Developmental Biology (BIO 445.001)
Spring Semester 2018
Human Services, Room 317
TR 930 – 1045am

Instructor: Dr. Kevin Langford
Department: Biology
Office: Miller Science Building, Room 224
Phone: 468-2315
Email: klangford@sfasu.edu

Office hours:
MF – 9-12am
W – 9-11am
TR – 11am-12pm

Course Description:
Three semester hours, three hours lecture. Fundamental mechanisms of embryonic development. Tissue, cellular and molecular interactions that direct development of human embryos.

Pre-requisite(s): Bio 241 with a minimum of a C
Co-requisite(s): none
Bio 341 with a minimum of a C

Required Textbook:

Program Learning Outcomes:
Each of the student learning outcomes listed below address the Biology Department Program Learning Outcome #1: Demonstrate a good knowledge base in biological concepts and be able to integrate knowledge with critical thinking skills to become problem solvers. Knowledge base will include: levels of complexity (molecular/cellular through population/communities/ecosystems); biological principles and processes.

Course Objectives:
- Provide students with an understanding of how the three primordial germ layers give rise to all tissues of the human body.
- Provide students with an understanding of the specific of organogenesis that are required for the generation of all organ systems in the human body.
- Provide students with an understanding of the major congenital defects that may occur during development.
Student Learning Outcomes (Course Competencies):
Student understanding will be evaluated with comprehensive exams (i.e., short answer, and essay questions) surveying in detail the material to be mastered. Students who successfully complete developmental biology will be able to:

- Describe the process and anatomical location of fertilization.
- Explain how a zygote transforms into a blastula.
- List the main steps for implantation.
- List the normal cellular constituents of the trophoblast.
- Describe and name the main chorionic villi and detail their role in the aorticocapillary network.
- Describe how the three germ layers are generated.
- Outline the principal functions of foregut, midgut and hindgut derivatives.
- List the components of the developing diaphragm.
- Draw a cross-section of the embryo at the midgut level and label the structures of the somites, neural tube, notochord, intestines.
- Draw a simple diagram of kidney development.
**Human Development: Bio 445**  
Spring 2018  
TR 9:30-10:45am  
Dr. Langford

**Tentative Lecture Schedule**

Note: Lecture topics and dates may be changed during the course of the semester at the instructor's discretion. The class will be notified of any changes to the syllabus via D2L email.

<table>
<thead>
<tr>
<th>Date</th>
<th>Meeting</th>
<th>Topic(s)</th>
<th>Pages</th>
<th>Chapters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 16</td>
<td>1</td>
<td>Introduction</td>
<td>1-13</td>
<td>1</td>
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<tr>
<td>Jan 18</td>
<td>2</td>
<td>Gametogenesis Fertilization</td>
<td>15-39</td>
<td>2</td>
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<tr>
<td>Jan 23</td>
<td>3</td>
<td>Implantation Cavity formation</td>
<td>43-53</td>
<td>3</td>
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<tr>
<td>Jan 25</td>
<td>4</td>
<td>Gastrulation Notochordogenesis</td>
<td>54-62</td>
<td>4</td>
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<tr>
<td>Feb 30</td>
<td>5</td>
<td>Neurulation Neural Crest Cell Formation</td>
<td>63-70</td>
<td>4</td>
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<tr>
<td>Feb 1</td>
<td>6</td>
<td>Embryonic folding</td>
<td>73-91</td>
<td>5</td>
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<td>Feb 6</td>
<td>7</td>
<td>Organogenetic period</td>
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<td></td>
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<td>Feb 8</td>
<td></td>
<td>Unit I Exam - Chapters 1-5</td>
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<tr>
<td>Feb 13</td>
<td>8</td>
<td>Fetal Period Factors influencing growth</td>
<td>96-108</td>
<td>6</td>
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<tr>
<td>Feb 15</td>
<td>9</td>
<td>Placenta Parturition</td>
<td>111-143</td>
<td>7</td>
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<td>Feb 20</td>
<td>10</td>
<td>Body Cavities</td>
<td>146-157</td>
<td>8</td>
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<tr>
<td>Feb 22</td>
<td>11</td>
<td>Pharyngeal Apparatus</td>
<td>160-195</td>
<td>9</td>
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<td>Feb 27</td>
<td>12</td>
<td>Pharyngeal Apparatus</td>
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<td>9</td>
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<td>Mar 1</td>
<td>13</td>
<td>Respiratory system</td>
<td>198-209</td>
<td>10</td>
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<td>Mar 6</td>
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<td>Unit II Exam - Chapters 6-9</td>
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<td>Mar 8</td>
<td>14</td>
<td>Respiratory system</td>
<td>198-209</td>
<td>10</td>
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<td>Mar 10/18</td>
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<td>Spring break</td>
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### Attendance Policy:

Attendance is expected and encouraged for all lectures. At the beginning of each lecture, students will be required to sign his/her name on a circulated attendance sheet (placed at the front of the classroom). *Failure to sign your name will be considered an absence even if you were in class.*

For excused absences (as determined at my discretion), I will adhere to the University policy on attendance and absences.

**Make-up Exams:** Students with *excused absences ONLY* will be allowed to make-up missed exams.

- The determination of an absence as excused or unexcused will be at my discretion.
- Make-up exams will be entirely an essay exam format.
- A make-up exam must be taken within three weeks of the missed exam.
- All missed exams *MUST BE COMPLETED* prior to dead week.
- The Final Exam must be taken on the day and time assigned. *NO EXCEPTIONS!*
Grading policy:

400 total points are available from the lecture component of the course. There will be three, 100 point lecture exams and a 100 point final exam.

100 additional points will also come from quizzes administered at the beginning of face to face sessions throughout the semester and 100 more from clinical PBL discussions and facilitations during the semester.

Lecture Exams = 300
Final Exam = 100
Quizzes = 100
Clinical PBL = 100

600 total possible points from lecture

Final grades for the course will be assigned as follows:

A=100-89.5% (600 - 537 points)
B= 89-79.5% (536 - 477)
C= 79-69.5% (476 - 417)
D= 69-59.5% (416 - 357)
F= <59.5% (< 356)

Academic Integrity (A-9.1):

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one’s own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained form an internet source or another source; and (3) incorporating the words or ideas of an author into one’s paper without giving the author due credit.

Please read the complete policy at www.sfasu.edu/policies/academic_integrity.asp
**Withheld Grades Semester Grades Policy (A-54):**

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they received a WH, or the grade automatically becomes an F. If students register for the same course in future terms, the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

**Students with Disabilities:**

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468/3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/)

**Acceptable Student Behavior (D-34.1):**

Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.