



# Course Approval Form

For approval of new courses and deletions or modifications to an existing course.

registrar.gmu.edu/facultystaff/curriculum

### Action Requested:

Create new course     Inactivate existing course

Modify existing course (check all that apply)

Title     Credits     Repeat Status     Grade Type

Prereq/coreq     Schedule Type     Restrictions

Other: \_\_\_\_\_

### Course Level:

Undergraduate

Graduate

College/School:  Department:

Submitted by:  Ext:  Email:

Subject Code:  Number:  Effective Term:  Fall  Spring  Summer Year

(Do not list multiple codes or numbers. Each course proposal must have a separate form.)

Title: Current  Banner (30 characters max including spaces)  New

Credits: (check one)  3 Fixed  Variable or  to  Repeat Status: (check one)  Not Repeatable (NR)  Repeatable within degree (RD)  Repeatable within term (RT) Maximum credits allowed:

Grade Mode: (check one)  Regular (A, B, C, etc.)  Satisfactory/No Credit  Special (A, B C, etc. +IP) Schedule Type: (check one)  Lecture (LEC)  Lab (LAB)  Recitation (RCT)  Internship (INT)  Independent Study (IND)  Seminar (SEM)  Studio (STU)

Prerequisite(s):  Corequisite(s):

Instructional Mode:  100% face-to-face  Hybrid: ≤ 50% electronically delivered  100% electronically delivered

Restrictions Enforced by System: Major, College, Degree, Program, etc. Include Code.

Are there equivalent course(s)?  Yes  No  If yes, please list

### Catalog Copy for NEW Courses Only (Consult University Catalog for models)

<b>Description</b> (No more than 60 words, use verb phrases and present tense)	<b>Notes</b> (List additional information for the course)
Plants and animals of marine environments and physical and chemical conditions that affect their existence.	Will be cross-listed with BIOL 449
Indicate number of contact hours: <input type="text" value="3"/> Hours of Lecture or Seminar per week: <input type="text" value="3"/> Hours of Lab or Studio: <input type="text" value="0"/>	
When Offered: (check all that apply) <input type="checkbox"/> Fall <input type="checkbox"/> Summer <input checked="" type="checkbox"/> Spring	

### Approval Signatures

Department Approval Date College/School Approval Date

If this course includes subject matter currently dealt with by any other units, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

Unit Name	Unit Approval Name	Unit Approver's Signature	Date
BIOL 449	Larry Rockwood	[Signature]	12/11/13

### For Graduate Courses Only

Graduate Council Member \_\_\_\_\_ Provost Office \_\_\_\_\_ Graduate Council Approval Date \_\_\_\_\_

# Course Proposal Submitted to the Curriculum Committee of the College of Science

## 1. COURSE NUMBER AND TITLE: EVPP 449 Marine Ecology

Course Prerequisites: BIOL 308 and EVPP/GEOL 309 or permission of instructor

Catalog Description: Plants and animals of marine environments and physical and chemical conditions that affect their existence.

## 2. COURSE JUSTIFICATION:

Course Objectives: Students will learn about the study of marine life and the biotic and abiotic factors that affect these organisms, their habitats, populations and communities, and ecological interactions. The basic biology of key groups of marine species will be examined, including their physiology and adaptations to particular environments.

Course Necessity: This course is needed as a requirement for the Environmental Science & Policy's BS in Environmental Science Concentration in Marine, Estuarine, and Freshwater Ecology (formerly Aquatic Ecology) for majors. The Biology Program currently offers a Concentration in Marine and Freshwater Biology with the BS in Biology degree, and this course is also a requirement for those majors. It is also offered as an elective for other students who may be interested in learning more about this field.

Course Relationship to Existing Programs: Both Environmental Science & Policy and Biology majors need this course.

Course Relationship to Existing Courses: This course will be cross-listed with BIOL 449.

3. APPROVAL HISTORY: This is the first time this course is being submitted for approval. The course was approved and has been taught as BIOL 449 Marine Ecology.

## 4. SCHEDULING AND PROPOSED INSTRUCTORS:

Semester of Initial Offering: Spring 2015

Proposed Instructors: Dr. Esther Peters or Dr. Kim de Mutsert

5. TENTATIVE SYLLABUS: See attached. This is the BIOL 449 Marine Ecology syllabus, but the EVPP 449 course will follow the same syllabus.

**MARINE ECOLOGY**  
~~EVPP~~ ~~BIOL~~ 449-001, Spring 2013-15  
T & R 12:00 to 1:15 p.m.  
Innovation 204

**COURSE INFORMATION**

**The instructor** is available at office hours and by appointment. All official communication with instructor must be via email.

Professor K. Patterson	3001 David King Hall
Office hours:	Tuesday & Thursdays 4:00 – 6:00pm -OR- by appointment.
Email:	<a href="mailto:kpatter3@gmu.edu">kpatter3@gmu.edu</a>

**Suggested Text:** Introduction to Biology of Marine Life 10/e, by Morrissey. ISBN: 9780763781606

**Additional readings:** Scientific journal articles that pertain to each course topic will be posted to blackboard throughout the course. Students are required to keep up with the weekly readings and will be tested on the material during examinations.

**DESCRIPTION AND OBJECTIVE**

**Goal:** Marine Ecology is the scientific study of marine-life habitat, populations, and interactions among organisms and the surrounding environment including their abiotic (non-living physical and chemical factors that affect the ability of organisms to survive and reproduce) and biotic factors (living things or the materials that directly or indirectly affect an organism in its environment). Marine ecology is a subset of the study of marine biology and includes observations at the biochemical, cellular, individual, and community levels as well as the study of marine ecosystems and the biosphere.

The course will provide an introduction to marine biology, covering the basic biology of key groups of marine species. The course will also investigate major marine habitats, adaptations of marine species in these environments and their ecological interactions.

**Prerequisites:** Fundamentals of Ecology & Evolution (BIOL 308), Introduction to Oceanography (BIOL/GEOL 309) Or Instructor's permission.

**Course requirements:** Attendance at lectures, all course readings, completion of five iclicker quizzes, completion of three written examinations, and group presentation.

**Method of instruction:** Lectures presented by the course instructor during class times and completing supplemental readings outside of class. Discussion of the material and asking of questions are encouraged by the instructor.

**GENERAL COURSE POLICIES**

**Attendance to class:** highly recommended, it is the best strategy for success especially since iclicker quizzes will be unannounced.

**Be considerate:** please mute your cell phone during lecture time. Do not disturb your colleagues, come to class on time, but if you are late or need to leave earlier be noiseless and invisible.

**Email:** is the official way of communicating with students. Make sure that your *GMU email* is set up properly and it is working. Emails without subject may be deleted without opening.

**Cancelled Classes:** If an examination is scheduled for a day on which classes are canceled due to weather or any other reason, the examination will be given during the next scheduled class. Call (703) 993-1000 for official notification of canceled classes.

**Disability Statement:** If you have a documented learning disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with the Office of Disability Services (SUB I, Rm. 2500; 3-4306) to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs

**Honor Code:** GMU students, faculty and staff are bound by the GMU honor code. Cheating will be penalized as stated by the Code. We do not take plagiarism lightly. Know what it means – and know the consequences from the GMU honor code policy. You will upload your research papers to plagiarism-checking software on blackboard called SafeAssign. SafeAssign performs remarkably well in finding any existing student papers or websites that have similar wording. Never cut and paste anything from a website or a friend’s paper. I do not mean to offend anyone here or imply that this will happen, but I want to remove any temptation whatsoever. Just rely on the actual journal articles for your research – and write everything in your own words (with citations).

**Studying for Success:** To achieve best results, for each hour of lecture, expect to spend a minimum of two hours of studying on your own. Spread that time throughout the week. Don’t get behind with the *readings*; *trying to catch up with mega-study session is not very effective, it results in a terrible headache and in memory black outs at exam time.* If you have questions, please do not hesitate to ask. There are no wrong questions, only ignorance as a result of failure to seek an answer.

**Grading Policy:** Total allocation of marks for all written work, exams, quizzes, and presentations will be 515 points. University grading procedures will be followed:

Graded Material	Points	Course Grade Calculation
Lecture Exams (3 X 100 pts each)	300	90–100% = A
Lecture Quizzes (high 5 of 6 @ 10 pts each)	50	86–89% = B+
Research paper:		80–85% = B
- Paper Proposal	15	76–79% = C+
- Paper copy 1	50	70–75% = C
- Paper copy 2	75	60–69% = D
Group presentations	25	< 59% = F
<b>Total</b>	<b>515</b>	

**COURSE REQUIREMENTS**

**Lecture exams:** Three written exams are given. Lecture exams may cover lectures, text readings, supplemental course readings, lecture slides, videos, and handouts. Questions may be multiple choice, matching, fill-in the blanks, definitions, short-answer and discussion/essay. Each of the three tests is worth 100 points for 300 points total.

All exams must be taken as scheduled. **Make-ups will not be given**, unless for exceptional circumstances and only if scheduled **PRIOR** to the exam date with a legitimate excuse (e.g., signed doctor’s excuse; court documentation, etc.). Make-ups exams will be all essay. Otherwise, any missed exams will be scored a zero. ***In addition, all electronic devices must be turned off during exams and not touched or looked at while in the exam room.*** NOTE: Using or looking at any electronic device during an exam is a breach of the GMU Honor Code.

**iclicker quizzes:** There will be 6 iclicker quizzes given throughout the semester worth 10 points each. They will cover previously reviewed information to make sure you are up to date with course materials. The lowest quiz grade will be dropped; therefore, ***no make-up quizzes will be allowed.*** It is your responsibility to remember to bring your iclicker to every class. There are 50 points possible for this section.

**Research paper:** A formal paper assignment will be given to the students at the beginning of the semester. Students will write a 2,500-word paper on the intra- & inter-relationships of a marine habitat discussed in class (12-point font, double-spaced). Students should:

1. Describe the habitat of his or her choice in detail, identifying the inhabitants and explaining the relationships between abiotic and biotic factors;
2. Discuss the importance of the habitat (i.e., where is it found, what makes it unique, does it share characteristics with other marine habitats, identify all foundation and keystone species and address what the consequences would be if the habitat were to lose such species, do humans rely on this habitat?); and
3. Identify & evaluate the current threats facing the habitat (i.e. habitat loss, degradation, climate change, what steps are being taken to ameliorate or halt the conditions that have produced the problem).

Students should submit a typed, 1 page proposal for their paper topic for approval to the instructor including a preliminary list of peer reviewed sources (**due 14 February 2013**). Students will submit a polished first draft of their research paper by the beginning of class on **Tuesday, 19 March 2013**. Students should treat this draft as if they are turning in their final paper. The goal of this draft is to allow the professor to look over your research paper so that any major issues may be worked out before the final version of the paper is due. This paper IS graded, evaluated and returned to you. You must then resubmit a second copy of your paper, taking into account the suggestions that were given for your original paper (**due 23 April 2013**).

**Group Presentations:** Students will lead a presentation on current literature related to a topic relevant to the course. Students will give a 5-minute presentation about the paper to the class. You may work in small groups of 1-3 individuals. There are 25 points possible for this section.

### MARINE ECOLOGY COURSE SCHEDULE

DATE	LECTURE TOPIC	CHAPTER
<i>Tues</i> Jan 22	Introduction	1
<i>Thurs</i> Jan 24	Living in the marine environment	1
<i>Tues</i> Jan 29	What is Marine ecology?	1,2
<i>Thurs</i> Jan 31	Marine microbiology	3
<i>Tues</i> Feb 5	Marine botany	4
<i>Thurs</i> Feb 7	Marine invertebrates	5
<i>Tues</i> Feb 12	Marine invertebrates continued	5
<i>Thurs</i> Feb 14	Marine invertebrates continued <b>PAPER PROPOSAL DUE</b>	5
<i>Tues</i> Feb 19	Marine invertebrates continued	5
<b><i>Thurs</i> Feb 21</b>	<b><i>Exam 1</i></b>	
<i>Tues</i> Feb 26	Marine vertebrates	6
<i>Thurs</i> Feb 28	Marine vertebrates continued	7
<i>Tues</i> Mar 5	Marine invertebrate diseases	-
<i>Thurs</i> Mar 7	Marine vertebrate diseases	-
<b><i>Tues</i> Mar 12</b>	<b><i>Spring Break – NO CLASSES</i></b>	
<b><i>Thurs</i> Mar 14</b>	<b><i>Spring Break – NO CLASSES</i></b>	
<i>Tues</i> Mar 19	Habitats: estuaries <b>PAPER COPY 1 DUE</b>	8
<i>Thurs</i> Mar 21	Habitats: temperate coastal zone	9
<b><i>Tues</i> Mar 26</b>	<b><i>Exam 2</i></b>	
<i>Thurs</i> Mar 28	Habitats: coral reefs	10
<i>Tues</i> April 2	Habitats: open seas	11

<i>Thurs</i> April 4	Topics on the high seas	-
<i>Tues</i> April 9	Habitats: polar seas	-
<i>Thurs</i> April 11	<i>Life in the freezer</i>	-
<i>Tues</i> April 16	Habitats: deep sea	12
<i>Thurs</i> April 18	The Fishing Crisis	13
<i>Tues</i> April 23	Ocean Acidification & Climate Change	-
	<b>PAPER COPY 2 DUE</b>	
<i>Thurs</i> April 25	<i>Marine Conservation</i>	-
<i>Tues</i> April 30	<i>Exam 3</i>	
<i>Thurs</i> May 2	<b>Group presentations</b>	
<i>Tues</i> May 7	<b>Reading day - NO CLASSES!</b>	
<i>Thurs</i> May 9	<b>Group presentations (class meets 10:30-1:15)</b>	

This is a tentative syllabus that is subject to possible changes. You should be aware that dates for certain lecture material could change or new lecture material could be added. If such changes do occur they will be discussed in class prior to any change being made.