



TEXAS A&M UNIVERSITY
SAN ANTONIO

GENETICS - LAB
BIOL 2411

Texas A&M University-San Antonio, College of Arts and Sciences
Spring 2025 Syllabus

LAB:
01L Thu 11-1:45pm
in MADLA 322

Course Instructor of Record: Utpal Smart
e-mail: usmart@tamusa.edu
Office: Science & Technology 311B
Phone: (210) 784-2676

Course Instructor : Bernard Mbithi
e-mail: bmbithi@tamusa.edu
Office hours: 2-3 pm Fri (STEM 354)

Course objective: In Genetics lab, students will perform assignments and experiments that reinforce and enhance the material learned in lecture. Students will learn skills and knowledge currently utilized in research laboratories. Additionally, students will write a short scientific report to learn and practice the process of scientific writing.

Grading: The grade for the lab will be combined with lecture. The lab constitutes 25% of your BIOL 2411 grade.

In-lab & post-lab assignments	500pts
Excel spreadsheet from Fly Linkage Project	100pts
Mini lab report from Fly Linkage Project	200pts
TOTAL	800pts

Deadlines: Late papers and worksheets may not be accepted or may be subject to a grade reduction of 10% per day late. The penalty for late work will be determined at the instructor's discretion.

Excel spreadsheet and lab report: You will be carrying out a multi week fly cross to generate data that you will use to analyse linkage between the *yellow* and *white* genes in *Drosophila*. The first part of the assignment will be to turn these data into a graph and the second part will be to carry out a Chi-square analysis of these data and write this up independently (not as pairs) as a short formal lab report.

In-lab & post-lab assignments: Students will frequently be asked to fill out worksheets and answer questions during and after labs. In general, assignments will be due by midnight the day of the next lab.

NOTE: although you will be collaborating as pairs due to the way in person labs are arranged, all work you submit should be your own. Copying of assignments between lab partners or other students will be treated as plagiarism. This is **especially** true of the fly lab report.

Communication: All students are expected to access Blackboard for updates on the course and to access course materials. I am available if you need clarification on materials and assignments in this course. Email is also an excellent way to get in touch with me.

Covid: The safety of our campus community is paramount to our ability to provide our students, faculty, and staff with a productive and secure learning and working environment. While masks are not required, we do encourage everyone to wear a mask, particularly inside the buildings, in order to reduce the spread of covid-19. The university maintains a covid-19 web-site with current data, safety protocols, and reporting guidelines at <https://www.tamusa.edu/community-safety-together/index.html>.

Academic Accommodations for Persons with Disabilities: The Americans with Disabilities Act of 1990, as amended, and the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights protection for individuals with disabilities. Title II of the ADA and Section 504 of the Rehabilitation Act require that students with disabilities be guaranteed equal access to the learning environment through the provision of reasonable and appropriate accommodations of their disability. If you have a disability that may require an accommodation, please contact Disability Support Services (DSS) for the coordination of services. The phone number for DSS is (210) 784-1335 and email is dss@tamusa.edu.

Academic Learning Center: All currently enrolled students at Texas A&M University-San Antonio can utilize the Academic Learning Center for subject-area tutoring. The Academic Learning Center is an appointment based center where appointments are made through the Navigate platform. Students access Navigate through Jagwire in the Student Services tab. The Center is active on campus outreaching to students to highlight services offered. You can contact the Academic Learning Center by emailing tutoring@tamusa.edu or calling (210)-784-1332. Appointments can also be made through JagWire under the services tab.

Counseling Resources: As a college student, there may be times when personal stressors interfere with your academic performance and/or negatively impact your daily functioning. If you or someone you know is experiencing life stressors, emotional difficulties, or mental health concerns at Texas A&M University – San Antonio, please contact the Student Counseling Center (SCC) located in Modular C, Room 166 (Rear entrance) or call 210-784-1331 between the hours of 8 a.m. and 5 p.m., Monday – Friday. After-hours crisis support is available by calling 210-784-1331. Please contact UPD at 911 if harm to self or harm to others is imminent.

All mental health services provided by the SCC are free, confidential (to the extent permitted by law), and are not part of a student's academic or university record. SCC provides brief individual

and group therapy, crisis intervention, consultation, case management, and prevention services. For more information, please visit www.tamusa.edu/studentcounseling

Emergency Preparedness: JagE Alert is Texas A&M University-San Antonio's mass notification system. In the event of an emergency, such as inclement weather, students, staff, and faculty who are registered in JagE Alert, will have the option to receive a text message, email, and/or phone call with instructions and updates. To register or update your information visit: <https://tamusa.bbcportal.com/>.

More information about Emergency Preparedness and the Emergency Response Guide can be found here: <https://www.tamusa.edu/upd/index.html>.

Financial Aid and Verification of Attendance: According to the following federal regulation, 34 CFR 668.21: U.S. Department of Education (DoE) Title IV regulation, a student can only receive Title IV funds based on Title IV eligibility criteria which include class attendance. If Title IV funds are disbursed to ineligible students (including students who fail to begin attendance), the institution must return these funds to the U.S. DoE within 30 days of becoming aware that the student will not or has not begun attendance. Faculty will provide the Office of Financial Aid with an electronic notification if a student has not attended the first week of class. Any student receiving federal financial aid who does not attend the first week of class will have their aid terminated and returned to the DoE. Please note that any student who stops attending at any time during the semester may also need to return a portion of their federal aid.

Jaguar Writing Center: The Jaguar Writing Center provides writing support to graduate and undergraduate students in all three colleges. Writing tutors work with students to develop reading skills, prepare oral presentations, and plan, draft, and revise their written assignments. Students can schedule appointments with the Writing Center in JagWire under the student services tab. More information about what services we offer, how to make an appointment, and how to access your appointment can be found on our website at www.tamusa.edu/Writing-Center. The Writing Center can also be reached by emailing writingcenter@tamusa.edu.

Meeting Basic Needs: Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the Dean of Students (DOS@tamusa.edu) for support. In addition, you may notify the instructor if you are comfortable doing so.

Military Affairs: Veterans and active-duty military personnel are welcomed and encouraged to communicate, in advance if possible, about special circumstances (e.g., upcoming deployment, drill requirements, disability accommodations). You are also encouraged to visit the Patriots' Casa in-person, Room 202, or to contact the Office of Military Affairs with any questions at military@tamusa.edu or (210)784-1397.

Religious Observances: Texas A&M University-San Antonio recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under A&M System policy, students are provided an opportunity to make up any examination, study, or work requirements that may

be missed due to a religious observance provided they notify their instructors before the end of the second week of classes for regular session classes.

Respect for Diversity: We understand that our students represent diverse backgrounds and perspectives. When we are equity-minded, we are aware of differences and inequalities and are willing to discuss them so we can act to resolve them. The University is committed to building cultural competencies, or the attitudes, skills, and knowledge that enable individuals and organizations to acknowledge cultural differences and incorporate these differences in working with people from diverse cultures. Respecting and accepting people different than you is vital to your success in the classroom, on campus, and as a future professional in the global community. While working together to build this community we ask all members to:

- Share their unique experiences, values, and beliefs.
- Be open to the views of others.
- Honor the uniqueness of their colleagues.
- Value each other's opinions and communicate respectfully.
- Use this opportunity together to discuss ways in which we can create an inclusive environment in this course and across the A&M-San Antonio community.

The Six-Drop Rule: Students are subject to the requirements of Senate Bill (SB) 1231 passed by the Texas Legislature in 2007. SB 1231 limits students to a maximum of six (6) non-punitive course drops (i.e., courses a student chooses to drop) during their undergraduate careers. A non-punitive drop does not affect the student's GPA. However, course drops that exceed the maximum allowed by SB 1231 will be treated as "F" grades and will impact the student's GPA.

Statement of Harassment and Discrimination: Texas A&M University-San Antonio is committed to the fundamental principles of academic freedom, equality of opportunity, and human dignity. To fulfill its multiple missions as an institution of higher learning, A&M-San Antonio encourages a climate that values and nurtures collegiality, diversity, pluralism, and the uniqueness of the individual within our state, nation, and world. All decisions and actions involving students and employees should be based on applicable law and individual merit. Texas A&M University-San Antonio, in accordance with applicable federal and state law, prohibits discrimination, including harassment, on the basis of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation, gender identity, or gender expression. Individuals who believe they have experienced harassment or discrimination prohibited by this statement are encouraged to contact the appropriate offices within their respective units.

Texas A&M University-San Antonio faculty are committed to helping create a safe learning environment for all students and for the university as a whole. If you have experienced any form of sex- or gender-based discrimination or harassment, including sexual assault, sexual harassment, domestic or dating violence, or stalking, know that help and support are available. A&M-San Antonio has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. The university strongly encourages all students to report any such incidents to the university. Please be aware that all A&M-San Antonio employees (other than those designated as confidential resources such as counselors and other healthcare providers) are required to report information about such discrimination and harassment to the university. This means that if you

tell a faculty member about an incident of sexual harassment or sexual violence, or other related misconduct, the faculty member must share that information with the university's Title IX Coordinator. If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact the Student Counseling Center at (210) 784-1331, Modular C.

Students' Rights and Responsibilities: The purpose of the following statement is to enumerate the essential provisions of students' freedoms and responsibilities to learn at Texas A&M University-San Antonio. All students are required to follow all policies and regulations as set forth by The Texas A&M University System, including the A&M-San Antonio Student Code of Conduct.

Students' Rights

1. A student shall have the right to participate in a free exchange of ideas, and there shall be no university rule or procedure that in any way abridges the rights of freedom of speech, expression, petition, and peaceful assembly as set forth in the U.S. Constitution.
2. Each student shall have the right to participate in all areas and activities of the university, free from any form of discrimination, including harassment, on the basis of race, color, national or ethnic origin, religion, sex, disability, age, sexual orientation, gender identity, gender expression, genetic information, or veteran status in accordance with applicable federal and state laws.
3. A student has the right to personal privacy except as otherwise provided by law, and this will be observed by students and University authorities alike.
4. Each student subject to disciplinary action arising from violations of university student rules shall be assured a fundamentally fair process.

Students' Responsibilities

1. A student has the responsibility to respect the rights and property of others, including other students, the faculty and staff, and the administration.
2. A student has the responsibility to be fully acquainted and compliant with the University Student Rules found in the Student Handbook, Student Code of Conduct, on our website, and in the University Catalog.
3. A student has the responsibility to recognize that student actions reflect upon the individuals involved and upon the entire University community.
4. A student has the responsibility to recognize the University's obligation to provide a safe environment for learning.
5. A student has the responsibility to check their University email for any updates or official University notifications.

We expect that students will behave in a manner that is dignified, respectful, and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated. Students are expected to exhibit a high level of honesty and integrity in their pursuit of higher education. Students engaging in an act that violates the standards of academic integrity will find themselves facing academic and/or disciplinary sanctions. Academic misconduct is any act, or attempt, which gives an unfair advantage to the student. Additionally, any behavior specifically prohibited by a faculty member in the course syllabus or class discussion may be considered as academic misconduct. For more information on academic misconduct policies and procedures please review the [Student Code of Conduct](#).

No Use of Generative AI Permitted

Biol 2411 assumes that all work submitted by students will be generated by the students themselves, working individually or in groups. Students should not have another person/entity do the writing of any portion of an assignment for them, which includes hiring a person or a company to write assignments and/or using artificial intelligence (AI) tools like ChatGPT. Use of any AI-generated content in this course qualifies as academic dishonesty and violates Texas A&M-San Antonio's standards of academic integrity.

Writing, Language, and Digital Composing Center: The Writing, Language, and Digital Composing Center supports graduate and undergraduate students in all three colleges as well as faculty and staff. Tutors work with students to develop reading skills, prepare oral presentations, and plan, draft, and revise their written assignments. Our language tutors support students enrolled in Spanish courses and students composing in Spanish for any assignment. Our digital studio tutors support students working on digital projects such as eportfolios, class presentations, or other digital multimedia projects. Students can schedule appointments through JagWire under the Student Services tab. Click on "Writing, Language, and Digital Composing Center" to make your appointment. The Center offers face-to-face, synchronous online, and asynchronous digital appointments. More information about what services we offer, how to make an appointment, and how to access your appointment can be found on our website at <https://bit.ly/WLDCCenter>.

Lab Schedule (subject to change at the discretion of the instructor)

Week	Week beginning	LAB TOPICS	Quiz or Assignment/Participation
1	20 Jan	Lab Safety Basic quantitative skills	Lab Safety Acknowledgement Form and Quantitative skills assignment due by 11:59pm 26th Feb
2	27 Jan	Mendelian genetics of corn & Chi-square	Chi-square assignment due by 11:59pm 2nd Feb
3	3 Feb	Intro to Flies – identify flies, learn how to make media, etc. Microscopes (dissecting scopes) Discuss writing & analysis assignments	Pipetting assignment due by 11:59pm 9th Feb
4	10 Feb	Pipetting Fly lab : Start fruit fly experiment (P cross)	Electrophoresis assignment due by 11:59pm 16th Feb
5	17 Feb	Standard curves & electrophoresis Fly lab : Remove parental flies	DNA isolation assignment due by 11:59pm 24th Feb Open lab periods to collect F1 flies during the week (required).
6	24 Feb	DNA isolation from fruit fly tissue Fly lab : Begin week-long removal of F ₁ flies (keep females, morgue males)	DNA isolate qualification and quantification assignment due by 11:59pm 3 Mar
7	3 Mar	DNA isolate quality control and quantification Fly lab : Set up backcross	No assignment due
8	10 Mar	SPRING BREAK	SPRING BREAK
9	17 Mar	PCR of fruit fly gene Fly lab : Remove back-cross parents	PCR assignment due by 11:59pm 23 Mar
10	24 Mar	PCR verification & Spin Column PCR Purification Fly lab : Count and score back-cross progeny	Clean up and sequencing assignment due by 11:59pm 30 Mar
11	31 Mar	Data analysis lab and writing assignment walk- through Fly lab : Count and score back-cross progeny	Final Fly project Excel spreadsheet due by 11:59pm 6 Apr

			Start UGENE sequence/ bioinformatics Blackboard assignment
12	7 Apr	Sequence visualization/editing & alignment in UGENE lab 1	Initial draft of fly project report due by Saturday 19 Nov
13	14 Apr	NO LAB	NO LAB
14	21 Apr	Sequence visualization/editing & alignment in UGENE lab 2	UGENE assignment due by 11:59pm 27 April
15	28 Apr	Open lab for feedback on lab report	Final version of linkage lab report due by 11:59pm 7th May

Important Dates:

January 21	First class day
February 5	Census Date
March 10-March 15	Spring Break
April 18	Study Day - No classes
April 21	Last day to drop with an automatic grade of "W"
April 28	Last day to withdraw from the university
May 6	Study Day - No classes
May 7-May 13	Final examinations

The complete academic calendar is available online: <https://www.tamusa.edu/academics/academic-calendar/index.html>.