BIOL 3101
GENETICS LABORATORY

Instructor: Dr. Laurel Fohn, MD, PhD
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Office: Cavness 107
Office Hours: as posted on office door and on Blackboard and by appointment. Due to COVID-19, office hours will predominantly be outside or virtual via telephone or Blackboard Collaborate.

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 and chemical lab safety/ skills courses 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. Some labs will be performed entirely online and students will be notified of these labs in advance.

**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.

Some assignments will be turned in via the Blackboard assignment/assessment page. Access to some exams and quizzes will be through **Respondus Lockdown Browser** and will be video recorded via **Respondus Monitor**. Respondus requires a desktop computer or laptop (not a Chromebook) and a webcam and microphone. For best results, use an ethernet cable to connect to your Internet source instead of relying on Wifi. Refer to the Blackboard course for Respondus installation instructions.

**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 Bb Collaborate.
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, genetics papers will be read and discussed, or presentations will be given, 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 either in person or via Blackboard, depending on the assignment.

Each lab meeting requires that answers to a problem set/ quiz be submitted or a presentation given. 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 **Friday, April 30, 2021** (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).

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

[1] Questions must be answered in numerical order, in legible penmanship & w/o rewriting 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.¹ 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 Procedures⁵ for more information.

Plagiarism

Plagiarism is a serious topic covered in ASU’s Academic Integrity policy⁶ in the Student Handbook. Plagiarism is the action or practice of taking someone else’s work, idea, etc., and passing it off as one’s own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize
or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality. Resources to help you understand this policy better are available at the ASU Writing Center.7

**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 Day8 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 Miller, J.D.
Special Assistant to the President and Title IX Coordinator
Mayer Administration Building, Room 210
325-486-6357
michelle.boone@angelo.edu

You may also file a report online9 24/7.

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, visit the [Title IX website].

**Required Use of Masks/Facial Coverings by Students**

As a member of the Texas Tech University System, Angelo State University has adopted the mandatory [Facial Covering Policy] to ensure a safe and healthy classroom experience. Current research on the COVID-19 virus suggests there is a significant reduction in the potential for transmission of the virus from person to person by wearing a mask/facial covering that covers the nose and mouth areas. Therefore, in compliance with the university policy students in this class are required to wear a mask/facial covering before, during, and after class. Faculty members may also ask you to display your daily screening badge as a prerequisite to enter the classroom. You are also asked to maintain safe distancing practices to the best of your ability. For the safety of everyone, any student not appropriately wearing a mask/facial covering will be asked to leave the classroom immediately you will also lose 5% from your semester grade (a half letter grade). The student will be responsible to make up any missed class content or work. Continued non-compliance with the Texas Tech University System Policy may result in disciplinary action through the Office of Student Conduct.

**Modifications to the Syllabus**

This syllabus, including grade evaluation and course schedule, is subject to modification. In particular, the COVID-19 pandemic may require significant changes in course delivery and content on potentially short notice.

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1. [https://www.angelo.edu/current-students/student-handbook/](https://www.angelo.edu/current-students/student-handbook/)
2. [https://www.angelo.edu/academics/catalog/](https://www.angelo.edu/academics/catalog/)
4. [https://www.angelo.edu/current-students/disability-services/](https://www.angelo.edu/current-students/disability-services/)
5. [https://www.angelo.edu/content/files/14197-op-1011-grading-procedures](https://www.angelo.edu/content/files/14197-op-1011-grading-procedures)
7. [https://www.angelo.edu/current-students/writing-center/academic_honesty.php](https://www.angelo.edu/current-students/writing-center/academic_honesty.php)
8. [https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of](https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of)
9. [http://www.angelo.edu/incident-form](http://www.angelo.edu/incident-form)
10. [https://www.angelo.edu/title-ix](https://www.angelo.edu/title-ix)