Developmental Biology Syllabus
Biology 4361
Summer 2008

Instructor: Patrick K. Schoff, PhD
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Lecture: Swenson Science Building, room 115
         M, T, W, Th, 9:00 - 9:50 am

Lab:      Swenson Science Building, room 103
         M, T, W, Th, 10:00 - 11:50 am

Office Hours: by appointment

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General Requirements. It is assumed that students enrolled in Biology 4361 have the basic
background and vocabulary provided by introductory courses in biology, chemistry,
mathematics, and physics. Prerequisite biology courses include Cell Biology and Genetics.

Goals and Objectives. This course will provide upper division undergraduate students with an
understanding of the fundamental concepts, principles, and mechanisms of animal development,
as well as a familiarity with basic experimental methods and laboratory models used in
developmental biology research.

Content. Developmental Biology consists of lecture and lab components that will introduce
students to fundamental principles of animal developmental from fertilization to birth, as well as
to basic observational and experimental methods used to study animal models. Lecture material
will cover principles of development, gametogenesis, fertilization, cleavage, gastrulation, cell
fate, differentiation, morphogenesis, and organ formation. Supplemental lecture material may
occasionally be presented during laboratory periods. Laboratory work includes studies and
experiments involving fertilization, mutagenesis, organogenesis, endocrinology, metamorphosis,
and regeneration.

Attendance. Students are expected to attend all scheduled lecture and lab classes. Material
presented in class may or may not be found in the texts or in supplementary material. Some
material may be presented in the UMD Developmental Biology website, but there should be no
expectation or guarantee that material for which you are responsible will be available from sources other than lecture or lab notes.

**Lab.** Since many experiments in developmental biology involve growing and observing animals, the schedule that we establish at the beginning of the course may be modified later to accommodate timing of developmental events within a given species. The scheduled lab periods will be used to start all experiments, but you can expect to occasionally return to the lab to check on progress, record observations, or complete experiments during non-lab periods.

We use several types of animals as model species to study various aspects of development. The decision to use of animals for study is made only after careful consideration of the value of the scientific information gained, and all animals are cared for following the strictest standards established by the University of Minnesota. All animals will be treated with respect and afforded the dignity due to living organisms. Any breach of behavior in this regard could be considered grounds for dismissal from the class.

**Lab notebooks and reports.** Observation, quantification of experimental results, and accurate reporting are key elements in all fields of science. You will be required to keep a laboratory notebook to record your experimental methods, observations, and data, and that notebook will be turned in at the end of the course for grading. You will also be required to submit lab reports throughout the term for grading. Lab report format, content, and grading will be explained in further detail during the term.

**Exams and grading.** Exams will cover lectures, labs, assigned text readings, and any supplemental material presented during the course. Lab reports will be written in a scientific style documenting the background, methods, results, and interpretations of lab experiments (further explanation and guidance will be provided during the lab). Each student will be required to maintain a lab notebook, which will serve as the basis for written lab reports.

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<thead>
<tr>
<th>Graded Event</th>
<th>Points</th>
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<tbody>
<tr>
<td>Exams (4 @ 100 points each)</td>
<td>400</td>
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<tr>
<td>Lab reports</td>
<td>120</td>
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<tr>
<td>Lab notebook</td>
<td>30</td>
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<td><strong>Total</strong></td>
<td><strong>550</strong></td>
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Final grades will be based on a percentage scale of total points. Tentative grading scale: 100 - 90% = A; 89 - 80% = B; 79 - 70% = C; 69 - 60% = D; <60% = F

**Plagiarism.** Plagiarism is not allowed under any circumstance. Proper use and citation of existing source material (e.g. texts, reference books, or primary research literature), as well as work by colleagues or collaborators will be discussed in class. Any questions about proper
referencing and citation should be referred to the instructor or GTA. Plagiarism is considered academic fraud and will be treated accordingly.

**University Policies**

**Access For Student With Disabilities:** Individuals with any disability, either temporary or permanent, which might affect their ability to perform in this class, are encouraged to inform the instructor at the start of the semester. Adaptation of methods, materials, and/or testing may be modified as required to provide for equitable participation.

**Promotion Of Bias-Free Instruction:** The University of Minnesota is committed to the practice that all of its students shall have equal educational opportunities. The University expressly forbids discrimination on the basis of race, color, gender, sexual orientation, disability, veteran’s status, ethnicity, religion, creed, national origin, or marital status. If you believe that your biology instructor has not followed this policy, you are invited to bring this to the attention of the Biology Department Head (207 Swenson Science Building, 726-7263) or to the Associate Dean of the College of Science and Engineering (140 Engineering, 726-7585). Your conference will be kept confidential.