

NEW COURSE PROPOSAL

Courses must be submitted by October 15, 2014, 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*) 10/31/2014, 11/03/2014

PROGRAM AREA(S) BIOLOGY

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

Prefix(es) (Add additional prefixes if cross-listed) **and Course No.** 471

Title: SOIL SCIENCE **Units:** 4

X Prerequisites Biol 201 & Chem 122

Corequisites

Consent of Instructor Required for Enrollment

Catalog Description (Do not use any symbols): Provides students with a fundamental understanding of the structure and function of soil systems: the kinds of organisms that inhabit soil, microbe-plant interactions, nutrient cycling, soil fertility, and plant production. Soil is a habitat for plant roots and plant symbionts, plant pathogens, bacteria and fungi, and macrofauna (i.e. earthworms and vertebrates). Understanding the belowground environment and its complexity is crucial for understanding soil fertility and the role that soils play in agriculture, environmental quality and global environmental change.

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

X 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	3	1	24	X	
Seminar		1			
Laboratory	1	3	24		
Activity		2			
Field Studies					
Indep Study					
Other Blank					

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

hours lecture 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: The soil biome is a cryptic environment. Soil is also one of the most important biomes on our planet. Soils are manipulated to grow all varieties of crops in all kinds of environments. Ventura County and California are important agricultural regions for the USA and the world. Soil systems are also critical components of all terrestrial ecosystems and play vital roles in almost all nutrient and carbon cycles on Earth. An understanding of soil science is important for any student pursuing a career in agriculture, agriculture related fields (i.e. fertilizer production, pest management, horticulture), land management, conservation, or ecology.

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. Understand the concepts and methodologies of soil quality and health necessary for applying it to agriculture, rangeland, and other ecosystems.
2. Understand the relationship between soil properties, soil function, and management choices for productivity, sustainability, and environmental quality.
3. Describe the function of soils (soil capacity, use, or management) in regards to (1) plant and animal productivity, (2) water and air quality, and (3) human health and habitation.
4. Understand the role and fate of organic chemicals in soil.
5. Recognize the role of microorganisms in soil systems and in the transformation of soil carbon, nitrogen, sulfur and phosphorous cycles.

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

Soil properties – Biomes and ecosystems
 Soil quality and soil quality indicators
 Organic matter in soils
 Nitrogen, phosphate, and sulfur cycles
 Aerobic and anaerobic soil effects
 Soil and plant salinization
 Soil quality for common crops
 Land application of waste – nutrients and soil fertility
 Composting

Erosion
Rhizomicrobiota – bacteria and fungi
Soil amendments

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: Biology

7. References. [Provide 3 - 5 references]

Paul, E.A. 2007. **Soil Microbiology, Ecology and Biochemistry** (3rd ed.) Academic Press

Brady, N.C. and Weil, R.R. 2014. **The Nature and Properties of Soils** (14th ed.) Prentice Hall

Plaster, E. 2008. **Soil Science and Management** (5th ed.) Delmar Publishers

8. Tenure Track Faculty Qualified to Teach This Course.

Erich Fleming

9. Requested Effective Date:

First semester offered: Fall 2015

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**.

Erich Fleming

10/13/2014

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

Date

Approval Sheet

Program/Course: BIOL 471

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