CATALOG YEAR 2015-2016

COLLEGE/SCHOOL/SECTION:  _Arts and Sciences_____________________

Course:  Add:  _X_  Delete:  ___  (check all that apply)  Change:  Number ___  Title ___  SCH ___  Description ___  Prerequisite ___  
Response Required:  New course will be part of major _X_ minor _X_ as a required ___ or elective _X_ course  
Response Required:  New course will introduce _X_, reinforce _X_, or apply _X_ concepts  
Response Required:  Grade Type  _X_ Normal (A-F) ___ CR/NC ___ P/F

If new, provide Course Prefix, Number, Title, Measurable Student Learning Outcomes, SCH Value, Description, prerequisite, and lecture/lab hours if applicable. If in current online catalog, provide change and attach text with changes in red and provide a brief justification.

BIOL 5470

Advanced Developmental Biology

4 semester hours

A study of the molecular and cellular events that lead to the generation of a multicellular organism from a fertilized egg. Emphasis on cell differentiation, development of an entire organism from a single cell involving several stages of differentiation and cell interaction, and cellular and molecular processes involved in generating an embryo and various tissues and organs. Prerequisite: BIOL 3413. Lab Fee: $27.25 30.00

Justification

Adding course to catalog that is now being taught as a special topic course and is expected to be taught repeatedly.

Approvals:

Chair  
Department Curriculum Committee

Chair  
Department

Chair  
College Curriculum Committee

Dean

Provost  
06/2014

Signature  
Neal McReynolds  
Dan Mott  
Frances Bernat

Date

Feb. 24/15
Learning Outcomes:

Upon completion of this course, students will be expected to:
- Identify the genes and cellular mechanisms responsible for development.
- Describe the cellular and molecular events involved in the generation and fusion of gametes prior to and during fertilization.
- Discuss the morphological changes that occur during early embryogenesis, including the events of cleavage, axis formation, gastrulation, and neurulation.
- Outline how tissue layers form and how different organs are derived from each embryonic layer.
- Discuss how gene expression and cell signaling regulate developmental processes, and how cells with identical DNA content can have different developmental fates.
- Synthesize the relationship between developmental biology and other branches of biology such as genetics, molecular biology, cell biology, and evolution.
- Develop critical and creative thinking by engaging with the original scientific literature
- Produce critical essays from evaluation of original scientific literature in Developmental Biology.