ACADEMIC SENATE
CSU BAKERSFIELD

Bachelor of Science in Biochemistry Certified by the American Chemical Society (ACS) Concentration

RES 242506

AAC

RESOLVED: That the Academic Senate approve the proposed new Bachelor of Science in Biochemistry Certified by the American Chemical Society (ACS) concentration.

RATIONALE: Although the Department of Chemistry and Biochemistry has a current biochemistry degree, this proposed new concentration will better prepare students in biochemistry if they intend to attend graduate school. The department currently houses a Chemistry degree certified by the ACS, so this change would provide biochemistry students with a similar level of training. Recent increases in the number of biochemistry students have led to an increase in the demand for the professional certification. The proposed degree program will be supported by sufficient and dedicated resources to ensure its successful future operations.

Attachment:

Changes-To-Degree-Form_NSME CC Approved_ACS Biochemistry Degree Proposal_Updated
New Concentration Proposal-ACS certified Biochemistry_BS

Distribution List:

President
Provost and VP for Academic Affairs
VP Student Affairs
AVP Faculty Affairs
AVP Academic Affairs and Dean of Academic Programs
NSME Dean
NSME Associate Dean
NSME Advising Center
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NSME Department Chairs
NSME Faculty

Approved by the Academic Senate: October 24, 2024

California State University, Bakersfield
Academic Operations & Support Services
Mail Stop: EDUC 22, 9001 Stockdale Highway
Bakersfield, California 93311-1022
Email: curriculum@csub.edu
Tel. (661) 654-6181

DOWNLOAD THIS FORM AND DO A "SAVE AS" COPY (and save in [designated] folder) BEFORE FILLING OUT THE FORM
CLICK ON THE GRAY AREA BEFORE TYPING IN A SECTION

CHANGES TO DEGREE FORM

Form Number

PROPOSAL ACTION (Select One)

EFFECTIVE CATALOG YEAR: FALL 2024

○ **PROGRAM REVISION** ○ **PROGRAM CANCELLATION**
○ **PROGRAM PLACED IN MORATORIUM** ◉ **ADD CONCENTRATION** ○ **ADD EMPHASIS**
○ **ADD OPTION** ○ **ADD MINOR**

PROGRAM OR SCHOOL & DEPARTMENT

School/Program: Natural Sciences, Mathematics, and Engineering

Department: Chemistry and Biochemistry

Proposed by: Sarah Forester

DEGREE INFORMATION (MAJOR, CONCENTRATION/EMPHASIS/OPTION/MINOR)

Degree Title: Bachelor of Science Degree in Biochemistry Certified by the American Chemical Society

REVISIONS TO CURRENT DEGREE DESCRIPTION AND REQUIREMENTS

Degree Description *(Insert Degree Description from Current University Catalog; Use Strikethrough and Underline MS Word Actions To Delete Text Or Add/Revise Details):*

Requirements for the Bachelor of Science Degree in Biochemistry Certified by the American Chemical Society

Total Units Required to Graduate	**120 units**
Major Requirements	**81~~73~~ units**
Chemistry Courses	57~~49~~[#]
Cognates	24
Minor Requirement	**0 units**
General Education Requirements	**38 units**
First-Year Seminar	2
LD Area A Foundational Skills	9
LD Area B Natural Sciences	0*
LD Area C Arts and Humanities	6
LD Area D Social and Behavioral Sciences	3
LD Area F Ethnic Studies	3

American Institutions	6
SELF	0*
Junior Year Diversity Requirement	3
UD Thematic Areas C and D	6
Capstone	0*
GWAR	0*
Additional Units	**19 units**

* Satisfied in major or cognate

Requirements for the Major in Biochemistry Certified by the American Chemical Society (8173 units)

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a. Core Requirements (603 units)

1. **Lower Division** (1618 units)*
   CHEM 1000, 1001, 1100, 1600, 2200, 2300, 2400, 2940 [Satisfies Areas B1]
2. **Upper Division** (2031 units)*

CHEM 3300, 3301, 3310, 3311, 3400, 3401, 3600, 39480, , 4400, 4401, 4948 (25 units)

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6 additional units of upper division coursework in Biology or Chemistry selected from the following list: BIOL 3010, BIOL 3020, BIOL 3220, BIOL 3410, BIOL 3420, BIOL 3530, BIOL 3540, BIOL 3550, BIOL 4100, BIOL 4200, BIOL 4440, BIOL 4450, BIOL 4460, CHEM 3100, CHEM 3500, CHEM 3510, CHEM 3610, CHEM 4010, CHEM 4020, CHEM 4100, CHEM 4101, CHEM 4110, CHEM 4120, CHEM 4121, CHEM 4200, CHEM 4410, CHEM 4420, CHEM 4500, CHEM 4510, CHEM 4700, CHEM 4800, CHEM 4830 (6 units)1

3. **Cognates** (24 units)*
   Biology (8 units) [Satisfies Area B2 and B3]
   - BIOL 2010
   - BIOL 2110 or 2120

   Mathematics (8 units) [Satisfies Area A4], choose one of the following sequences:
   - MATH 2010, 2020 or
   - MATH 2310, 2320 or
   - MATH 2510, 2520

   Physics (8 units) [Satisfies Area B1 and B3], choose one of the following sequences:
   - PHYS 2110, 2120 or
   - PHYS 2210, 2220

b. Additional Requirements for the B.S. in Biochemistry Certified by the American Chemical Society (21 units)

1. Lower Division Courses (6 units):
CHEM 2110, 2240
2. Upper Division Courses (12 units):
CHEM 3310, 4100, 4101, 4110, 4120, 4121, 4401, 4800 (3 units)
3. 3 additional units in chemistry selected from the following list: CHEM 3110, 3311, 3500, 3510, 3610, 4200, 4410, 4500, 4510

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**The minimum GPA for these 8172 units is 2.0*

ADDING AN OPTION, CONCENTRATION OR SPECIAL EMPHASIS (ATTACH APPROPRIATE DOCUMENTS):

Per EO 1071, before any option, concentration, or special emphasis (or similar subprogram) approved under this delegation, can be implemented, the campus shall obtain a Chancellor's Office confirmation of compliance with CSU policy and applicable law. Campus notifications shall be submitted to the Department of Academic Programs and Faculty Development

(degrees@calstate.edu). The following information must be submitted:

- The exact title of the new subprogram and the complete degree designation and title of the major degree program housing the new subprogram (e.g., Bachelor of Science in Biology with a Concentration in Biochemistry);
- A list of courses and required units constituting that new subprogram;
- Total units required to complete the entire degree, including the combination of subprogram and major program;
- The complete list of courses and required units constituting the major degree program as approved by the Chancellor's Office;
- A 4-year major-and-subprogram roadmap for freshmen and a 2-year major-and-subprogram roadmap for transfer students;
- The CSU degree program code (formerly called "HEGIS") that students use to apply to the major degree program;
- The campus-proposed CSU degree program code to be used to report enrollments in the concentration (may be the same as the degree code);
- A detailed cost-recovery budget for self-support subprograms to be offered within state-support major degree programs; and
- Documentation of all campus-required curricular approvals.

ADDING A MINOR

Program Description and Minor Requirements:

RATIONALE FOR DEGREE PROPOSAL *(required)*:

Provide Rationale for Degree Proposal:

The Department of Chemistry and Biochemistry currently offers an ACS degree in chemistry in addition to a traditional chemistry degree. Since the number of traditional biochemistry majors has increased in recent years, the department should also start offering an ACS degree in biochemistry. This degree would prepare students for a wide range of opportunities in industry, graduate school, and health profession programs. The ACS degree in biochemistry is one of great breadth and depth, and the department has the faculty to teach all necessary courses. The proposed degree meets ACS requirements as it offers 5 areas in foundational course work (analytical, biochemistry, inorganic, organic, and physical chemistry), more than 4 in-depth courses, and 400 lab hours. The newly proposed course, CHEM 2240, will be taught once per year. This course will satisfy ACS degree requirements, as it meets the 3 units needed for foundations in inorganic chemistry. CHEM 2110 (3 units) in combination with CHEM 1100 (2 units) will satisfy the requirements for foundations in analytical chemistry. CHEM 2110 also serves biology students seeking to apply for CLS programs.

IMPACT OF DEGREE PROPOSAL ON OTHER PROGRAMS OR DEPARTMENTS

What Is the Impact of This Degree Proposal on Course Offerings from Other Department(S) Or Programs?

Please Include Supporting Emails with This Proposal:

The Department of Biology was consulted on this proposal due to the proposed modification of CHEM 2100 (analytical course taken by biology students that want to apply to CLS programs) and addition of BIOL 2230 as a cognate. They do not see any significant issues with introducing BIOL 2230 as a possible cognate for the proposed track. A concern was raised about CHEM 2110 satisfying the analytical requirement for CLS programs. Due to this concern, the Department of Chemistry and Biochemistry has decided to keep offering CHEM 2100, and CHEM 2110 (if approved), until it has been determined that CHEM 2110 is sufficient for applying to CLS programs.

IMPACT OF DEGREE PROPOSAL ON COURSE(S)

List All the New and Revised Courses Required for This Degree Proposal (If Applicable):

CHEM 2240 Foundations of Bioinorganic Chemistry

CHEM 2110 Foundations of Quantitative Chemical Analysis

CHEM 3948 Seminar in Biochemical Literature

Attach/Submit All the Course Proposal Forms Together with This Form for Curricular Review and Approval

NEXT STEPS

- **Attach Course Proposal Form(s) to This Proposal (If Applicable)**
- **Attach Appropriate Documents if Adding an Option, Concentration or Special Emphasis**
- **Attach Revised Academic Roadmap**
- **Submit to Department/Program Curriculum Committee for Review & Approval**
- **Department Submits to School/Program Curriculum Committee for Review & Approval**
- **School/Program Curriculum Committee Submits Related Forms to GECCo (If Applicable)**
- **Chancellor's Office (CO) Notification for Implementation of Option, Concentration or Special Emphasis**
- **If No Additional Approvals Are Required, School/Program Curriculum Committee Submits to Academic Operations After Final Approvals Have Been Recorded.** ***See Annual Catalog & Curriculum Deadlines Dates***

SCHOOL/PROGRAM COMMITTEE & OTHER APPROVALS:

Department Chair/Program Director: Sarah Forrester	**Date:** 10/25/23
School/Program Curriculum Committee Chair: Anthony Bianchi (Oct 27, 2023 09:58 PDT)	**Date** Oct 27, 2023
Dean of School: Jane Dong (Oct 27, 2023 12:48 PDT)	**Date:** Oct 27, 2023
Director of GE:	**Date:**
CO Notification for Implementation of Option, Concentration or Special Emphasis:	**Date:**
CO Confirmation of Compliance for Options, Concentration or Special Emphasis:	**Date:**
President's Approval for Minor:	**Date:**
WSCUC Approval:	**Date:**
Director of Academic Operations:	**Date:**

ACADEMIC OPERATIONS USE ONLY:

Effective Term:	**Catalog Year:**

Comments:
CIP Code:
HEGIS Code:
Program Code:
Plan Code:
Sub-Plan Code:
Catalog Updated:
Updated Academic Requirements Page:
Updated Academic Road Maps:
Updated Program Plan Mapper:
Admissions Office Notified: