

Clinical Science: Cytotechnology Option Success Sheet

Course Requirements	<p>+ Course has a pre-requisite of CHE 108 or Chemistry Placement Exam * These are pre-clinical courses from which grade point averages are calculated to determine clinical placement eligibility. They must have been taken within the last five years in the United States.</p> <p>Lower Division Requirements: BIO 120/121 Principles of Biology I (3) with Laboratory (1)+ BIO 122/123 Principles of Biology II (3) with Laboratory (1) BIO 124/125 Principles of Biology III (3) with Laboratory (1) BIO 250 Elements of Human Anatomy and Physiology (3) BIO 220 Molecular Biology (3) CHE 110 General Chemistry I with Laboratory (5)+ CHE 112 General Chemistry II with Laboratory (5) CHE 230 Quantitative Analysis with Laboratory (4)* HEA 201 Health Perspectives (3) MAT 131 Elementary Statistics and Probability (3)</p> <p>Upper Division Requirements: CHE 316/317 Survey Organic Chemistry (3) with Laboratory (1) CLS 301 Introduction to Clinical Laboratory Procedures (2)* CLS 304 Urinalysis/BodyFluids (3)* CLS 306 Clinical Immunology and Immunoematology (4)* CLS 307 Clinical Hematology with Laboratory (4)* CLS 308 Pathophysiology for Health Professions (3)* BIO 320 Cell Biology (3)* BIO 340 Genetics (3)* BIO 324/325 Microbiology with Clinical Applications (3) with Laboratory (1) BIO 422/424 Histology (3) with Laboratory (1)*</p>
Notes	<ul style="list-style-type: none"> ✓ Students can take BIO 326/327 in place of BIO 324/325 to avoid the 2 semester-long waitlist. This course is only available in the Fall semester. ✓ Cytotechnology students are not required to take a Physics course which includes light and electricity. ✓ Students need permission numbers for all CLS courses from the Clinical Science Department. ✓ If a student requires a permission number for a Biology course, email biology@csudh.edu. ✓ If a student requires a permission number for a Chemistry course, email the class instructor.
Advice	<ul style="list-style-type: none"> ✓ Take Organic Chemistry as soon as possible because it is an essential pre-requisite for the BIO 324/325 Microbiology wairlist even if you plan to take BIO 326/327 instead. The Clinical Science Department will not accept a Microbiology course from another institution as a course substitution for BIO 324/325 or BIO 326/327. ✓ Join the Clinical Science Club to receive important updates and resources and make connections with other students, staff, and faculty in the department. ✓ Keep up your GPA, obtain relevant lab experience and network with academic/field professionals as eventually you will need to obtain Letters of Reccomendations to help prepare you for your application into the Clinical Internship. You have 3 attempts to get in! ✓ The Clinical Science Department will not accept a Microbiology course from another institution as a course substitution for BIO 324/325 Microbiology. ✓ Meet with An Advisor at least once per semester.

A. Lower Division Requirements (38 units)

BIO 120/121L	Principles of Biology I (3) with Laboratory (1)	Pre-requisite: Students must pass CHE 108 OR pass Chemistry Placement Exam at CSUDH; <i>there is no course equivalent for CHE 108 at CA CC, must take it at CSUDH.</i> The Biology department will accept General Chemistry I (CHE 110) as fulfilling the pre-requisite requirement for BIO 120/121. If you completed General Chemistry I at a CA CC, please request a permission number from the Biology department.
BIO 122/123L	Principles of Biology II (3) with Laboratory (1)	Pre-requisite: BIO 120/121 or equivalent
BIO 124/125L	Principles of Biology III (3) with Laboratory (1)	Pre-requisite: BIO 122/123 or equivalent
BIO 250	Elements of Human Anatomy and Physiology (3)	Pre-requisite: BIO 120/121L or equivalent ✓ <i>Note: No lab required.</i>
BIO 220	Molecular Biology (3)	Pre-requisite: BIO 120/121L, 122/123L and CHE 110 ✓ <i>Note: No lab required. CLS majors must contact the Biology Department for a Permission # to enroll into the class section that does not require the BIO 221 lab.</i>
CHE 110	General Chemistry I with Laboratory (5)	Pre-requisite: Students must pass CHE 108 OR pass Chemistry Placement Exam at CSUDH ✓ <i>Note: There is no course equivalent for CHE 108 at CA CC, must take it at DH.</i>
CHE 112	General Chemistry II with Laboratory (5)	Pre-requisite: CHE 112 or equivalent with a grade of "C" or better. ✓ <i>Note: CSUDH will only accept General Chemistry I and II as a sequence. If you took General Chemistry I at another institution, you must complete the series at the same institution OR take CHE 110 and CHE 112 at CSUDH.</i>
CHE 230*	Quantitative Analysis with Laboratory (4)	Pre-requisite: CHE 112 or equivalent with a grade of "C" or better OR approved transfer sequence
HEA 201	Health Perspectives (3)	
MAT 131	Elementary Statistics and Probability (3)	✓ <i>Note: Some students have taken MAT 132 or MAT 134, which can be used in place of MAT 131.</i>

B. Upper-Division Requirements (34 units)

CHE 316/317L	Survey of Organic Chemistry (3) with Laboratory (1)	Pre-requisite: CHE 112 or equivalent with a grade of "C" or better ✓ <i>Note: If you have 2 semesters of Organic Chemistry w/ a lab at CA Community College, contact the CLS Advisor.</i>
CLS 301*	Introduction to Clinical Laboratory Procedures (2)	Pre-requisite: BIO 122/123L ✓ <i>Note: Permission number required.</i> ✓ <i>Recommendation: Complete BIO 250 & CHE 110 before enrolling.</i>
CLS 304*	Clinical Urinalysis/Body Fluids (3)	Pre-requisite: BIO 122/123L & CHE 112 ✓ <i>Note: Permission number required.</i> ✓ <i>Recommendation: Complete BIO 250 & CLS 301 before enrolling.</i>
CLS 306*	Clinical Immunology and Immunohematology with Laboratory (4)	Pre-requisite: CLS 301 ✓ <i>Note: Permission number required.</i> ✓ <i>Recommendation: Take during final year. Separate from CLS 307.</i>
CLS 307*	Clinical Hematology with Laboratory (4)	Pre-requisite: CLS 301 ✓ <i>Note: Permission number required.</i> ✓ <i>Recommendation: Complete CLS 304. Separate from CLS 306.</i>
CLS 308*	Pathophysiology for Health Professions (3)	Pre-requisite: BIO 250 & CHE 112 ✓ <i>Note: Permission number required.</i> <i>Recommendation: Complete CLS 301 before enrolling.</i>
BIO 320*	Cell Biology (3)	Pre-requisite: BIO 220 & Organic Chemistry

BIO 340*	Genetics (3)	Pre-requisite: BIO 124/125L, BIO 220 & MAT 131 ✓ <i>Note: BIO 340 Genetics may be used to double-count by fulfilling General Education Upper Division Integrative Studies in Natural Sciences Requirement (Science, Math & Technology - SMT).</i>
BIO 324/325L [can take 326/327L instead]	Microbiology with Clinical Applications (3) with Laboratory (1) [General Microbiology (3) with Laboratory (1)]	Pre-requisite: BIO 122/123L & Organic Chemistry ✓ <i>Note: This course has a 2 semester-long waitlist and you must contact the Biology Department on the 6th week of the Fall Semester to get onto it. Completion OR Fall enrollment of BIO 122/123 AND Organic Chemistry.</i> ✓ <i>Note: Offered once a year in the Fall Semester only.</i> Pre-requisite: BIO 124/125L, BIO 220 & Organic Chemistry ✓ <i>Note: Cytotechnology majors can take BIO 326/327L in place of BIO 324/325L and it does not have a 2 semester-long waitlist. This course is also offered once a year in the Fall Semester only.</i>
BIO 422/424L*	Histology (3) with Laboratory (1)	Pre-requisite: BIO 122/123L ✓ <i>Note: Offered once a year in the Spring Semester only.</i>

* **Note:** These are pre-clinical courses from which grade point averages are calculated to determine clinical placement eligibility. They must have been taken within the last five years in the United States.

COURSE SEMESTER AVAILABILITY & NOTES

	Spring Only	Fall Only	Summer+	1-Year Waitlist	Pre-Clinical*
Misc.	MAT 131+ MAT 132+ MAT 134+	HEA 201+	PHY 100	GE's+ (and Winter)	
CLS	301*	304*+	306*	307*+	308* 401*
CHE	108+	110+	112+	230*	316 & 317L 450 & 451L 456*
BIO	120 & 121L	122 & 123L	250	220+	324 & 325L 425* & 435L*+ 458* & 459L*+ (PostBaccs take CLS 595* in Spring only)
BIO (Cytotech.)	124 & 125L	320*+	340*	422* & 424* 326 & 327L (can use as replacement for 324 & 325L)	