California State University San Marcos • NEW COURSE • FORM C CHEM 440L

ORIGINATOR'S SECTION:

1. College:

☐ CHABSS ☐ CoBA
☐ CoEHHS X CSM

Desired Term and Year of Implementation (e.g., Fall 2008):

Fall 2017

2.Course is to be considered for G.E.? (If yes, also fill out appropriate GE form*) ☐ Yes ☒ No

3. Course will be a variable-topics (generic) course? ☐ Yes ☒ No
("generic" is a placeholder for topics)

4. Course abbreviation and Number:* CHEM 440L

5. Title: ***(Titles using jargon, slang, copyrighted names, trade names, or any non-essential punctuation may not be used.)***
Protein Structure and Fucntion for the Life Sciences Laboratory

6. Abbreviated Title for PeopleSoft:
(no more than 25 characters, including spaces)
Protein Struct/Funct Life Sci Lab

7. Number of Units: 4

8. Catalog Description: ***(Not to exceed 80 words; language should conform to catalog copy. Please consult the catalog for models of style and format; include all necessary information regarding consent for enrollment, pre- and/or corequisites, repeated enrollment, crosslisting, as detailed below. Such information does not count toward the 80-word limit.).***

Provide hands-on experience with methods in molecular biology, protein expression and purification, and protein function. *Pre-requisite: CHEM 341 or 351.*

9. Why is this course being proposed?

This 1-unit laboratory component will complement the lecture component CHEM 440, and was developed at the request of students. The laboratory component will enable those who are deficient or need to refresh laboratory skills, the opportunity to gain additional hands-on experience with methods in molecular biology and protein structure and function.

10. Mode of Instruction*
For definitions of the Course Classification Numbers:
http://www.csusm.edu/academic_programs/curriculumscheduling/catalogcurricula/DOCUMENTS/Curricular_Forms_Tab/Instructional%20Mode%20Conventions.pdf

Type of Instruction	Number of Credit Units	Instructional Mode (Course Classification Number)
Lecture		
Activity		
Lab	1	C-16

11. Grading Method:*
☒ Normal (N) *(Allows Letter Grade +/-, and Credit/No Credit)*
☐ Normal Plus Report-in-Progress (NP) *(Allows Letter Grade +/-, Credit/No Credit, and Report-in-Progress)*
☐ Credit/No Credit Only (C)
☐ Credit/No Credit or Report-in-Progress Only (CP)

12. If the (NP) or (CP) grading system was selected, please explain the need for this grade option.

13. Course Requires Consent for Enrollment? ☐ Yes ☒ No

☐ Faculty ☐ Credential Analyst ☐ Dean ☐ Program/Department - Director/Chair

14. Course Can be Taken for Credit More than Once? ☐ Yes ☒ No
If yes, how many times? (including first offering)

15. Is Course Crosslisted: ☐ Yes ☒ No

If yes, indicate which course and check "yes" in item #22 below.

16. Prerequisite(s): ☒ Yes ☐ No CHEM 341 or 351

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* If Originator is uncertain of this entry, please consult with Program/Department Director/Chair.

17. Corequisite(s): ☒ Yes ☐ No CHEM 440

18. Documentation attached:
☐ Syllabus ☒ Detailed Course Outline

19. If this course has been offered as a topic, please enter topic abbreviation, number, and suffix:*

20. How often will this course be offered once established?* Yearly

PROGRAM DIRECTOR/CHAIR - COLLEGE CURRICULUM COMMITTEE SECTION:
(Mandatory information – all items in this section must be completed.)

21. Does this course fulfill a requirement for any major (i.e., core course or elective for a major, majors in other departments, minors in other departments)? ☒ Yes ☐ No

If yes, please specify:
Master of Biotechnology (a Professional Science Masters degree)

22. Does this course impact other discipline(s)? (*If there is any uncertainty as to whether a particular discipline is affected, check "yes" and obtain signature.)* ☐ Yes ☒ No

If yes, obtain signature(s). Any objections should be stated in writing and attached to this form.

Biological Sciences Discipline	Signature	Date	X Support	Oppose
Discipline	Signature	Date	Support	Oppose

SIGNATURES : (COLLEGE LEVEL) :

Sajith Jayasinghe 1. Originator (please print or type name)	10-30-17 Date
2. Program Director/Chair	11/20/17 Date
3. College Curriculum Committee	11/27/17 Date
4. College Dean (or Designee)	12/1/17 Date

(UNIVERSITY LEVEL)

5. UCC Committee Chair	Date
6. Vice President for Academic Affairs (or Designee)	Date
7. President (or Designee)	Date

* If Originator is uncertain of this entry, please consult with Program/Department Director/Chair.

CHEM 440 (L): Protein Structure and Function Lab

Instructor: Chandrasen Soans, PhD., MBA
Office: Science Hall II, Room XXX
Email: csoans@csusm.edu
Office hours: By Appointment

Materials Required:
Bound lab notebook (recommended style: marble-cover, 5x5 quad-ruled, 80 pates), available at bookstore.

Course Description:
Provide hands-on experience with methods in molecular biology, protein expression and purification, and protein function. *Pre-requisite: CHEM 341 or 351.*

Course Learning Outcomes:
1. Students will learn to use the scientific method to approach problems and address questions pertaining to protein structure and function in the laboratory
2. Students will be able to communicate experimental methods and research findings both orally and in writing, individually and as a member of a team.
3. Students will acquire theoretical background and practical experience in current experimental techniques utilized to address quentions in protein chemistry.

Course Website
Cougar courses management software will be used as a repository for lecture notes, in-class activities, worksheets, and other course materials. Once successfully enrolled in the class, students will have access to the course website at: http://cc.csusm.edu. Students will log in using email user names (e.g. student999) and passwords.

Course Grading	Percentage of Grade
Laboratory notebook evaluations	30%
Poster Presentation	20%
Powerpoint Presentation	10%
Lab Report	20%
Course participation/preparation	10%
Total	100%

- The "Laboratory Notebooks- Best Practices" housed on Cougar Courses documents for specific guidance on maintaining records of experimental work. Laboratory preparation and participation will be taken into account when evaluating notebooks.

- Absence from lab will results in a minimum of 1% deduction from the lab grade (i.e., when a lab is missed, the points associated with the class will be lost).

Class Policies

- Email notification:
  CSUSM email accounts will be used for announcements pertaining to the class. It will be necessary to monitor CSUSM email accounts or set up a forwarding address.
- Academic Honesty and Integrity:
  There will be amply opportunity for help from the instructor and classmates, and students are encouraged to make use of these resources. Any work submitted for grading must represent one's own thinking, and must be written in one's own words. Cheating or plagiarism will not be accepted. Students are expected to what what plagiarism is— and can refer to https://microsites.csusm.edu/plagiarism-tutorial/ for further information on plagiarism (including "unintentional" plagiarism) and how to avoid it.
- Students are responsible for honest completion and representation of their work. The course catalog details the ethical standards and penalties for infractions. There will be zero tolerance for infractions. If a student believes an infraction has occurred by a fellow classmate, they are encouraged to bring this to the instructor's attention. The instructor reserves the right to discipline any student for academic dishonesty, in accordance with the general rules and regulations of the university. Disciplinary action may include the lowering of grades and/or the assignment of a failing grade for an exam, assignment, or the class as a whole. Please refer to http://www.csusm.edu/policies/active/documents/Academic_Honesty_Policy.html.
- Making up missed work: This course involves a great deal of in-class participation. Missed participation points cannot be made up, but can be excused if a serious or compelling reason is presented for the absence.
- Credit Hour Policy: Students are expected to spend a minimum of two hours outside of the classroom each week for each unit of credit of engaged learning.
- Disabled Student Service: Students who require academic accomodations must be approved for services by providing appropriate and recent documentation to the Office of Disable Student Services (DSS). This office is located in Craven Hall 4200, and can be contacted by phone at (760)750-4905 or TTY (760) 750-4909. Students authorized by DSS to receive accommodations should meet with the instructor during office hours or by appointment to ensure privacy.

Lab Policies

- No food or drink in the lab.

- Students are expected to clean up after themselves before leaving the lab; place all used glassware in the wash basins and put pipetmen back in their stands.
- Students should wash their hands thoroughly before leaving lab.

Tentative Schedule

Week	Topic	Lab	Dates
1	Intro to class, laboratory notebooks, pipetting solutions, Bradford assay	1	9/1
2	Isolation of plasmid DNA	2	9/8
3	Site-directed mutagenesis and bacterial transformation	3	9/15
4	Isolation and sequencing of plasmids	4	9/22
5	Sequence Analysis	5	9/29
6	Protein purification using Ni/NTA column	6	10/6
7	Polyacrylamide gel electrophoresis	7	10/13
8	Western Blot Analysis	8	10/20
9	Circular Dichoism/Fluorometry	9	10/27
10	Yeast LiOac/PEG transformation using a CRISPR Cas9/sgRNA plasmid	10	11/3
11	Islating genomic DNA from yeast mutants	11	11/10
12	Genome editing validation using EnGen Nutation Dectection Kit:PCR Amplification	12	11/17
13	Holiday no Lab	NA	11/24
14	Genome Editing Validation	13	12/1
15	Wrap-up and Final Presentation	NA	12/8