Course Approval Form

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

registrar.gmu.edu/facultystaff/curriculum

Action Requested:

- [X] 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:

- [X] Undergraduate
- [ ] Graduate

College/School: Science
Department: Biology
Submitted by: Deborah Polayes
Ext: 3-4543
Email: dpolayes@gmu.edu

Subject Code: BIOL
Number: 323
(Do not list multiple codes or numbers. Each course proposal must have a separate form.)

Effective Term:

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

Year 2016

Title:
Current
Banner (30 characters max including spaces)
New: Lab for Developmental Biology

Credits: (check one)

- [1] Fixed
- [ ] Variable

or
to

Repeat Status: (check one)

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

Maximum credits allowed:

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

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

Prerequisite(s):
BIOL 322 or permission of instructor

Corequisite(s):
BIOL 322

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.

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)
This laboratory will explore early developmental processes using classical and modern developmental biology techniques. Students will have the opportunity to propose and carry out a small independent project using zebrafish as a model organism.	

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

When Offered: (check all that apply) [ ] 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

Graduate Council Member

Provost Office

Graduate Council Approval Date

For Registrar Office's Use Only: Banner_____Catalog_____

revised 11/8/11

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

1. COURSE NUMBER AND TITLE: Lab for Developmental Biology

Course Prerequisites/Co-requisite:
BIOL 322 or permission of instructor

Catalog Description:
This laboratory will explore early developmental processes using classical and modern developmental biology techniques using zebrafish as a model organism

2. COURSE JUSTIFICATION:

Course Objectives:
This lab is offered as a separate course for the developmental biology lecture course (BIOL322). This will allow us to teach the lecture portion without requiring all the students to take the lab. The lab will be a co-requisite for the lecture course (BIOL322)

Course Necessity:
It is important for our department to offer a wide-range of upper-division laboratory courses, especially considering the large number of Biology majors in the Biology department.

Course Relationship to Existing Programs:

The course will expand the course choices for biology undergraduate students pursuing both a general biology major and those thinking of continuing on towards a medically related career in science. Consistent with the biology program goals, students who take this laboratory course will expand their knowledge of laboratory techniques, implement their knowledge of the scientific method by designing their own research projects, and practice presenting their scholarly work to their peers.

Course Relationship to Existing Courses:
This course uses advanced techniques to enhance students understanding of development using a relatively new model organism.

3. APPROVAL HISTORY:
BIOL322 has existed with a lab component but has not been taught because there was no one to develop the lab in recent years. The lecture has been broken out so we will have lecture and lab as separate courses. This will allow students to take the lecture and those that are truly interested in laboratory work will be able to benefit from the lab.

4. SCHEDULING AND PROPOSED INSTRUCTORS:

Semester of Initial Offering:
Spring 2016

Proposed Instructors:
Valerie Olmo

Week #	Experiment	What's due
1	Introduction to lab and zebrafish as a model organism	
2	Staging zebrafish embryos using light microscopy	
3	Fate mapping experiment- Part I	Lab notebook check
4	Fate mapping experiment- Part II	Discuss hypothesis for independent research project with lab partner(s)
5	Drug treatments using early zebrafish embryos	Hypothesis for independent research project due Discuss experimental design for independent research project with lab partner(s)
6	*in situ* hybridization of drug treated embryos- Part I	Description of experimental design for independent research project due
7	*in situ* hybridization of drug treated embryos- Part II	Present hypothesis and experimental design for research project Presentation feedback Lab notebook due
	Spring Break	
8	Independent research project: Investigating effect of environmental factors on development- Week 1	Introduction draft due
9	Independent research project- Week 2	
10	Independent research project- Week 3	Materials & Methods/Results draft due
11	Independent research project- Week 4	
12	Independent research project- Week 5	Conclusions draft due
13	Independent research project- Week 6	
14	Final Student presentations	Final lab report due