Biology 3230 Developmental Biology Spring 2020 Syllabus

**Instructor:** Michael Bastiani  
ASB 430  
Phone: 801-673-8323  
Email: bastiani@biology.utah.edu  
Office hours: by appointment

**Class meets:** Monday and Wednesday 1:25-2:45 pm, JTB 110

**Text:** Developmental Biology 12ed. Barresi and Gilbert, Oxford University Press  

**Other Requirements:** Laptop, Tablet, or touchscreen cell phone for in class quizzes.

**Grading:** There will be one midterm worth 300 pt, a comprehensive final exam (400 pts), weekly homework question sets 10-20 pt each (about 300 pt), and in class extra credit (about 1000 pt total). Grading will be either on an absolute scale with 90% A, 80% B, 70% C, 60% D, 50% E or based on a curve. I will use which ever method gives students the higher grade.

**Teaching Assistant:** Marlen Rice "Marlen.rice@utah.edu"  Office hours and review sessions to be arranged.

**Expected Learning Outcomes**  
Students will learn the molecular and cellular basis of metazoan embryogenesis, regeneration, and aging and be able to apply the knowledge to understand the remarkable evolution of life’s diversity.

Students will be able to explain how cells interact to give rise to emergent properties at multiple levels of biological organization.

Students will be able to apply the process of science to identify knowledge gaps in developmental biology, formulate hypotheses, and test them against experimental and observational data to advance an understanding of developmental biology.

**Attendance:** There will be unannounced classroom quizzes and daily extra credit given for participation in class.

**Content accommodation:** No content accommodation will be made in this course.

**Student Code of Conduct:** As with every University of Utah course, you are required to obey the Student Code. https://regulations.utah.edu/academics/6-400.php  
I encourage you to work together to understand the material covered in this course. Form study groups, attend discussion, ask questions, use the Canvas site, talk with your colleagues and TAs. However, homework and exams must be your own work, and solely your work. I will be actively monitoring the class to ensure a level playing field. Academic misconduct will not be tolerated, including cheating, misrepresentation, and plagiarism.  
I aim to maintain a climate conducive to thinking and learning. I will foster inclusivity in our course, and respect the dignity of our students and their rights as persons.

**Wellness:** Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student’s ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness: www.wellness.utah.edu or call 801-581-7776.
Americans with Disabilities Act (ADA): The University of Utah Department of Biology seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the instructor and to the Center for Disability Services, http://disability.utah.edu/, 162 Olpin Union Bldg, 581-5020 (V/TDD) to make arrangements for accommodations. This information is available in alternative format with prior notification.

University Safety Statement: The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.

Addressing Sexual Misconduct: Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Undocumented Student Support Statement: Undocumented Student Support. Immigration is a complex phenomenon with broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center. Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. To learn more, please contact the Dream Center at 801.213.3697 or visit dream.utah.edu.

Class Schedule

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<thead>
<tr>
<th>Date</th>
<th>Topic and Reading Assignments</th>
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<tbody>
<tr>
<td>Jan  6</td>
<td>Ch 1 Introduction to Developmental Biology</td>
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<tr>
<td>Jan  8</td>
<td>Ch 2 Specifying Identity: Mechanisms of Developmental Patterning</td>
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<td>Jan 13</td>
<td>Ch 3 Differential Gene Expression: Mechanisms of Cell Differentiation</td>
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<td>Jan 15</td>
<td>Ch 4 Cell-Cell Communication and Morphogenesis</td>
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<td>Jan 20</td>
<td>Martin Luther King Holiday</td>
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<td>Jan 22</td>
<td>Ch 5 Stem Cells</td>
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<td>Jan 27</td>
<td>Ch 6 Sex Determination and Gametogenesis</td>
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<td>Jan 29</td>
<td>Ch 7 Fertilization</td>
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<td>Feb  3</td>
<td>Ch 9 The Genetics of Axis Specification in Drosophila</td>
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<td>Feb  5</td>
<td>Ch 10 Sea Urchin Cleavage and Gastrulation</td>
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Feb  10  Ch 11 Amphibian fertilization, cleavage and gastrulation
Feb  12  Ch 12 Bird and Mammal early development
Feb  17  President’s Day Holiday
Feb  19  Ch 13 Neural tube formation and patterning
Feb  24  Ch 14 Brain Development
Feb  26  Ch 15 Neural Crest and Axonal Specificity

Mar  2   Ch 16 Ectodermal Placodes and Epidermis
Mar  4   Midterm Exam
Mar  8   Spring Break March 8-15
Mar 16  Ch 17 Paraxial Mesoderm
Mar 18  Ch 18 Intermediate and Lateral Plate Mesoderm
Mar 23  Ch 19 Limb Development
Mar 25  Ch 20 Endodermal development and derivatives
Mar 30  Ch 22 Regeneration pt. 1

Apr  1   Ch 22 Regeneration pt. 2
Apr  6   Ch 23 Birth defects, endocrine disruptors, and Cancer
Apr  8   Ch 23 pt. 2 Cancer
Apr 13  Ch 25 Development and Evolution
Apr 15  Synthetic Biology: Creating new life pt. 1
Apr 20  Synthetic Biology: Creating new life pt. 2
Apr 21  Reading Day
Apr  0  Final Exam  8-10 am  JTB 110