Course Changes
Texas A&M University
Departmental Request for a Change in Course
Undergraduate • Graduate • Professional
• Submit original form and attachments •

Form Instructions
1. Course request type: □ Undergraduate    ✓ Graduate    □ First Professional (DDS, MD, JD, PharmD, DVM)
2. Request submitted by  □ Department or Program Name: Select or Type Department/Program Name
3. Course prefix, number and complete title of course: BIO 611 MOLECULAR DIFF & DEV

Change requested
a. Prerequisite (s): From: _____________________________ To: _____________________________

b. Withdrawal (reason): _____________________________

c. Cross-list with: _____________________________

Change in course title and description. Enter complete current course title and current course description in item 5; enter proposed course title and proposed course description in item 6. Complete item 7 for change in title.

5. Is this an existing core curriculum course? □ Yes    □ No
6. If grade type is changing for existing course, indicate the new grade type: □ Grade □ S/U □ P/F (CR/NC)
7. If this course will be stacked, please indicate the course number of the stacked course:

✓ I verify that I have reviewed the FAQ for Export Control Basics for Distance Education (http://vpr.tamu.edu/resources/export-contROLS-basics-for-distance-education).

9. Complete current course title and current catalog course description:
BIO 611 - MOLECULAR BIOLOGY OF DIFFERENTIATION AND DEVELOPMENT. Major paradigms of eukaryotic gene regulation in terms of the role of gene expression during ontogeny and the effect of dysfunction in these processes on the neoplastic state.

10. Complete proposed course title and proposed catalog course description (not to exceed 50 words):
BIO 611 - DEVELOPMENTAL GENETICS

11. a. As currently in course inventory:

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<tr>
<th>Prefix</th>
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<th>Title (excluding punctuation)</th>
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<tbody>
<tr>
<td>BIO</td>
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<td>MOLEC BIO DIFF &amp; DEV</td>
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b. Change to:

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Approval recommended by:

Department Head or Program Chair (Type Name & Sign) Date: 8-15-14

Chair, College Review Committee Date: 8-13-14

Dean of College Date: 9-22-14

Chair, GC or UCO Date: Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu.
Curricular Services – 07/14
Biology 611: Molecular Biology of Differentiation and Development

Bruce Riley (845-6494, briley@mail.bio.tamu.edu)
Jim Erickson (862-2204, jerrickson@mail.bio.tamu.edu)

Tuesday and Thursday 9:30-11:00, room 117 Heldenfels.

Aug. 27
Overview of course objectives.
Introduction to historical perspectives and basic concepts.

Aug. 29
Intro to vertebrates
Nodal signaling and organizer activity in zebrafish.


Sep. 3
Wnt8 and coordination of AP and DV axes in zebrafish.


Sep. 5
Epithelial-Mesenchymal Transition (EMT) in development & cancer.


Sep. 10
Fgf, Bmp and DV patterning in zebrafish.


Sep. 12
Delta-Notch signaling, neurogenesis, and regulation by ubiquitin ligase.

Sep. 17
Somitogenesis and molecular clocks.


Sep. 19
HOX/HOM genes and AP patterning.

Sep. 24
Hedgehog signaling and axon guidance.

Sep. 26
Intro to Drosophila
Drosophila axis determination (AP axis): Transcriptional control of development.


Oct. 1
Drosophila axis determination (DV axis): Transcriptional control of development.

Oct. 3


Oct. 8
Translational control of fly development.


Oct. 10
Dissection of the EGFR pathway in Drosophila eye development.


Oct. 15
Branching morphogenesis and tracheal development in Drosophila.


Oct. 17
Sex Determination.


Oct. 22
MIDTERM EXAM.

Oct. 24
Introduction to C. elegans
Axis determination.

Oct. 29
Convergence of multiple signals in C. elegans vulval induction.


Oct. 31
Programmed cell death and the CED pathway in C. elegans.


Nov. 5
Developmental timing: Heterochrony and regulation by micro-RNA.


Nov. 7
Aging and longevity.


Nov. 12
Introduction to Arabidopsis
Auxin signaling & symmetry-breaking.


Nov. 14
Cell signaling and meristem maintenance.

Nov. 19
Intro to Evo-Devo
Descent with modification.


Nov. 21
The concept of developmental modules.


Nov. 26
Developmental constraints and phenotypic variation.

Syllabus part 2

Course Objectives:
1. Learn general principles and specific mechanisms of development.
2. Become familiar with the advantages and limitations of commonly studied genetic model organisms.
3. Gain experience in critical reading and interpretation of primary research articles.

Course Format for class meetings:
We will be discussing literature papers in the order listed on the syllabus. Papers are available online through the electronic journals page of the Medical Sciences Library (only through an on-campus computer or through dial-up modem/connection through the University). http://library.tamu.edu/ or http://msl.tamu.edu/MSL/InfoRsrc/ejournal2.html. The instructors will assume that you have read the paper PRIOR to arriving at the meeting and are ready to discuss the following issues:

- What was the previous information that led to the question being asked in the paper?
- What is the hypothesis being tested?
- How does the hypothesis relate to or extend what we have discussed earlier or what you may know from other classes?
- What is the design and method of the experiments?
- What were the assays used to examine developmental events?
- How did their results address or relate to their hypothesis?
- Did they prove their point to your satisfaction? If not, what would you have liked to see them do?

Grading: Your grade will be based on four criteria, all weighted equally. The four criteria are as follows:

1) Attendance and participation during class discussions. Asking questions, raising points, answering questions posed by the instructors or classmates and volunteering information are some ways in which you can participate. Of course full participation also requires thorough reading of all assigned papers.

2) Homework assignments. For the first half of the semester, each paper will be accompanied by a set of homework problems designed to make you think about the paper on a deeper level. Homework is DUE at the beginning of the class session in which the paper will be discussed. NO late homework assignments will be accepted.

Notes on plagiarism: When answering homework problems, you may draw from information gleaned from books, articles, etc., but do not simply transcribe (copy word-for-word) any material written by others. You must state all concepts in your own words. If you are describing a complex concept or a model obtained from another author (as opposed to a general principle), use appropriate citation practices. Plagiarism is a very serious offense that has become increasingly common in recent years. Any student caught plagiarizing will receive zero credit for that homework assignment. If there is a
second offense, the student will be summarily dismissed from the course (with an automatic F) and may face expulsion from the university.

3) You will be responsible for presentation of papers for two class periods during the semester. This means providing background, understanding the experimental approaches and interpretations, critiquing experimental design or the authors’ conclusions, and being able to lead the group discussion. The background given in the paper will NOT generally be sufficient for your presentation. You should attempt to give a more in-depth introduction to the paper. You are encouraged to discuss your assigned paper with one of the instructors prior to your class presentation. Students are strongly advised to prepare well in advance to allow sufficient time to confer with the instructor and make necessary adjustments to your presentation. We suggest starting at least a week ahead of time if you have not done this type of presentation before.

4) A written midterm exam will be conducted halfway through the semester. The exam will test your understanding and recall of core concepts and developmental mechanisms covered during the first half of the semester. These concepts and mechanisms will also provide a foundation for class discussions in the second half of the semester.

Links that might be helpful:

http://flybase.bio.indiana.edu/

http://www.wormbase.org/

http://www.informatics.jax.org/

http://zfin.org

http://biocourse.bio.tamu.edu/faculty/pepper/awg/

(The last url has various links to sites related to Arabidopsis).