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
- [X] Modify existing course (check all that apply)
  - [X] Title
  - [ ] Credits
  - [ ] Repeat Status
  - [ ] Grade Type
  - [X] Prereq/coreq
  - [ ] Schedule Type
  - [ ] Restrictions
  - [ ] Other:

Course Level:

- [X] Undergraduate
- [ ] Graduate

College/School: Science
Department: Biology
Submitted by: G.F. Birchard
Ext: 3-1065
Email: gbirchar@gmu.edu

Subject Code: BIOL
Number: 446
(Do not list multiple codes or numbers. Each course proposal must have a separate form.)

Effective Term:

- [X] Fall
- [ ] Spring
- [ ] Summer

Year 2015

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

Credits: (check one)

- [X] Fixed — or
- [ ] Variable — to

Repeat Status: (check one)

- [ ] Not Repeatable (NR)
- [X] Repeatable within degree (RD)
- [ ] Repeatable within term (RT)

Maximum credits allowed: 3

Grade Mode: (check one)

- [X] Regular (A, B, C, etc.)
- [ ] Satisfactory/No Credit
- [ ] Special (A, B C, etc. +IP)

Schedule Type: (check one)
LEC can include LAB or RCT

- [X] Lecture (LEC)
- [ ] Lab (LAB)
- [ ] Recitation (RCT)
- [ ] Internship (INT)
- [ ] Independent Study (IND)
- [ ] Seminar (SEM)
- [ ] Studio (STU)

Prerequisite(s):
Biol 310 and either Biol 326 or Biol 430 and 431, or POI

Corequisite(s):

Instructional Mode:

- [X] 100% face-to-face
- [ ] Hybrid: ≤ 50% electronically delivered
- [ ] 100% electronically delivered

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

Are there equivalent course(s)?

- [ ] Yes
- [X] 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)
Physiological responses organisms use to survive and reproduce successfully in their ever-changing environments. Responses to temperature, salinity, low oxygen levels and diet will be covered from a phylogenetic and energetic perspective.	

Indicate number of contact hours: Hours of Lecture or Seminar per week: 3 Hours of Lab or Studio: 0

When Offered: (check all that apply) [X] Fall [ ] Summer [X] 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

Course Justification Submitted to the Curriculum Committee of the College of Science

1. COURSE NUMBER AND TITLE:
Biol 446 title change reflects that this course does not just deal with environmental physiology but an overall physiology that occurs throughout evolution and ecology.

Course Prerequisites:
Biol 310 and either Biol 326 or Biol 430,431 or POI. **Students have a basic understand of ecology and evolution principles prior to taking this class. Students without this knowledge have been shown to do poorly in this class.**

Catalog Description:
Physiological responses organisms use to survive and reproduce successfully in ever-changing environments. Evolved responses to temperature, salinity, low oxygen levels and diet will be covered from a phylogenetic and energetic perspective.

2. COURSE JUSTIFICATION:

Course Objectives:
To provide a physiology course which focuses on ecological and evolutionary connections with animal function

Course Necessity:
All current physiology courses focus on mammalian systems primarily with a focus on humans and connections to health related topics. Relevant material on responses to changes in the environment like global warming are not covered in any other course

Course Relationship to Existing Programs:

Fills gaps in the organismal biology curriculum by connecting physiology to the central theme of the discipline, evolution

Course Relationship to Existing Courses:
Complements existing physiology offerings by extending the study to special topics not typically covered and from the evolutionary perspective

3. APPROVAL HISTORY:

4. SCHEDULING AND PROPOSED INSTRUCTORS:

Semester of Initial Offering: Spring 2015
Proposed Instructors: GF Birchard

5. TENTATIVE SYLLABUS:

Biology 446 EcoEvo Physiology

Instructor: Geoffrey F. Birchard, Associate Professor of Biology
Office: King 3015 Office Hours: M 10:30-12:00 and by appointment
Phone: 993-1065. E-Mail: gbirchar@gmu.edu (*Preferred method of contact*)
Textbook: Hill et al (2012) *Animal Physiology*. Sinauer Press

Date	Quiz - Exam	Topic	Readings
		Tolerance, Regulation, Adaptation, Phenotypic Plasticity/Acclimation, Scaling and Phylogenetics	Appendix G Ch 1, 3, 4
		Temperature- Cold,	Ch 10
	Quiz 1	Freeze Tolerance,Torpor and the Evolution of Endothermy	Ch 11
		Temperature - Heat	Ch 30
	Mid Term Exam		
		Digestion-Nutrient Acquisition and Extraction	Ch 6
		Responses to Changes in Salinity	Ch 28
	Paper Due	Adaptation to Desert Environment	Ch 30
		Exercise-VO2 max	Ch 9
	Quiz 2	Environmental Hypoxia - Aquatic	Ch. 9
		High Altitude Hypoxia	JB West Respiratory Physiology (on reserve in Library)
		High Pressure- Diving	Ch 26
		Biorhythms	PP 410-416
	Final Exam		

Blackboard: The syllabus and handouts or other materials will be available on Blackboard. All Articles are accessible through the E-journals link on the Library Home page unless noted. Any problems finding the article- contact your instructor.

Course Grading:
I will use the +/- grading system. Your grade will be based on exam performance with the following percentages; Midterm (25%), Cummulative Final Exam (50%), Quizzes (15%), Paper (10%).

Exams will be a combination of short answer and essays.

Quizzes will be take home. They will be handed out on Tuesday and are due Thursday at the beginning of class. The take home quizzes are not a collaborative exercise.

The paper will be on an assigned topic. It will be on a special topic and require use of primary sources. It is expected to be 5 double spaced pages plus references and any figures.

Makeup Policy: There are no makeup exams. You must contact your instructor before an exam if an exam is to be missed for a legitimate reason.

Honor Code: It is expected that all students will abide by the GMU Honor Code: (http://oai.gmu.edu/understanding-the-honor-code. Note that course policy is that no electronic devices of any kind may be in use during an exam.

Students with disabilities: If you are a student with a disability and you need academic accommodations, please see me and contact the Disability Resource Center (DRC) at 993-2474. All academic accommodations must be arranged through the DRC.

Late Assignments Policy. All assignments are expected to be turned in at the beginning of that days class. Late assignments have maximum point values of: 1 day late 80%, 2 days late 65%, 3-4 days late 45%, 5 or more days late 0% of the initial assignments value