



Executive Memorandum 23-002

January 20, 2023

From: Gayle E. Hutchinson, President

A handwritten signature in black ink that reads "Gayle E. Hutchinson" with a flourish at the end.

Subject: Significant Change to the Bachelor of Arts in Biological Sciences

Upon the recommendation of the Academic Senate and with the concurrence of the Provost, I approve significant changes to the BA in Biological Sciences. The revised program creates a degree designed for pre-healthcare students with career goals for which a Bachelor of Science degree is not necessary. The program will continue to serve students pursuing single subject matter preparation in science with a concentration in biological sciences. This change will be effective fall 2023.

Policy Title:	EM 23-002 Significant Change to the BA in Biological Sciences
Contact:	Department of Biological Sciences; College of Natural Sciences
Supersedes:	
Revision:	
Enabling Legislation or Executive Order:	

Undergraduate Program Significant Change

Biological Sciences BA

Program Name: _____

Program named above is (complete only if applicable):

Option within _____
(degree program name)

Minor

Certificate

Will proposed changes affect Transfer Model Curriculum? Yes No If yes, explain:

Is this a subject matter preparation or credential program? Yes No

If yes, changes will be submitted to AURTEC for review. See EM 07-012

Department Contact(s) w/phone #(s):

Required Signatures

The Department of Biological Sciences
has reviewed and approved these significant changes

Gordon Wolfe Sep 26, 2022
Gordon Wolfe (Sep 26, 2022 16:53 PDT)
Chair, Department Curriculum Committee Date

Kristopher Blas Sep 27, 2022
Department Chair Date

The College of Natural Sciences
has reviewed and approved these significant changes

Jinsong Zhang Sep 27, 2022
Jinsong Zhang (Sep 27, 2022 13:14 PDT)
Chair, College Curriculum Committee Date

David M. Hassenzahl Sep 27, 2022
College Dean Date

Note: The department will be notified of the dates for EPPC, Academic Senate, and, if applicable, WASC and Chancellor's Office review.

Proposal for Significant Changes

- I. Program name and level *Biological Sciences BA, undergraduate*
- II.
 - A. Academic year of intended implementation. *2023-2024*
 - B. Name of the department and college submitting the proposal.
 1. Name, title, and rank of the individual(s) primarily responsible for drafting the proposed program change. *Dept. of Biological Sciences, College of Natural Sciences*
 2. How many students are currently enrolled in the program. *75*
- III. Provide an **abstract**
 - A. Explain the significant changes and describe why you are making these changes and how they are related to the [University Strategic Plan](#), the [Diversity Action Plan](#) (see definition and Task 3.1) and, if applicable, your most recent academic program review or external accreditation review.

The Biology BS degree options are intended for students who want to pursue careers as biologists, and include in-depth, hands-on training at multiple course levels to develop strong skills. This makes the BS degree a high-unit major (78 units). However, most BIOL freshmen self-identify as choosing BIOL for healthcare careers such as physician, physician's assistant, nurse, or occupational therapist. Although many students choose our BS option in Cellular & Molecular Biology, this requires far more BIOL than required for those careers, and 2.5 years of majors' CHEM, which few students can complete with a strong GPA. It also requires strong preparation in MATH for a student to be able to finish in 4 years. Recently, we have observed a large increase in freshmen without this MATH preparation, requiring additional semesters of MATH before they can commence on the degree.

Other pre-health students choose our current BIOL BA, which is a lower-unit major designed for students who plan to use biology as a foundation for students intending to obtain a teaching credential. It has requirements designed for those students that are not relevant for healthcare, and lacks necessary coursework for pre-health students. Only a tiny fraction of the students who choose the BA are interested in teaching, and many students are confused and eventually change programs.

Here, we are proposing to revise our 60-unit BA to create a degree designed for pre-healthcare students, in positions ranging from MDs to associated support roles (physician's assistant, nurse, occupational therapist, etc.) It is also suitable for students interested in the pharmaceutical industry, biomedical product management, or health regulatory positions. This BA is designed for students who do not want, or are not prepared for, our BS degree, but who have healthcare career goals, for which a BS degree is not necessary, but specific science preparation and good GPA are critical. It will thus serve diverse pre-health students to give them the basic science courses (BIOL, CHEM, and other) as well as

upper-division health-related GE courses (especially writing-intensive) to prepare for health-related careers. Students who need other courses as pre-reqs for specific professional schools will be able to fit them into their program, but not duplicate other existing degrees.

We believe this BA degree will attract 80-120 students in 3-5 years. This estimate is based on analysis of our enrollments over time. BIOL typically has 50-80 freshmen students entering per year, most of whom self-identify as 'pre-healthcare', and many of whom would be interested in this option. Most of these students already take many of the courses in the proposed BA.

The proposed BA may serve also as a bridge to our BS degrees for better-prepared students, or to other programs for some students who want to specialize. However, it is unlikely to have a major impact on those programs. The university has a large and stable pool of pre-health students, some of whom currently have trouble finding a suitable major, as evidenced by the recently instituted Office of Health & Human Services Majors, designed to help pre-health students find a suitable major. We anticipate some of those students will also be served by this BA degree, and have reached out to other departments to ensure it will not conflict with other existing degrees (see IV-E and APPENDIX 3). There is currently a pressing need for more healthcare workers here in the Northstate, just as in most parts of the U.S., especially following the COVID-19 epidemic, which resulted in widespread retirements.

Finally, the proposed changes to the BA will still serve the students who want to pursue a single-subject teaching credential in biology, which requires a BIOL degree. As with the pre-health students, they will have the freedom to add courses to tailor the degree to their specific needs. AURTEC approval of this BA is shown in APPENDIX 4.

This proposed BA, by providing paths to health careers desired by many Chico State students and greatly needed here in the Northstate, supports the 'Equity, Diversity & Inclusion' and 'Civic & Global Engagement' aspects of the University's Strategic Plan. In addition, like all BIOL curricula, it supports 'Resilient & Sustainable Systems' by emphasizing natural diversity and conservation.

IV. Resources and program support.

- A. Explain why additional faculty or staff support positions are needed to implement the major, minor, certificate, or graduate program changes. *This program change involves only different existing courses and requires no additional faculty or staff support positions.*
- B. Explain why changes in or additional space and facilities will be needed. *No additional space or facilities needed.*

- C. If applicable, explain why additional library resources, equipment, and other specialized materials will be needed. If applicable, provide evidence of consultation with the Library Dean indicating that the program can be supported by the library. *See APPENDIX 1 for indicating adequate resources by the library dean.*
- D. Attach a statement from the responsible administrator(s). This statement shall include a statement of financial implications of the significant change and should also indicate a commitment to provide resources to support the major, minor, certificate, or graduate program. *See APPENDIX 2 (letter from Kris Blee, Chair, BIOL)*
- E. Provide evidence of consultation with appropriate department chairs or program directors if the proposed change will add or remove courses from their programs. *We have discussed this degree with faculty from other healthcare departments, including KINE, PHHA, NURS, and NFSC, to ensure this degree does not overlap with their programs, and for permission to include useful courses from their curricula. See APPENDIX 3 for emails indicating adequate resources by faculty from other departments about BIOL BA students taking their existing courses.*

V. Program details.

- A. For undergraduate degree programs, is the degree matched to an associate degree as “similar” according to the STAR Act (Student Transfer Achievement Reform)? If so, please explain how the proposed changes will affect the Transfer Model Curriculum (TMC). We recommend that you consult with the Articulation Officer in the Office of the Registrar to answer this question. *No*
- B. For degree programs, will there be changes to the program’s learning outcomes? If so, please explain. *No changes*
- C. Total number of units required for the revised major, minor, certificate, or graduate program (not the 120 total for the degree). Indicate if this is a change from the current number of units and the reason for the change. If this is a high unit program, please indicate whether you will be asking for any modification for General Education requirements. *60 units, same as current BA*
- D. List courses required for the major, minor, certificate, or graduate program that are added, deleted, or changed, along with a rationale for the addition, deletion, or change. Mode of instruction is either face-to-face, on-line, hybrid, or ChicoFlex. More than one mode of instruction can be indicated. Please add rows as necessary with one row for each course. *See below*

NOTE: All courses are existing courses, and face-to-face instruction

<i>Course Number</i>	<i>Course Title</i>	<i>Change</i>	<i>Units of Credit</i>	<i>Prerequisites and/or Recommended Background</i>	<i>Rationale</i>
<i>BIOL 103</i>	<i>Human Anatomy</i>	<i>Existing course taken by most students but not part of current BA</i>	<i>4</i>	<i>None</i>	<i>Anatomy is required for all healthcare careers</i>
<i>BIOL 104</i>	<i>Human Physiology</i>	<i>Existing course taken by most students but not part of current BA</i>	<i>4</i>	<i>None</i>	<i>Physiology is required for all healthcare careers</i>
<i>MATH 105</i>	<i>Introduction to Statistics</i>	<i>Existing course but not part of current BA</i>	<i>4</i>	<i>None</i>	<i>Statistics is required for most healthcare careers, and strong quantitative skills are essential to all</i>
<i>BIOL 211</i>	<i>Allied Health Microbiology</i>	<i>Existing course; replaces current BA BIOL 371W (General Microbiology)</i>	<i>4</i>	<i>BIOL 103, BIOL 104, BIOL 162, or SCED 102; CHEM 107, CHEM 108, or CHEM 111.</i>	<i>Microbiology course best suited for healthcare professionals</i>
<i>CHEM 107</i>	<i>General Chemistry</i>	<i>an alternative one-semester CHEM for students who do not want the current 2-semester CHEM 111/112</i>	<i>4</i>	<i>GE Mathematics/Quantitative Reasoning Ready, Intermediate Algebra.</i>	<i>Not all students need 2 semesters of basic chemistry; this BA gives them more options</i>

CHEM 108	Organic Chemistry	Replaces CHEM 270 in current BA	4	CHEM 107 or 111 or equivalent.	More appropriate for BA students than major's 2-semester OCHEM
CHEM 350	Biochemistry for Applied Sciences	Existing course taken by most students but not part of current BA	3	CHEM 108 or CHEM 270.	BIOCH is required or recommended for most healthcare professional programs
CHEM 350L	Biochemistry for Applied Sciences Lab	Existing course taken by most students but not part of current BA	1	CHEM 350 (may be taken concurrently)	Required for many healthcare professional programs
BIOL 303	Human Genetics	Existing course but not part of current BA	3	One biological sciences course; GE Oral Communication (A1); GE Written Communication (A2); GE Critical Thinking (A3); GE Mathematics/Quantitative Reasoning (B4) requirements, or consent of the instructor.	An alternate genetics course to the current BA's BIOL 360, which remains a choice

Writing and good communication skills are essential to any healthcare career. The following courses are appropriate for pre-health students to meet one UD GE writing requirement

<i>BIOL 302W</i>	<i>Evolution</i>	<i>Existing course but not specified by current BA</i>	<i>3</i>	<i>One biological sciences course; GE Oral Communication (A1); GE Written Communication (A2); GE Critical Thinking (A3); GE Mathematics/Quantitative Reasoning (B4) requirements, or consent of the instructor.</i>	<i>useful writing course for pre-health students</i>
<i>BIOL 322W</i>	<i>Science & Human Values</i>	<i>Existing course but not specified by current BA</i>	<i>3</i>	<i>One biological sciences course; GE Oral Communication (A1); GE Written Communication (A2); GE Critical Thinking (A3); GE Mathematics/Quantitative Reasoning (B4) requirements, or consent of the instructor.</i>	<i>useful writing course for pre-health students</i>
<i>CHLD 333W</i>	<i>Children's Gender and Sexuality Development</i>	<i>Existing course but not part of current BA</i>	<i>3</i>	<i>Junior standing; GE Oral Communication (A1); GE Written Communication (A2); GE Critical Thinking (A3); GE Mathematics/Quantitative Reasoning (B4) requirements, or consent of the instructor.</i>	<i>useful writing course for pre-health students</i>

NURS 326W	<i>Gender and Sexuality Perspectives on Disease (also MCGS 326W)</i>	<i>Existing course but not part of current BA</i>	3	<i>GE Oral Communication (A1); GE Written Communication (A2); GE Critical Thinking (A3); GE Mathematics/Quantitative Reasoning (B4) requirements, or consent of the instructor.</i>	<i>useful writing course for pre-health students</i>
PHIL 327W	<i>Health Ethics</i>	<i>Existing course but not part of current BA</i>	3	<i>GE Oral Communication (A1); GE Written Communication (A2); GE Critical Thinking (A3); GE Mathematics/Quantitative Reasoning (B4) requirements, or consent of the instructor.</i>	<i>useful writing course for pre-health students</i>
<i>BIOL 311W has been approved as the UD GVAR course for this BA</i>					
BIOL 311W	<i>Pandemics, Germs, and Society (W)</i>	<i>Replaces BIOL 350W (Ecology) in existing BA as GVAR. Existing course has been modified to fulfill GVAR</i>	3	<i>GE Oral Communication (A1); GE Written Communication (A2); GE Critical Thinking (A3); GE Life Sciences (B2); GE Mathematics/Quantitative Reasoning (B4) requirements, or consent of the instructor.</i>	<i>useful course for pre-health students</i>

- A. List elective courses for the major, minor, certificate, or graduate program that are added, deleted, or changed, along with a rationale for the addition, deletion, or change. Please add rows as necessary with one row for each course.

BIOL 318 (Biology of Childhood), 323 (Biology of Sex), 345 (Health and Lifestyle Diseases), 416 (Vertebrate Physiology), 460 (Histology), and 462 (Hematology) are UD electives for our existing BIOL BA, but now specified as most relevant for healthcare fields, and most pre-health students already take them. The following three courses, chosen from among university UD GE courses most useful to students planning careers in health fields, are being added to offer breadth outside BIOL as well. We included these after consulting with faculty in these departments (APPENDIX 3). NOTE: All courses are existing courses, with in-person instruction. Our proposed catalog stipulates that students may with advisor's permission substitute other BIOL UD courses as well.

<i>Course Number</i>	<i>Course Title</i>	<i>Change</i>	<i>Units of Credit</i>	<i>Prerequisites and/or Recommended Background</i>	<i>Rationale</i>
<i>NFSC 310</i>	<i>Global Nutrition (GE sustainability)</i>	<i>Existing course but not part of current BA</i>	<i>3</i>	<i>GE Oral Communication (A1); GE Written Communication (A2); GE Critical Thinking (A3); GE Mathematics/Quantitative Reasoning (B4) requirements, or consent of the instructor.</i>	<i>Nutrition is a useful elective course for many pre-health students</i>
<i>PHHA 321</i>	<i>Community Health</i>	<i>Existing course but not part of current BA</i>	<i>3</i>	<i>none</i>	<i>Community health is a useful elective course for many pre-health students</i>
<i>PSYC 323</i>	<i>Health Psychology</i>	<i>Existing course but not part of current BA</i>	<i>3</i>	<i>none</i>	<i>Health psychology is a useful elective course for many pre-health students</i>

Note: The catalog defines prerequisites in the following manner “You must fulfill specific course work or other conditions before you will be allowed to enroll in the course. Prerequisites may be waived by the faculty member only on approval of a formal petition which fully outlines the equivalent attainment.” Recommended background may be preferable in some instances. The catalog defines recommended background in the following manner “It is recommended that you have prior course work or knowledge; the term is used to advise and caution, but not to prevent enrollment.”

- B. Explanation of any special program characteristics (e.g., terminology, credit units required, types of coursework, etc.). *N/A*
- C. Will the majority of the courses in the major, minor, certificate, or graduate program be provided either exclusively or predominantly online (including, but not limited to, blended or online degrees as well as degree completion programs)? [See [Policy for the Use of Digital Technologies in Teaching and Learning](#).] If yes, provide detailed information about how many, and which, of the courses in the major, minor, or certificate will be offered online. Please note all programs that offer more than 50% of their required courses online are subject to our regional accreditor's, WSCUC, substantive change process and must be approved by WSCUC as such before they are delivered. *All courses are in person.*
- D. Will the program be state-support or self-support? *State-support.*
- E. Provision for meeting accreditation requirements, where applicable, and anticipated date of accreditation request. *N/A*
- F. Please explain how students with catalog rights to the existing major, minor, certificate, or graduate program will be taught out or accommodated to complete the program under the earlier catalog. *All courses currently required for the BA will continue to be taught, so students can complete their programs.*
- G. Other program requirements.
1. Undergraduate programs: Catalog number and title of the current Graduation Writing Assessment (GWAR) course and replacement course, if applicable. *BIOL 350W (Ecology) is being replaced by BIOL 311W (Pandemics, Germs and Society), which is now an approved GWAR (see APPENDIX 5 for notification).*
 2. Undergraduate programs: Catalog number and title of current department-designated upper-division writing course(s) and replacement, if applicable. See [EM 17-009](#) *No current department-designated UD writing courses; see descriptions above for choices in proposed BA*
 3. Graduate programs: Indicate how the graduate literacy requirement is met. *N/A*
 4. Graduate programs: indicate the culminating activity options for the program *N/A*
- H. For undergraduate programs, include a revised [Major Academic Plan](#) (MAP) with the proposal. If you have questions or need help, contact [Academic Advising Programs](#). *See attached MAPs. We are also planning extensive advising support for BIOL faculty to help guide students who intend careers in specific fields. Strong advising will be critical to student success in this degree, as with our BS, where we have worked to improve faculty advising for our majors. Examples of draft advising sheets for health careers are shown in APPENDIX 6.*
- I. Complete catalog copy for the revised major, minor, certificate, or graduate program, including full degree requirements, admission, and completion

requirements. See the current University Catalog for correct format and follow it exactly. Before the proposal is submitted to Curriculum Services (for undergraduate programs) or to the Office of Graduate Studies (for graduate programs), it may be helpful to review catalog copy with Academic Publications and Scheduling Services. *See attached*

Attach the [Undergraduate Program Signature form](#) or the [Graduate Program Signature form](#) to the front of the proposal and submit to Curriculum Services after all department and college reviews are complete. *See attached*

Biological Sciences BA

Total Units Required: 120

Overview

The Bachelor of Arts in Biological Sciences is designed for students who plan to use biology as a foundation for healthcare careers (pre-physician's assistant, pre-nursing, pre-occupational therapist, etc.). It is also suitable for students interested in the pharmaceutical industry, biomedical product management, or health regulatory positions. Note that while this BA may serve some pre-medical students (including osteopathy, dentistry, and optometry), the BS degrees in Cellular & Molecular Biology or Microbiology may provide better preparation, but can only be completed in four years by students with strong science backgrounds. Students are urged to consult with their advisors about specific requirements.

The BA degree options require 60 units in the major, leaving room for additional coursework needed for students planning specific careers, especially if post-baccalaureate training is required. Students are urged to meet with an advisor to help identify additional recommended courses, as well as requirements for service time in healthcare settings.

Graduation Requirements

General Education Requirements: 48 units

See [General Education](#) and the [Class Schedule](#) for the most current information on General Education Requirements and course offerings.

This major has approved GE modification(s). See below for information on how to apply these modification(s).

[BIOL 360](#) is an approved major course substitution for Upper Division Scientific Inquiry and Quantitative Reasoning (UD-B).

The following General Education courses are recommended to support students in the BIOL BA:

ANTH 113 or SOCI 100 for Area D

NFSC 100, CHLD 252, or PSYC 101 for Area E

Diversity Course Requirements: 6 units

You must complete a minimum of two courses that focus primarily on cultural diversity. At least one course must be in U.S. Diversity (USD) and at least one in Global Cultures (GC). See [Diversity Requirements](#) for a full list of courses. Most courses taken to satisfy these requirements may also apply to [General Education](#).

Upper-Division Writing Requirement

Writing Across the Curriculum ([EM 17-009](#)) is a graduation requirement and may be demonstrated through satisfactory completion of four Writing (W) courses, two of which are designated by the major department. See [Mathematics/Quantitative Reasoning and Writing Requirements](#) for more details on the four courses. The first of the major designated Writing (W) courses is listed below.

Taking one of the following courses satisfies the first major designated Writing courses:

- BIOL 302W Evolution
- BIOL 322W Science and Human Values
- CHLD 333W Children's Gender and Sexuality Development
- NURS/MCGS 326W Gender and Sexuality Perspectives on Disease
- PHIL 327W Health Ethics

The second major-designated Writing course is the Graduation Writing Assessment Requirement (GW) ([EO 665](#)). Students must earn a C- or higher to receive GW credit. The [GE Written Communication \(A2\)](#) requirement must be completed before a student is permitted to register for a GW course.

BIOL 311W Pandemics, Germs and Society

Grading Requirement

All courses taken to fulfill program course requirements must be taken for a letter grade except those courses specified by the department as credit/no credit grading only.

Program Requirements

Course Requirements for the Major: 60 units

See [Bachelor's Degree Requirements](#) for complete details on general degree requirements. A minimum of 39 units, including those required for the major, must be upper division.

BIOL BA (60 units) for pre-Healthcare Professionals

Introductory Core:		
Course	Title	Units
BIOL 161	Principles of Ecological, Evolutionary, and Organismal Biology	4
BIOL 162	Principles of Cellular and Molecular Biology	4
BIOL 163	Principles of Physiology and Development	4
Science Breadth:		
Course	Title	Units
BIOL 103	Human Anatomy	4
BIOL 104	Human Physiology	4
BIOL 109	The Biological University Experience	1
BIOL 211	Allied Health Microbiology	4
CHEM 111	General Chemistry I ¹	4
CHEM 112	General Chemistry II ²	4
CHEM 108	Organic Chemistry	4
MATH 105	Introduction to Statistics	3

^{1,2} CHEM 107 may be substituted for CHEM 111 and CHEM 112 for some students. Please check with your advisor.

Upper-Division Science Breadth:		
Course	Title	Units
Either:		
BIOL 303	Human Genetics	3
Or:		
BIOL 360	Genetics	4
CHEM 350	Biochemistry for Applied Sciences	3
CHEM 350L	Biochemistry for Applied Sciences Lab	1
BIOL 492	Seminar	1
UD writing course 1: choose one course from:		
BIOL 302W	Evolution	3
BIOL 322W	Science & Human Values	3
CHLD 333W	Children's Gender and Sexuality Development	3
NURS 326W	Gender and Sexuality Perspectives on Disease (also MCGS 326W)	3
PHIL 327W	Health Ethics	3
UD writing course 2 (Graduation Writing Assessment, GWA):		
BIOL 311W	Pandemics, Germs and Society	3
UD electives: Choose up to 6 units from the following:*		
BIOL 318	Biology of Childhood	3
BIOL 323	Biology of Sex	3
BIOL 345	Health and Lifestyle Diseases	3
BIOL 416	Vertebrate Physiology	4
BIOL 460	Histology	4
BIOL 462	Hematology	4
NFSC 310	Global Nutrition (GE sustainability)	3
PHHA 321	Community Health	3
PSYC 323	Health Psychology	3

* Choose sufficient units to ensure 60 in the major. Other UD BIOL courses may be taken with permission of instructor.

Biological Sciences BA

OVERVIEW

The Bachelor of Arts in Biological Sciences is designed for students who plan to use biology as a foundation for healthcare careers (pre-physician's assistant, pre-nursing, pre-occupational therapist, etc.). It is also suitable for students interested in the pharmaceutical industry, biomedical product management, or health regulatory positions. Note that while this BA may serve some pre-medical students (including osteopathy, dentistry, and optometry), the BS degrees in Cellular & Molecular Biology or Microbiology may provide better preparation, but can only be completed in four years by students with strong science backgrounds. Students are urged to consult with their advisors about specific requirements.

The BA degree requires 60 units in the major, leaving room for additional coursework needed for students planning specific careers, especially if post-baccalaureate training is required. Students are urged to meet with an advisor to help identify additional recommended courses, as well as requirements for service time in healthcare settings.

~~The Bachelor of Arts in Biological Sciences is designed for students who plan to use biology as a foundation for a career in pharmaceutical industry, healthcare, biomedical product management, regulatory positions, and especially in secondary school science teaching. For students who intend to become secondary school teachers, this degree offers the necessary preparation for earning a single subject credential.~~

~~This degree is appropriate for students pursuing single subject matter preparation in science with a concentration in biological sciences. This degree is also an excellent preparation for students considering biology related interdisciplinary fields. Students who choose this program should consult with their major advisor.~~

Total Units Required: 120

Grading Requirement

All courses taken to fulfill program course requirements must be taken for a letter grade except those courses specified by the department as credit/no credit grading only.

Course Requirements for the Major: 60 units

See [Bachelor's Degree Requirements](#) for complete details on general degree requirements. A minimum of 39 units, including those required for the major, must be upper division.

Course List

Course	Title	Units
Introductory Core		
BIOL 161	Principles of Ecological, Evolutionary, and Organismal Biology	4
BIOL 162	Principles of Cellular and Molecular Biology	4
BIOL 163	Principles of Physiology and Development	4
Science Breadth		
BIOL 103	Human Anatomy	4
BIOL 104	Human Physiology	4
BIOL 109	The Biological University Experience	1
BIOL 211	Allied Health Microbiology	4
CHEM 108	Organic Chemistry for Applied Sciences	4
CHEM 111	General Chemistry I ¹	4
CHEM 112	General Chemistry II	4
MATH 105	Introduction to Statistics	3
CHEM 270	Organic Chemistry I	4
ERTH 102	Physical Geology	3
ERTH 300W	Earth System Science (W)	3
PHYS 202A	General Physics I	4
PHYS 202B	General Physics II	4
Upper Division Science Breadth		
BIOL 303	Human Genetics	3
OR		
BIOL 360	Genetics	4
BIOL 311W	Pandemics, Germs, and Society (W)	3
CHEM 350	Introductory Biochemistry	3
CHEM 350L	Introductory Biochemistry Lab	1
BIOL 492	Seminars in Biological Science	1
BIOL 350W	Fundamentals of Ecology (W)	3
BIOL 360	Genetics	4
BIOL 369	Advanced Plant Biology	3
BIOL 370	Advanced Zoology	3
BIOL 371W	Microbiology (W)	4
Three units selected from:		3
BIOL 302W	Evolution (W)	
BIOL 322W	Science and Human Values (W)	
CHLD 333W	Children's Gender and Sexuality Development (W)	

¹ CHEM 107 may substitute for CHEM 112 and CHEM 112 for some students. Please check with your advisor.

Course List

Course	Title	Units
NURS/MCGS 326W	Gender and Sexuality Perspectives on Disease (W)	
PHIL 327W	Health Ethics (W)	
Electives		
Select four up to six units from the following: ²		
Any upper division BIOL course chosen in consultation with your Major Advisor		
BIOL 318	Biology of Childhood	
BIOL 323	Biology of Sex	
BIOL 345	Health and Lifestyle Diseases	
BIOL 416	Vertebrate Physiology	
BIOL 460	Histology	
BIOL 462	Hematology	
NFSC 310	Global Nutrition	
PHHA 321	Community Health	
PSYC 323	Health Psychology	
Total Units		60

² Choose sufficient units to ensure at least 60 in the major. Other upper-division BIOL courses may be taken with permission of instructor.

Electives Requirement

To complete the total units required for the bachelor's degree, select additional elective courses from the total University offerings. You should consult with an advisor regarding the selection of courses which will provide breadth to your University experience and possibly apply to a supportive second major or minor.

See [Bachelor's Degree Requirements](#) for complete details on general degree requirements. A minimum of 39 units, including those required for the major, must be upper division.

General Education Requirements: 48 units

See [General Education](#) and the [Class Schedule](#) for the most current information on General Education Requirements and course offerings.

This major has approved GE modification(s). See below for information on how to apply these modification(s).

- [BIOL 360](#) is an approved major course substitution for Upper Division Scientific Inquiry and Quantitative Reasoning (UD-B).

The following General Education courses are recommended to support students in the Biological Sciences BA:

ANTH 113 or SOCI 100 for Area D
CHLD 252, NFSC 100, or PSYC 101 for Area E

Diversity Course Requirements: 6 units

You must complete a minimum of two courses that focus primarily on cultural diversity. At least one course must be in U.S. Diversity (USD) and at least one in Global Cultures (GC). See [Diversity Requirements](#) for a full list of courses. Most courses taken to satisfy these requirements may also apply to [General Education](#).

Upper-Division Writing Requirement

Writing Across the Curriculum ([EM 17-009](#)) is a graduation requirement and may be demonstrated through satisfactory completion of four Writing (W) courses, two of which are designated by the major department. See [Mathematics/Quantitative Reasoning and Writing Requirements](#) for more details on the four courses. The first of the major designated Writing (W) courses is listed below.

- ~~BIOL 350W Fundamentals of Ecology (W)~~
- ~~BIOL 371W Microbiology (W)~~
- BIOL 302W Evolution (W)
- BIOL 322W Science and Human Values (W)
- CHLD 333W Children's Gender and Sexuality Development (W)
- NURS/MCGS 326W Gender and Sexuality Perspectives on Disease (W)
- PHIL 327W Health Ethics (W)

The second major-designated Writing course is the Graduation Writing Assessment Requirement (GW) ([EO 665](#)). Students must earn a C- or higher to receive GW credit. The [GE Written Communication \(A2\)](#) requirement must be completed before a student is permitted to register for a GW course.

BIOL BA MAP

Semester One		Semester Two		Year 1 Major Units	total units
BIOL 109	1	GE-B1: CHEM 107 or CHEM111	4	16	120
GE-B4: Math 105	3	GE-B2: BIOL 103 or BIOL 104	4		
GE-B2: BIOL 103 or BIOL 104	4	GE-A3	3		
GE-A1	3	GE-E: NFSC100, CHLD252, PSYC101	3		
GE-A2: ENGL130	3	GE-F	3		
Total	13	Total	17		
Semester Three		Semester Four		Year 2 Major Units	
BIOL 161	4	BIOL 162	4	15	
CHEM 108 or CHEM 112	4	CHEM 108 (if took CHEM 111+112)	3		
GE-C (HIST130)	3	GE-D (POLS155)	3		
GE-C1	3	GE-D: ANTH113, SOCI100	3		
GE-C2	3				
Total	17	Total	13		
Semester Five		Semester Six		Year 3 Major Units	
BIOL 163	4	BIOL 303 or 360 (satisfies UD GE-B)	4	19	
UD GWAR (BIOL 311W)	3	BIOL 211	4		
CHEM 350	3	UD GE writing (1 of 6)	3		
CHEM 350L	1	UD GE pathway	3		
UD GE pathway	3	Elective	3		
Total	14	Total	17		
Semester Seven		Semester Eight		Year 4 Major Units	
UD elective	3	UD elective	3	10	
UD elective	3	UD elective (if took CHEM 107+108)	4		
BIOL 492	1	Elective	3		
Elective	3	Elective	3		
Elective	3	Elective	3		
Total	13	Total	16	60	

Biological Sciences BA Significant Change proposal - Appendices

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Appendix 1: affirmation of resources from library dean Marc Langston

Gordon Wolfe

From: Marc L Langston
Sent: Monday, August 29, 2022 9:32 AM
To: Gordon Wolfe
Subject: RE: BIOL Pre-Health BA
Attachments: BIO program change 082622 (1).docx

Hello Gordon,
Attached is the memo regarding the library's support for the proposed Biology program change.

Marc Langston
Reference and Instruction Librarian
MLIB 119
California State University, Chico
Chico, CA 95929-0295
Email: mlangston@csuchico.edu
Phone: 530-898-4587



Meriam Library
California State University, Chico

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MEMORANDUM

To: Dr. Gordon Wolfe
From: Marc Langston
Date: August 26, 2022
Subject: Library materials support for Biology program changes, specifically the proposed BA degree.

The proposed pre-health BA in Biology is composed of pre-existing classes from several departments, including BIOL, ANTH, NURS, NFSC, and others. Years of annual library funding have developed collections that support classes taught in these departments. Department faculty and assigned subject librarians work together to build collections consisting of research databases, and online and print journals and books.

The Meriam Library currently provides adequate access to both electronic and physical library and learning resources that would support the new pre-health BA in Biology.

Appendix 2: support from program administrator (Kris Blee, chair, BIOL)

California State University, Chico
Chico, California 95929-0515
Biological Sciences
530-898-5356



September 1, 2022

Kristopher Blee PhD
Professor and Chair
Department of Biological Sciences
California State University
Chico, CA 95929-0515

Dear Committee,



Because the change of program proposes a novel combination of existing courses, compiling student learning from the outcomes from each course to achieve an educational goal new to this campus, we predict no major financial implications. Because the courses of the academic program proposed are central to programs of our department and of other departments, attract robust enrollments, we anticipate a long term commitment in the continued staffing and offering of the supporting coursework.

Sincerely,

Kris Blee
Dr. Kristopher A. Blee

Appendix 3: confirmation of inclusion of elective courses from other departments by chairs

NOTE: some of these refer to 'pre-health option'. This was a few weeks ago when we envisioned making this BA one of two options. That option was identical to the current proposed BA.

Gordon Wolfe

From: Zanja Yudell
Sent: Friday, August 19, 2022 2:59 PM
To: Gordon Wolfe
Cc: Gordon Wolfe
Subject: Re: BIOL Pre-Health BA

Hi Gordon,

Thanks for your message. I'm happy to have you include PHIL 327W as an elective in the new option, and I would certainly approve its inclusion. It would be useful to have a sense of how many majors you expect to have in this option. We usually offer many sections of that course, but the demand fell off a cliff this semester and we had to cut two of them. We certainly welcome the enrollment. And do you expect this new option to be available in AY 23-24?

Zanja

Gordon Wolfe

From: Gail E Walton
Sent: Saturday, August 20, 2022 4:34 PM
To: Diana D Shepherd; Gordon Wolfe
Subject: Re: BIOL Pre-Health BA

Hi Gordon,

I want to echo what Diana said about both CHLD 333W and CHLD 252 and I'm pleased to give approval for the inclusion of CHLD 333W in your UD pre-health curriculum. I am the co-creator of CHLD 333W, and I think it fits well as a writing elective in your pre-health option. For CHLD 252, understanding how children's development changes across developmental periods would be helpful for teachers. Multiple sections of these courses are offered each semester, as well as during winter and summer sessions, that gives students many options for when they are taken.

Have a good rest of your weekend,
Gail

Gail Walton, PhD
Professor, Department Chair
Child Development Department
California State University, Chico
400 W. First Street
Chico, CA 95929
Phone: 530-898-5578
gwalton@csuchico.edu

Gordon Wolfe

From: Karin L Lightfoot
Sent: Friday, August 19, 2022 2:38 PM
To: Gordon Wolfe
Subject: Fw: BIOL Pre-Health BA
Attachments: Biological Sciences BA options 5-6-22.docx

Hello Gordon,

I approve the NURS 326W as an upper-division elective for the Pre-health BA program.

Note: This course is cross-referenced with MCGS, I suggest you also check in with Susan Green, Chair of MCGS.

Good luck with your proposal submission.

Karin

Karin L. Lightfoot, PhD, MSN, RN-BC, PHN
Director- School of Nursing
Trinity Hall, Room 124
California State University, Chico
400 West First Street
Chico, CA 95929-0200
Office Phone: (530) 898-3481
Email: klightfoot@csuchico.edu
Past-President, California Association of Colleges of Nursing



Gordon Wolfe

From: Susan Gordon Green
Sent: Monday, August 22, 2022 10:31 AM
To: Gordon Wolfe; Karin L Lightfoot
Subject: Re: BIOL Pre-Health BA

Fine with me as we do. not staff the class. Thanks Karin
Susan

Susan Gordon Green

Chair
Multicultural and Gender Studies
171 Meriam Library
400 West First Street Chico CA 95929-0420
Pronouns: She/Her/Hers

Work phone: [530-898-5158](tel:530-898-5158)
sgreen@csuchico.edu | <http://www.csuchico.edu/mcgs/>



Gordon Wolfe

From: Stanley R Salinas
Sent: Monday, August 22, 2022 10:29 AM
To: Gordon Wolfe
Subject: PHHA 321

Gordon,

Yes. We approved PHHA 321, Community Health as and upper division elective for the BIOL pre health BA.

Stan R Salinas

Dept. Chair & Associate Professor
Public Health and Health Services Administration

srsalinas@csuchico.edu



From: [Melissa A Mache](#)
To: [Nicol Gray](#); [Gordon Wolfe](#); [Holly T Kralj](#)
Cc: [Kristopher A Blee](#)
Subject: RE: Slight change to BIOL BA proposal
Date: Tuesday, November 1, 2022 8:19:57 AM

Good Morning All,

First, thank you Gordon for meeting with me yesterday to discuss the Biological Sciences BA proposal. As we discussed, after reading the proposal and me having a chance to meet with Kinesiology Department Curriculum Committee Members and Major Advisors we had a couple of concerns, including the following:

1. The Kinesiology Department was not originally consulted during the process of developing this proposal. This was concerning as the proposal indicates the desire to attract students who are interested in physical therapy (or pre-PT students). This is a population of student that we already serve with our BS in Exercise Physiology, and we were concerned that the proposed revision to the BA in Biological Sciences would be direct competition with our BS degree.
2. The proposed BA in Biological Sciences looks like it could serve many students on campus well, but it does not align well with PT pre-requisites in several ways. For example, pre-PT students need a year of physics (not required in the proposed BA), a year of general chemistry (not required – but optional and would require students to take “extra” CHEM), and a year of psychology (there is only one required semester in the degree).
3. If pre-PT students were to end up in the BA in Biological Sciences they would end up taking “extra” BIOL courses and miss out on the opportunity to take courses such as exercise physiology and biomechanics (that are required pre-requisites for some PT schools) that bolster PT school applications for our students.

Given that the current BS in Exercise Physiology curriculum within the Kinesiology Department addresses the “issues” (among other PT specific pre-requisites) that I have described in number 2 above, Gordon and I agreed that removing all references to “pre-PT” from the BA in Biological Sciences proposal document (and the proposed catalog copy) would be appropriate.

Thank you again Gordon for working with me on this. I will wait to see what this means for this Thursday’s EPPC meeting. If anything else is needed from me, please let me know.

Melissa

From: Nicol Gray <NSGray@csuchico.edu>
Sent: Monday, October 31, 2022 4:37 PM
To: Gordon Wolfe <GWolfe2@csuchico.edu>; Holly T Kralj <HKralj@csuchico.edu>; Melissa A Mache <mmache@csuchico.edu>
Cc: Kristopher A Blee <KBlee@csuchico.edu>
Subject: RE: Slight change to BIOL BA proposal

Hi Gordon,

It might be too late to edit the proposal but I'll let Holly let us know for sure. If it is too late it's still OK, we can talk about it at EPPC on Thursday and update the proposal before it goes to Senate.

Thanks!

Nicol Gray
Curriculum Coordinator
SSC 464B
898-4923
[CPCR Login](#)

[Join Curriculum Services on Microsoft Teams!](#)

From: Gordon Wolfe <GWolfe2@csuchico.edu>
Sent: Monday, October 31, 2022 4:23 PM
To: Nicol Gray <NSGray@csuchico.edu>; Holly T Kralj <HKralj@csuchico.edu>; Melissa A Mache <mmache@csuchico.edu>
Cc: Kristopher A Blee <KBlee@csuchico.edu>; Gordon Wolfe <GWolfe2@csuchico.edu>
Subject: Slight change to BIOL BA proposal

Hi Nicol,

I just met with Melissa Mache about concerns from KINE that our proposed BA is not ideal for pre-physical therapy students, who typically needs physics but not biochemistry, and other advising that KINE is better placed to provide. She said occupational therapy requirements are less strict, so that could still be included in our program.

We wondered if it is too late to amend the proposal/catalog copy I sent you Friday to change 'physical/occupational therapist' to 'occupational therapist'. I think it occurs once at the start of the catalog copy, and on page 1 of the proposal. If necessary, I could add an email from Melissa confirming KINE input.

I apologize for this late request, and am not sure if it can be worked into EPPC's schedule for this week's meeting. Please advise.

Thank you,

Gordon Wolfe

Dept. Biological Sciences
California State University, Chico
940 W. 1st St.

From: [Eric Ayars](#)
To: [Gordon Wolfe](#)
Cc: [Nicol Gray](#); [Holly T Kralj](#); [Kristopher A Blee](#)
Subject: Re: BIOL BA
Date: Tuesday, November 1, 2022 1:41:08 PM

Hello Gordon,

I won't pretend to be enthusiastic about a science program that omits physics, but at least you recommend students take physics if it's needed for their subsequent profession. I suspect that this BA will cannibalize some of the current biology BS students, and as such will lower our PHYS 202A/B enrollments, but I have no good estimate of the size of this effect. Given the situation you are addressing, I have no argument on which to base a strong objection. Good luck with it, and I encourage you to follow through with advising students into PHYS 202A/B who will need it after their Chico State degree.

Count this as grudging approval, I guess. ;-)
-ea

Eric Ayars

Professor and Chair, Physics
Pronouns: He/him/his

Work phone: [530-898-6967](tel:530-898-6967)
eyars@csuchico.edu



On Nov 1, 2022, at 1:26 PM, Gordon Wolfe <GWolfe2@csuchico.edu> wrote:

Hi Eric,

As I mentioned when we spoke a few minutes ago, I apologize for not talking to you about this earlier, but I had assumed our proposed changes were OK when it passed the college curriculum committee.

Attached is our proposed BA and catalog for pre-health students. We had to drop PHYS 202A/B as requirements to keep within the current 60-unit BA limit, but will recommend those courses to all students who need a year of physics for professional schools, which includes most pre-med/optometry/osteopathy, pre-dentistry, and pre-PA students. Examples of advising sheets are in Appendix 6 of the appendices, and I am working on including career-specific MAPs as well.

If you have any concerns, please let me know.

Thank you,

Gordon Wolfe, chair, BIOL curriculum committee

Dept. Biological Sciences
California State University, Chico
940 W. 1st St.
Chico, CA 95929-0515

(530) 898-4256
(530) 898-5060 FAX

<BIOL BA significant changes proposal 10-31-22.docx><BIOL BA proposal
appendices 10-27-20.docx><BIOL BA catalog 11-1-22.docx>

Appendix 4: AURTEC approval




California State University **Chico**
College of Communication
and Education

AURTEC MEMORANDUM

Date: September 19, 2022

To: Gordon Wolf, Biological Sciences

Cc: Kristopher Blee, Biological Sciences Chair
Holly Kralj, EPPC Chair
Nicol Gray, Academic Programs
Angela Trethewey, Dean

From: Deborah Summers, Associate Dean 
College of Communication and Education (CME), AURTEC Chair

SUBJECT: Proposed elimination of the BA in Biology degree.

Thank you for attending our last AURTEC meeting to present the proposed elimination of the BA in Biology, a formerly commission-approved Subject Matter Waiver Program. The proposal meets the Subject Matter Requirement (SMR) for teacher credential programs in that the existing degree major of a BS in Biology corresponds to the authorization of Biology listed on a teaching credential. Subject matter by degree major is one of the recently approved expanded SMR options, as per AB 130.

The committee approved the elimination of the BA in biology and noted that the elimination causes no concern for either the BS in Natural Sciences, Option in Science Education or the BS in Biology or with any other subject matter or teacher credential program.

Appendix 5: Approval of BIOL 311W as GWAR course

Gordon Wolfe

From: Nicol Gray
Sent: Friday, October 21, 2022 2:45 PM
To: Kristopher A Blee; Troy D Cline
Cc: Gordon Wolfe; Catherine R Wiggins
Subject: BIOL 311 approved as GWAR

Importance: High

Good afternoon,

The University Writing Committee has approved BIOL 311 as a GWAR course! Please submit a CPR to add W/GW status and since this is a GE course we will also need a [Memo of Intent](#). The intent deadline for this semester is November 28. I realize that deadline is coming up fast, and if you can't make it then the memo could be sent out when the term starts in January but since this course is needed for the changes to the BIOL BA we will need the CPR and memo before we can add the program changes to the 23/24 catalog.

Be sure to let me know if you have any questions. Thank you,

Nicol Gray

Curriculum Coordinator

SSC 464B

898-4923

[CPCR Login](#)

Appendix 6: DRAFT advising documents for BIOL BA

California State Univ. Chico Biology BA for Pre-Health Professions

DRAFT Oct. 2022

Majors and Course Requirements: The minimum requirement for admission to most health professional schools (medical, osteopathic, optometry, dental, pharmacy, veterinary, chiropractic, physical therapy, physician's assistant, podiatry) is the completion of at least 90-semester units, but a bachelor's degree (120 Units) is recommended. While students usually do not need a specific major, they do need to take courses required for application to professional schools. Almost all schools require coursework in BIOL, CHEM, MATH, as well as in writing, social sciences, and humanities. The CSUC BIOL BA has been designed to fulfill these for most programs. However, specific course requirements differ for different types of careers, and even within one type of career, courses requirements differ from one school to another. Course requirements also change over time, depending on school. **Therefore, it is highly recommended that students, while preparing for admissions, examine the requirements of their prospective professional schools and, with the assistance of their major advisor, design a program of study.** The BIOL BA is a 60-unit major, which leaves considerable room for additional coursework that may be needed for specific professional schools.

Whatever degree or profession, **high GPA is a critical element** to gaining admissions to health profession schools. Students who take more advanced versions of basic science courses may have an advantage, but only if they can achieve a high grade.

Experience: It is very important for students to have special health-related experience in addition to their course work. Most students get this by volunteering in an appropriate health profession setting. The experience **should have direct patient contact or other interpersonal involvement**, and some professional programs have specific requirements for a minimum numbers of experience hours. The professional schools want to know if the applicants have first-hand knowledge of the realities of a career in a health profession. In some situations, experience plays a significant role in the admission selection process. In some cases, academic credit may be received for such experiences, but this is typically outside the BA program. In contrast, research experience (BIOL 399 or 499H) may be useful to some students, but it is not a major requirement in the admissions process to most of the health professions. Consult your advisor and specific professional school requirements for more information.

Professional Admissions Tests: In most professional schools, it is required that all the prerequisite courses be completed by June of the year of intended enrollment. It is also helpful to complete most or all coursework before taking a professional admissions test, such as MCAT (Medical College Admission Test), DAT (Dental Admission Test), OAT (Optometry Admission Test), or GRE (Graduate Record Exam for Veterinary School Admission).

Resources: navigating the many paths to a health career is confusing and challenging, and there is no central source of information for all careers. One generally useful resource is Med School Insiders YouTube channel: <https://www.youtube.com/channel/UC3VWbWk8qDBiF0741izgpQg>.

California State Univ. Chico BIOL BA

Advising for Pre-Health Professions: MEDICAL DOCTOR (MD) or OSTEOPATHIC MEDICAL DOCTOR (DO)

G. Wolfe, Oct. 2022

MD professional programs vary widely in course requirements, and are changing rapidly. Some are moving away from specific course requirements to 'areas of proficiency', while others retain specific course requirements.

Many medical schools want, in addition to the BA core and elective courses:

- 1 year physics (PHYS 202A/202B)
- Some still require 2-semester OCHEM (CHEM 270/370), which is offered through the BIOL BS

A few still require Calculus (MATH 109) as well as statistics. Some may require Spanish or other second language skills.

Resources: The American Medical Association (www.ama.org) is the national professional society, but their website 'education' section focuses on advanced professional training, such as residencies. It is surprisingly difficult to find a central list comparing specific course requirements among medical schools, and there are many for-pay websites that purport to help guide you. One website that has a fairly recent comparison is: <https://ingeniusprep.com/blog/prerequisite-courses-medical-schools/>

DO programs generally want similar preparation. However, they are represented by the *American Association of Colleges of Osteopathic Medicine* (www.aacom.org). www.choosedo.org has a searchable database of DO programs, as well as helpful timeline for preparation in college.

Required examination: MCAT

Additional Requirements: letters of recommendation from professors, doctors, etc. as well as a personal statement from the applicant are required. Acceptance into a school may be aided by a broad range extracurricular activities, health-related experience, and fluency in a second language in addition to strong GPA (≥ 3.5) and MCAT scores.

Interested students should investigate requirements of specific schools well before beginning the application process.

California State Univ. Chico BIOL BA

Advising for Pre-Health Professions: OPTOMETRY (OD)

DRAFT Oct. 2022

Many optometry schools want, in addition to the BA core and elective courses:

- 1 year physics (PHYS 202A/202B)
- Calculus (MATH 109)
- Some still require 2-semester OCHEM (CHEM 270/370), which is offered through the BIOL BS

Some may require Spanish or other second language skills.

Resources: The Association of Schools and Colleges of Optometry (www.optometriceducation.org) has resources for future optometry students, including specific course requirements for most schools.

Required examination: OAT

Additional Requirements: letters of recommendation from professors, doctors, etc. as well as a personal statement from the applicant are required. Acceptance into a school may be aided by a broad range extracurricular activities, health-related experience, and fluency in a second language in addition to strong GPA (≥ 3.5) and MCAT scores.

Interested students should investigate requirements of specific schools well before beginning the application process.

California State Univ. Chico BIOL BA

Advising for Pre-Health Professions: DENTISTRY

DRAFT Oct. 2022

Almost all Dental professional programs want, in addition to the BA core and elective courses:

- 1 year physics (PHYS 202A/202B)
- Some may require 2-semester OCHEM (CHEM 270/370), which is offered through the BIOL BS

A few still require Calculus (MATH 109) as well as statistics. Some may require Spanish or other second language skills.

Resources: The American Dental Association (www.ada.org) is the national professional society for dentists, and has information on dental programs. The American Dental Education Association (www.adea.org) is the national professional society for training dentists and dental hygienists. Their website provides required and recommended coursework for many dental schools.

Required examination: Dental Admission Test (DAT)

Additional Requirements: letters of recommendation from professors, dentists, etc. as well as a personal statement from the applicant are required. Acceptance into a school may be aided by a broad range extracurricular activities, dental-related experience, and fluency in a second language in addition to strong GPA (≥ 3.5) and DAT scores.

Interested students should investigate requirements of specific schools well before beginning the application process.

California State Univ. Chico BIOL BA

Advising for Pre-Health Professions: PHYSICIAN'S ASSISTANT

DRAFT Oct. 2022

Some PA professional programs may want, in addition to the BA core and elective courses:

- 1 year physics (PHYS 202A/202B)
- Spanish or other second language skills

Resources: The American Academy of Physician Associates (www.aapa.org) is the national professional society for nearly 160,000 PAs (physician associates/physician assistants). Their website lists professional training programs, with specific course requirements, as well as information about gaining the required healthcare experience.

Required examination: none

Additional Requirements: letters of recommendation from professors, doctors, etc. as well as a personal statement from the applicant are required. Acceptance into a school may be aided by a broad range extracurricular activities, health-related experience, and fluency in a second language in addition to strong GPA (≥ 3.5) and DAT scores.

Interested students should investigate requirements of specific schools well before beginning the application process.