BSC 526. DEVELOPMENTAL BIOLOGY

COURSE SYLLABUS: Spring 2022

INSTRUCTOR INFORMATION

Instructor: Hyun-Joo Nam, PhD
Office Hours: F 10:00 AM-11:00 AM by Zoom or by appointment
https://tamuc.zoom.us/j/7032367457?pwd=RkFQZmtkcm90emNnUGNDL0E0Sjg0UT09
Meeting ID: 703 236 7457
Passcode: OH
University Email Address: Hyun-Joo.Nam@tamuc.edu
Preferred Form of Communication**:** email
Communication Response Time: Less than 48 hours for e-mails (excluding weekends and holidays)

COURSE INFORMATION

Textbook(s) Required: Developmental Biology by Scott F. Gilbert and Michael J. F. Barresi, 11th or 12th edition; Sinauer Associates, Inc.
Software Required: Please see technology requirements.
Optional Texts and/or Materials: N/A

COURSE DESCRIPTION

This course is designed to explore the fundamental concepts and mechanisms that regulate animal development from fertilization of the egg to formation of the adult organism, including such topics as cycle of life, differential gene expression, cell-cell communication, fertilization, early development, formation of germ layers (ectoderm, mesoderm, endoderm) and their derivatives, inductive cell/tissue interactions, stem cells, organogenesis, environment/genetics/birth defects, evolutionary changes. Students registered for this course are expected to have strong knowledge in biology, cell biology and chemistry.

STUDENT LEARNING OUTCOMES

The *syllabus/schedule are subject to change.*

Upon completion of this course you should be able to:

1. Describe the general cycle of life in animals beginning with an unfertilized egg through maturation to adulthood.
2. Explain the sequence of events and the mechanisms directing various stages of animal development including gametogenesis, fertilization, cleavage, gastrulation, organogenesis, larval stages and maturity.
3. Explain the role of differential gene expression in embryonic development.
4. Describe how cell-cell communication and tissue induction processes direct the differentiation of cells, tissues, organs during embryogenesis.
5. Describe the general similarities and differences between invertebrate and vertebrate development.
6. Describe the similarities and differences among the classes of vertebrates with respect to embryonic patterns of cleavage, gastrulation and organogenesis

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Standard skills necessary to use web browsers to access course materials is required. Students should also be able to submit their work as necessary. Students should be able to use Microsoft Word and PowerPoint.

Instructional Methods

This is a fully online course. All course materials other than the text book will be posted in D2L. I will post announcements on the home page of the course or send email notifications.

Student Responsibilities or Tips for Success in the Course

Dedicated time to learn course materials
Have the required technology (a computer, a secure and reliable internet connection, and other requirements detailed in this syllabus – please read “Technology Requirements” section.
Take exams and quiz within the specified time
Submitting assignments before deadlines
If special accommodations need to be made notifying the instructor in advance
Checking both D2L and emails for course related announcements.

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

Assessments

There will be three types of assessments that will contribute to the grade. These are:
1. Quizzes
2. Exams
3. Assignments

Distribution:

Quiz = 25% (6, 6, 6, 7% for Quiz 1, 2, 3, 4)
Exams = 30% (3 exams; 10 % for each)
Assignment = 20 % (two; 10 % for each)
Final Exam* = 25%
*Final exam is a comprehensive exam that will cover all the chapters.

Exams and quizzes consist of multiple-choice questions. Questions are drawn from the same test pool. Therefore, some questions may be repeated. Students are expected to make sure they have the necessary device and a reliable connection. Use of smart phones and/or Wi-Fi of a restaurant or store are discouraged.

Important information:

1. There will not be any additional points extra credits. A student's grade will come only from the points he/she earns in the three types of assessments.
2. Exams and Quizzes:
   (a) You will have one minute to answer each question. If, for example an exam has 20 questions you will need to complete and submit in 20 minutes. No additional time will be provided.
   (b) Please read the instructions, if any, carefully before beginning the exam/quiz.
   (c) Students cannot take the exams or quizzes before the designated time starts. Trying this will result in losing your time without viewing the questions.
   (d) Exams and quizzes will be usually held on Fridays and Saturdays. Students can take the exam/quiz online during this 48 hour time window.
   The syllabus/schedule are subject to change.
   (e) No requests to open the exams or quizzes earlier will be accepted.
   (f) All requests for make-up exams/quizzes must accompany supporting documents (e.g. a doctor's note). The reasons for not taking an exam/zero within the designated should be acceptable, as outlined in your student handbook. Forgetting to take the exam/quiz will not be an acceptable reason.
   (g) Failure to take the exams or quizzes within the designated time will result in ZERO credit.

3. All assignments should be submitted before the deadlines. Late submissions will automatically receive ZERO points. Assignments will be checked for plagiarism.

4. It is the students' responsibility to check emails and D2L for exam/quiz dates and assignment postings & deadlines.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:
https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

Interaction with Instructor Statement

Students are encouraged to interact with the instructor during active classroom learning sessions. Response time for Response time to any questions sent by email regarding the course will be within 48 hours. Weekends and holidays are excluded. Students need to use the office hours indicated in this syllabus.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Students are expected to take the exams/quizzes as scheduled. There are no extra credits and late submissions or missed exams/quiz will result in lower than expected grade.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:
https://www.britannica.com/topic/netiquette

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

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http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library- Room 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

COURSE OUTLINE / CALENDAR

Week 1 Jan 12
(1) Developmental Anatomy and Genetics; (2) Cell-Cell Communication
Week 2 Jan 18
Continuation of (1)
Week 3 Jan 24
(3) Fertilization
Quiz 1 Jan 28-29 (Chapters 1-2)
Week 4 Jan 31
(4) Early Development in Sea Urchins and Snails
Week 5 Feb 7
Continuation of (4)
Exam 1 Feb 11-12 (Chapters 1-4)
Week 6 Feb 14
(5) Development of Drosophila
Week 7 Feb 21
Continuation of (5)
Assignment 1 Due (Mar 5)
Week 8 Feb 28
(6) Amphibian and Fish Development
Week 9 Mar 7
(7) Development of Birds
Quiz 2 Mar 11-12 (**Chapters 5-6)**
Week 10 Mar 14- Spring Break

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Week 11 Mar 21
(8) Mammalian Development
Week 12 Mar 28
(9) Ectoderm and Organogenesis
Exam 2 Apr 1-2 (Chapters 5-8)
Week 13 Apr 4
(10) Mesoderm and Organogenesis
Quiz 3 Apr 8-9 (Chapters 9-10)
Week 14 Apr 11
(11) Development of Limbs
Quiz 4 Apr 22-23 (Chapter 11)
Assignment 2 (Due Apr 23)
Week 15 Apr 18
(12) Sex Determination
Week 16 Apr 25
(13) Postembryonic Development; (14) Evolutionary Aspects
Week 17 **Exam 3 May 6-7 (Chapters 9-12)**
Final Exam* May 13-14
***Cumulative Final**

***Please check the academic calendar for details on holidays, start and end dates of the current semester. Semester begins on January 12, 2022.**
***ALL DATES AND CHAPTERS COVERED ARE TENTATIVE AND SUBJECT TO CHANGE.**