SCHOOL OF MEDICAL TECHNOLOGY
PROSPECTIVE STUDENT INFORMATION

The Profession:
Clinical Laboratory Scientists (Medical Laboratory Scientists) are qualified by academic and applied science education to provide service or research in the clinical laboratory and other areas of healthcare delivery systems. Clinical Laboratory Scientists are professionals that develop, perform, analyze, interpret, troubleshoot, evaluate and assure the accuracy and validity of laboratory information in all phases of testing (pre-analytical, analytical and post-analytical). They are also involved in regulatory compliance issues, education of fellow laboratorians and other healthcare professionals and quality assurance/performance improvement processes.

It is essential that the laboratory professional possess excellent written and verbal communication skills as well as working reliably, quickly and carefully under pressure. Ethical and moral attitudes and principles are necessary for gaining and maintaining the confidence and respect of patients, other healthcare professionals and the community.

The Medical Center:
Established in 1862, San Bernardino County Medical Center moved to a new location and became Arrowhead Regional Medical Center (ARMC) in 1999. ARMC is an acute care teaching hospital committed to the education and training of medical students, residents, nurses, nurse practitioners, certified nurse anesthetists, physician’s assistants, and radiology technicians as well as clinical laboratory scientists.

This 456 bed acute care facility provides a full range of services including primary and specialty care, trauma and emergency care, ancillary and home health services, behavioral health and a comprehensive women’s health program. The Regional Burn center is the only major burn center in a four county area.

The Program:
The School of Medical Technology of Arrowhead Regional Medical Center operates within the Clinical Laboratory. Since the program’s re-accreditation in 2007, our students have a pass rate of 100% on the ASCP MLS certification exam as well as a 100% graduation and placement rate. The laboratory performs approximately 2.6 million tests annually, providing students with a diverse experience during their training. The Laboratory is accredited by the College of American Pathologists and the California Department of Public Health. The Program is accredited by the California Department of Public Health, Lab Field Services and the National Accrediting Agency of Clinical Laboratory Sciences [(NAACLS), 5600 North River Road, Ste.720, Rosemont, IL, 60018-5119. Phone (772)-714-8880; www.naacls.org].
**Program Mission**
The mission of the School of Medical Technology is to provide an exceptional learning environment to our students such that they can perform with a high degree of accuracy, reliability and professionalism in delivering high quality compassionate healthcare to the community.

**Program Goals**
The goal of the School of Medical Technology is to produce medical laboratory science professionals who, with experience, can investigate, evaluate, trouble-shoot, execute and implement procedures utilizing a high degree of independent judgment and consult where appropriate with other members of the health care team.

**Program Objectives**
Upon graduation students should be able to demonstrate the following entry-level competencies:

1. Establish procedures for the collection and processing of biological specimens for analysis.
2. Display knowledge of testing procedures and methodologies including the theoretical basis, applications, and limitations of procedures in all areas of the laboratory.
3. Perform and evaluate analytical tests with proficiency and accuracy on body fluids, cells, and body products.
4. Correlate laboratory findings with the pathophysiology of the patient.
5. Evaluate data generated for possible discrepancies and confirm abnormal results.
6. Calculate and interpret test results from laboratory data including statistical analysis for quality assurance. Institute proper procedures to maintain accuracy and precision.
7. Investigate and evaluate common laboratory problems and identify suitable solutions related to equipment malfunctions, quality assurance, unacceptable patient specimens, laboratory safety and management in all areas of the laboratory.
8. Recommend new techniques, instruments, and procedures in terms of their usefulness and practicality within the context of the laboratory’s personnel, equipment, space and budgetary resources.
9. Exhibit professional conduct and interpersonal communications skills with patients, peers and other health care professionals.
10. Motivate support personnel and peers in their acquisition of knowledge, skills and attitudes and professional development.
11. Endeavor to expand professional competence through membership in professional organizations and participation in continuing education activities.
12. Commit to quality patient care and participate as a member of the health care team.
ADMISSION REQUIREMENTS

Academic requirements:

Applicants must satisfy the academic requirements of the State of California Department of Public Health, Lab Field Services, the National Accrediting Agency for Clinical Laboratory Science (NAACLS), and Arrowhead Regional Medical Center’s School of Medical Technology, denoted by (ARMC)

1. BACCALUREATE DEGREE from a United States accredited college/university (or evaluated foreign equivalent) which includes the following coursework:

   **Chemistry:** 16 semester (24 quarter) units. This must include biochemistry and clinical or analytical chemistry.

   **Biological Science:** 18 semester (27 quarter) units. This must include immunology, medical microbiology, hematology, genetics or molecular diagnostics (ARMC), and anatomy/physiology (ARMC)

   **Mathematics:** Statistics or Biostatistics is required (ARMC).

   **Physics:** 3 semester (5 quarter) units. This must include “instruction in” principles of light and electricity.

   The courses in chemistry and the biological sciences must be acceptable toward a major in those fields, or equivalent. Survey or remedial courses do not qualify as prerequisites.

   Recommended, but not required, courses include parasitology, medical mycology, virology, medical terminology, computer science and education/management courses.

   Academic requirements must be updated if the college degree was granted three or more years prior to submission of an application to this program. At least two of the required prerequisite courses in chemistry or biological science must be successfully completed within three years of applying to the program.

   Coursework must be completed by the December before the commencement of the program or your application will not be considered for that year.

   We consider applicants with a minimum grade point average (GPA) of 2.7 on the basis of $A = 4$.

2. CALIFORNIA CLINICAL LABORATORY TECHNOLOGIST TRAINEE’S LICENSE

This license is required prior to commencement of the program. The application for the trainee’s license must be completed online at [CDPH CLS Trainee License](#). The current fee will be listed on the website.
Official transcripts must be submitted from the academic institution directly to Laboratory Field Services. If the transcript does not contain the specific courses listed for the “instruction in”, the Chair of the Department may write an official letter verifying the course content. This letter must be submitted in addition to the transcript to satisfy the state requirements for licensure.

Laboratory Field Services - CLS Trainee Program  
850 Marina Bay Parkway, Bldg. P 1st Floor  
Richmond, CA 94804  
(510) 620-6403 or (510) 620-3800

Those students who have completed their education in a foreign country and will not be awarded a U.S. baccalaureate degree are required to submit a transcript evaluation verifying U.S. baccalaureate degree equivalency.

LFS will accept educational transcript evaluations completed by “Current Members” of the National Association of Credential Evaluation Services (NACES), and “Endorsed Members” of the Association of International Credential Evaluators, Inc. (AICE).

Evaluations AACRAO will be accepted only if completed before August 15, 2016. Please use the links below to view the “Current” and “Endorsed” members of NACES and AICE.

http://www.naces.org/members.html
http://aice-eval.org/members/

Students are encouraged to apply for a trainee license as early as possible. The trainee license must be obtained before the start of the program. It does not have to be obtained before application to the program.

**Essential Functions:**

Students must be able to achieve the observational, physical, communication, intellectual and behavioral function listed below in such a way that they will not endanger themselves, other students, laboratory and hospital employees or patients.

**Essential Observational Requirements:**

a. Observe laboratory demonstrations in which biologicals are tested for their biochemical, immunological, microbiological and hematological components.
b. Characterize the color, odor, clarity and viscosity of biologicals, reagents, or chemical reaction products.
c. Employ a binocular microscope to discriminate among the structural components and color (hue, shading and intensity) of different microscopic specimens.
d. Read and comprehend text, numbers and graphs displayed in print and on a video monitor.
Essential Physical Requirements:

a. Move freely and safely around the laboratory.
b. Reach laboratory work surfaces and shelves, patients lying in hospital beds or seated in specimen collection furniture.
c. Perform moderately taxing continuous physical work, often requiring prolonged sitting or standing over several hours.
d. Maneuver phlebotomy equipment to safely collect appropriate laboratory specimens from patients.
e. Control laboratory equipment (i.e. pipettes, inoculating loops, test tubes) and adjust instruments to perform laboratory procedures.
f. Use electronic keyboards to operate laboratory instruments and to calculate, evaluate, and transmit laboratory data.

Essential Communication Requirements:

a. Read and comprehend technical and professional materials
b. Follow written and verbal instruction to correctly and independently perform laboratory procedures.
c. Clearly instruct patients prior to specimen collection.
d. Communicate with faculty members, fellow students, staff, and other health care professionals.
e. Prepare and take paper, computer and laboratory practical exams.

Essential Intellectual Requirements:

a. Possess the intellectual skills of comprehension, measurement, mathematical calculation, reasoning, integration, analysis, comparison, self-expression and criticism.
b. Exercise sufficient judgment to recognize and correct performance.

Essential Behavioral Requirements:

a. Manage use of time and organize actions in order to complete professional and technical tasks within realistic time constraints.
b. Possess the emotional health necessary to effectively employ intellect and exercise appropriate judgment.
c. Provide efficient professional and technical services while experiencing the stresses of heavy workload and a distracting environment.
d. Display flexibility and creativity to adapt to professional and technical change.
e. Recognize potentially hazardous materials, equipment and situation and proceed safely in order to minimize risk of injury to patients, self and nearby people.
f. Adapt to working with unpleasant biologicals.
g. Support and promote the activities of fellow students and other health care professionals.
h. Display honesty, compassion, ethics, and responsibility. The student must be forthright about errors or uncertainty.
i. Critically evaluate his/her own performance, accept constructive criticism, and look for ways to improve.
j. Evaluate the performance of fellow students and tactfully offer constructive comments.

Other Student Policies (such as student rules and causes for dismissal) are available upon request from the Program Director.
ADMISSION PROCESS

The program is accredited for 3 students annually.

Class for 2020 begins: August 3, 2020

Applications should be submitted between May 1 and November 1, 2020 for the August 2021 class.
Applications should be submitted between May 1 and November 1, 2021 for the August 2022 class.

Application requirements:

1. The ARMC School of Medical Technology application file must include:
   A. An application to this program which can be obtained by emailing the Education Coordinator.
   B. Official college transcript(s). If the transcript is from a foreign school, an official copy of the transcript evaluation must be included.
   C. Two references: One must be from a college/university science professor that addresses the applicant’s academic proficiency and integrity.
      No form is provided for this.
      References can be mailed or emailed on letterhead to the Program Director or Education Coordinator.
   D. The California State Trainee’s license number or date that application for trainees license was submitted.

2. An interview will be necessary prior to selection. If the number of student applications is large, not all applicants will be interviewed. Applicants will be notified if an interview is requested.

Student Selection:

Applicants will be interviewed in January or February for the August class with acceptance notification via email and/or mail in March. A written (email or paper) reply of acceptance is required within two weeks of notification/receipt of the offer for the student position.

The School of Medical Technology is non-discriminatory with respect to race, color, creed, age, sex or national origin in the recruitment of students.

The Admission Committee ranks the candidates based upon:

- Completion of all requirements
- Grade Point Average (overall and prerequisite coursework)
- Whether student’s GPA improved over time
Required courses completed within the last three years

Work experience (related to laboratories)

Letters of recommendation

Personal statement

Motivation and institutional fit (as determined from interviews)

Ability to communicate (verbally and in writing) and comprehend English

**DIDACTIC AND APPLIED CLINICAL TRAINING**

Students rotate through all areas of the clinical laboratory during the 12 month (40 hrs per week) training program. Students are lectured in each discipline of laboratory medicine (5-7 hrs. per week) and gain applied clinical experience by rotations through each discipline where they work one-on-one with experienced clinical laboratory scientists. Class attendance is mandatory. Reading assignments and evaluations are given over both the lecture and applied clinical material. Records of progress are kept for each student.

Sick leave is available. Students must keep the program director and applied clinical instructors informed of any absences due to illness or other situations. It is the **responsibility of the student** to make up any missed lecture material and/or exams. Any abuse of leave, absence on an exam day or extended sick leave may result in the need to produce a physician’s excuse for any subsequent absence.

The program’s rigorous nature makes it necessary for students to dedicate daily time for studies. Consequently, we strongly advise against outside employment.

The program recognizes the following holidays: Martin Luther King, President’s Day, Memorial Day, Fourth of July, Labor Day, Columbus Day, Veteran’s Day, Thanksgiving Day, Christmas Eve, New Year’s Eve, New Year’s Day. If the holiday falls on a weekend, the school will observe ARMC’S designated holidays.

**CLINICAL AND DIDACTIC FACULTY**

Medical Director: Carolyn Leach M.D.

Program Director: Ramona Fox, MS, MT(ASCP)

**IMMUNOHEMATOLOGY (5.0 hours)** May Orf, MS, MLS(ASCP)CM

CHEMISTRY (7.0 hours) Carolyn Leach M.D., Rachelle Wiggan PhD, CLS, MLS(ASCP)

Equipment and methodologies used in the analysis of specific chemicals found in the body. Calculations used in clinical chemistry. Clinical chemistry methodologies and clinical significance with focus on: fluids and electrolytes, acid-base balance, renal function, lipoproteins, lipids, cardiovascular disease, liver and gastric function, pancreatic, thyroid, adrenal, pituitary, tumor markers, maternal and fetal development, therapeutic drug monitoring and toxicology. Analysis of body fluids.

HEMATOLOGY/COAGULATION/URINALYSIS (8.0 hours) Ellen Ko M.D., Billie Burch MT(ASCP) and Brandon Jacoby MLS(ASCP)CM


Urinalysis and its application in the diagnosis of renal, systemic and metabolic diseases. Basic microscopy is also covered.

MICROBIOLOGY (10.0 hours) Daniel Berga MS, MLS(ASCP)

Discuss mechanisms and pathology of diseases caused by living agents. Quality control of instruments, reagents, antibiotics and media. Discussion of bioterrorism. In depth study of the major groups of pathogenic virus, bacteria, rickettsia, mycoplasma and mycobacteria: their epidemiology, morphology, clinical identification and control. The role of Molecular diagnostics in the clinical laboratory will also be discussed.

Classification and pathogenesis of human parasites. Discussion of life cycles, clinical features, infective and diagnostic stages.

Review of terminology. Classification, identification and pathogenesis of medically important fungi and yeasts.

SEROLOGY (3.0 hours) May Orf, MS, MLS(ASCP)CM


EDUCATION/MANAGEMENT (1.0hrs) Ramona Fox, MS, MT(ASCP) and May Orf, MS, MLS(ASCP)CM

Basic educational terminology. Characteristics of an effective instructor. Describe and contrast instructional methods and elements needed to create a successful environment for clinical education. Discuss the three domains of learning, taxonomy levels for cognitive domain and purposes of objectives. Evaluation of learner performance: methods and effective exam questions.

Principles and practices of quality assurance/quality improvement applied to all components of laboratory services. Application of governmental regulations applied to laboratory practice. Principles and application of interpersonal and interdisciplinary communication, ethics, team-building skills and professionalism.

**ORIENTATION/SAFETY/INFORMATION MANAGEMENT (1.0 hrs)** May Orf, MS, MLS(ASCP)CM

Familiarize students with the philosophy and policies of ARMC and the clinical laboratory. Discuss basic elements, applications and correct usage of the laboratory information system. Review of fire, safety and infection control policies. Location and use of laboratory safety equipment. Recognition, reporting and documentation of laboratory hazards.

**PHLEBOTOMY (1.0 hrs)** Ramona Fox, MS, MT(ASCP) and Diamond Whiting, CPT 1

Identify components and professionals of the health care delivery system and the services each provides. Identify each laboratory specialty area and the specimen requirements of the most frequent tests performed in each area. Define and use pertinent medical and anatomical terminology. Discuss and evaluate safety and infection control and quality assurance. Discuss pre-analytical variables in the scope of laboratory testing. Discuss requirements of collection, preservation, transport and processing for serum, urine and other biological fluids. Review modes of action and appropriate use of additives used in blood collection. Define proper phlebotomy technique and puncture site(s) for both venous and skin punctures and review possible complications.

**EVALUATIONS**

1. Didactic evaluations are noted on individual course syllabi. The student will receive and review the final examination within two weeks of completing a course. Students must receive a grade of “C" (usually 70%) or better to pass. One make-up examination may be scheduled to remove a failing exam score. These make-up exams will be scheduled in an appropriate length of time and the student must achieve an average score of over 70%.
2. Applied clinical rotations are evaluated based upon satisfactory achievement of psychomotor (performance), affective (valuing) and cognitive (knowledge) objectives. Details are noted in individual syllabi. Students must receive a “C" (usually 70%) or better to pass. The student will receive and review their grade within two weeks of completing the applied clinical rotation.
3. It is essential that anyone considering a career in the healthcare field demonstrate honesty and integrity in their academic and professional life. Therefore, cheating will not be tolerated and will result in a failing grade for that assignment or exam.

Criteria for Progression and Completion of the Program

Students who meet the minimum stated levels of academic achievement, applied clinical performance and affective behaviors will progress and complete the program.

If unsatisfactory scores are obtained on two sequential lecture exams, or one lecture exam and one applied clinical area, the student will be placed on academic probation. The significance of this status is as follows:

1. A conference will be scheduled with the Program Director and/or Department Supervisor. An improvement program with conditions and time limits will be implemented for the student. Weekly evaluations will be completed to monitor student progress.
2. The student will be dismissed from the program is s/he fails to demonstrate the improvement required in the program implemented in step 1 or

3. The student will be dismissed from the program upon attaining an additional unsatisfactory (<70%) evaluation in any subsequent applied clinical rotation or didactic series while on probation.

Gross misconduct will be grounds for immediate dismissal on the first offense. The definition of gross misconduct is consistent with the personnel rules and human resource policies for ARMC employees.

**Finances and Health:**

**No tuition is charged.**

A list of required texts will be provided to students upon acceptance into the program. A subscription to MediaLab’s LabCE will be required upon acceptance into the program. Additional reference textbooks are available for loan as needed during the student year.

Students (lab interns) are employees of the County of San Bernardino and are paid for 40 hours per week. (Approximately minimum wage).

No financial aid is available.

A pre-employment physical, drug screen and background check is required. This is paid for and scheduled by the County of San Bernardino. Vision, dental and medical insurance are available.

Acceptance as a student is contingent upon passing the physical, drug screen and background check.

**Withdrawal from the program:**

Students in Arrowhead Regional Medical Center’s School of Medical Technology may elect to withdraw from the program at any time by submitting written notification of withdrawal to the Program Director stating the reason for withdrawal. A School of Medical Technology Withdrawal Form can be obtained from the Program Director.

The Program Director will request an exit conference with the student to:

1. Assure that the student’s request for withdrawal does not arise from a resolvable issue.

2. Complete any necessary paperwork (separation report, employee position transaction form and badge deactivation form).

3. Turn in any Program equipment or materials that the student may have in their possession.

4. The Withdrawal Form will be placed in the student's file.
GRADUATION AND CERTIFICATION

Arrowhead Regional Medical Center presents a certificate to the student upon satisfactory completion of the entire program (36 credit hours). The granting of the certificate is not contingent upon passing an external certification exam. The graduate is eligible to take a certifying examination approved by the State of California and/or the certification examination of the national ASCP Board of Registry for Medical Laboratory Scientists.

CONTACT INFORMATION

Please direct all program inquiries to:

May Orf, MS, MLS (ASCP)CM
Education Coordinator
School of Medical Technology
Arrowhead Regional Medical Center Clinical Laboratory

(909) 580-0015
orfmay@armc.sbcounty.gov

Please send official correspondence and applications to:

Ramona Fox, MS, MT (ASCP)
Program Director
School of Medical Technology
Arrowhead Regional Medical Center Clinical Laboratory
400 North Pepper Avenue
Colton, CA 92324-1819

(909) 580-0069
foxr@armc.sbcounty.gov