

NEW COURSE PROPOSAL

Courses must be submitted by October 15, 2013, and finalized by the end of that fall semester for the next catalog production.

Use YELLOWED areas to enter data.

DATE (*Change if modified and redate file with current date*)

10/14/13; REV 11.25.13; REV 12.10.13; REV 1.23.14

PROGRAM AREA(S)

CHEM

1. Course Information. *[Follow accepted catalog format.]*

Prefix(es) (Add additional prefixes if cross-listed) **and Course No. 463**

Title: ADVANCED BIOCHEMISTRY LAB Units: 1

x Prerequisites CHEM 460, CHEM 461

Corequisites: NONE

☐ Consent of Instructor Required for Enrollment

Catalog Description (Do not use any symbols):

Students develop hypotheses involving protein structure and function; design experiments for addressing their questions; perform the required protein engineering, purification, and characterization of target proteins; and analyze and disseminate their findings.

Grading Scheme:

x A-F Grades

☐ Credit/No Credit

☐ Optional (Student Choice)

Repeatability:

☐ Repeatable for a maximum of ☐ units

Total Completions Allowed ☐

☐ Multiple Enrollment in Same Semester

Course Level Information:

x Undergraduate

☐ Post-Baccalaureate/Credential Graduate

Mode of Instruction/Components (*Hours per Unit are defaulted*).

	Units	Hours per Unit	Default Section Size	Graded Component	CS & HEGIS # (Filled in by the Provost's Office)
Lecture	<input type="checkbox"/>	1	<input type="checkbox"/>		
Seminar	<input type="checkbox"/>	1	<input type="checkbox"/>	<input type="checkbox"/>	
Laboratory	1	3	12	X	
Activity	<input type="checkbox"/>	2	<input type="checkbox"/>	<input type="checkbox"/>	
Field Studies	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
Indep Study	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
Other Blank	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	

Leave the following hours per week areas blank. The hours per week will be filled out for you.

3 hours laboratory per week

hours blank per week

2. Course Attributes:

☐ **General Education Categories:** All courses with GE category notations (including deletions) must be submitted to the GE website: <http://summit.csuci.edu/geapproval>. Upon completion, the GE Committee will forward your documents to the Curriculum Committee for further processing.

A (English Language, Communication, Critical Thinking)

☐ A-1 Oral Communication

☐ A-2 English Writing

☐ A-3 Critical Thinking

B (Mathematics, Sciences & Technology)

☐ B-1 Physical Sciences

☐ B-2 Life Sciences – Biology

B-3 Mathematics – Mathematics and Applications
B-4 Computers and Information Technology

C (Fine Arts, Literature, Languages & Cultures)

C-1 Art
C-2 Literature Courses
C-3a Language
C-3b Multicultural

D (Social Perspectives)

E (Human Psychological and Physiological Perspectives)

UDIGE/INTD Interdisciplinary

Meets University Writing Requirement (Graduation Writing Assessment Requirement)

Meets University Language Requirement

American Institutions, Title V Section 40404: ☐ Government ☐ US Constitution ☐ US History

Regarding Exec Order 405, for more information: <http://senate.csuci.edu/comm/curriculum/resources.htm>

Service Learning Course (Approval from the Center for Community Engagement must be received before you can request this course attribute).

Online Course (Answer YES if the course is ALWAYS delivered online).

Lab Fee Request – Lab fee requests should be directed to the Student Fee Committee.

3. Justification and Requirements for the Course. (Make a brief statement to justify the need for the course)

A. Justification: Biochemistry II (formerly CHEM 461, now 462) has been modified to separate lecture and lab components. CHEM 463 is a lab elective. The course covers is a process-oriented, research-based course in which students use standard and advanced analytical biochemistry methods to develop and test hypotheses of protein structure and function.

B. Degree Requirement: ☒ Requirement for the Major/Minor

☐ Elective for the Major/Minor

☐ Free Elective

Note: Submit Program Modification if this course changes your program.

4. Student Learning Outcomes. List in numerical order. Please refer to the Curriculum Committee's "Learning Outcomes" guideline for measurable outcomes that reflect elements of Bloom's Taxonomy:

<http://senate.csuci.edu/comm/curriculum/resources.htm>. The committee recommends 4 to 8 student learning outcomes, unless governed by an external agency (e.g., Nursing).

Upon completion of the course, the student will be able to:

1. Design a hypothesis-driven experimental examination of an aspect of protein behavior, drawing on fundamental methods in mutagenesis, bacterial overexpression of mutants, protein purification, and protein physical characterization.
2. Perform proposed set of experiments, adapting standard methods to suit the needs of their own specific requirements.
3. Analyze results in the context of standard or novel models of protein behavior.
4. Organize results and interpretation into written and oral presentations.

5. Course Content in Outline Form. [Be as brief as possible, but use as much space as necessary]

I Techniques exercises

buffers
colorimetric enzyme assays
chromatography
gel electrophoresis

II Enzyme project

protein purification (cell lysis, ammoniums sulfate precipitation, diaysis, gel electrophoresis, affinity chromatography)
enzyme activity > pH dependence
enzyme activity > inhibition, detailed kinetics analysis

Does this course content overlap with a course offered in your academic program? Yes ☐ No ☒

If YES, what course(s) and provide a justification of the overlap. ☐

Does this course content overlap a course offered in another academic area? Yes ☐ No ☒

If YES, what course(s) and provide a justification of the overlap. ☐

Overlapping courses require Chairs' signatures.

6. Cross-listed Courses (Please note each prefix in item No. 1) Beyond three disciplines consult with the Curriculum Committee.

A. List Cross-listed Courses (Signature of Academic Chair(s) of the other academic area(s) is required).

List each cross-listed prefix for the course: ☐

B. Program responsible for staffing: ☐

7. References. [Provide 3 - 5 references]

1. Berg, J.M.; Tymoczko, J.L.; Stryer, L. Biochemistry, Freeman, 5th Ed., 2002

2. Gilbert, H. F. Basic Concepts in Biochemistry- A Student's Survival Guide, McGraw-Hill, 2nd Ed., 2000

3. Nelson, D. L.; Cox, M. M. Lehninger, Principles of Biochemistry, Worth, 3rd Ed., 2000

4. Stryer, L. Biochemistry, Freeman, 4th Ed., 1995

5. Voet, D.; Voet, J. G.; Pratt, C. W. Fundamentals of Biochemistry, Wiley, 1st Ed., 2002

8. Tenure Track Faculty Qualified to Teach This Course.

Blake Gillespie

9. Requested Effective Date:

First semester offered: Fall 2014

10. New Resources Requested. Yes ☐ No ☒

If YES, list the resources needed.

A. Computer Needs (data processing, audio visual, broadcasting, other equipment, etc.)

☐

B. Library Needs (streaming media, video hosting, databases, exhibit space, etc.)

☐

C. Facility/Space/Transportation Needs

☐

D. Lab Fee Requested Yes ☒ No ☐ (Lab fee requests should be directed to the Student Fee Committee)

E. Other

☐

11. Will this new course alter any degree, credential, certificate, or minor in your program? Yes ☒ No ☐

If, YES attach a program update or program modification form for all programs affected.

Priority deadline for New Minors and Programs: **October 1, 2013** of preceding year.

Priority deadline for Course Proposals and Modifications: **October 15, 2013**, of preceding year.

Last day to submit forms to be considered during the current academic year: **April 15th**.

Blake Gillespie

11/25/13

Proposer of Course (Type in name. Signatures will be collected after Curriculum approval)

Date

Approval Sheet

Program/Course:

If your course has a General Education Component or involves Center affiliation, the Center will also sign off during the approval process.

Multiple Chair fields are available for cross-listed courses.

The CI program review process includes a report from the respective department/program on its progress toward accessibility requirement compliance. By signing below, I acknowledge the importance of incorporating accessibility in course design.

Program Chair		
Signature		Date
Program Chair		
Signature		Date
Program Chair		
Signature		Date
General Education Chair		
Signature		Date
Center for International Affairs Director		
Signature		Date
Center for Integrative Studies Director		
Signature		Date
Center for Multicultural Engagement Director		
Signature		Date
Center for Civic Engagement Director		
Signature		Date
Curriculum Chair		
Signature		Date
AVP		
Signature		Date