

CATALOG YEAR 2015-2016COLLEGE/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/FIf 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:

Signature

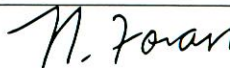
Date

Chair
Department Curriculum Committee

Neal McReynolds

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Date: 2015.02.04 11:32:22 -0600Chair
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Chemistry, email=dmmott@tamiu.edu, c=US
Date: 2015.02.23 10:19:38 -0600Chair
College Curriculum Committee

Frances Bernat

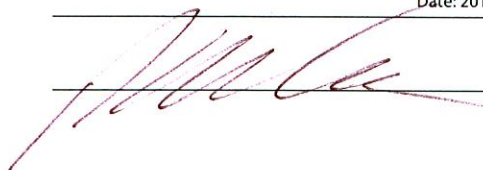
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Date: 2015.02.24 16:54:14 -0600

Feb. 24/15

Dean

Provost

06/2014



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.