Instructor: Dr. Laurel Fohn, MD, PhD
Email: lfohn1@angelo.edu
Phone: 325-486-6644
Office: Cavness 107

Office Hours: as posted on office door and on Blackboard and by appointment

Course Information

Course Description
This lab is designed to examine problems in genetics and enhance problem solving skills in genetics utilizing computer based, online and hands on modalities. Each lab exercise will employ one or more of the following tools to facilitate learning: Computer modeling of genetics experiments; use of genetics websites and/or data bases to facilitate solving of genetics problems; viewing video clips to update recent advances in genetics; and practice using genetics tools such as pedigrees, Punnett squares, etc. and/or hands on use of genetics laboratory tools.

Prerequisite and Co-requisite Courses:
Biol 3301 or concurrent enrollment in Biol 3301

Prerequisite Skills
Accessing Internet websites, using ASU Library resources, and proficiency with Microsoft Word and/or PowerPoint are expectations of the course. Additionally, prior to any wet labs, the ASU biosafety / lab skills course must be completed.

Student Learning Outcomes
Upon completion of this course, students will be able to:

- Apply their knowledge of genetics lecture course material.
- Recognize a subset of problems that may utilize genetics skills to be solved.
- Solve basic genetics problems.
- Gain knowledge of select genetics laboratory skills.
Course Delivery
This is a face-to-face laboratory class with learning resources and supplemental materials posted in Blackboard. The computer will be utilized to generate some experiments/data.

Required Texts and Materials
Lab exercise handouts will be provided either on Blackboard or at each lab meeting. Bring paper and writing materials to each lab. The lecture outline may be useful for some labs.

Technology Requirements
To successfully complete this course, students need to have access to Blackboard and Angelo State University email and be prepared to utilize on campus computers for problem solving.

Communication
Faculty will respond to email and/or telephone messages within 48 hours during working hours Monday through Friday. Weekend messages may not be returned until Monday.

Written communication via email: All private communication will be done exclusively through your ASU email address and Blackboard. Check frequently for announcements and policy changes. In your emails to faculty, include the course name and section number in your subject line.

Virtual communication: Office hours and/or advising may be done with the assistance of the telephone or Skype.

Grading/Assignments/Activities/Attendance

Class Assignments/Activities and Attendance
For each scheduled lab period, the computer will be used to generate experiments and/or as a source of information or hands on laboratory experiments will be performed. Using this information, the student will answer a series of questions posed on a weekly quiz, problem set, or lab report. These will be submitted for grading.

Each lab meeting requires that answers to a problem set be submitted. Missing a lab will result in a “0” being recorded for that exercise. Dead Week in this class is set aside solely as a make up week. If you have missed no more than one lab during the semester or you want to replace one low grade you can participate in the lab exercise
scheduled for Dead Week and the score you earn will replace the missing score (or low score). Missing more than one lab will result in a "0" recorded for each lab missed.

**Grading System**

Course grades will be dependent upon completing course requirements and meeting the student learning outcomes. The following grading scale is in use for this course:

- **A** = 90.00-100 percent
- **B** = 80.00-89.99 percent
- **C** = 70.00-79.99 percent
- **D** = 60.00-69.99 percent
- **F** = 0-59.99 percent (Grades are not rounded up)

**Drop/ Withdrawal Policy:**

The last day a student may drop/withdraw from class is **Thursday, March 26, 2020** (ie. these students will receive a W on their transcript). Any student remaining on the official role after this date will receive a grade.

**Lab Exercises:**

The order of lab exercises we perform will be dependent upon the topics being covered concurrently in Bio 3301 (below are the potential topics listed in no particular order).

<table>
<thead>
<tr>
<th>Topic</th>
<th>Topic</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability &amp; Ratios</td>
<td>Karyotypes</td>
<td>Genes &amp; Their Role in Natural Selection</td>
</tr>
<tr>
<td>Genetic Counseling &amp; Pedigree Analysis</td>
<td>Control of Gene Expression</td>
<td>Use of OMIM data base</td>
</tr>
<tr>
<td>The Sex Linked Cross</td>
<td>The Effect of Mutation upon Protein</td>
<td>Use of COSMIC data base</td>
</tr>
<tr>
<td>Exploring Genetics</td>
<td>Multiple Alleles</td>
<td>Use of GenBan</td>
</tr>
<tr>
<td>Testing the Mendelian Hypothesis</td>
<td>Meiosis &amp; Crossing Over</td>
<td>Microarray simulation</td>
</tr>
<tr>
<td>Other Modes of Inheritance</td>
<td>Population Genetics &amp; the Influence of Environment</td>
<td>Use of ISCN Formulas</td>
</tr>
<tr>
<td>Mitosis &amp; the Cell Cycle</td>
<td>The Dihybrid Cross</td>
<td>PCR and RT-PCR</td>
</tr>
<tr>
<td>Mapping by Recombination Frequency</td>
<td>DNA Fingerprinting</td>
<td>Real Time PCR/ RT-PCR</td>
</tr>
<tr>
<td>Pedigree Analysis</td>
<td>Sickle Cell Anemia or ABO blood groups: genetic crosses, pedigrees &amp; problems</td>
<td></td>
</tr>
</tbody>
</table>
Additional Information

[1] Questions must be answered in numerical order, in legible penmanship & w/o re-writing the original question
[2] Include data sheets with your problem set answers
[3] Be not only correct but also complete in your answers to open ended questions
[4] Consult the instructor often for review/suggestions/hints/help
[5] Be on time to class—you are not guaranteed extra time to finish a lab
[6] You may discuss problem sets w/your classmates but each person is expected to provide his/her own answers and rationales (in some cases, problems will have data randomly changed, thereby possibly affecting the most appropriate answer)

General Policies Related to This Course

All students are required to follow the policies and procedures presented in these documents:

- Angelo State University Student Handbook¹
- Angelo State University Catalog²

Academic Integrity

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university’s Statement of Academic Integrity.³

Accommodations for Students with Disabilities

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA) and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student’s responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at ADA@angelo.edu. For more information about the application process and requirements, visit the Student Disability Services website.⁴
The instructor must receive a letter from Student Affairs describing the accommodations to be made at least one week prior to the assignments the student is requesting accommodation for. The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford  
Director of Student Disability Services  
Office of Student Affairs  
325-942-2047  
dallas.swafford@angelo.edu  
Houston Harte University Center, Room 112

Incomplete Grade Policy
It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures for more information.

Student Absence for Observance of Religious Holy Days
A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Day for more information.

Title IX at Angelo State University
The University prohibits discrimination based on sex, which includes pregnancy, sexual orientation, gender identity, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination including: sexual assault, sex-based discrimination, sexual exploitation, sexual harassment, public indecency, interpersonal violence (domestic violence and/or dating violence), and stalking. As a faculty member, I am a Responsible Employee meaning that I am obligated by law and ASU policy to report any allegations I am notified of to the Office of Title IX Compliance.

Students are encouraged to report any incidents of sexual misconduct directly to ASU’s Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator at:

Michelle Boone, J.D.  
Director of Title IX Compliance/Title IX Coordinator  
Mayer Administration Building, Room 210
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.

1 https://www.angelo.edu/student-handbook/
2 https://www.angelo.edu/catalogs/
3 https://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
4 https://www.angelo.edu/services/disability-services/
5 https://www.angelo.edu/content/files/14197-op-1011-grading-procedures
6 https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of