BIOL 3315: GENETICS

Fall 2013

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Office Hours: Mondays from 1:30 – 3:00 pm and Tuesdays from 4:00 to 5:30 pm

Course Number, Section Number, and Course Title: BIOL 3315 – 002 Genetics

Time and Place of Class Meetings: Geosciences Building, Room GS100, Tuesdays and Thursdays from 2:00 pm to 3:20 pm

Description of Course Content:
In this course, we will focus on understanding how biological information is store, expressed, changed, and transmitted. We will study the genetic principles and concepts, how the information can be manipulated to understand its function, new genetic tools and model organisms. The course will mainly consist of lectures and problem sets that you will have to solve.
Genetics is what is distinctive of a living organism. Organism carry codified information that controls their development, physiology and, ultimately, a big portion of their phenotype. This information is copied, changed, transmitted generation after generation and subject to the evolutionary forces (natural selection and others). Genetic information is codified at the molecular level but its quality has effect at cellular, organism, population and ecosystem levels. This makes Genetics so general that interacts with every other discipline in Biology. In addition the relations of Genetics and disease and of Genetics and Evolution impact human thinking and life.

Class Notes:
I will be using Blackboard to post my class notes (https://elearn.uta.edu)
You should be able to log in with your UTA ID and password after I grant access.

Student Learning Outcomes:
I hope to cover from Chapter 1 to Chapter 16. We will cover approximately a chapter a week and have time for discussions and problem solving as needed through the course. The student will learn this material and how to solve problems.

Pre-requisits:
BIOL 1441 and 1442

Required Textbooks and Other Course Materials:

Required Text

Modern Genetic Analysis: Integrating Genes and Genomes by Anthony J. F. Griffiths, William M. Gelbart, Richard C. Lewontin, Jeffrey H. Miller. W H Freeman & Co.; 2nd edition (2002; ISBN 0-7167-4382-5)

Other texts used:
Genetics: From Genes to Genomes by Leland Hartwell, Leroy Hood, Michael L. Goldberg, Lee M. Silver, Ruth C. Veres, Ann Reynolds. McGraw-Hill 2nd edition (2004)
Principles of Genetics by D. Peter Snustad, Michael J. Simmons. Wiley Text Books; 3rd edition (2002)
Concepts of Genetics by William S. Klug, Michael R. Cummings. Prentice Hall; 7th edition (2002)
An Introduction to Genetic Analysis by Anthony J. F. Griffiths, Jeffrey H. Miller, David T. Suzuki, Richard C. Lewontin, William M. Gelbart. W H Freeman & Co.; 7th edition (2000)
Genes VIII by Benjamin Lewin. Prentice Hall; 8th edition (2003)
Human Genetics: Concepts and Applications by Ricki Lewis. McGraw Hill College Div; 5th edition (2003)
Molecular Biology of the Gene, Fifth Edition by James D. Watson, Tania A. Baker, Stephen P. Bell, Alexander Gann, Michael Levine, Richard Losick. Benjamin/Cummings; 5th edition (2003)

Descriptions of major assignments and examinations with due dates:

There will be three midterm exams and a comprehensive final exam. Those will take place when we have covered 25%, 50%, 75% and 100% of the materials respectively. The final will follow the official final exam schedule (http://wweb.uta.edu/aao/recordsandregistration/assets/pdf/final_exam_schedule_fall2013.pdf).

Attendance Policy:
Attendance to the lectures is strongly recommended.

Grading Policy

Midterms	20% each (total of 60%)
Comprehensive final exam	40%

Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels.

Grading Scale

90-100%	A
80-89%	B
70-79%	C
60-69%	D
0-59%	F

Make-up Exam Policy:
I would not allow make-up exams unless there is a documented case of extreme circumstance. Students who find they are unable to attend an exam should inform me as soon as possible.

Drop Policy:
The last day to drop with an automatic W is October 30 2013. After that date, a student dropping the class will receive a grade of F.

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

Tentative schedule

Chapter 1	Introduction: Genetics and the Organism
Chapter 2	The Structure of Genes and Genomes
Chapter 3:	Gene Function (Transcription and Translation)
Chapter 4	The Transmission of DNA at Cell Division
Midterm 1	September 24th (tentative)
Chapter 5	The Inheritance of Single-Gene Differences
Chapter 6	Genetic Recombination in Eukaryotes
Chapter 7	Recombination in Bacteria and their Viruses
Chapter 8	Recombinant DNA and Genetic Engineering
Midterm 2	October 22nd (tentative)
Chapter 9	Genomics
Chapter 10	Gene Mutation: Origins and Repair Processes
Chapter 11	Chromosome Mutations
Chapter 12	Mutational Dissection
Midterm 3	November 19th (tentative)
Chapter 13	Regulation of Gene Transcription
Chapter 14	From Gene to Phenotype
Chapter 15	Regulation of Cell Number: Normal and Cancer Cells
Chapter 16	The Genetic Basis of Development
Final Exam	December 10th (2-4:30 pm)

Important University policies:

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Academic Integrity: Students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

> *I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*
>
> *I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final

grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located on one side of the GS 100 room and to the right and left when exiting the room through the main entrance. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.