BIOL 3101 -Spring 2022
GENETICS LABORATORY

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. 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

B. A. Pierce, "Genetics: A Conceptual Approach". W.H. Freeman and Co. 6th Edition.

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 Tuesday.

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 submitted/given. Therefore, each lab will have an associated grade. Each lab grade will be worth equal weight. Larger projects may be spaced out over multiple weeks, with portions of the project contributing to the weekly grade. Missing a lab will result in a "0" being recorded for that exercise. Lab finals 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 Lab Finals Week and the score you earn will replace the missing score (or low score). While one missed lab may be replaced, 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, April 28, 2022** (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).

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

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 Handbook[1]
- Angelo State University Catalog[2]

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] (Page 97).

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:

Dr. 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[5] 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[6] for more information.

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. In accordance with Title VII, Title IX, the Violence Against Women Act (VAWA), the Campus Sexual Violence Elimination Act (SaVE), and other federal and state laws, the University prohibits discrimination based on sex, which includes pregnancy, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination and unwelcome behavior of a sexual nature. The term includes sexual harassment, nonconsensual sexual contact, nonconsensual sexual intercourse, sexual assault, sexual exploitation, stalking, public indecency, interpersonal violence (domestic violence or dating violence), sexual violence, and any other misconduct based on sex.

You are encouraged to report any incidents involving sexual misconduct to the Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator, Michelle Miller, J.D. You may submit reports in the following manner:

Online: Incident Reporting Form[7]
Face to Face: Mayer Administration Building, Room 210
Phone: 325-942-2022
Email: michelle.miller@angelo.edu

Note, as a faculty member at Angelo State, I am a mandatory reporter and must report incidents involving sexual misconduct to the Title IX Coordinator. Should you wish to speak to someone in confidence about an issue, you may contact the University Counseling Center (325-942-2371), the 24-Hour Crisis Helpline (325-486-6345), or the University Health Clinic (325-942-2171).

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 resources related to sexual misconduct, Title IX, or Angelo State's policy please visit the Title IX website.[8]

Information About COVID-19

Please refer to ASU's COVID-19 (Coronavirus) Updates[9] web page for current information about campus guidelines and safety standards as they relate to the COVID-19 pandemic.

Modifications to the Syllabus

This syllabus, including grade evaluation and course schedule, is subject to modification on potentially short notice based on developing circumstances.

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[1] https://www.angelo.edu/current-students/student-handbook/
[2] https://www.angelo.edu/academics/catalog/
[3] https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=97
[4] https://www.angelo.edu/current-students/disability-services/
[5] https://angelo.policystat.com/policy/10659448/latest/
[6] https://angelo.policystat.com/policy/10659368/latest/
[7] https://www.angelo.edu/incident-form
[8] https://www.angelo.edu/title-ix
[9] https://www.angelo.edu/covid-19/