Genetics (Biol 3301)  
Spring 2019

Class Meeting Times: Section 010- MWF 11-11:50; Section 020- MWF 12-12:50

Instructor: Dr. Laurel Fohn, MD, PhD  
Office: 107 Cavness Science Building  
Office Hours: Mon-Fri: 10-11 and by appointment  
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Scope of the Course:
This course is taught assuming it is the student’s first upper level biology course. It is a general genetics course & therefore examples from all major life forms are included, but special emphasis will center on human genetics. Areas to be emphasized: classical transmission genetics, cytogenetics, and molecular genetics with an overview of introduction to modern applications/ research/ transitions in the field of genetics.

Overall Goals:
- Expand one’s knowledge of genetic facts and terminology
- Introduce basic genetic principles and theories
- Improve one’s ability to apply genetic knowledge to problems & situations

Successful Genetics Course Student Learning Outcomes:
- be familiar with terminology used in genetics
- be able to evaluate genetic crosses and analyze outcomes
- be able to analyze pedigrees and make logical predictions
- be able to understand the mechanisms of genetic change and their role in subsequent generations
- be able to understand the flow of genetic information from DNA to expressed traits
- be able to understand concepts related to modern applications of genetics in biology and medicine

For Departmental, State, and Accreditation purposes this course will assess:
Biology Department Learning Goal #2 – Student will show an ability to demonstrate comprehensive, specialized knowledge in the various sub-disciplines of the biological sciences. This will be accomplished by assessing the above outcomes. Each major exam will include a section addressing at least one of the above learning outcomes.

Textbook:

Exams:
- Three lecture exams and one comprehensive final exam (all exams 100 pts each)
- Exam dates: Feb. 18 (Mon); March 25 (Mon); April 26 (Fri); Comprehensive Final Exam is May 6 (Mon 1-3 PM) for the 12:00 section; May 8 (Wed 10:30 am-12:30 pm) for the 11:00 AM section.
- Exam format: Each exam will be composed of a mixture of question types e.g., matching, short answers, definitions, problems, true-false, etc.

Points & Grading:
You have the opportunity to take 4 exams. Your best 3 scores will be totaled to determine your grade. No make-up exams are given in this class. If you miss one exam, that one will be the low score dropped. It is possible to skip the final if you are satisfied with your point totals after 3 exams. The final is comprehensive.

270-300 points = A  
240-269 points = B  
210-239 points = C  
175-209 points = D  
174 or less = F

Attendance Policy:
Roll will be taken at each class meeting but will not negatively figure in to your final point totals although in the event that a curve is established below the point scale described above, excessive absences (i.e. above the average absence rate of the class) will disqualify the student from benefiting from the curve.
Drop/ Withdrawal Policy:
The last day a student may drop/withdraw from class is Thursday, March 28, 2019 (ie. these students will receive a W on their transcript). Any student remaining on the official role after this date will receive a grade.

Approximate chronology of lecture topics
- Weeks #1-2: Intro to genetics; genetics history and major contributions (Mendel, Darwin and others), course overview; genetic terminology. (Chapters 1-2).
- Weeks #3-6: Concepts of transmission genetics (Chromosomes, cell cycle, Mitosis & meiosis; Segregation & Independent Assortment; Punnett Squares; Pedigrees). (Chapters 2, 3, 6, 8 with highlights from ch. 4, 5 & 11). Mechanisms of Variability (Independent assortment, crossing over, mutation, epigenetics) (Chapters 6, 7, 8).
- Weeks #7-11: DNA & Molecular Genetics - central dogma; replication; transcription; translation; regulation of expression (Chapters 10-16); Mutation and DNA repair (Ch 18).
- Weeks #12-15 - Inheritance/ Pedigrees using immunogenetics illustrations and Genetics of developmental biology (Ch 22); Sex Determination/Differentiation/ X-chromosome dosage; Cancer genetics; Biotechnology; Emergence of Epigenetics/ Genomics (Ch: 4,5, 11, 21, 23); Population Genetics/ Hardy Weinburg/ Evolution/ Evo-Devo and mutations (Ch 25 & 26).

Miscellaneous information:
1. Powerpoints, when available, should be viewed only as an outline and therefore comprehensive note taking is recommended. You are welcome to audiotape any lecture to assist you in notetaking; however, videography/ photography is prohibited.
2. Initial the roll sheet daily; excessive absences may be reported to the university administration
3. You may ask questions during exams for clarification purposes; you are also encouraged to ask relevant questions during lectures and during office hours (the earlier in the semester, the better!)
4. Keys to exams will be posted. Please consult the keys prior to visiting with the instructor about an exam and also do so prior to the next exam. Keys may no longer be available once the next exam is administered.
5. Everyone is responsible for maintaining an atmosphere of attentiveness (i.e. do not bring guests or food to class; do not visit during class lectures; silence cell phones; be on time to class)
6. In addition to the above items the following are also hints for achieving success in this course:
   - Pay attention to details
   - Know all examples presented in lecture
   - Be aware that exam #1 historically has been the exam with the highest class average
   - This course is information heavy, and thus lecture moves fast. The book is a valuable source of information spend time reviewing it and solidifying concepts from lecture; however, the majority of exam questions will come from lecture discussions and assigned supplements
   - Take seriously hints/suggestions/asidepresented by the instructor
   - Read every word of each exam key and take appropriate notes
   - Although you will have to memorize information, a special emphasis is placed on applications of information to new situations.
   - If under qualified to take this course, your attention to the preceding details should compensate for this
   - If overqualified to take this course, you are at risk of losing concentration during lectures and missing some details that could cost you points on an exam

Student biography: Each student is requested to turn in a short biography including the following: name (if what I called from the roll is not what you prefer, please write your preference; include phonetics if I mispronounced your name); major; plans for the future, the approximate number of hours of college biology that you have taken & a brief summary of why you are taking this class. In addition to this written bio, you are invited (but not required!) to drop by my office for a visit so that I can put a “name to a face”.
University Policies:

1. **University Academic Honor Code:**
Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Students are responsible for understanding the Academic Honor Code, which is contained in both print and web versions of the Student Handbook.

   In short, it is the policy of Angelo State University that all students are expected to “engage in all academic pursuits in a manner that is beyond reproach” and to “maintain complete honesty and integrity in their experiences both in and out of the classroom.” Students in this class are expected to submit work in accord with the above stated guidelines. If a student is found to be submitting a completed assignment that is shown not to be their own, that student and the student(s) that allowed his/her work to be copied will not receive credit for the work in contention and will receive a zero for that assignment. Furthermore, any student observed by the instructor to be willfully copying from another student during an exam/quiz or otherwise engaged in using devices not allowed by the instructor during an examination will not receive credit for that examination/quiz and a grade of zero will be assigned. In each case of suspected academic dishonesty, the student will also be subject to further review and potential disciplinary action by the university which may involve dismissal from the course.

2. **HANDICAPPING CONDITIONS/LEARNING DISABILITIES**
   Angelo State University prohibits willful acts of discrimination against those individuals with handicapping conditions or learning disabilities. Persons with disabilities which may warrant academic accommodations must contact the Student Life Office, Room 112 University Center, (325) 942-2191 or (325) 942-2126 (TDD/FAX) or by e-mail at Student.Life@angelo.edu in order to request such accommodations prior to any accommodations being implemented.

   If you believe that your success in the course is at risk due to these conditions, you are encouraged to make this request early in the semester so that appropriate arrangements can be made. The instructor must receive a letter from Student Life describing the accommodations to be made at least one week prior to the assignments the student is requesting accommodation for. For additional information on this policy, see OP 10.15 on the ASU website at http://www.angelo.edu/opmanual/.

3. **Religious Holy Day:**
   Angelo State University provides for the observation of religious holy days as follows:
   1. “Religious holy day” means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code §11.20.
   2. A student who intends to observe a religious holy day should make that intention known in writing to the instructor during the first week of the semester and one week prior to the absence. If this submission is completed, a student who is absent from classes for the observance of a religious holy day shall be allowed to take make up missed exams or assignments scheduled for that day in accordance with syllabus policy. For additional information on this policy, see OP 10.19 on the ASU website at http://www.angelo.edu/opmanual/.

4. **Title IX at Angelo State University:**
   Angelo State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. Sex discrimination, sexual misconduct, public indecency, interpersonal violence, sexual assault, sexual exploitation, sexual harassment, and stalking are not tolerated at ASU. As a faculty member, I am a Responsible Employee meaning that I will report any allegations I am notified of to the Office of Title IX Compliance in order to connect students with resources and options in addressing the allegations reported. You are encouraged to report any incidents to ASU’s Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator. You may do so by contacting:
   **Michelle Boone, J.D.**
   Director of Title IX Compliance/Title IX Coordinator
   Mayer Administration Building, Room 200
   325-942-2022
   michelle.boone@angelo.edu

   You may also file a report online 24/7 at www.angelo.edu/incident-form.

   If you are wishing to speak to someone about an incident in confidence you may contact the University Health Clinic and Counseling Center at 325-942-2173 or the ASU Crisis Helpline at 325-486-6345.

   The Office of Title IX Compliance also provides accommodations related to pregnancy (such as communicating with your professors regarding medically necessary absences, modifications required because of pregnancy, etc.). If you are pregnant and need assistance or accommodations, please contact the Office of Title IX Compliance utilizing the information above.

   For more information about Title IX in general you may visit www.angelo.edu/title-ix.