

BA IN CHEMISTRY (BIOCHEMISTRY)

In Workflow

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10. Registrar's Office (w lindsey@csus.edu)

Approval Path

1. Tue, 25 Feb 2020 20:14:16 GMT
Benjamin Gherman (ghermanb): Approved for CHEM Committee Chair
2. Tue, 25 Feb 2020 22:08:46 GMT
Roy Dixon (rdixon): Approved for CHEM Chair
3. Wed, 04 Mar 2020 23:28:14 GMT
Thomas Krabacher (tsk): Approved for NSM College Committee Chair
4. Tue, 10 Mar 2020 16:38:09 GMT
Shannon Datwyler (datwyler): Approved for NSM Dean
5. Wed, 08 Apr 2020 18:27:15 GMT
Janett Torset (torsetj): Approved for Academic Services

History

1. May 4, 2018 by clmig-jwehrheim
2. Aug 13, 2018 by 212408496
3. Oct 2, 2018 by 212408496

Date Submitted: Wed, 19 Feb 2020 22:49:16 GMT

Viewing: BA in Chemistry (Biochemistry)

Last approved: Tue, 02 Oct 2018 20:44:20 GMT

Last edit: Wed, 19 Feb 2020 22:49:14 GMT

Changes proposed by: Benjamin Gherman (102085943)

Academic Group: (College)

Natural Sciences & Mathematics

Academic Organization: (Department)

Chemistry

Catalog Year Effective:

2021-2022 Catalog

Individual(s) primarily responsible for drafting the proposed degree major program:

Name (First Last)	Email	Phone 999-999-9999
Benjamin Gherman	ghermanb@csus.edu	916-278-6600

Type of Program Proposal:

Major

Program Change Type:

Non-Substantive

Title of the Program:

BA in Chemistry (Biochemistry)

Designation: (degree terminology)

Bachelor of Arts

Briefly describe the program proposal (new or change) and provide a justification:

- Removing language about contact lenses from the program description. Safety information is now specified in department policy, which is referred to in the catalog (just before where the contact lenses information was). State law has also changed regarding wearing contact lenses in chemistry labs.
- The URL for "Laboratory Safety Policies" within the Safety section of the program description has been updated (to match the new URL after the university website update in 2019).

Objectives of the degree program:

To prepare students with a technical background for work in the chemical or biotechnology industry or other area with a major component of chemistry. Suitable for students interested in professional health degrees.

University Learning Goals

Undergraduate Learning Goals:

Competence in the disciplines
Knowledge of human cultures and the physical and natural world
Integrative learning
Intellectual and practical skills

Will this program be required as part of a teaching credential program, a single subject, or multiple subject waiver program (e.g., Liberal Studies, Biology) or other school personnel preparation program (e.g., School of Nursing)?

No

Do these changes impact the Smart Planner roadmap?

No

Catalog Description:

Units required for Major: 64-77

Total units required for BA: 120

Program Description

Three BA programs are available: One without a concentration (general) and two with concentrations (Biochemistry or Forensic Chemistry). The common requirements of the three programs are shown below under "Core Requirements."

Admission Requirements: Course prerequisites and other criteria for admission of students to the degree major program, and for their continuation in it.

Safety

Due to the potential hazards some chemicals may present, safety is an essential element of all Chemistry laboratory classes, including independent research. All students must adhere to the Department of Chemistry Laboratory Safety Policies (<https://www.csus.edu/college/natural-sciences-mathematics/safety/>). Failure to adhere to the Safety Policies may constitute grounds for withdrawal from a course and/or dismissal from the program.

Advising

The Department believes advising of students is an important function. Members of the Chemistry Department who have a strong interest in advising have been selected to serve as advisors for students wishing to major in chemistry. Each represents a particular area of chemistry: analytical, inorganic, biochemistry, organic, and physical. Each Chemistry major will be assigned to one of these advisors when entering the Chemistry Department, coordinated to the area of each student's expressed interest.

Prerequisite Requirements

When enrolling in a course, it is required that the student will have met the specific prerequisites listed. A course listed as a prerequisite may have its own set of prerequisites. All must be met prior to enrolling in a chemistry course. Students not meeting the prerequisite requirements for a course will be administratively removed from the class.

Minimum Grade Requirements

In all courses required for the Chemistry major and minor, a minimum grade of "C-" must be earned with the exception of CHEM 1A which requires a grade of C or better. A minimum grade of "C-" is required in all prerequisite courses with the exception of CHEM 1A which requires a grade of C or better to meet the prerequisite requirement for CHEM 1B if a student has not achieved a "C-" in all prerequisite courses for a particular chemistry course, the instructor of the course will administratively remove the student from class.

Transfer Majors and Minors

Transfer students majoring in Chemistry must complete at least three of the required courses in chemistry while fulfilling the residence requirements of California State University, Sacramento. Transfer students seeking a minor in Chemistry must complete at least one upper division chemistry course at the University.

As defined by policy <http://www.csus.edu/umannual/acadaff/fsm00010.htm>, a change in units constitutes a substantive change to the program. If your changes constitute a substantive change, please refer back to the "Program Change Type" field above to ensure that "Substantive" is selected.

Program Requirements: (If new courses are being created as part of a new program, it will be useful to propose courses first.)

Program Requirements

Code	Title	Units
Core Requirements (39-43 Units)		
CHEM 1A	General Chemistry I ^{1,2}	5
CHEM 1B	General Chemistry II	5
CHEM 24	Organic Chemistry Lecture I	3
CHEM 25	Organic Chemistry Laboratory	3
CHEM 31	Quantitative Analysis	4
CHEM 124	Organic Chemistry Lecture II	3
MATH 30	Calculus I ¹	4
MATH 31	Calculus II	4
Select one of the following sequences:		8 - 12
PHYS 5A & PHYS 5B	General Physics: Mechanics, Heat, Sound General Physics: Light, Electricity and Magnetism, Modern Physics	
PHYS 11A & PHYS 11B & PHYS 11C	General Physics: Mechanics General Physics: Heat, Light, Sound, Modern Physics General Physics: Electricity and Magnetism	

Total Units 39-43

¹ Course also satisfies General Education (GE)/Graduation Requirement.

² Passing a placement exam or obtaining a passing grade of "C" or better in CHEM 4 is required to enroll in CHEM 1A.

Concentration in Biochemistry (32-34 units)

Code	Title	Units
BIO 1	Biodiversity, Evolution and Ecology ¹	5
BIO 2	Cells, Molecules and Genes	5
Select one of the following:		4 - 6
CHEM 140A & CHEM 140B	Physical Chemistry Lecture I Physical Chemistry Lecture II	
CHEM 142	Introduction to Physical Chemistry	
CHEM 160A	Structure and Function of Biological Molecules	3
CHEM 160B	Metabolism and Regulation of Biological Systems	3
CHEM 162	General Biochemistry Laboratory	3
CHEM 164	Advanced Biochemistry Laboratory	3
Select 6 units of Electives in Biological Sciences (must be from the following courses):		6
BIO 121	Molecular Cell Biology	
BIO 131	Systemic Physiology	
BIO 139	General Microbiology	
BIO 180	Advanced Molecular Biology	
BIO 184	General Genetics	

Total Units 32-34

¹ Course also satisfies General Education (GE)/Graduation Requirement.

Note: Students may also complete a BA with a concentration in Biochemistry by taking the general BA curriculum and completing the following additional courses:

Code	Title	Units
BIO 1	Biodiversity, Evolution and Ecology	5
BIO 2	Cells, Molecules and Genes	5
CHEM 160A	Structure and Function of Biological Molecules	3

CHEM 160B	Metabolism and Regulation of Biological Systems	3
CHEM 162	General Biochemistry Laboratory	3
CHEM 164	Advanced Biochemistry Laboratory	3
Select 6 units of upper division Biology courses from the approved list		6
Total Units		28

General Education Requirements ¹

Code	Title	Units
Area A: Basic Subjects (9 Units)		
A1 - Oral Communication		3
A2 - Written Communication		3
A3 - Critical Thinking		3
Area B: Physical Universe and Its Life Forms (3 Units)		
B1 - Physical Science ²		0
B2 - Life Forms ²		0
B3 - Lab (Note: Lab experience to be taken with one of the following: B1, B2 or B5) ²		0
B4 - Math Concepts ²		0
B5 - Additional Course (Any B to reach 12 units) - Take upper-division course to complete Area & upper division requirements.		3
Area C: Arts and Humanities (12 Units)		
C1 - Arts		3
C2 - Humanities		3
C1/C2 - Area C Course		3
C1/C2 - Area C Course - Take upper-division course to complete Area & upper division requirements.		3
Area D: The Individual and Society (12 Units)		
Area D Course		3
Area D Course		3
Area D Course		3
Area D Course - Take upper-division course to complete Area & upper division requirements.		3
Area E: Understanding Personal Development (3 Units)		
Area E Course		3
Total Units		39

¹ To help you complete your degree in a timely manner and not take more units than absolutely necessary, there are ways to use single courses to meet more than one requirement (overlap). For further information, please visit the General Education page (<http://catalog.csus.edu/colleges/academic-affairs/general-education/>).

Note: There is no way to list all possible overlaps so please consult with a professional advisor. The Academic Advising Center can be visited online (<http://www.csus.edu/acad/>), by phone (916) 278-1000, or email (advising@csus.edu).

² Required in Major; also satisfies GE.

Graduation Requirements ¹

Code	Title	Units
Graduation Requirements (required by CSU) (9 Units)		
American Institutions: U.S. History		3
American Institutions: U.S. Constitution & CA Government		3
Writing Intensive (WI)		3
Graduation Requirements (required by Sacramento State) (12 Units)		
English Composition II		3
Race and Ethnicity in American Society (RE)		3
Foreign Language Proficiency Requirement ²		6

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² If not satisfied before entering Sacramento State, it may be satisfied in General Education Area C2 (Humanities). "C- or better required." The alternative methods for satisfying the Foreign Language Proficiency Requirement are described here: <https://www.csus.edu/wll/flgr/>

Fiscal Impact to Change an Existing Program

Indicate programmatic or fiscal impact which this change will have on other academic units' programs, and describe the consultation that has occurred with affected units:

None

Provide a fiscal analysis of the proposed changes:

None

How will the above changes be accommodated within the department/College existing fiscal resources?

None

Will the proposed changes require additional resources?

No

What additional space, equipment, operating expenses, library, computer, or media resources, clerical/technical support, or other resources will be needed?

None

Key: 304