



# 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      Year   
 Summer

(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)  Fixed  Variable       or

**Repeat Status:** (check one)  Not Repeatable (NR)  
 Repeatable within degree (RD)      Maximum credits allowed:   
 Repeatable within term (RT)

**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)       Independent Study (IND)  
 Recitation (RCT)       Seminar (SEM)  
 Internship (INT)       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)

Description (No more than 60 words, use verb phrases and present tense)	Notes (List additional information for the course)
This course provides environmental science majors with the necessary background in biological diversity and ecological science required for subsequent courses in the BS curriculum. The course reviews the diversity of life on earth and the structure and functioning of ecosystems and populations.	
<b>Indicate number of contact hours:</b> Hours of Lecture or Seminar per week: <input type="text" value="3"/> Hours of Lab or Studio: <input type="text" value="3"/> <b>When Offered:</b> (check all that apply) <input type="checkbox"/> Fall <input checked="" 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

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 301 Environmental Science: Biological Diversity and Ecosystems

**Course Prerequisites:** Grade of 'C' or better in EVPP 210 or permission of the instructor

**Catalog Description:** This course provides environmental science majors with the necessary background in biological diversity and ecological science required for subsequent courses in the BS curriculum. The course reviews the diversity of life on earth and the structure and functioning of ecosystems and populations.

**2. COURSE JUSTIFICATION:**

**Course Objectives:**

Together with EVPP 210 and 302, this course is part of a three-semester sequence for environmental science majors that provides the basic underpinning for majors courses. Topics include the human dimensions of the environment, biological diversity, vertebrate organ systems, conservation biology, and general ecology.

**Course Necessity:** Course is needed to provide BS in Environmental Science majors with the necessary underpinning for more advanced courses in the major. It also introduces the full sweep of the degree.

**Course Relationship to Existing Programs:** As stated above, this course is an integral part of the BS in Environmental Science and will be required of all majors.

**Course Relationship to Existing Courses:** This course covers some of the same material as is found in BIOL 308: Foundations of Ecology and Evolution and BIOL 310: Biodiversity. However, the material from those courses is consolidated and presented in a manner which is more useful, appropriate, and concise for Environmental Science majors.

**3. APPROVAL HISTORY:**

**4. SCHEDULING AND PROPOSED INSTRUCTORS:**

**Semester of Initial Offering:** Spring 2015

**Proposed Instructors:** R. Christian Jones, Professor of ESP

**5. TENTATIVE SYLLABUS: Attached**

EVPP 301

Environmental Science: Biological Diversity and Ecosystems

Lecture Syllabus

Spring 2015

Course Description and Goals: Together with EVPP 210 and 302, this course is part of a three-semester sequence for environmental science majors which provides the basic underpinning for majors courses. Topics include the human dimensions of the environment, biological diversity, vertebrate organ systems, conservation biology, and general ecology.

Course Content and Instructional Methods: The course consists of a coupled lecture and laboratory; both must be taken concurrently and your grade will depend on your performance in both lecture and lab. Below is a list of lecture topics by week. Following the lecture topics there is the lab syllabus.

Week	Topic	Readings
19-Jan	The Anthropocene: Human Dimensions of the Environment	Moran: Ch. 1+
26-Jan	Externalities and Planetary Boundaries	Moran: Ch. 1+
2-Feb	Human Population Dynamics; Life Support and other Ecosystem Services	Moran: Ch. 2+
9-Feb	Exam 1, Biological Diversity: Bacteria and Archaea	Sandava et al.: Ch. 26
16-Feb	Biological Diversity: Origin & Diversification of Eukaryotes; Fungi, Protists	Sandava et al.: Ch. 27, 30
23-Feb	Biological Diversity: Plants	Sandava et al.: Ch. 28, 29
2-Mar	Biological Diversity: Animals	Sandava et al.: Ch. 31-33
9-Mar	Spring Break/No Classes	
16-Mar	Exam 2, Vertebrate Organ Systems	Sandava et al.: Ch. 49-52
23-Mar	Vertebrate Organ Systems/Toxicology	Sandava et al.: Ch. 49-52
30-Mar	Conservation Biology	Sandava et al.: Ch. 59, S&S: Ch. 28
6-Apr	Ecosystem Structure and Function: Energy Flow and Production	S&S: Ch. 20
13-Apr	Ecosystem Structure and Function: Material Cycling and Decomposition	S&S: Ch. 21, 22
20-Apr	Exam 3, Population and Community Ecology: Theory	S&S: Ch. 10,11,13,14
27-Apr	Population and Community Ecology: Theory and Applications	S&S: Ch. 16-18

Final: Depends on final exam schedule.

Text: *Life: The Science of Biology*. 2013. Sadava, Hillis, Heller, and Berenbaum. 10<sup>th</sup> Edition. (also used in EVPP 210)

Moran: *Environmental Social Science*. 2010. E.F. Moran. Wiley and Sons. (eBook \$31.99)

S&S: *Elements of Ecology*. T.M. Smith and R.L. Smith. 8<sup>th</sup> ed. (eBook \$69).

EVPP 301 Environmental Science for ES Majors II

Lab Syllabus: Laboratory is a required and integral part of EVPP 301

Week	Topic	Readings and Exercises
19-Jan	From HDE Questions to Hypothesis Testing: Overview of Environmental Social Science Methods	TBD by Soc.Sci Faculty – Could be good week to invite WAC folks to discuss scientific writing?
26-Jan	Carrying capacity and ecological footprint analysis	myfootprint.org, ecological footprint.org
2-Feb	Predicting the Future with (national) Population Pyramids; I=PxAxT; Status and impact on ecosystems	<a href="http://populationpyramid.net">http://populationpyramid.net</a>
9-Feb	Introduction to Microscopy and Prokaryotes	Weeks, Lab 1
16-Feb	The Eukaryotic Domain: Protist and Fungal diversity, form, and function	Weeks, Lab 2
23-Feb	The Eukaryotic Domain: Plant diversity, form, and function	Weeks, Lab 4
2-Mar	The Eukaryotic Domain: Animal diversity, form, and function	Weeks, Labs 9-12 (selected elements)
9-Mar	Spring Break/No classes	
16-Mar	Vertebrate Organ Systems	Weeks, Lab 13
23-Mar	Toxicology: <i>Ceriodaphnia</i> acute toxicity experiment	EPA protocol
30-Mar	Lab on Conservation Biology	Tour of Smithsonian Conservation Biology Inst.
6-Apr	Read and discuss papers on ecosystem structure and function	Papers on Ecosystem Structure and Function: write an essay summarizing one or more papers.
13-Apr	Energy Flow: Photosynthetic rate measurements	Lab exercise under development
20-Apr	Population Ecology: Human survivorship curves	Rockwood and Crerar, p. 59-64
27-Apr	Community Ecology: Plant Community Structure	Rockwood and Crerar, p. 65-68

Weeks, A. 2014. Laboratory Manual for Biodiversity. Hayden McNeil.

Rockwood, L.L. and L. Crerar. 2014. Laboratory/Field Exercises in Ecology and Evolution. Pearson.

Grading (lecture):	3 mid term exams:	100 pts each
	Cumulative Final:	100 pts
	Total Points	400 pts

Lab:	5 Quizzes, 10 pts.ea., lowest dropped	40 pts
	Full Lab Lab Report	25 pts
	12 Lab worksheets, 5 pts. ea	60 pts
	Total Points	125 pts

Any student missing a graded assignment (including tests) for health reasons or other extenuating circumstances may be required to submit a doctor's statement or other appropriate documentation to avoid a zero for that assignment.

Disability Statement: If you are a student with a disability and you need academic accommodations, please see the instructor and contact the Office of Disability Resources at 703-993-2474. All academic accommodations must be arranged through that office.

Honor Code Statement: George Mason University has an Honor Code, which requires all members of this community to maintain the highest standards of academic honesty and integrity. Cheating, plagiarism, lying, and stealing are prohibited by the code. It is the responsibility of all members of the community, both students and teachers, to report violations of the code.

Enrollment Statement: Students are responsible for verifying their enrollment in this class. Schedule adjustments must be made by the deadlines posted in the Schedule of Classes.