



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

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

Title: Current Banner (30 characters max including spaces)

New

Credits: (check one) 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 course)

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 delves into the biology and ecology of fishes. Subjects of this class include fish anatomy, taxonomy, evolution, habitat adaptations, community dynamics, and ecosystem interactions. The course will also touch on human impacts on fishes, and conservation.	
Indicate number of contact hours: Hours of Lecture or Seminar per week: <input type="text" value="3"/> Hours of Lab or Studio: <input type="text"/>	
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

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: The Diversity of Fishes, BIOL 480

Course Prerequisites:

BIOL 309, BIOL 310, and BIOL 350/EVPP 350

Catalog Description:

This course delves into the biology and ecology of fishes. Subjects of this class include fish anatomy, taxonomy, evolution, habitat adaptations, community dynamics, and ecosystem interactions. The course will also touch on human impacts on fishes, and conservation.

2. COURSE JUSTIFICATION:

Course Objectives:

Students will learn concepts in ichthyology and fish ecology. After completion of the course, students should have knowledge of the phylogeny and evolution of fishes, and understand their behavior, community dynamics and ecosystem interactions. In addition, students should understand that anthropological factors affect fishes and their environment. Through this course, students will also strengthen their presentation and discussion skills, and their ability to interpret scientific literature and to think critically.

Course Necessity:

Currently no fish ecology is being taught.

Course Relationship to Existing Programs:

The course will expand the course choices for biology undergraduate students pursuing a concentration in Marine and Freshwater Biology, and Environmental Science and Policy students pursuing a concentration in Aquatic Ecology. Currently, no fish ecology course is offered in either concentration.

Course Relationship to Existing Courses:

This course is a great addition to a list of courses in the field of aquatic ecology and marine biology offered in the Biology Program and the Department of Environmental Science & Policy. This addition will provide students interested in the aquatic sciences with a well-rounded education. This course will be cross-listed with EVPP 536. Students signing up for EVPP 536 will have the additional requirement of writing a term paper.

3. APPROVAL HISTORY:

Kim de Mutsert recently submitted a course modification approval request for EVPP 536. This course (BIOL 480) will be cross-listed with EVPP 536.

4. SCHEDULING AND PROPOSED INSTRUCTORS:

Semester of Initial Offering:

Spring 2014

Proposed Instructors:

Kim de Mutsert

5. TENTATIVE SYLLABUS:



The Diversity of Fishes

Syllabus
Spring 2014
3 credits
BIOL 480



Instructor: **Dr. Kim de Mutsert**, kdemutse@gmu.edu
Term Assistant Professor, Environmental Science and Policy
(703) 993-4480
Office: David King Hall 3018
Office hours: ...

Course Web Site: Go to <http://mymason.gmu.edu>, log in with your email name and your GMU email password, and then select (...). All information will be in this location.

Course Description and Goals: This course is an overview of the biology, evolution and ecology of fishes. During the course students will examine the taxonomy, anatomy, physiology, zoogeography, ontogeny, reproduction, ecology, and conservation of fishes. Students will learn concepts in ichthyology and fish ecology. After completion of the course, students should have knowledge of the phylogeny and evolution of fishes, and understand their behavior, community dynamics and ecosystem interactions. In addition, students should understand that anthropological factors affect fishes and their environment. Through this course, students will also strengthen their presentation and discussion skills, and their ability to interpret scientific literature and to think critically.

Course Content and Instructional Methods: The course consists of lectures and student presentations followed by discussions. Below is a list of lecture topics by week. Lectures will consist of powerpoint presentations that will be posted to our course on the day of the lecture. All students will give a 15-minute (max) presentation in class on a topic of their choosing within the subject of ichthyology or fish ecology (the topic does not have to correspond with the lecture topic of that week). One week before each presentation, the presenting student will assign one paper (publication in a scientific journal) to the rest of the class on the topic of their presentation. Each presentation will be followed by a 15-minute question and discussion session about the presentation and the assigned paper. Reading and interpreting scientific papers is part of the course; your participation grade (25 pts of total) will be based on reading the assigned material and participating in the discussions. Check the course blackboard page every week for readings that are part of the course material. Knowledge of the course material will be tested during two mid terms and one final exam.

A separate lab will be offered in summer that compliments this course (EVPP/BIOL 582 section C). The lab is a facultative part of the course (it is a separate 1-credit course), but highly recommended. During the lab students will receive hands-on experience in the field on the topics discussed in class at different field sites in the Potomac River, the Chesapeake Bay and the Atlantic coast. In three fieldtrips, fish will be sampled from freshwater tidal, estuarine, and marine environments. Students will develop a project in small groups related to ichthyology or ecology based on field collections, lab work, and/or the PEREC fish collection. Each group will present their project in class and write a research paper on this subject. There is no exam at the end of the summer lab.

Grading:	2 mid term exams:	125 pts each
	Cumulative Final:	150 pts
	Participation:	50 pts
	Student Presentation:	75 pts

Honor Code: Adherence to the *GMU Honor Code* is expected of all students, specifically:

Members of the George Mason University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work.

In all assignments and communications, **plagiarism** will not be tolerated. This applies equally to oral and written communications in the context of any evaluated (graded) course assignments. In presenting quotes, paraphrasing statements or logical arguments from others in any medium (on-line, oral or written), students should properly cite their source. Any public usage of original material from this course (e.g., presentations, images, etc.) without explicit permission of its creator shall be construed as stealing. As stated in the Honor Code, infractions may result in invalidated credit for dishonorable work and lowered grade, including failure from the class, suspension or dismissal. Inquiries for clarification from the professor are welcome. Thank you in advance for your conscious attention to these issues.

Absenteeism Policy: Please inform your instructor in advance if you will be absent from class due to sickness or other reasons.

Lecture Topics Schedule

Week Topic

Readings

PART I. What is a fish: Anatomy, Taxonomy, Phylogeny and Systematics

1	Intro to Class, History of Ichthyology, and Anatomy	Chapter 1, 2, 3, 4
2	Taxonomy and Phylogeny: Primitive Fishes and Chondrichthyes	Chapter 11, 12 and 13
3	Taxonomy and Phylogeny: Teleosts I	Chapter 14
4	Taxonomy and Phylogeny: Teleosts II	Chapter 15
5	Exam 1: PART I (Everything offered from week 1 to 4)	

PART II. How do fishes function: Physiology, Reproduction, Adaptations, and Zoogeography

6	Guest Speaker: TBA	Bb
7	Physiology	Chapters 5, 6 and 7
8	Spring Recess	
9	Ontogeny and Reproduction	Chapter 9, 10 and 21
10	Zoogeography and Habitat Adaptations	Chapter 16, 18 and 23
11	Exam 2: PART II (Everything offered from week 6 to 10)	

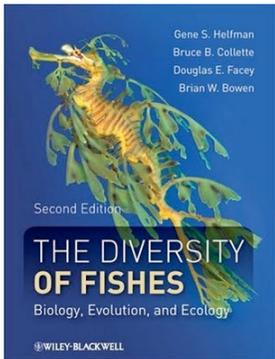
PART III. How do fishes interact with their environment: Community Dynamics, Ecology, and Human Impact

12	Population and Community Dynamics (+ intro to Analysis)	Chapter 22, 24, 25, Bb
13	Foodwebs and Ecosystem Interactions (+ intro to Modeling)	Chapter 19, 20, 25, Bb
14	Human Impact and Fisheries	Bb
15	Conservation	Chapter 26, Bb

Cumulative Final Exam (Study everything offered in this class): Date: ... Time: ...

Readings:

Helfman, G. S., B. B. Collette, D. E. Facey, and B. W. Bowen (eds.). 2009. *The Diversity of Fishes, second edition: Biology, Evolution, and Ecology*. Wiley-Blackwell, Oxford, UK. 736 pp.



All other readings will be posted on blackboard (Bb).