

Course Change Request

New Course Proposal

Date Submitted: 01/17/19 9:39 am

Viewing: **EVPP 491 : Special Topics Lab**

Last edit: 01/17/19 10:33 am

Changes proposed by: scheselk

Are you completing this form on someone else's behalf?

Yes

Requestor:

Name	Extension	Email
A. Alonso Aguirre	x3-7590	aaguirr3@gmu.edu

Effective Term:

Fall 2019

Subject Code:

EVPP - Environmental Science & Policy

Course Number:

491

Bundled Courses:

Is this course replacing another course? No

Equivalent Courses:

Catalog Title: Special Topics Lab

Banner Title: Special Topics Lab

Will section titles vary by semester? Yes

Credits: 1-2

Schedule Type: Laboratory - Repeatable within the Term

Hours of Lab or Studio per week: 3-6

Repeatable: May be repeated within term (RT)

Max Allowable Credits: 4

Default Grade Mode: Undergraduate Regular

Recommended Prerequisite(s): 60 credits or permission of instructor

Recommended Corequisite(s):

Required Prerequisite(s) / Corequisite(s) (Updates only):

Registrar's Office Use Only - Required Prerequisite(s)/Corequisite(s):

And/Or	(Course/Test Code	Min Grade/Score	Academic Level)	Concurrency?

Registration Restrictions (Updates only):

Registrar's Office Use Only - Registration Restrictions:

Field(s) of Study:

Class(es):

Level(s):

Degree(s):

School(s):

Explores selected in environmental science and policy using laboratory exercises.

In Workflow

1. Registrar-Courses:Repeatable RT
2. ESP Chair
3. SC Curriculum Committee
4. SC Associate Dean
5. Assoc Provost-Undergraduate
6. Registrar-Courses
7. Banner

Approval Path

1. 01/17/19 10:33 am
Tory Sarro (vsarro):
Approved for Registrar-Courses:Repeatable-RT
2. 01/17/19 11:18 am
A. Alonso Aguirre (aaguirr3):
Approved for ESP Chair

Catalog**Description:**

Justification: In the past special topics labs were offered as EVPP 490 lecture/lab. Since that was changed we would like to create EVPP 491 as a lab to be offered in connection with some of our EVPP 490 lecture courses.

Does this course cover material which crosses into another department? No

Learning Outcomes:

Attach Syllabus [EVPP 491 for Fall 2019.pdf](#)

Additional Attachments

Staffing: All of our core faculty are able to teach this course. We have several faculty members who have taught EVPP 490 as lecture/lab in the past.

Relationship to Existing Programs: None outside the programs ESP offers.

Relationship to Existing Courses: Will probably be taught in connection with EVPP 490 lecture courses.

Additional Comments:**Reviewer Comments**

Key: 16311

Microbial Ecology Lab
Course Number: EVPP 491

Instructor:
Department: Environmental Science and Policy
Semester: Fall 2019
Office Hours:
Office:
Phone:
email
Class Schedule:
Location:

Text Books:

Microbial Ecology of the Ocean, by David Kirchman (required)
Brock Biology of Microorganisms, 14th edition, by Madigan et al.: (optional)

Recommended Resources:

International Society of Microbial Ecology Journal

Course Evaluation:

Course grades will be based on a lab project (25%), written reports (25%) final exam (25%), laboratory presentation and participation (25%)

Academic Integrity:

Some projects are designed to be completed by the entire class. For any reports however, you will write those independently. If we do collaborative reporting, names of all the participants should appear on the work. Some activities are designed to be undertaken independently. In the both cases, you may certainly discuss the approach, data and even analyses with others, but the final product should be your own. Since we will be working with samples from the environment in real time, each class member needs to be present and participate in the analysis. We can make adjustments as necessary, but it is inappropriate for any class member to seek or use data from an exercise in which they did not participate except with agreement of the instructor.

The above statement is designed to help you know more clearly where the boundaries are in this lab class. That is not always easy to delineate. If you have any question about what is appropriate please ask me. That will avoid any misunderstandings.

Disability Accommodation:

If you are a student with a disability and you need academic accommodations, please see me and contact the *Office for Disability Services* (ODS) at 993-2474, <http://ods.gmu.edu>. All academic accommodations must be arranged through the *ODS*.

Since we will be conducting an on-water field trip, please let me know if you have any limitation that needs accommodation in that situation.

CLASS GOALS

Microbial ecology is an interdisciplinary science that is rapidly expanding due to technical developments in biogeochemistry, molecular biology, and aquatic science. Because areas of uncertainty and controversy are common, recent research findings are continually improving our appreciation of the importance of microbes in natural environments and of their potential for carrying out diverse metabolic functions.

One goal of the class will be to gain an understanding of the current concepts of the role of microbes in natural environments. This is formidable because most "general principles" are being refined. That is in part, the beauty and excitement of microbial ecology. A second goal will be to develop an appreciation of how specific physiological types survive in, and even control, various environments. Are there actually "microbially dominated ecosystems"? Are all ecosystems actually "microbially dominated"? In a more applied vein, we will explore the activities of microbes which are useful (and detrimental) in the contemporary environment, and evaluate case studies in aquatic ecosystems.

In the laboratory students will be expected to participate in all aspects of the planning, preparation, conduct, analysis and interpretation of the experiments. In most cases specific exercises and explicit techniques will be provided. However, unlike most "academic laboratories" we will use "natural samples" and the actual results will be unknown to your instructor beforehand. Therefore, your thoughtful participation in all aspects of the work will be essential if we are to understand the results obtained. A goal of the laboratory will be to develop confidence in your ability to conduct "research". Students will prepare materials, collect samples (as appropriate), conduct the specific techniques, analyze the data and prepare brief periodic written report of results. In some "microbiology" classes success can be assured because the students work with pure cultures almost exclusively. In "microbial ecology" we rarely work with known isolates. You will essentially be conducting "new" research using techniques which have previously proven successful.

We will plan on at least one field trip in support of this class; the field trip is optional.

Microbial Ecology (Lab)

Course topics and readings are shown below in the approximate order that they will be covered.

Dates	Speaker	Topics	Required reading
		Intro to Lab Lab Safety	none
		Cell enumeration techniques	Hobbie et al. 1976; Hamdan Jonas et al. 2006
		Preparation for field collection	None
		Sediment and water analysis begins Cell counts, DNA extraction, Plating	Hamdan et al. 2011
		Analysis continues	
		No class	
		DNA quantization, Gel electrophoresis; prep samples for sequencing	
		Bioinformatics	www.qiime.org
		Discussion of radioisotope techniques	www.QIIME.org
		Cell staining techniques/ biogeochemical techniques	Johnson and Sieberth 1986
		Data analysis - interpretation	
		Data analysis	
		Complete analysis of sequence data – report prep	
		<i>presentations</i>	
		<i>presentations</i>	
		Final exam – turn in lab reports	

