  
California Association for Medical Laboratory  
Technology  
Office: 510-792-4441  
[dora@camlt.org](mailto:dora@camlt.org)

**SUSAN KAZARIAN**

*Director, Clinical Laboratory Science Program*  
San Francisco State University  
Office: 415-338-1601  
[kazarian@sfsu.edu](mailto:kazarian@sfsu.edu)

**DEBRA LIAL**

Beckman Coulter, Inc.  
Office: 916-847-1366  
[dmlial@beckman.com](mailto:dmlial@beckman.com)

**JASON PEDRO**

*Medical Laboratory Technician Program  
Director*  
Folsom Lake College  
[pedroj@flc.losrios.edu](mailto:pedroj@flc.losrios.edu)

**ROBERT THOMAS**

*Chief, Laboratory Services*  
Laboratory Field Services, California  
Department of Public Health  
Office: 510-620-3824  
[robert.thomas@cdph.ca.gov](mailto:robert.thomas@cdph.ca.gov)

**CHA STAFF:****ALYSSA KEEFE**

*Vice President, Federal Regulatory Affairs*  
California Hospital Association  
Office: 202-488-4688  
[akeefe@calhospital.org](mailto:akeefe@calhospital.org)

**CATHY MARTIN**

*Vice President, Workforce Policy*  
California Hospital Association  
Office: 916-552-7511  
[camartin@calhospital.org](mailto:camartin@calhospital.org)

**DAVID PERROTT**

*Sr. Vice President & Chief Medical Officer*  
California Hospital Association  
Office: 916-552-7574  
[dperrott@calhospital.org](mailto:dperrott@calhospital.org)

**MICHELE COUGHLIN**

*Administrative Assistant*  
California Hospital Association  
Office: 916-552-7672  
[mcoughlin@calhospital.org](mailto:mcoughlin@calhospital.org)

**REGIONAL ASSOCIATION  
REPRESENTATIVES:****CHRISTIANE BECKER**

*Workforce Development Program Manager*  
Hospital Association of Southern California  
Office: 213-538-0722  
[cbecker@hasc.org](mailto:cbecker@hasc.org)

**TERI HOLLINGSWORTH**

*Vice President*  
Human Resources  
Hospital Association of Southern California  
Office: 213-538-0763  
[thollingsworth@hasc.org](mailto:thollingsworth@hasc.org)

**REBECCA ROZEN**

*Regional Vice President*  
Hospital Council of Northern and Central  
California  
Office: 925-746-1550  
[rrozen@hospitalcouncil.net](mailto:rrozen@hospitalcouncil.net)

**JUDITH YATES**

*Senior Vice President/COO*  
Hospital Association of San Diego and Imperial  
Counties  
Office: 858-614-1557  
[jyates@hasdic.org](mailto:jyates@hasdic.org)



March 23, 2017

TO: HLWI Advisory Group  
FROM: Cathy Martin, Vice President, Workforce Policy  
SUBJECT: Draft November 16 Meeting Minutes

**I. ACTION REQUESTED**

Review and approve the minutes of the November 16 meeting of the HLWI Advisory Group held in Sacramento.



**HLWI Advisory Group Meeting**  
*Wednesday, November 16, 2016*  
**10:00 – 2:00 pm**

**Draft Minutes**

**Participants:** Danny Arimboaga, Patricia Buchner, Sue Foltz, Dora Goto, Tim Hamill, Carola Howe, Peggy Kollars, Amy Luong, Valerie Ng, Diana Malecki, Chris Nicholson, Jason Pedro, Anh Ta, Karla Theis, Rowena Vito, Sharon Wahl, Mary Wogec, Cindy Wong

**Guests:** Kristine Himmerick

**CHA Staff:** Alyssa Keefe, Cathy Martin

**Regional Association Staff:** Rebecca Rozen, Judith Yates

**Welcome and Introductions**

Sue Foltz welcomed participants to the call and the meeting began at 10:04 a.m. Sue welcomed new members Sharon Wahl, Anh Ta, and Rowena Vito. The chairs thanked Diana Malecki for her seven years of service to HLWI as this is her last meeting before retiring from Santa Clara Valley Medical Center. Individual member introductions followed.

**Approval of Minutes from September 1, 2016 Meeting**

Sue Foltz requested that participants bring forth any changes to the meeting minutes from the September 1 meeting. No changes were requested.

- It was moved, and seconded and the minutes from the September 1, 2016 meeting were approved.

**Landscape Update**

Co-chairs called upon the meeting participants to bring forward any emerging issues or trends for discussion.

Carola Howe shared that KP is anticipating a large number of lab administrator retirements. Members echoed this trend in their organizations.

Judith Yates reported on the HR committee meeting held November 15 during which members from throughout the state expressed concerns about the increasing retirements in all professions.



Patricia Buchner stated that applicant interest in the MLT program is high, but expansion of the program is dependent on clinical slot expansion. The group had a robust discussion about clinical slot expansion and agreed to talk in more depth about this during the work plan discussion.

Karla Theis made note that their outpatient volume is decreasing and the inpatient population is sicker and more complex. These dynamics have an impact on revenues and make it difficult to justify investments in training.

Jason Pedro initiated a discussion on the persistence of a lack of microbiology rotations. The discussion included dialogue on the impact created by this issue and how they put programs at risk. The group discussion included a conversation on the 160 hours of micro requirement. The group discussed the possibility of using simulation to satisfy more of that requirement than is allowable by California law today, either by changing legislation or regulations. Current national accreditation standards are more flexible on simulation. The group agreed to explore this further.

Sharon Wahl, newest member to the group, reported that UC Davis' CLS training program is also over-subscribed. They have many more applicants than they can accept. In addition, because of the burdens of training, it's not always easy to get affiliates for training.

Valerie Ng reported on CLS vacancies, noting that many have gone unfilled for over a year and a half. Many retirements are also expected. There is also concern over lag time when offers are made. CLS shortage is now a crisis.

Amy Luong addressed the group regarding retention. This has become a challenge for Cottage Health. Sharon Wahl stated that UC Davis does have a written agreement with students that they use and she is willing to share with others. While likely not enforceable, the agreement does ensure that students understand the expectations given the investment that the hospital is making in their training. Dr. Hamill also suggested that treating the stipend as a loan can be effective.

In Bob Thomas' absence, Mary Wogec provided an update from Lab Field Services. She reported that Bob is no longer interim, and is now the Chief of the Lab Field Services division. In addition, Dr. Amad has retired. LFS continues to recruit for other vacant positions.

Mary also stated that the 2003 CLIA Crosswalk is complete which lists all state provisions that are consistent or more stringent than CLIA.

Regarding the personnel draft regulations, these are a top priority for LFS. The department is exploring breaking up the regulation package into smaller chunks and releasing in sections.

Last, Mary expressed to the group that they should contact Bob Thomas about the state's limited allowance of simulation in micro and the inconsistency with NACLS accreditation while the personnel regulations are still being drafted.

### **MLT Study Update**

Members discussed the final MLT scope of practice study. The main concern centered on California data relative to the number of licensed MLTs in the state. Because the research uses BLS statistics, the number in the report is grossly overstated. Dr. Hamill reported that LFS recently informed him that California has 640 licensed MLTs, not the very large number stated in the report, which includes other laboratory personnel, such as those who are not licensed.

Dr. Hamill and Sue Foltz agreed to contact four other states for their MLT licensure data so that the report will reflect at least 5 states' data in a way that is more meaningful than the BLS data.

Kris Himmerick agreed to include the state-based data in the report when it is collected.

### **Medical Lab Assistant Certification**

Peggy Kollars asked the group for their thoughts on the value of a Medical Lab Assistant Certification and if this designation would be viewed as something employers would consider as warranting an increase in pay. All members agreed that they did not see this as a certification worthy of an increase in pay and that they have alternative ways of meeting their skills need in the lab assistant area.

### **CSU Stanislaus CLS Program Development**

Cindy Wong provided an update on the CLS program development efforts underway in Turlock. She reported that according to recent conversations with the dean of sciences, CSU Stanislaus is still moving ahead and wants to start a program. The effort is taking longer than expected due to the rigors of starting such a program, finding program directors, etc. but that the university is still interested and engaged in the effort. In addition, Cindy emphasized the importance of the program securing clinical placements for students early to ensure success.

### **FDA Blood Glucose Monitor Point-of-Care Testing: FDA Guidance to Manufacturers**

Dr. Hamill reported on the recently released FDA guidance on point-of-care blood glucose monitors reminding the group that the guidance is aimed at manufacturers. While the most recent guidance is an improvement to the draft guidance in some ways, such as in the use of the term "critically ill", there are still concerns because the FDA was too vague relative to patients that are septic or that have other complex conditions. There is also some concern/confusion in the language pertaining to precision accuracy percentages. Last, most problematic is the decontamination language referencing cleaning products in which a vendor must do a study and recommend specific wipes for certain devices. This is an issue because the use of a wipe not recommended on the label would be presumed "off-label" which would trigger a high-complexity classification of the test. There is concern about how to prevent this at the practice level among clinical care staff and how it will be enforced.

Alyssa Keefe reminded the group that CHA is monitoring this guidance and its implementation closely in concert with AHA.

### **2017 Work Plan**

The group had a robust discussion about the work plan for 2017. The discussion primarily focused on Goal #4, which is to partner with CAMLT, CLMA and others to create a campaign that communicates the value of investing in clinical training for CLS and MLT. Ideas for advancing this internal advocacy include the creation of a one-page educational document that speaks to the pain points of teaching, time, money and expertise. The document would address each area and make recommendations for easing the burden in these areas. The document would also debunk myths about the clinical laboratory, myths such as technology will be pervasive so we will not need as many laboratorians.

Also, under Goal #3, external advocacy, the issue of micro rotations and the need for simulation will be called out more specifically.

- The 2017 HLWI work plan was approved with the aforementioned enhancements.

### **Other Business**

Cathy Martin called attention to the proposed 2017 meeting dates. It was suggested that instead of long gap between the two in-person meetings, (March and November) the fall in-person meeting should be held in September to narrow the gap between face-to-face interaction.

- The group agreed to make the September 13, 2017 meeting an in-person meeting from 10:00 am – 2:00 pm, and the November 8, 2017 meeting a conference call from 10:00 – 11:30 am.
- Other business also included the request for HLWI “schwag”. Buttons or such with the HLWI logo. Staff will explore.

### **Adjourn**

The meeting adjourned at 2:00 pm.



March 23, 2017

TO: HLWI Advisory Group  
FROM: Cathy Martin, Vice President, Workforce Policy  
SUBJECT: CSU Stanislaus Update

**I. ACTION REQUESTED**

Introduction to the new Dean of the College of Sciences for California State University, Stanislaus. Provide feedback and answer questions regarding the possibility of a new CLS training program at the campus.

# University Extended Education Special Session Program Offerings

California State University, Stanislaus

## Clinical Laboratory Science (CLS) Training Program

(Degree Title)

Special Session Program Offerings requests are to be submitted to the Office of Academic Programs only after approval by the department chair, the college dean, and University Extended Education dean. The format for submission of Special Session program offerings is specified to ensure clear communication and accurate record keeping. Please submit information in accordance with the format found in the attachments.

1. Specify the Special Session Program Offering information on this form.
2. Complete Attachment A – Delivery Inventory.
3. Complete Attachment B – Course Sequence and Offerings.
4. Complete Attachment C – Cost-Recovery Budget (only if NEW self-support program)

College: College of Science Planned Start Date: 8/15/2017

Department: Biological Sciences Planned End Date: August 14, 2018

**CHECK AND COMPLETE ALL THAT APPLY:**

**A. Type of program**

1. Choose one of the following:
  - Undergraduate program
  - Graduate program
  - Academic Certificate program
2. Provide the total number of months to complete the program: 12.
3. Choose one of the following (*not applicable for certificate programs*):
  - Planned offering as a full degree program (submit degree requirements – catalog copy)
  - Planned offering as a degree-completion program (submit degree requirements – catalog copy)
4. Check if applies:
  - Planned offering will be a cohort-based program

**B. Location of Planned Offering.** Choose all that apply.

- Ceres Unified School District *2503 Lawrence Street; Ceres, CA 95307*
- Kaiser Oakland *3505 Broadway; Oakland, CA 94611*
- Lodi Unified School District *1305 East Vine Street, Lodi, CA 95240*
- Los Banos *200 N. Ward Road; Los Banos, CA 93635*
- Merced Union High School District *632 West 13th Street; Merced, CA 95341*
- Merced County of Education *3105 G Street; Merced, CA 95340-2806*
- Moss Landing Marine Laboratory *8272 Moss Landing Road; Moss Landing, CA 95039*
- Stanislaus Alliance Training Room *1020 10th Street Place, Suite 102, Modesto, CA 95350*
- Stockton Center campus *625 East Magnolia, Stockton, CA 95202*
- Tracy Transit Center *50 East Sixth Street, Tracy, CA 95376*
- Turlock campus *One University Circle, Turlock, CA 95382*
- Off campus location *other than* the approved locations listed above

Provide the off campus physical street address:

**C. Delivery of Program**

Planned offering will follow a varies-week schedule (*a minimum of 7-weeks is required*).

- Planned offering will be via distance education (internet; one-way or two way transmissions through open broadcast, closed circuit, cable, microwave, broadline fibers, fiber optics, satellite, or wireless communication; audio conferencing; audio cassettes, DVDs, and CD-ROMs, if they are used in a course in conjunction with any of the technologies listed prior.)

**D. Specialized Accreditation review of program:**

- Planned offering requires disciplinary/professional accreditation review by Specialized Accrediting Agency: LFS, NAACLS

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**PLEASE COMPLETE DEGREE REQUIREMENTS BASED ON THE CURRENT CATALOG COPY.**

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List any prerequisites (foundation courses) to the degree and number of units

1. BS/BA degree from an accredited university or college in Clinical Science, Biology, Microbiology or equivalent with a minimum of overall GPA of 3.0 and GPA of 3.0 in all core prerequisite courses. Course work must meet requirements of the California Department of Health Services, American Society of Clinical Pathologists, the National Certification Agency for Medical Laboratory Personnel, and the National Accrediting Agency for Clinical Laboratory Sciences.
2. Core courses (analytical chemistry, biochemistry, hematology, immunology and medical microbiology) must be completed within the last five years at the time of application.
3. Minimum coursework requirements are listed as follows:
  - i. Chemistry: 16 semester hours or equivalent quarter hours that must include general chemistry, quantitative analysis (analytic chemistry), organic chemistry, and biochemistry.
  - ii. Biological Sciences: 18 semester hours or equivalent quarter hours that must include medical microbiology, immunology, and hematology. Parasitology is recommended.
  - iii. Physics: Three semester hours or equivalent quarter hours, including principles of light and electricity. Electronics, instrumentation, and computer science are recommended.
  - iv. Mathematics: College algebra or higher. Calculus and statistics are recommended.

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List any upper division GE requirements and number of units (*not required for graduate programs*)

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List the courses required for the DEGREE and number of units

- CLS 5100 Clinical Microbiology (3)**
- CLS 5200 Clinical Chemistry (3)**
- CLS 5300 Clinical Hematology (3)**
- CLS 5400 Clinical Immunology and Serology (3)**
- CLS 5500 Urinalysis and Other Bodily Fluids (3)**
- CLS 5600 Serology, Blood Banking and Transfusion (3)**
- CLS 5700 Laboratory Operations (2)**
- CLS 5800 Clinical practical rotation (18 units)**
- Microbiology: Bacteriology (10 weeks) + Parasitology (3 weeks)**
- Chemistry (12 weeks)**
- Hematology (8 weeks)**
- Immunology and Serology (4 weeks)**
- Urinalysis and other body fluid analysis (4 weeks)**
- Pre-transfusion (Blood banking) (6 weeks)**
- Test Review (5 weeks)**

The Special Session Program must meet each of the following criteria.  
**Please provide a brief explanation for each criteria.**

1. State General Funds are *either*  
 Not available

Not appropriate

2. The proposed offering does not supplant nor limit your department's state-supported offerings.  
No

3. The proposed special session program is different from the regular state-supported program by *at least one* of the following factors:

The proposed program is designed primarily for career enrichment or retraining

The proposed program is significantly removed from campus or offered through a distinct technology

Students will receive services at a cost beyond what could be reasonably provided under state support

Other rationale comments for need of new support mode:

4. The proposed program serves a substantive educational objective supportive of a degree, credential, or certificate program (e.g., it would help students accelerate achievement toward an objective, etc.).

The CLS Training Program will be a 52 week long program that will prepare students to successfully complete the State CLS license examination and subsequently work as Clinical Laboratory Scientists.

5. Students in the special session degree program, educational certificate program, or credential program are matriculated (non-matriculated students may enroll in special session courses only on space-available).  
Yes, a cohort of students will be matriculated to the programs.

6. The appropriate educational support services (e.g., advising, library, financial aid) are available to faculty and students as part of the proposed offering.

Yes, appropriate educational support and financial aid are available to students.

7. The offering is in accordance with all appropriate academic policies and procedures of the campus, CSU system, WASC accreditation, and disciplinary accrediting bodies.  
LFS abd NAACLS

8. Please list the anticipated student enrollment for the proposed offering.

We anticipate students who will enroll in the program will have completed a BA or BS degree and these prerequisite courses are required or recommended:

Required: Quantitative analysis, biochemistry, medical microbiology, immunology and hematology

Recommended: parasitology

It is anticipated that 24-36 students per year will matriculate through the program. A cohort of 12 students will be accepted in the Fall and 12-18 students will be accepted in the Spring.

**To be completed by Offices of Academic Programs and Accreditation:**

Degree units offered through UEE:

Total units in the DEGREE	<u>38</u>
Total units and percent offered via Distance Education <i>(add together ITV and Online percentages)</i>	_____
Total units and percent offered via Off Campus	_____
Total units and percent offered via On Campus	_____

- Planned offering requires WASC Substantive Change (50 percent or more of the degree program hours are offered via distance education or off-campus).  
*Note: For undergraduate programs, the 50-percent rule applies only to the program hours in the major, not the total hours it takes to graduate.*
- Reviewed by Accreditation Specialist \_\_\_\_\_ (initials)
- Reviewed by Curriculum Specialist \_\_\_\_\_ (initials)

**To be completed by the Office of Financial Aid**

- Planned offering does not interfere with financial aid distribution
- Reviewed by Director of Financial Aid \_\_\_\_\_ (initials)

**Approvals:**

Department Chair	Date
College Dean	Date
University Extended Education Dean	Date
Associate Vice President for Academic Planning & Analysis	Date

Copy Distribution:

Registrar's Office  
 Financial Aid  
 International Education  
 University Extended Education  
 AVPAPA

1/5/11:sc  
 3/23/16:ss



### **1. Title of certificate**

Clinical Laboratory Science (CLS) Certificate

### **2. Individual(s) and academic unit(s) making the request**

Mark Grobner, Interim Dean, College of Science  
Stuart Wooley, Chair, Biological Sciences

### **3. Purpose of the certificate**

The post-baccalaureate CLS Training Program will prepare the CLS trainee to successfully pass the state licensing and certification examinations and be eligible to work in California as Clinical Laboratory Scientists. The program will be a 52 week program that combines didactic coursework and onsite practical clinical training at regional participating affiliate laboratories.

### **4. Learning objectives/outcomes**

The program's objectives are to train individuals who:

- are professionally competent,
- possess a commitment to life-long learning,
- exhibit a sense of commitment to the ethical and humane aspects of patient care,
- appreciate the need for research to develop knowledge of health, disease, healthcare management and education, and
- recognize the role of the clinical laboratory scientist in the assurance of quality health care.

Upon graduation from the program, students will be able to demonstrate:

1. competency to perform a full range of testing in the contemporary medical laboratory encompassing pre-analytical, analytical, and post-analytical components of laboratory services, including hematology, chemistry, microbiology, urinalysis, body fluids, molecular diagnostics, phlebotomy, and immunohematology,
2. proficiency to problem-solve, troubleshoot, interpret results, and use statistical approaches when evaluating data,
3. professional conduct, respecting the feelings and needs of others, protecting the confidence of patient information, and not allowing personal concerns and biases to interfere with the welfare of patients,
4. administrative skills consistent with philosophies of quality assurance, continuous quality improvement, laboratory education, fiscal resource management, and appropriate composure under stressful conditions,
5. application of safety and governmental regulations and standards as applied to medical laboratory practice, and
6. effective communication skills to ensure accurate and appropriate information transfer.

## **5. Justification for the certificate**

There is a great need for Clinical Laboratory Scientists (CLS). According to the U.S. Bureau of Labor Statistics, employment for CLS has a projected job growth much faster than average. Clinical Laboratory Scientists are an integral part of the health care system. CLS conducts a wide variety of diagnostic assessments, from simple blood tests to genetic testing, to assist physician determine treatment plan. Therefore, workforce shortage in the clinical laboratories can cause delays in diagnosis and increase patient's length of stay with higher cost. According to the most recent report from the California Hospital Association (2014), 40% of the CLS workforce in hospitals in California is over the age of 55. Currently, vacancy rate for CLS is 3.6%, and retirement eligibility figures indicate that there will be a significant number of vacancies in CLS positions if a majority of those eligible actually retire. In particular, the percentage of CLSs who are 56 years of age or older equates to more than 12,200 CLS positions. However, there are only limited number of CLS training programs in California, many of which are hospital-based and serve relatively few students. For example, these programs produced only 211 graduates in 2013. Since this shortage in CLS graduates can adversely impact hospital efficiencies and access to care, it is urgent to train more CLSs through developing a CLS program at CSU Stanislaus.

## **6. Assurance the program does not duplicate an existing degree program (major or minor)**

The CLS program does not duplicate any existing degree program. Currently, the only courses that are taught at the university are the prerequisite courses to the program. This is a post-baccalaureate and student will not be admitted without first successfully earning their BA/BS.

## **7. Expected number of participants**

It is anticipated that 24-36 students per year will matriculate through the program. A cohort of 12-18 students will be accepted in the Fall and 12 students will be accepted in the Spring.

## **8. Admission criteria and procedures**

### **Admission requirements**

1. Completed Application Form
2. BS/BA degree from an accredited university or college in Clinical Science, Biology, Microbiology or equivalent with a minimum of overall GPA of 3.0 and GPA of 3.0 in all core prerequisite courses. Course work must meet requirements of the California Department of Health Services, American Society of Clinical Pathologists, the National Certification Agency for Medical Laboratory Personnel, and the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).
3. Minimum coursework requirements are listed as follows:
  - i. Chemistry: 16 semester hours or equivalent quarter hours that must include general chemistry, quantitative analysis (analytic chemistry), organic chemistry, and biochemistry.

- ii. Biological Sciences: 18 semester hours or equivalent quarter hours that must include medical microbiology, immunology, and hematology. Parasitology is recommended.
  - iii. Physics: Three semester hours or equivalent quarter hours, including principles of light and electricity. Electronics, instrumentation, and computer science are recommended.
  - iv. Mathematics: College algebra or higher. Calculus and statistics are recommended.
4. Core prerequisite courses (analytical chemistry, biochemistry, hematology, immunology and medical microbiology) must be completed within the last **five** years at the time of application.
  5. A minimum GPA of 3.0 on a 4.0-point scale. International students must have their transcripts evaluated by the AACRAO transcript evaluation service and their grades converted to a 4.0-point scale.
  6. Three letters of recommendation from upper division course instructors or work supervisions; at least two letters must be from instructors.
  7. Pending application to Laboratory Field Services for a state of California Clinical Laboratory Science Trainee License. Final acceptance for admission contingent upon receiving this license prior to time when training begins.
  8. Ability to communicate effectively in English.
  9. A signed statement of general health from the student's primary physician must be provided.
  10. Candidates must be U.S. citizens or permanent residents in the U.S. to be admitted to the program.
  11. For candidates with foreign degrees whose language of instruction was no English, a minimum 90 IBT, 230 CBT, or 575 PBT TOEFL score or minimum 450 score on the verbal section of the general GRE is required.

### **Application procedure**

1. Completed Standardized Application Form
2. A statement of interest in Clinical Laboratory Science.
3. Three letters of recommendation from science instructors and/or an employer.
4. Official transcripts of all college course work.
5. Candidates with foreign degrees must have their transcripts evaluated by the American Association of Collegiate Registrars and Admission Officers (AACRAO) and their grades must be converted to a 4-point scale.
6. A pre-admission background check and health clearance is required of all trainees by their primary healthcare provider. A Hepatitis B vaccination or proof of immunity, recent TB Test (PPD type) and immunization records are also required.

### **9. Time requirements, time restrictions, or other conditions (if any) for award of certificate**

A full year (52 weeks) to complete the program.

## 10. Resource needs for initiation and continuation (faculty, staff, library, technology, facilities, etc.)

Accreditation requires a director who is a Clinical Laboratory Scientist.

## 11. Courses and course descriptions (new and existing)

Lecture courses (20 units)	Practical training (minimum time required)
CLS 5100 Clinical Microbiology (3)	CLS 5800 Clinical practical rotation (18 units): Bacteriology (10 weeks) Parasitology (3 weeks) Chemistry (12 weeks) Hematology (8 weeks) Immunology and Serology (4 weeks) Urinalysis and other body fluid analysis (4 weeks) Pre-transfusion (blood banking) (6 weeks) Miscellaneous and review (5 weeks)
CLS 5200 Clinical Chemistry (3)	
CLS 5300 Clinical Hematology (3)	
CLS 5400 Clinical Immunology (3)	
CLS 5500 Urinalysis and Other Bodily Fluids (3)	
CLS 5600 Serology, Blood Banking and Transfusion (3)	
CLS 5700 Laboratory Operations (2)	
CLS 5800 Clinical practical rotation (18 units)	
<b>Total: 38 units</b>	<b>Total: 52 weeks</b>

All the courses described below require admission to CLS certificate program and possession of California State trainee license.

### CLS 5100 Clinical Microbiology (3)

The principles of diagnostic microbiology that apply to bacteria, fungi, parasites and viruses, including phenotypic and genotypic detection, identification and susceptibility testing using slide and culture evaluation. This course will also offer the student an introduction to the basic concepts of Molecular Biology and principles of Genetics, as well as a presentation of the methods, underlying concepts and applications of recombinant DNA technology. The student will be given the opportunity to familiarize themselves with many of the basic concepts of Molecular Biology such as DNA replication, transcription, translation, DNA damage and repair as well as mutagenesis and genetic exchange. Theory and application of nucleic acid extraction and molecular diagnostic tools, including polymerase chain reaction (PCR), reverse transcription, probe hybridization, fluorescence in situ hybridization (FISH) and microarray technology are also addressed.

### CLS 5200 Clinical Chemistry (3)

This course incorporates advanced theory, practical application and evaluation of clinical laboratory procedures. Correlation of clinical laboratory data with the diagnosis and treatment of toxicology disturbances and therapeutic drug monitoring is emphasized. The educational process includes application and correlation through lectures and self-assessments. The student will be given the opportunity to demonstrate: 1) an understanding of the interrelationship of human metabolic functions in both normal and disease states; 2) the correlation of chemistry laboratory test results to normal and abnormal human physiology; 3) basic spectrophotometry and its relationship to Beer's Law; 4) explanation of the principles of analytical procedures and pertinent

instrumentation involved in basic laboratory procedures; 5) skills in the performance of manual and automated procedures; and 6) quality control techniques in evaluating laboratory data.

### **CLS 5300 Clinical Hematology (3)**

Identification of blood cells, pathophysiology, hemostasis mechanisms, and disease states of hematological and hemostasis conditions will be discussed. Students will learn the theory and application of hematology procedures with emphasis on detection of abnormalities.

Interpretation of clinical cases will also be included.

### **CLS 5400 Clinical Immunology (3)**

The course covers the theoretical concepts and practices of immunology including the physiology of the immune system, immune responses, autoimmune diseases, immunology of viral and microbial diseases, and immunological techniques in the evaluation of specific methodologies as ELISA and immunofluorescence and to evaluate the results obtained when testing patient samples.

### **CLS 5500 Urinalysis and other body fluids (3)**

This course gives an overview of proper specimen collection, instrumentation, quality assurance, physical and chemical analysis of urine and body fluid samples including the physical, chemical, and microscopic properties in both normal and pathologic conditions.

### **CLS 5600 Serology, Blood banking and Transfusion (3)**

This course introduces the theory and practical application of pre-transfusion testing and evaluation of blood bank procedures required for transfusion of blood and blood components including blood group and Rh typing, antibody screening, antibody identification, cross matching, elution and absorption techniques. The course also covers technical performance and evaluation of procedures used in collecting, handling and processing blood specimens such as proper storage, thawing plasma or washing red blood cell units. Transfusion therapy practices, blood group system biochemistry, genetics, serology various quality assurance processes including daily quality control will be emphasized.

### **CLS 5700 Laboratory Operations (2)**

This course introduces the theory, practical application and evaluation of laboratory management principles in healthcare and laboratory information systems, research, educational methodology, quality control and assessment, ethics, laboratory operations and instrumentation and scope of practice. Opportunities for building critical thinking, problem solving, teamwork, communication, professionalism, research, and management and leadership skills are provided.

### **CLS 5800 Clinical practical rotation (18 units)**

**a. Bacteriology (10 weeks) and Parasitology (3 weeks):** This course includes the introduction of the theory, practical application, technical performance and evaluation of procedures for isolation, identification and susceptibility testing of infectious disease organisms in humans. This course includes bacteriology, mycology, parasitology, virology and serology, and emphasizes the

correlation of clinical laboratory data with the patient's diagnosis and treatment. Students will perform a number of clinically relevant procedures including isolation of human chromosomal DNA and analysis of DNA, utilizing techniques such as nucleic acid transfer, hybridization, PCR analysis, and DNA fingerprinting. Critical thinking skills are developed in the critical analysis of published articles and interpretation of complex test results with final written assessment at the completion of the clinical rotation.

**b. Chemistry (12 weeks):** This course includes the introduction to the theory, practical application, technical performance and evaluation of clinical chemistry laboratory procedures. Correlation of clinical laboratory data with the diagnosis and treatment of carbohydrate, renal, liver, lipid, protein, enzymes, electrolytes, nitrogen metabolites, inborn errors of metabolism, pancreatic and endocrine disorders is emphasized.

**c. Hematology (8 weeks):** This course integrates theory and application of hematology and hemostasis diagnostic procedures, interpretation, problem solving, and correlation of laboratory findings with disease states. Topics include hematopoiesis, cell morphology, anemia, leukocytes, thrombocytes, myeloproliferative disorders, body fluids, and blood parasites. An overview of hemostasis provides studies in coagulation, bleeding abnormalities, clotting abnormalities, and platelet disorders. Students perform specimen collection and handling, macroscopic and microscopic evaluation of blood and other biological fluids. Students will utilize routine quality assurance guides to identify abnormal hematologic results and correlate these with potential causes or sources of error.

**d. Immunology and Serology (4 weeks):** The student will be given the opportunity to demonstrate: 1) application of the theoretical concepts of immunological techniques to the evaluation of specific methodologies; 2) application of the theoretical concepts of immunological techniques to evaluate the results obtained when testing patient samples and determine whether these results can be safely reported; 3) use of the theoretical concepts of immunological techniques to determine what steps need to be taken in resolving technical problems with a test; 4) determine what the presence of a specific antigen or antibody indicates about the patient's current status related to a specific disease; 5) apply knowledge of the antigen and antibody characteristics of blood group systems in procedures to detect and identify them; 6) utilize the principles of donor selection, compatibility testing, and component preparation to select appropriate donors, determine donor/recipient compatibility, and appropriately prepare and handle components; and 7) perform immune-hematological techniques and determine whether the results can be reported.

**e. Urinalysis and other body fluid analysis (4 weeks):** The student will be given the opportunity to demonstrate: 1) knowledge of the physiological conditions under which normal and abnormal urine components are formed; and 2) the physical, chemical, and microscopic properties of urine and body fluids in both normal and pathologic conditions.

**f. Pre-transfusion (blood banking) (6 weeks):** This course includes the introduction of the theory, practical application, technical performance and evaluation of blood bank procedures required for transfusion of blood and blood components. The student will perform patient

specimen processing and pre-transfusion testing including blood ABO and Rh typing, antibody screening and antibody identification. The student will learn to select compatible blood types for each blood component and perform necessary pre-transfusion compatibility testing for red blood cell transfusion. The course will include proper component storage, and modifications of components such as thawing plasma or washing red blood cell units. Transfusion therapy practices, blood group system biochemistry, genetics, and serology are stressed. Also emphasized are various quality assurance processes including daily quality control, including reagent quality control, refrigerator/freezer/heat block temperature monitoring, and error reporting as well as the investigation of suspected transfusion reactions.

**g. Miscellaneous and review (5 weeks):** other topics and review for state exam.

March 23, 2017

TO: HLWI Advisory Group

FROM: Cathy Martin, Vice President, Workforce Policy

SUBJECT: Legislative Update – Laboratory Workforce and Education Bills

**I. ACTION REQUESTED**

- Provide feedback on bill positions.

**II. SUMMARY AND BACKGROUND**

A list of priority laboratory workforce and education bills being tracked by CHA can be found on the following pages



## Legislative Update: Laboratory Related Bills of Interest 2017

<p>AB 387 (Thurmond)</p>	<p>This bill would expand the definition of “employer” for purposes of these provisions to include a person who directly or indirectly, or through an agent or any other person, employs or exercises control over the wages, hours, or working conditions of a person engaged in a period of supervised work experience to satisfy requirements for licensure, registration, or certification as an allied health professional, as defined. <b>CHA Position: Oppose</b></p>	<p>02/09/17: Introduced</p> <p>03/29/17: Set for hearing in Assm. Labor</p>
<p>AB 613 (Nazarian)</p>	<p>It is the intent of the Legislature to enact legislation that recognizes 21st century technological advances in medical devices that are a direct outgrowth of high-technology research, development, and production capabilities in California and the United States. These advances have resulted in the creation of new, simple, one-button-operable versions of formerly complex, older equipment. It is the intent of the Legislature to enact legislation specifically relating to one such “one-button” advances in medical device technology to reflect the simplification of medical device operations by identifying the limited settings and circumstances in which closely supervised personnel, meeting federal CLIA-equivalent education and training standards, may use the device for non-diagnostic purposes. It is the intent of the Legislature to enact legislation to specify the qualifications of properly trained and supervised personnel and the limited circumstances in which those personnel may perform a total protein refractometer test using an automatic, button-operated total protein refractometer with a digital readout in a licensed plasma collection facility in this state. <b>CHA Position: Follow, Pending Review</b></p>	<p>02/14/17: Introduced</p>
<p>AB 658 (Walderon)</p>	<p>Existing law provides for the licensure and regulation of clinical laboratories and various clinical laboratory personnel by the State Department of Public Health. Under existing law, the department inspects clinical laboratories and assesses a fee for licensure of those facilities. This bill would temporarily suspend the annual renewal fee for clinical laboratory licenses until January 1, 2020. <b>CHA Position: Follow, Hot</b></p>	<p>02/14/17: Introduced</p> <p>03/02/17: Referred to Assm. Health</p> <p>03/21/17: Set for hearing</p>



March 23, 2017

TO: HLWI Advisory Group

FROM: Cathy Martin, Vice President, Workforce Policy

SUBJECT: The Imperative for Training in the Clinical Lab Document

**I. ACTION REQUESTED**

None. Discussion Item.

**II. BACKGROUND**

At the November 2016 meeting, the theme of the day was the need for hospital leadership to understand the importance of investing in training in the laboratory. It was suggested that the HLWI develop an internal advocacy paper that discusses what is at stake if training slots decrease and explains what is required to train (time, money, expertise) and how some hospitals are creatively addressing those requirements to save and/or expand their training programs. It was also suggested that this document address some of the myths about the laboratory, such as technology and innovation will reduce the need for human capital in the lab.

Since the November meeting, a bill that is very antagonistic to all allied health programs has been introduced in the legislature. If passed, this bill would severely hinder training in any allied health profession requiring clinical hours because it would require that hospitals pay minimum wage for clinical training hours that a student spends in an allied health training program.

Considering this new development, advocacy priorities have shifted from the internal audience (hospital leadership) to the external environment (the legislature). Therefore, timing on the internal advocacy document has slowed while we defend the current training model to the legislature. The internal advocacy document will still be developed on a parallel track, but it will be created at a slower pace than originally anticipated.

Today's discussion will allow for further refinement of some of the points and key messages that were brought up as critical for the document during the November meeting.

## **Health Laboratory Workforce Initiative Advisory Group**

### **2017 Meeting Dates**

**THURSDAY, MARCH 23, 2017**

**10:00 AM – 2:00 PM**

***IN PERSON MEETING***

California Hospital Association  
1215 K Street, 8th Floor Board Room  
Sacramento, CA 95814  
1-800-882-3610  
Passcode: 6506506#

**THURSDAY, MAY 18, 2017**

**10 am – 11 am**

***VIA CONFERENCE CALL***

1-800-882-3610

Passcode: 6506506#

**WEDNESDAY, SEPTEMBER 13, 2017**

**10 am – 2 pm**

***IN PERSON MEETING***

California Hospital Association  
1215 K Street, 8th Floor Board Room  
Sacramento, CA 95814  
1-800-882-3610  
Passcode: 6506506#

**WEDNESDAY, NOVEMBER 8, 2017**

**10 am – 11 am**

***VIA CONFERENCE CALL***

1-800-882-3610

Passcode: 6506506#