

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

COURSE MODIFICATION PROPOSAL

Courses must be submitted by October 15, 2013, and finalized by the end of the fall semester to make the next catalog (2014-15) production

DATE (CHANGE DATE EACH TIME REVISED): 9/11/2013; REV 11.5.13

PROGRAM AREA(S): BIOLOGY

Directions: All of sections of this form must be completed for course modifications. Use **YELLOWED** areas to enter data. All documents are stand alone sources of course information.

1. Indicate Changes and Justification for Each. [Mark an X by all change areas that apply and follow-up your justification. Be as brief as possible but, use as much space as necessary.]

☐ Course title	☒ X Course Content
☐ Prefix/suffix	☒ X Course Learning Outcomes
☐ Course number	☒ X References
☐ Units	☐ GE
☐ Staffing formula and enrollment limits	☐ Other ☐
☐ Prerequisites/Corequisites	☐ Reactivate Course
☒ X Catalog description	
☐ Mode of Instruction	

Justification: ☐

2. Course Information.

[Follow accepted catalog format.] (Add additional prefixes i f cross-listed)

OLD

Prefix BIOL Course# 301
Title Microbiology Units (4)
3 hours lecture per week
3 hours laboratory per week

X Prerequisites: BIOL 201, CHEM 122 or instructor consent
No Consent of Instructor Required for Enrollment

☐ Corequisites: ☐

Catalog Description (Do not use any symbols):

Study of microorganisms of the environment, including disease-causing organisms, their structures and functions and their interactions to their host animals and the environment.

General Education Categories: ☐

Grading Scheme (Select one below):

☒ X A – F

☐ Credit/No Credit

☐ Optional (Student's Choice)

Repeatable for up to ☐ units

Total Completions ☐

Multiple Enrollment in Same Semester Y/N ☐

Course Level:

☒ X Undergraduate

☐ Post-Baccalaureate

☐ Graduate

NEW

Prefix BIOL Course# 301
Title Microbiology Units (4)
3 hours lecture per week
3hours laboratory per week

X Prerequisites: BIOL 201, CHEM 122 or instructor consent
No Consent of Instructor Required for Enrollment

☐ Corequisites: ☐

Catalog Description (Do not use any symbols):

An introduction to the structure, function and diversity of microorganisms. Explores topics including microbial identification, diversity, metabolism, pathology, microbial ecology, and the role of microbes in human society.

General Education Categories: ☐

Grading Scheme (Select one below):

☒ X A – F

☐ Credit/No Credit

☐ Optional (Student's Choice)

Repeatable for up to ☐ units

Total Completions ☐

Multiple Enrollment in Same Semester Y/N ☐

Course Level:

☒ X Undergraduate

☐ Post-Baccalaureate

☐ Graduate

3. Mode of Instruction (Hours per Unit are defaulted)

Hegis Code(s) _____
(Provided by the Dean)

<u>Existing</u>					<u>Proposed</u>					
	Units	Hours Per Unit	Benchmark Enrollment	Graded		Units	Hours Per Unit	Benchmark Enrollment	Graded	CS No. (filled out by Dean)
Lecture	<u>3</u>	<u>1</u>	<u>24</u>	x	Lecture	<u>3</u>	<u>1</u>	<u>24</u>	<u>x</u>	
Seminar		<u>1</u>			Seminar		<u>1</u>			
Lab	<u>1</u>	<u>3</u>	<u>24</u>	x	Lab	<u>1</u>	<u>3</u>	<u>24</u>	<u>x</u>	
Activity		<u>2</u>			Activity		<u>2</u>			
Field Studies					Field Studies					
Indep Study					Indep Study					
Other blank					Other blank					
Online					Online					

4. Course Attributes:

☐ **General Education Categories:** All courses with GE category notations (including deletions) must be submitted to the GE website: <http://summit.csuci.edu/ge>
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).

5. Justification and Requirements for the Course. [Make a brief statement to justify the need for the course]

OLD

Microbiology is a required course for Biology students in the Cell and Molecular Biology emphasis and is an elective course

NEW

Microorganisms comprise an extremely diverse group. All ecosystems have a microbial component and microorganisms

for other Biology students and for Environmental Science and Resource Management students in the Environmental Science emphasis. It is a study of microorganisms of the environment, including disease-causing organisms, their structures and functions and their interactions to their host animals and the environment. It provides valuable knowledge and skills to students in studying disease-causing microbes such as bacteria, viruses, fungi and protozoa. It is a highly relevant course particularly in this era of global epidemics of numerous infectious diseases and potential biological warfare.

play critical roles in nutrient cycles on local and global scales. Many microbes impact humans directly as pathogens, while others have been used for centuries by human societies to produce food and remediate waste. Today microorganisms are also important parts of biotechnology, medicine, agriculture, the oil industry, biofuel production, and pharmacology. An understanding of microbial ecology, microbial physiology and culture techniques is important for students exploring careers in any of these fields or for those planning to conduct fundamental research in any field of Biology including evolution, molecular biology, and ecology.

X Requirement for the Major/Minor

☐ Elective for the Major/Minor

☐ Free Elective

☐ Requirement for the Major/Minor

X Elective for the Major/Minor

☐ Free Elective

Submit Program Modification if this course changes your program.

6. 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:

OLD

1. Describe cellular and/ or molecular, biochemical, physiological and genetic aspects of the microbial cell such as bacteria, fungi and protozoa as well as microbial agents like viruses, viroids and prions.
2. Relate normal cellular and molecular structures to their functions.
3. Explain cellular processes and mechanisms that lead to physiological functions as well as examples of pathological state.
4. Apply modern cellular techniques to solve aspects of scientific problems.
5. Describe the intricate relationship between various cellular structures and their corresponding functions.

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

NEW

1. Describe cellular, biochemical and physiological aspects of microorganisms and recognize the similarities and differences between microbial groups (bacteria, archaea, fungi, protozoa, viruses, viroids, and prions).
2. Explain the cellular and biochemical processes involved in pathogenesis (human-pathogen interactions).
3. Identify microorganisms and their role in various environments.
4. Describe the cultural use of microorganisms in food production, medicine, fuel production, and waste treatment.
5. Apply microbiology techniques (cell culture, chemical and molecular based methods) to solve scientific problems.

7. Course Content in Outline Form. (Be as brief as possible, but use as much space as necessary)

OLD

Historical development of microbiology
Structure and function of eukaryotic cells
Structure and function of prokaryotic cells
Introduction to virology
Growth and metabolism of microorganisms
Microbial genetics
Control of microorganisms
Host-microbe interaction and immunology
Human diseases caused by bacteria
Human diseases caused by viruses
Human diseases caused by fungi & protozoa
Psychological, social and economic impact of infectious

NEW

History of microbiology
Structure and function of prokaryotic cells
Structure and function of eukaryotic cells
Microbial genetics
Prokaryotic diversity
Diversity of bacterial metabolism
Eukaryotic diversity
Biotechnology
Bioremediation and wastewater treatment
Food and Industrial microbiology
Structure and function of viruses, viroids and prions
Human immune system (adaptive and innate)
Human diseases by bacteria, viruses, fungi and protozoa

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

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 X

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

Overlapping courses require Chairs' signatures.

8. Cross-listed Courses (Please note each prefix in item No. 1)

- A. List cross-listed courses (Signature of Academic Chair(s) of the other academic area(s) is required).
- B. List each cross-listed prefix for the course:
- C. Program responsible for staffing: **Biology**

9. References. [Provide 3-5 references]

OLD

1. **Microbiology**, Lansing M. Prescott, John P. Harley, Donald A. Klein Prescott, McGraw-Hill Science/Engineering/Math; ISBN: 0072485221; 5th edition (August 3, 2001)
2. **Microbiology, Tolora, et al.**, Benjamin/Cummings; ISBN: 080537597X; 7th Bk&cdr edition (September 14, 2001)
3. **Microbiology: Principles and Explorations**, Jacquelyn G. Black, John Wiley & Sons; ISBN: 0471387290; 5th edition (January 2002)
4. **Fundamentals of Microbiology**, I. Edward, Ph.D. Alcamo, Jones & Bartlett Pub; ISBN: 0763710679; 6th edition (January 15, 2001)
5. **Laboratory Fundamentals of Microbiology**, I. Edward, Phd Alcamo, Jones & Bartlett Pub; ISBN: 0763712353; 6th spiral edition (January 15, 2001)
6. **Microbiology: A Laboratory Manual (6th Edition)**, James G. Cappuccino, Natalie Sherman, Benjamin/Cummings; ISBN: 0805376488; 6th Labmn edition (July 2, 2001)

NEW

1. **Brock Biology of Microorganisms**, Michael T. Madigan, John M. Martinko, David A. Stahl and David P. Clark, Benjamin/Cummings; ISBN-10: 032164963X, 13th edition (12/17/2010)
2. **Microbiology: A Human Perspective**, Eugene Nester, Denise Anderson and C. Evan Roberts, McGraw-Hill, ISBN: 0073375314, 7th edition
3. **Bergey's Manual of Systematic Bacteriology (Volume 1)**, George M. Garrity, David R. Boone, and Richard W. Castenholz, Lippincott Williams and Wilkins Publishing, ISBN: 978-0-387-98771-2
4. **Bergey's Manual of Determinative Bacteriology**, John G. Holt, Peter H. Sneath, Noel R. Krieg, and John G. Holt, Lippincott Williams and Wilkins Publishing, ISBN: 0683006037, 9th edition
5. **Microbiology: Laboratory Theory and Application**, Michael J. Leboffe, and Burton E. Pierce, Morton Publishing, ISBN-10: 0895828308, 1/1/2010, 3rd edition

10. Tenure Track Faculty qualified to teach this course.

Biology faculty (Erich Fleming)

11. Requested Effective Date or First Semester offered: Spring 2014

12. New Resource 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 (Refer to the Dean's Office for additional processing)

E. Other.

13. Will this course modification 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.**

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

Erich D. Fleming

9/11/2013

Proposer(s) of Course Modification

Date

Type in name. Signatures will be collected after Curriculum approval.

Approval Sheet

Course: [REDACTED]

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 Intl Affairs Director		
Signature		Date
Center for Integrative Studies Director		
Signature		Date
Center for Multicultural Engagement Director		
Signature		Date
Center for Civic Engagement and Service Learning Director		
Signature		Date
Curriculum Chair		
Signature		Date
AVP		
Signature		Date