

Science Unit Justification

The following points of interest outline the science department's justification for continuing to offer 5-unit Physiology and Microbiology courses. At this time the science department believes that the current structure of these courses is optimal for appropriate class content and student success.

- I. Due to the unit hour formula, a one-unit reduction in lab equals 3 hours of class time. This would mean going from two 3-hour lab sessions per week to just one. This is a 50% reduction in lab time. It would also mean going from 9 hours of student contact to 6. This is a 33% reduction in overall class time.
 - See Appendix 1 (CCCCO Units/Hours Worksheet)
- II. Science faculty have observed a lower success rate after reducing to one lab per week.
 - See Appendix 2 (Joel Statement/Data)
- III. Allied health programs are extremely competitive, and science prerequisites are a vital component of their admission success. In order for our students to be competitive, they must have excellent GPAs and/or Test of Essential Academic Skills (TEAS Test) scores. The TEAS Test is a standardized, multiple-choice entrance exam for students applying for nursing and allied health programs.
 - PC, CSUF, and CSUB RN admissions are all based on GPA in science courses as well as their TEAS score which is partly based (30%) on student's knowledge of human biology, life science, and physical science.
 - Other competitive programs such as radiology tech, ultrasound tech, physical therapy assistant, dental hygiene, and registered dietician will all have their own admissions and selection criteria.
- IV. Success rates of four and five unit classes may not be comparable.
 - A five unit course enables more in-class instructional time which provides greater time for in depth study, greater time for covering all of the course COR, greater time for review, and more frequent assessments.
 - Instructors who have changed their courses to fewer hours per week tell of major curriculum changes, fewer assessments involving greater content, requiring less content, and introductory level teaching of concepts rather than more in depth.
 - Measuring the success rates of prerequisite courses is more complex than simply analyzing course pass rates. Student success includes being admitted into their program of choice, successfully completing their program, and passing a licensing exam. These types of metrics are not available.
- V. Reducing units post COVID may further reduce student success.
 - Learning loss and study skill loss due to Covid is real. Science faculty have observed this. Anatomy realized a 10% drop in the average grade over all tests given during the Spring 2022 semester. Microbiology also noticed a difference. This is a time for increased professor contact, not less.

Specific Microbiology Unit Justification

- VI. The majority of California community colleges (60%) offer a 5-unit course. Furthermore, the majority of local Microbiology classes are 5-units: Bakersfield, Taft, Cerro Coso, Reedley, Fresno, Clovis, and Madera are all 5-units with COS & West Hills being the exceptions.
- See Appendix 3 (CCC microbiology offerings)
- VII. Many schools will offer a 4-unit Microbiology course for Allied Health students and a 5-unit course for Biological Science majors.
- See Appendix 3 (CCC microbiology offerings)
- VIII. Data show a 2.9% increase in success rate for students taking a 5-unit course
- See Appendix 4 (Datamart data provided by Mike)
 - Care must be taken when comparing 5-unit and 4-unit courses as a 5-unit course will cover more concepts in a deeper way. Students can still be successful in a 4-unit course, but these courses normally cover less content. For example - COS Microbiology (4-units) does not do an unknown at the end of the semester, which is a standard multi-week lab assessment exercise for microbiology classes. Four unit courses will also shift more curriculum to individual student learning outside of class.
- IX. If Microbiology were to be reduced in units, this would necessitate an additional biology prerequisite similar to Fresno City, Clovis, and Bakersfield College. The additional prerequisite would be BIOL P110, P119, P120, or P135.

Specific Physiology Unit Justification

- X. Physiology is offered in a variety of formats across the California community colleges. Either as a single course or as a combined two or three semester sequence with anatomy. The majority of local Physiology Classes are 5 units, (Taft, Reedley, Fresno, Clovis, Madera). Only three are 4-units (COS, Cerro Coso & West Hills). Bakersfield College is a combined year long A&P 8-unit sequence. Fresno City also offers additional Anatomy and Physiology courses as a combined year long A&P 9-unit sequence.
- (See appendix 5) (CCC physiology offerings)
- XI. Of the colleges offering 4-unit physiology courses, 98% have a prerequisite course; 91% have one or more science prerequisites. PC currently has no physiology prerequisites. If physiology were to be reduced in units, this would necessitate multiple prerequisites similar to other colleges. Prerequisites would include, CHEM P105 or P106 and BIOL P052, P110, P119, or P135.
- (See appendix 6) (CCC physiology 4-unit course prerequisites)

Responses to Faculty Concerns

1. It is well documented that the more time that passes for a student pursuing a degree has multiple negative effects. It takes longer for students to enter the workforce, costs the state more money with classes filled with these same students, and students are more likely to "give up" and drop out of college.

- Reducing units would necessitate the implementation of prerequisites.
- Reducing units may increase fail rates which would require our students to retake the course.
- Reducing units may put our students at a disadvantage to other local college students competing for limited allied health programs if they require admissions exams such as the TEAS.
- Reducing units will not provide our students with equal background preparation or depth of content knowledge compared to students who have the same course with more instructional hours.

2. The state Chancellor's Office and state legislation have been pushing to increase graduation rates to assist students in achieving their goals in a more reasonable timeframe

- Reducing units would necessitate the implementation of prerequisites.
- Reducing units may decrease graduation if students cannot successfully pass courses or must retake courses multiple times.
- Reducing units may decrease student goal achievement if students are not admitted into their desired program.

3. The largest "bottlenecks" that students face at PC seeking to complete a degree is getting into a GE Science course. It is well known that these classes fill up first and almost always have long waitlists.

- Physiology and microbiology are not typically taken as GE science courses.
- New faculty have been hired to increase the offerings of typical GE science courses.

4. Adding faculty contact hours leads to fewer sections available for students and makes these bottlenecks worse. This is due to increased faculty usage and a faster rate a faculty member meets load obligations.

- Reducing units would require more prerequisite courses to be taught rather than more sections.
- Reducing units may not increase offerings as two sections would nearly be load.

5. Aligning with a minimum required contact hours directly leads to increased sections for students and lower facility demand

- This statement is true for all courses. However, there is a balance to be made in the best interest of our student's success.
- Responses to #4 above also apply here.

6. Other schools are successfully getting students through at the CID minimum

- Physiology courses with a CID minimum may have prerequisites as discussed in IX above
- Microbiology does not have CID minimums but most schools that have lowered Microbiology units have added a 1-2 unit "survey" course to ensure success.
- Microbiology success rates are lower for minimum CID courses as discussed in XII above.

7. CID is an agreement that combined all discipline-specific faculty experts from both the CSUs and community colleges into what the minimum required units should be required and what it can be done in that relative amount of time

- "The descriptor units are the minimum units required. The course outline may contain more units but not fewer units than as indicated on the descriptor."
(Source: C-ID Guide for Articulation Officers.)

8. The primary claim put forth in the Unit/Contact Hour Rationale forms for the Microbiology (BIOL P160) and Physiology (BIOL P120) are that: "The 5 unit course enables better understanding for better success in both the class and future goals"

- Experienced faculty are the best data source for determining student outcomes and their experience and knowledge of their students must be taken into account.
- It is the determination of the science faculty that the present course units of 5 enables more in-class instructional time which provides greater time for in depth study, greater time for covering all of the COR, greater time for review, and more frequent assessments.

9. The assertion that students need higher grades to place better in lottery systems such as the RN program may be true but again there is no factual quantitative evidence submitted as proof our students do better than those with fewer contact hours. It also ignores the fact that many other programs requiring these courses do not have such lotteries.

- PC student TEAS test data, as well as their nursing school admissions, are not available. However, GPA and TEAS test scores are the major factors for being admitted to any nursing program.

10. It is also true that many of the programs which have these courses as electives or requirements also struggle with unit and contact hour caps and mandating these higher for all increases the time and difficulty students face in completing their degree programs. The RN program has recently gone through entire curriculum revisions that reduced units on the recommendations of their consultants and other constituency groups to great success. However, they have advocated we reduce the units and contact hours for pre-requisite courses like these as well.

- Many of our RN students must apply to other RN programs other than PC's. Moreover, many microbiology and physiology students are entering other allied health or career fields other than RN.

11. For students who may want additional help to achieve higher grades, there are other ways to achieve this including tutoring, open labs, office hours, PASS Leaders, etc. These programs could all be scaled up without adding the required contact hours for all enrolled.

- These supplemental programs are currently being implemented.
- As these supplemental programs are voluntary they are not always utilized by students.
- Unfortunately, open science labs present safety/security concerns.

12. Furthermore, our resources are very limited at a smaller college so every decision we make affects every program on campus

- Agreed, however, student success is the priority. The faculty who teach these courses have decades of experience and know the direct impact a unit reduction would have on student success.
- Classes must meet the needs of all students and their goals.

13. The more contact hours and faculty resources that go towards one discipline mean fewer for the other disciplines. While not popular to say out loud, there is only so much money that we are allocated and have to spend on faculty

- Agreed, however, student success is the priority. The faculty who teach these courses have decades of experience and know the direct impact a unit reduction would have on student success.
- A reduction of one unit will not increase offerings, nor will it change the resources for microbiology as it will still require 2 labs per week.

CCCCO Units/Hours Worksheet

SEMESTER UNITS

Lecture	
17.5 hours = 1 unit	
Hours	Units
8.8	0.5
17.5	1.0
26.3	1.5
35.0	2.0
43.8	2.5
52.5	3.0
61.3	3.5
70.0	4.0
78.8	4.5
87.5	5.0
96.3	5.5
105.0	6.0
113.8	6.5
122.5	7.0
131.3	7.5
140.0	8.0
148.8	8.5
157.5	9.0
166.3	9.5
175.0	10.0
183.8	10.5
192.5	11.0
201.3	11.5
210.0	12.0
218.8	12.5
227.5	13.0
236.3	13.5
245.0	14.0
253.8	14.5
262.5	15.0
271.3	15.5
280.0	16.0
288.8	16.5
297.5	17.0
306.3	17.5
315.0	18.0
323.8	18.5

Lab	
52.5 hours = 1 unit	
Hours	Units
26.3	0.5
52.5	1.0
78.8	1.5
105.0	2.0
131.3	2.5
157.5	3.0
183.8	3.5
210.0	4.0
236.3	4.5
262.5	5.0
288.8	5.5
315.0	6.0
341.3	6.5
367.5	7.0
393.8	7.5
420.0	8.0
446.3	8.5
472.5	9.0
498.8	9.5
525.0	10.0
551.3	10.5
577.5	11.0
603.8	11.5
630.0	12.0
656.3	12.5
682.5	13.0
708.8	13.5
735.0	14.0
761.3	14.5
787.5	15.0
813.8	15.5
840.0	16.0
866.3	16.5
892.5	17.0
918.8	17.5
945.0	18.0
971.3	18.5

Lecture	
18 hours = 1 unit	
Hours	Units
9	0.5
18	1.0
27	1.5
36	2.0
45	2.5
54	3.0
63	3.5
72	4.0
81	4.5
90	5.0
99	5.5
108	6.0
117	6.5
126	7.0
135	7.5
144	8.0
153	8.5
162	9.0
171	9.5
180	10.0
189	10.5
198	11.0
207	11.5
216	12.0
225	12.5
234	13.0
243	13.5
252	14.0
261	14.5
270	15.0
279	15.5
288	16.0
297	16.5
306	17.0
315	17.5
324	18.0
333	18.5

Lab	
54 hours = 1 unit	
Hours	Units
27	0.5
54	1.0
81	1.5
108	2.0
135	2.5
162	3.0
189	3.5
216	4.0
243	4.5
270	5.0
297	5.5
324	6.0
351	6.5
378	7.0
405	7.5
432	8.0
459	8.5
486	9.0
513	9.5
540	10.0
567	10.5
594	11.0
621	11.5
648	12.0
675	12.5
702	13.0
729	13.5
756	14.0
783	14.5
810	15.0
837	15.5
864	16.0
891	16.5
918	17.0
945	17.5
972	18.0
999	18.5

Anatomy P110 data.

In the fall of 2014, Anatomy P110 changed from an 8 hour/week course to a 6 hour/week course (two labs/week to one lab/week).

Due to a decrease of 30 hours of instructional class time/semester, major changes had to be made in the curriculum.

- Less time was available for student class observations, dissections, and hands-on learning.
- Less time was available for instructor lectures and class discussion.
- Less time was available for in-class assessments. (Human anatomy is usually tested by memorization questions and pictures. All tests are proctored.)

Result:

- Student content in anatomy was reduced. Students are learning fewer bones, bone surface features, muscles, body surface features, etc.
- Students are doing less laboratory skill development.
- More content has been moved to outside the classroom. Students must be more self-reliant. They are responsible for more of their own learning.
- Anatomy used to have weekly tests every Monday! The students told me they liked that format; there would be study groups every weekend. Now with less time available, I have had to move from 14 tests to 9 tests (besides other assessments). The students relate that having more content on tests makes them harder – which is understandable.

So how much are the students retaining their knowledge of the content of anatomy (based on their final grades)?

- Grades from the two previous semesters before the reducing of Anatomy hours are presented
- Grades from the two latest semesters of Spring 2022 and Fall 2013 are presented.

Division chair years - two anatomy classes each semester

Spring 2014 A=8, B=24, C=12, D=4, F and drops=17 total students 65

Fall 2013 A=21, B=17, C=13, D=1, F and drops=14 total students 66

Last two semesters -three classes of anatomy

Spring 2022 A=7, B=19, C=19, D=4, F and drops 28 total students 79

Fall 2021 A=6, B=10, C=22, D=11, F and drops=17 total students 71

A+B's are competitive for future program admissions

2013 and 2014 A+B percentage of class – 58% and 49% respectively

2021 and 2022 A+B percentage of class – 23% and 34% respectively

F and drops may indicate too high a course rigor for student preparation

2013 and 2014 F+drops percentage of class – 22% and 26% respectively

2021 and 2022 F+drops percentage of class – 24% and 35% respectively

- The data shows a higher percentage of students receiving A+B grades for semesters F2013 and S2014.
- F+drops is similar in two semesters - 26% and 24%. However, averaging the early years versus the last two semesters show 24% versus 29.5%. The data shows a higher percentage of students receiving F's and/or drops as an average for semesters 2021-22.

The reduction of hours of Anatomy P110 does not appear to promote student success.
(Even though this professor continues to go all out promoting an exciting in-class experience, as well as providing additional post-Covid computer driven tutorial helps not available in 2013-14.)

As mentioned previously, comparing student success in a 4-unit course and a 5-unit course may not always be accurate due to the many curriculum changes that occur - including content reduction, a different number of assessments, and group versus individual student work and responsibilities.

California Community College	Microbiology Course	Units
Allan Hancock College	Biol 128	4.5
American River College	Biol 440	4
Antelope Valley College	Biol 204	5
Bakersfield College	Biol B16	5
Barstow College	Biol 8	5
Butte College	Biol 15	4
Cabrillo College	Bio 6	4
Canada College	Biol 240	4
Cerritos College	Micro 200	5
Cerro Coso Community College	Biol C262	5
Chabot College	Micro 1	5
Chaffey College	Biol 23 + Biol 23L	5
Citrus College	Biol 220	5
City College of San Francisco	Biol 120	4
Clovis Community College	Biol 31	5
Coastline Community College	Biol C210	5
College of the Desert	BI 015	5
College of Alameda	Biol 3	5
College of Marin	Biol 240	5
College of San Mateo	Biol 240	4
College of the Canyons	BioSc 221	5
College of the Redwoods	Biol 2	4
College of the Sequoias	Biol 040	4
College of the Siskiyous	Biol 2600	4
Columbia College	Biol 312 + Biol 312L	4
Compton College	Micr 133	5
Contra Costa College	BioSc 119	4
Copper Mountain College	BI 015	5
Cosumnes River College	Biol 440	4
Crafton Hills College	Micro 102 / Micro 150	4units/5units
Cuesta College	Biol 204	5
Cuyamaca College	Bio 152 Rib	5
Cypress College	Biol 220C	4
De Anza College	Bio 26	6
Diablo Valley College	BioSc 119 / BioSci 146	4 units/5 units
East Los Angeles College	Micro 001	5
El Camino College	Micro 33	5
Evergreen Valley College	Bio 074	5
Feather River College	Biol 210	4
Folsom Lake College	Biol 440 / Biol 442	4units/5units
Foothill College	Biol 41	6
Fresno City College	Biol 31	5
Fullerton College	Micro 262F	5

Gavilan College	Bio 8	5
Glendale College	Biol 112	5
Golden West College	Biol G210	5
Grossmont College	Bio 152 Rlb	5
Hartnell College	Bio 10	4
Imperial Valley College	Biol 220	5
Irvine Valley College	Bio 15	5
Lake Tahoe Community College	Bio 210	5
Laney College	Bio 3	5
Lassen College	Bio 20	5
Long Beach City College	Bio 2	5
Los Angeles City College	Micro 1 / Micro 20	5 unit / 4 unit
Los Angeles Harbor College	Micro 20	4
Los Angeles Mission College	Micro 20	4
Los Angeles Pierce College	Micro 20	4
Los Angeles Southwest College	Micro 20 / Micro 1	4 units/5 units
Los Angeles Valley College	Micro 20	4
Los Medanos College	BioSc 50	4
Las Positas College	Bio 7C	5
Madera College	Biol 31	5
Mendocino College	Bio 259	5
Merced College	Biol 20	4
Merritt College	Biol 3	5
MiraCosta College	Bio 230	5
Mission College	Bio 004	5
Modesto Junior College	Micro 101	4
Monterey Peninsula College	Bio 25 & Bio 26	4
Moorpark College	Micro M01	5
Moreno Valley College	Bio 55	4
Mt. San Antonio College	Micr 22 / Micr 1	4 units/5 units
Mt. San Jacinto College	Biol 125	4
Napa Valley College	Biol 220	5
Norco College	Biol 55	4
Ohlone College	Biol 106	5
Orange Coast College	Biol A210	5
Oxnard College	Mico R100 & MicroR100L	5
Palo Verde College	Bio 111	5
Palomar College	Bio 212	4
Pasadena City College	Micro 2	4
Porterville College	Micro P106	5
Reedley College	Biol 31	5
Rio Hondo College	Biol 222	5
Riverside City College	Bio 55	4

Sacramento City College	Biol 440	4
Saddleback College	Bio 15	5
San Bernardino Valley College	Biol 270	5
San Diego City College	Bio 205	5
San Diego Mesa College	Bio 205	5
San Diego Miramar College	Bio 205	5
San Joaquin Delta College	Biol 23 + Biol 23L	5
San Jose City College	Biol 74	5
Santa Ana College	Bio 229	5
Santa Barbara City College	BMS 157	4
Santa Monica College	MicrBio 1	5
Santa Rosa Junior College	Micro 5	5
Santiago Canyon College	Bio 229	5
Shasta College	Micro 1	5
Sierra College	Biol 0004	5
Skyline College	Biol 240	4
Solano Community College	Bio 014	4
Southwestern College	Biol 265	4
Taft College	Biol 2260	5
Ventura College	Micr V01	4
Victor Valley College	Biol 221	5
West Hills College Coalinga	Bio 038	4
West Hills College Lemoore	Bio 038	4
West Los Angeles College	Micro 20	4
West Valley College	Biol 45	5
Woodland Community College	Biol 6	4
Yuba College	Biol 6	4

From: Michael Carley <mcарley@portervillecollege.edu>
Sent: Monday, April 18, 2022 5:32 PM
To: Rickelle Syrdahl <rsyrdahl@portervillecollege.edu>
Cc: Shaunna Callison <scalliso@portervillecollege.edu>
Subject: 4 vs 5 unit success rates; physiology/anatomy and microbiology

Here are the success data by units for the two areas we discussed. Along with the caveats.

As we discussed, data for other colleges are only available by TOP code, which poses a pretty significant issue for physiology, which is combined with anatomy. It could be there are also multiple anatomy classes as well.

At any rate, for TOP Code 040100 (Anatomy & Physiology)

- Success rate for 4-unit colleges: 71.7%
- Success rate for 5-unit colleges: 71.4%

So, almost no difference, and big caveat with the data anyway.

It's a little better for microbiology. At least that subject isn't combined with another in the same TOP code and your understanding was there aren't lots of other classes cluttering the issue.

for TOP Code 040c00 (Microbiology)

- Success rate for 4-unit colleges: 79.6%
- Success rate for 5-unit colleges: 82.5%

This has less of a caveat in the data and there is a bit of a difference.

I'm attaching the four files I pulled down from Data Mart so you can see it. If you want, you can make changes. I included all terms (where available) from summer 2017 through fall 2021. You could exclude pandemic terms if you want or otherwise play around with it. (Just unhide columns). And, you can check to see if I left a college off that should be there or made any typos in formulas. You can also try yourself on [Data Mart](#) if you want. Let me know if you have any questions about how it works.

It is my understanding that Data Mart excludes EW grades, which were an issue during the pandemic, for all colleges. In our local data, we can show the difference, with or without EWs. I could show you that if you want, but only for the three colleges in our district.

m.

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California Community Colleges with 5 Unit Physiology Courses

Community College	Course # and Title	Units	C-id approved
Barstow College	BIOL 5 Human Physiology	5	X
Canada College	BIOL 260 Human Physiology	5	X
Cerritos College	AP201 Human Physiology	5	X
City College of San Francisco	BIOL 111 Human Physiology	5	X
College of Alameda	BIOL 4 Human Physiology	5	
College of Marin	BIOL 224 Human Physiology	5	X
College of San Mateo	BIOL 260 Human Physiology	5	X
College of the Siskiyous	BIO 2800 Human Physiology	5	
Copper Mountain College	BI 023 Human Physiology	5	
Cuesta College	BIO 206 General Human Physiology	5	X
Diablo Valley College	BIOSCI 140 Human Physiology	5	X
Evergreen Valley College	BIOL 072 Human Physiology	5	X
Fresno City College	BIOL 22 Human Physiology	5	X
Fullerton College	ANAT 240 F Human Physiology	5	X
Gavilan College	BIO 9 Human Physiology	5	X
Hartnell College	BIO 6 & BIO 6L Human Physiology & Physiology Lab	5	X
Irvine Valley College	BIO 12 & BIO 12D Human Physiology and Discussion	5	X
Laney College	BIOL 4 Human Physiology	5	X
Las Positas College	BIO 7B Human Physiology	5	X
Long Beach City College - Liberal Arts	PHYSI 1 Human Physiology	5	X
Los Medanos College	BIOSC 045 Human Physiology	5	
Madera College	BIOL 22 Human Physiology	5	X
Mendocino College	BIO 231 Human Physiology	5	
Merritt College	BIOL 4 Human Physiology	5	X
Mission College	BIO 048 Human Physiology	5	X
Monterey Peninsula College	PHSO 1 & 2 Human Physiology & Human Physiology Lab	5	
Mt. San Antonio College	ANAT 36 Human Physiology	5	X
Napa Valley College	BIOL 219 Human Physiology	5	X
Orange Coast College	BIOL A225 Human Physiology	5	X
Oxnard College	PHSO R101 Human Physiology	5	X
Palo Verde College	BIOL 211 Human Physiology	5	X
Porterville College	PHYL 101 Introductory Physiology	5	X
Reedley College	BIOL 22 Human Physiology	5	X
San Joaquin Delta College	BIOL 32 Human Physiology	5	X
San Jose City College	BIOL 072 Human Physiology	5	X
Santa Barbara City College	BMS 108 and 108D Human Physiology and Discussion	5	X
Santa Rosa Junior College	PHYSIO 1 Human Physiology	5	X
Shasta College	PHY 1 Physiology	5	X
Sierra College	BIOL 0006 Human Physiology	5	X
Skyline College	BIOL 260 Human Physiology	5	X

Solano Community College	BIO 5 Human Physiology	5	X
Taft College	BIOL 2257 Human Physiology with Lab	5	X
Victor Valley College	BIOL 231 Human Physiology	5	X
West Valley College	BIOL 48 Human Physiology	5	X
Saddleback College	BIO 12 Human Physiology + BIO 120 Human Physiology Discussion	5	X

California Community Colleges with 10 unit or 15 unit A&P Sequence

Community College	Course # and Title	Units	C-id approved
American River College	BIOL 430 & 431 Anatomy and Physiology	10	X
Cosumnes River College	BIOL 430 & 431 Anatomy and Physiology	10	X
Folsom Lake College	BIOL 430 & 431 Anatomy and Physiology	10	X
Sacramento City College	BIOL 430 & 431 Anatomy and Physiology	10	X
Lake Tahoe Community College	BIO 203, 204 & 205 Anatomy & Physiology I, II, III	15	X
De Anza College	BIO 40 A, B & C Human Anatomy & Physiology	15	X
Foothill College	BIO 40 A, B & C Human Anatomy & Physiology	15	

California Community Colleges with 8 unit A&P Sequence

Community College	Course # and Title	Units	C-id approved
Bakersfield College		8	X
College of the Canyons		8	X
College of the Desert		8	X
Crafton Hills College		8	X
East Los Angeles College		8	X
Grossmont College		8	X
Imperial Valley College		8	X
Lassen College		8	X
Moreno Valley College		8	X
Mt. San Jacinto College		8	X
Norco College		8	X
Ohlone College		8	X
Riverside City College		8	X

California Community Colleges with 4 unit Physiology Courses

Community College	Course # and Title	Units	C-id approved
Allan Hancock College		4	X
Antelope Valley College		4	X
Butte College		4	X
Cabrillo College		4	X
Cerro Coso Community College		4	X
Chabot College		4	
Chaffey College		4	X

Citrus College		4	X
Clovis Community College		4	X
Coastline Community College		4	X
College of the Redwoods		4	X
College of the Sequoias		4	X
Columbia College		4	X
Compton College		4	X
Contra Costa College		4	X
Cuyamaca College		4	X
Cypress College		4	X
El Camino College		4	X
Feather River College		4	X
Glendale College		4	X
Golden West College		4	X
Los Angeles City College		4	X
Los Angeles Harbor College		4	X
Los Angeles Mission College		4	X
Los Angeles Pierce College		4	X
Los Angeles Southwest College		4	X
Los Angeles Valley College		4	X
Merced College		4	X
MiraCosta College		4	X
Modesto Junior College		4	X
Moorpark College		4	X
Palomar College		4	X
Pasadena City College		4	X
Rio Hondo College		4	X
San Bernardino Valley College		4	X
San Diego City College		4	
San Diego Mesa College		4	
San Diego Miramar College		4	
Santa Ana College		4	X
Santa Monica College		4	X
Santiago Canyon College		4	X
Southwestern College		4	X
Ventura College	PHSO VO1 Human Physiology	4	X
West Hills College Coalinga		4	X
West Hills College Lemoore		4	X
West Los Angeles College		4	X
Woodland Community College		4	X
Yuba College		4	X

California Community Colleges with 4 unit Physiology Courses

Community College	Course # and Title	Units	C-id appr prereqs	recomm
Allan Hancock College	BIOL 125 Human Physiology	4 X	Anatomy & English 101	chem
Antelope Valley College	BIOL 202 Human Physiology	4 X	Anatomy & Chem	
Butte College	<i>BIOL 21 Human Physiology</i>	4 X	Anatomy & Chem	
Cabrillo College	BIOL 5 Human Physiology	4 X	Chem	Anatomy
Cerro Coso Community College	BIOL 255 Human Physiology	4 X	English	Chem; Anat 52
Chaffey College	BIOL 22 Human Physiology	4 X	Anatomy & Chem	
Citrus College	BIOL 201 Human Physiology	4 X	Anatomy & Chem	
Coastline Community College	BIOL 225 Human Physiology	4 X	Anatomy & Chem	English and Math
College of the Redwoods	BIOL 7 Human Physiology	4 X	Anat, Chem, Biology, english	
College of the Sequoias	BIOL 031 Human Physiology	4 X	Anatomy	Chem
Columbia College	BIOL 326 Physiology	4 X	Anat, Chem, Biology, english	
Compton College	PHYO 131 Human Physiology	4 X	Anatomy & Chem	36 lect 108 lab
Contra Costa College	BIOSC 134 Human Physiology	4 X	Biology or Chem	
Cuyamaca College	BIOL 141 Human Physiology	4 X	Biology	
Cypress College	BIOL 241 General Human Physi	4 X	Anatomy	Chem
El Camino College	PHYO 31 Human Physiology	4 X	Anatomy & Chem	
Feather River College	BIOL 112 Human Physiollgy	4 X		
Glendale College	BIOL 121 Introduction to Physio	4 X	Anatomy & Chem	
Golden West College	BIOL 225 Human Physiology	4 X	Anatomy, English & Math	
Los Angeles City College	PHYSIOL 101 Physiology	4 X	Anatomy	
Los Angeles Harbor College	PHYSIOL 100 Intro to Human P	4 X	Chem	
Los Angeles Mission College	PHYSIOL 001 Intro to Human P	4 X	Biology, Anatomy & Chem	
Los Angeles Pierce College	PHYSIOL 001 Intro to Human P	4 X	Anatomy & Biology	
Los Angeles Southwest College	PHYSIOL 001 Intro to Human P	4 X	Anatomy	
Los Angeles Valley College	PHYSIOL 001 Intro to Human P	4 X	Biology, Anatomy & Chem	
Merced College	BIOL 18 Principles of Physiolog	4 X	Biology, Chem, English & Math	
MiraCosta College	BIO 220 Human Physiology	4 X	Biology	Chem
Modesto Junior College	PHYSO 101 Human Physiology	4 X	Chem	
Moorpark College	PHSO M01 Human Physiology	4 X	Anatomy & Chem	
Palomar College	BIOL 211 Physiology	4 X	Biology & Chem	
Pasadena City College	PYSO 1 Human Physiology	4 X	Anatomy & Chem	
Rio Hondo College	BIOL 226 Human Physiology	4 X	Anatomy & Chem	

San Bernardino Valley College	BIOL 261 Human Physiology	4 X	Anatomy & Chem	
San Diego City College	BIOL 235 Human Physiology	4	Biology	Anatomy & Chem
San Diego Mesa College	BIOL 235 Human Physiology	4	Biology	Anatomy & Chem
San Diego Miramar College	BIOL 235 Human Physiology	4	Biology	Anatomy & Chem
Santa Ana College	BIOL 249 Human Physiology	4 X	Anatomy	
Santa Monica College	PHYS 3 Human Physiology	4 X	Anatomy & Chem	
Santiago Canyon College	BIOL 249 Human Physiology	4 X	Anatomy	
Southwestern College	BIOL 261 Principles of Human F	4 X	Anatomy & Chem	
Ventura College	PHSO VO1 Human Physiology	4 X	Anatomy & Chem	Biology
West Hills College Coalinga	BIOL 035 Human Physiology	4 X	English & Math	Anatomy & Chem Has BIOL 035L 1 unit lab p/np
West Hills College Lemoore	BIOL 035 Human Physiology	4 X	English & Math	Anatomy & Chem Has BIOL 035L 1 unit lab p/np
West Los Angeles College	PHYSIOL 001 Intro to Human Pl	4 X	Anatomy, Chem & Math	
Woodland Community College	BIOL 5 Human Physiology	4 X	Biology	
Yuba College	BIOL 5 Human Physiology	4 X	Biology	

46 total

1 w/o any prereq

3 with only english and math

45/46 = 98% with prereqs

42/46 = 91% with science prereqs