



TEXAS A&M UNIVERSITY
SAN ANTONIO

BIOL 2411, Genetics Lecture (4.0 Credits)
Texas A&M University—San Antonio
Spring 2024

Meeting times

MWF 8:00-8:50am in SciTech 231

Contact Information

Instructor: Andrew Rodriguez

Office: SciTech 311

Phone: 210-560-1467

E-mail: andrew.rodriguez@tamusa.edu

Preferred Contact Method: If you need to leave me a message, please use e-mail.

Office Hours: MWF after class, Fri 9:50-10:50am Mad 322

General Information

Prerequisites: BIOL 1306, BIOL 1106, BIOL 1307, BIOL 1107, MATH 1314

Textbook: Pierce BA. 2020. *Genetics: A Conceptual Approach, 7th Edition*. Freeman, New York. Suggested readings will be provided for this edition and the previous (6th) edition if you prefer to use that textbook.

Online Resources: We will be using Achieve, you should purchase this with your textbook. I will also be providing material to support your learning this semester. The powerpoints that are the basis of this course are to be found in the Course Content>Lectures section on Blackboard. The exams will be based on the information found in these powerpoints.

How you study for this course is up to you. Different people study in different ways and have different schedules around which they need to organize their studying. I would strongly recommend that you make use of as many, ideally all, of the resources available to you. Genetics is a VERY tough course.

Course Description: This course covers the basic concepts and principles of inheritance in eukaryotes and prokaryotes from classical and modern perspectives.

Objectives: To provide students with a sound foundation in classical and modern genetics and approaches to problem solving used by geneticists. Specifically, during the course of or upon completing BIOL 2411, students should:

- (1) Gain a firm understanding of Mendelian inheritance and common departures from Mendelian inheritance
- (2) Understand how genetic material is partitioned during asexual and sexual cell division
- (3) Understand the basic structure and properties of chromosomes including linkage, recombination, and large-scale mutation
- (4) Gain an appreciation for how genetic markers can be used to address a variety of questions
- (5) Understand the basic structure, composition, and function of DNA, genes, genomes, and the genetic code
- (6) Understand the fundamentals of DNA replication, gene expression, and gene regulation
- (7) Understand that mutation is the ultimate source of genetic variation and therefore profoundly influences adaptive evolution and human health
- (8) Gain an appreciation for the rapidly advancing fields of genomics and biotechnology
- (9) Gain an appreciation for how epigenetic modifications influence gene expression and cellular differentiation

Evaluation & Course Structure

Grading Scale:

A = 90-100

B = 80-89.

C = 70-79

D = 60-69

F < 60

Grade Components:

Mean of 4 exams, one for each of the four subject sections = 55%

Mean score on homework assignments = 20%

Lab grade = 25%

Note that there is no formal “final” exam. Each exam is on the material covered since the last exam (or beginning of the course for Exam 1).

Exam Format: Exams will be held in person using scantron and paper exams. I reserve the right to ask you exam questions in a variety of formats including but not limited to: multiple choice, multiple answer, True/False, fill-in-the-blank and so on. Scratch paper may also be provided to solve problems when necessary.

Homework assignments are designed to familiarize you with the vocabulary of genetics and to reinforce concepts and processes covered during class. In general, these assignments will be administered via Blackboard and you will be allowed two attempts at each assignment—with your grade for a given assignment being the higher score of these two attempts.

Policy on Assignments and Exam Questions Involving Written Communication: The ability to write clearly is a fundamental skill that all educated people, including scientists, should have. While I will not deduct points for grammar and spelling per se, if your writing is muddled to the point that the content of your answer is unclear, you will lose points. While you are always free to ask why points were deducted (after class), subsequent clarification of your answer via verbal conversation will not result in the restoration of deducted points to your grade, as grades must be based upon the answer that was turned in at the time that the assignment was due.

Policy on Grade Appeals: We all make errors, and I'm no different. If you feel that I am in error upon receiving a grade for an exam or assignment, let me know after class, or during an office visit. If your concern warrants further consideration, I may ask you for a written explanation of why you think your answer is correct and/or why my grading is overly harsh. Please note that a request for you to elaborate verbally or in writing does not guarantee that points will be restored to your grade.

Policy on Makeup Exams: Please take exams on the dates that they are scheduled. Should extenuating circumstances arise that prevent you from taking an exam at the normal time, I may ask you to present verifiable documentation of the circumstances. Failure to present such documentation may result in denial of a makeup and a grade of '0' for the missed exam. Whenever possible, let me know ahead of time if you are going to miss an exam. Likewise, contact me as soon as possible after missing an exam if you have a verifiable excuse and need to take a makeup.

Policy on Late Assignments and Receiving an 'Incomplete': If extenuating circumstances occur that prevent you from attending class, a verifiable excuse (see above) may be required in order for late assignments to be accepted. In other cases, a penalty of 10% per day late may be applied. If you are ill or otherwise unable to attend class for an extended period, please let me know what is going on as soon as possible, so that we can develop a plan that will enable you to complete the course. Students with extended absences who have not contacted me by the end of the semester will receive a grade of '0' for all incomplete/missing work.

Course Policies

Attendance Policy: You are expected to attend each lecture and to participate in exercises and discussions that take place in this forum.

Learning Environment: Please be punctual. Late entry into class is disruptive to your fellow students and me. I will do my best to facilitate learning by being respectful of you and your time. I expect for you to return the favor. Talking, texting, e-mailing, preparing for other courses, etc. during class is disrespectful. Therefore, please refrain from using handheld devices during lecture. I understand that emergencies occur, so if you are in the midst of a situation that may require your attention during class, please let me know ahead of time and set your phone to vibrate, so that you will cause a minimal disturbance when you exit the classroom. I understand that some students prefer to take notes on their laptops. However, I reserve the right to suspend laptop use if, in my judgment, they are more of a hindrance than an asset.

If I am confusing or unclear, let me know. You should not hesitate to ask questions. If a concept is unclear to you, odds are other students in the class are struggling with the concept as well

Assigned Readings: Please read the assigned material. It will improve your comprehension and will likely reduce the amount of ‘cramming’ that you need to do to prepare for exams.

Policy on Calculator use: Genetics is an inherently mathematical and statistical field. While a working knowledge of basic algebra is sufficient for this course, you will occasionally be asked to answer mathematical questions during homework assignments and exams. Very few modern scientists conduct calculations without the aid of a computer or calculator. Therefore, you are allowed and encouraged to use a calculator on assignments of all types, including exams. However, for exams, use will be restricted to simple calculators that lack data storage and streaming capabilities.

Biology Program & University Policies

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 Amendments Act (ADAAA) of 2008 and the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights protection for persons with disabilities. Title II of the ADAAA 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 accommodation of their disability. If you have a diagnosed 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 dssupport@tamusa.edu.

Academic Learning Center: The Academic Learning Center provides free course-based tutoring to all currently enrolled students at Texas A&M University-San Antonio. Students wishing to work with a tutor can make appointments through the Brainfuse online tutoring platform. Brainfuse can be accessed in the *Tools* section of Blackboard. You can contact the Academic Learning Center by emailing tutoring@tamusa.edu, calling (210) 784-1307, or visiting the Central Academic Building, room 202.

Counseling/Mental Health 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 are experiencing emotional difficulties or mental health concerns, support is available to you through the Student Counseling Center (SCC). To schedule an appointment call 210-784-1331 or visit Modular C, Room 166 (Rear entrance).

All mental health services provided by the SCC are free and confidential (as the law allows). The Student Counseling Center provides brief individual and group therapy, crisis intervention, consultation, case management, and prevention services.

Crisis support is available 24/7 by calling the SCC at 210-784-1331 (after-hours select option '2'). For more information and self-help resources, please visit

www.tamusa.edu/studentcounseling

Emergency Preparedness: JagE Alert is Texas A&M University-San Antonio's mass notification. In the event of an emergency, such as inclement weather, students, staff and faculty, who are registered, will have the option to receive a text message, email 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/uploadfile/folders/sdbowen23/pdf/pdf-635073426137928167-10.100.20.116.pdf>

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.

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. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to provide any resources they may possess.

Military Affairs: Veterans and active-duty military personnel are welcomed and encouraged to communicate, in advance if possible, and 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 the 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 class, 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.
- Keep confidential discussions that the community has of a personal (or professional) nature.
- 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 providing 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's Title IX Coordinator can support those impacted by such conduct 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 Title IX Coordinator. Please be aware that all A&M-San Antonio employees (other than those designated as confidential resources such as counselors and trained victims advocates) are required to report information about such discrimination and harassment to the university. This means that if you tell a faculty member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty member must share that information with the university's Title IX Coordinator (titleix@tamusa.edu, 210-784-2061, CAB 439K). 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 following statement of students' rights and responsibilities is intended to reflect the philosophical base upon which University Student Rules are built. This philosophy acknowledges the existence of both rights and responsibilities, which

is inherent to an individual not only as a student at Texas A&M University-San Antonio but also as a citizen of this country.

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 administrative rule 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, 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 administration.
2. A student has the responsibility to be fully acquainted with the published University Student Rules found in the Student Handbook, [Student Code of Conduct](#), on our website, University Catalog and to comply with them, as well as federal, state, and local laws.
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 an environment for learning.
5. A student has the responsibility to check their university email for any updates or official university notification.

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>.

Important Dates:

January 28	First day of class
April 13	Last day to drop with an automatic "W"
April 20	Last day to drop a course or withdraw from the University
March 29	Study Day – No classes
March 11-17	Spring Break Holiday – University closed
April 29	Last day of classes
April 30	Study Day – No classes
May 1-7	Final exams

The complete academic calendar is available online:

<https://www.tamusa.edu/academics/academic-calendar/index.html>