

**Cell Physiology Laboratory  
BIOL 3409  
Texas A&M University San Antonio, College of Arts and Sciences  
Spring 2026 Syllabus**

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**Office hours:** Thursday 12:30pm-2pm, or by appointment

**Department Offering the Course: Biology**

**Recommended prerequisite:** MATH 1314 Successful completion of College Algebra or concurrent enrollment in higher-level mathematics is recommended.

**Materials Required:** Lab handouts from Blackboard

**Course Description:** This course provides hands-on laboratory experiences that highlight techniques currently used in many biomedical research laboratories. Students will be introduced to working with in vitro model systems and will also learn how to observe and document changes in cellular behavior using light and epifluorescent microscopes. Students must be enrolled in both the lecture and laboratory sections and beginning in Fall 2020 they must also have completed BIOL 2421 (Cell Biology).

**Learning Outcomes:**

1. Students will develop critical thinking skills, communication skills, and Empirical and Quantitative skills.
2. Students will learn to work as a team.
3. Students will understand and apply the scientific method to novel questions in order to develop a strategy to answer those questions.
4. Students will learn how to collect and analyze scientific data through hands-on activities in which they gather the data.

**Required:**

- 1) Signed safety agreement prior to start of second lab period.
- 2) Lab coats must be purchased and worn in the lab every week. Please see the new lab coat policy described later in this syllabus.

**Grading Scheme:**

**Attendance and participation**— Mandatory. Attendance and participation counts for **40% of your course grade**. In addition, if a student misses more than 3 laboratory classes in a regular semester then the student will automatically fail the course. **Attendance = 20%; Participation (peer/and or instructor evaluated) = 20%**

**Lab handouts and/or quizzes:** Worksheets/quizzes count for **40% of your course grade**

**Lab notebook:** The lab notebook will count for **20% of your final course grade**.

## General Lab Safety Procedures/Policies

- University laboratory safety agreement must be signed prior to the start of the second lab session. **LAB COAT** policy: You will be provided a disposable lab coat that will remain in the microbiology lab. You are responsible for keeping it uncontaminated and in good shape for the semester. If you contaminate the coat, you are required to let us know so that we can decontaminate it with bleach, ethanol, or autoclaving as appropriate. You will be shown how to remove your coat properly, fold it, and place it in a storage bag with your name on it. Bins will be provided for the storage bags. If we determine that your coat is too damaged to be safe, you will be required to purchase a replacement for \$5.
- No food or drink allowed in the laboratory unless it is in a sealed container in your backpack in a cubby. If you need to step out of lab during a break, you must remove your lab coat and **WASH YOUR HANDS**, get the sealed container or water bottle from your backpack, and take it outside to eat or drink in the hallway. No open drink cups are allowed.
- **You will wash your hands after entering the laboratory and also before you exit the laboratory. If you are working with cells then you will wash your hands before handling the flasks/plates and again after you have finished working with them.**
- Ear buds and headphones may NEVER be worn during class/lab periods.
- Phones must be on vibrate or turned OFF for the entirety of the class/lab period.
- **In general, cell phones will remain in student backpacks in the cubbies.**
- You may photograph notes/diagrams on the dry-erase board during the note-taking period at the start of the class. After the notes are complete, you must wipe your phone with 70% ethanol and place it in your backpack in the cubby.
- If a phone is needed for a scientific purpose (calculator, timer etc.), the student, **with permission from the instructor**, may obtain a clean zip top bag, place the phone in the bag at the cubby, and then take it to the bench. The phone must remain in the bag the entire lab period, and then the bag disposed in the biohazard waste at the end of the period. Students will wash hands as usual at this time. o If the phone is needed to be used as a camera, with instructor permission, it may be removed from the backpack and taken directly to the bench. Once the photos are completed, the student must **wipe down the phone with 70% ethanol** until slightly damp, and leave it on a clean paper towel away from the bench area for 10 minutes. Then, after washing hands, the student may return the decontaminated phone to their backpack in the cubby. If they have removed it from a plastic bag at their bench, they may return it to the bag after the decontamination, and then proceed as above at the end of the lab period.
- If a student has a need to be in emergency contact with someone (e.g. family member, daycare etc.), you must get permission from the instructor to have your phone at the bench. It must remain in the plastic bag as described above unless an **emergency** call is received. If you must take a call during class, answer the call quickly (if it is not disruptive) through the plastic bag without touching your face, and tell the person you are in lab and need to **wash your hands before leaving the lab to continue the conversation**. Remove your lab coat and leave it on your chair, remove the cell phone carefully from bag, take it to the sink area with you, and wash your hands. Upon returning to the classroom, either place the phone in your backpack or return it to the plastic bag until the end of class.
- Keep these disruptions to an absolute minimum, and only for emergencies. If the phone rings a second time and you must take the call, you will be asked to go deal with the emergency and not return to the classroom that day.
- Do not text during lab instruction time; it is distracting to everyone and disrespectful of the academic environment. If you are in a waiting step during an experiment, limited texting for necessary purposes is usually okay. However, you must first remove your lab coat and leave it on your chair and you **MUST WASH YOUR HANDS** prior to removing your phone from your backpack and taking it directly out of the lab to use it for a limited time. Upon returning to the lab, the phone must be returned directly to the backpack.

## IMPORTANT POLICIES AND RESOURCES

**University Email Policy and Course Communications:** All correspondence between professors and students must occur via University email accounts. You must have your Jaguar email account ready and working. If it is not working, contact the help desk at [helpdesk@tamusa.edu](mailto:helpdesk@tamusa.edu) or at 210-784-HELP (4357). If you don't hear back within 48 hours, contact them again. They have many requests during the first part of the semester, so you may need to follow up with them.

**Academic Accommodations for Individuals with Disabilities:** Texas A&M University-San Antonio is committed to providing all students with reasonable access to learning opportunities and accommodations in accordance with The Americans with Disabilities Act, as amended, and Section 504 of the Rehabilitation Act. If you experience barriers to your education due to a disability or think you may have a disability, Disability Support Services is located in the Central Academic Building, Suite 210. You can also contact us via phone at (210) 784-1335, visit us at the [website](#) or email us at [dss@tamusa.edu](mailto:dss@tamusa.edu). Disabilities may include, but are not limited to, attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their academic accommodations with Disability Support Services and their instructors as soon as possible.

**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 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](mailto:tutoring@tamusa.edu), calling (210) 784-1307, or visiting the Central Academic Building, room 202. Online tutoring is also available for after hours and weekend assistance.

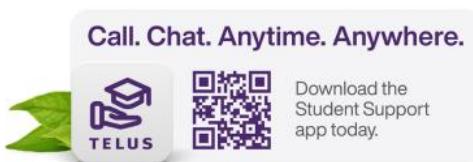
While tutoring hours may change based on tutor schedules and availability, the current tutoring hours for MATH in the ALC are as follows:

	<b>Appointments available</b>	<b>Walk in Tutoring – No appointment needed</b>
MONDAY	8 am – 6 pm	9 am – 5 pm
TUESDAY	8 am – 6 pm	9 am – 5 pm
WEDNESDAY	8 am – 6 pm	9 am – 5 pm
THURSDAY	8 am – 6 pm	9 am – 5 pm
FRIDAY	8 am – 5 pm	11 am – 4 pm

**Counseling/Mental Health Resources:** As a college student, there may be times when personal stressors interfere with your academic performance and 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, visit our website, call 210-784-1331 or visit Madla 120 between the hours of 8:00 AM and 5:00 PM.

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 24/7/365 by calling the SCC at 210-784-1331 or through the TELUS student support App.*

The TELUS Student Support App provides a variety of mental health resources to including 24/7/365 support for in the moment distress, crisis support, an anonymous peer-to-peer support network, mental health screenings, podcasts, and articles to improve your mental wellbeing.



**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, 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 Operations Plan and the Emergency Action Plan can be found [here](#). Download the SafeZone App (<https://safezoneapp.com/>) for emergencies or call (210) 784-1911. Non-Emergency (210) 784-1900.

**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 by the published Census Date (the first week of class). Any student receiving federal financial aid who does not attend prior to the published Census Date (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, Language, and Digital Composing Center (WLDCC):** The Jaguar Writing Center provides writing support to graduate and undergraduate students in all three colleges as well as faculty and staff. Writing 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. The Writing Center offers face-to-face, synchronous online, and asynchronous digital appointments. Students can schedule appointments with the Writing Center in JagWire under the Student Services tab. Click on "Writing, Language, and Digital Composing Center" to make your appointment. Students wanting to work in realtime with a tutor can schedule an "Online Appointment." Students wishing to receive asynchronous, written feedback from a tutor can schedule an "eTutoring" appointment. More information about what services we offer, how to make an appointment, and how to access your appointment can be found on our [website](#). The Writing Center can also be reached by emailing [writingcenter@tamusa.edu](mailto: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 submit a [CARE report](#) for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to direct you to available resources. A food pantry is available on campus; click [here](#) for hours and contact information.

**Military Affairs:** Veterans and active-duty military personnel are welcomed and encouraged to visit the Office of Military Affairs for any question involving federal or state VA Education Benefits. Visit the Patriots' Casa building, room 202, or to contact the Office of Military Affairs with any questions at [military.va@tamusa.edu](mailto:military.va@tamusa.edu) or (210)784-1397.

**Religious Observances:** Texas A&M University-San Antonio recognizes the wide variety of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their

## Appendix A

tradition. Under the policy, students are provided an opportunity to make up any examination, study, or course 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.

**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, equal 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 and the uniqueness of the individual on our campus and within our state, nation, and world. All decisions and actions involving students and employees are to 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, or pregnancy/parenting status. Individuals who believe they have experienced harassment or discrimination prohibited by this statement are encouraged to contact the University's Civil Rights Officer at 210-784-2061 or [titleix@tamus.edu](mailto:titleix@tamus.edu).

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 discrimination or harassment, including sexual assault, sexual harassment, domestic or dating violence, or stalking based on sex, 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 victim 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, sexual violence, or other related sex-based misconduct, the faculty member must share that information with the university's Title IX Coordinator ([titleix@tamus.edu](mailto:titleix@tamus.edu), 210-784-2061, CAB 439K). If you wish to speak to a confidential employee who does not have this reporting requirement, you can contact the Student Counseling Center at (210) 784-1331 or visit them in Madla 120.

**Pregnant/Parenting Students:** Texas A&M-San Antonio does not require a pregnant or parenting student, solely because of that status or issues related to that status, to (1) take a leave of absence or withdraw from their degree or certificate program; (2) limit the student's studies; (3) participate in an alternative program; (4) change the student's major, degree, or certificate program; or (5) refrain from joining or cease participating in any course, activity, or program at the University. The university will provide such reasonable accommodations to pregnant students as would be provided to a student with a temporary medical condition that are related to the health and safety of the student and the student's unborn child. These could include maintaining a safe distance from substances, areas, and activities known to be hazardous to pregnant individuals and their unborn child; excused absences because of illness or medical appointments; modified due dates for assignments; rescheduled tests/exams; taking a leave of absence; and being provided access to instructional materials and video recordings of lectures for excused absences, if these would be provided to any other student with an excused absence. Pregnant/parenting students are encouraged to contact the Title IX Coordinator with any questions or concerns related to their status ([titleix@tamus.edu](mailto:titleix@tamus.edu); 210-784-2061; CAB 439K).

Texas A&M-San Antonio has also designated the Title IX Coordinator as the liaison officer for current or incoming students who are the parent or guardian of a child younger than 18 years of age. The Title IX Coordinator can provide

## Appendix A

students with information regarding support services and other resources. Young Jaguars can support parenting students with daycare if students meet this criteria: (1) must be enrolled in classes at Texas A&M-San Antonio in the current semester, (2) must be Pell eligible or a single parent, (3) child(ren) must be aged 3 to 12-years-old, and (4) child(ren) must be enrolled in Pre-K-3 through 6th grade. For more information, please contact Young Jaguars at [youngjaguars@tamusa.edu](mailto:youngjaguars@tamusa.edu) or call (210) 784-2636.

**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, and pregnancy/parenting 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, and University Catalog, and to comply with them, as well as with 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 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, or disability. Conduct that infringes 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](#) or visit the resources available in the [OSRR website](#)

## Appendix A

### Important Spring 2026 Dates:

Dates	Event
January 13	Tuition & Fee Payments deadline
January 19	Martin Luther King, Jr. – No Classes
January 20	First day of class
February 4	Census date
February 23-March 6	Midterm grading period
March 9-March 14	Spring Break
April 3	Study Day – No classes
April 17	Last day to drop with an automatic “W”
May 1	Last day to drop a course or withdraw from the University
May 4	Last day of classes
May 5	Study Day – No classes
May 6-May 12	Final exams
May 19	Commencement

The complete [academic calendar](#) is available online

#### **Option 1 - No Use of Generative AI Permitted**

[Insert Course Number] 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.

Faculty may create a customized policy that is unique for a specific course with consultation from the department chair. Faculty are encouraged to view *Texas A&M University's Generative AI Syllabus Statement Considerations* when preparing a customized AI policy.

**NOTE:** Guidance for how to cite AI-generators, like ChatGPT, can be found here <https://apastyle.apa.org/blog/how-to-cite-chatgpt>

\*\*\*Syllabus/schedule is subject to change depending on lab availability.

## Appendix A

Week	Dates	LAB TOPICS	Quiz or Assignment (A Pre-lab quiz is always possible)
1	M 1/19	Holiday	
2	M 1/26	Introduction Lab Safety Assign lab coats	
3	M 2/2	Lab #1 Diffusion and osmosis (Edvotek AP04)	Quiz 1-safety
4	M 2/9	Lab #2: Thin Layer Chromotography (SKU 113)	Quiz 2-aseptic technique
5	M 2/16	Lab #3: Affinity Chromatography (SKU 277)	Quiz 3-Th.LC.
6	M 2/23	Lab #4: Histology Day 1-respiratory, digestive, immune systems	<b>Quiz 4- A.C.</b>
7	M 3/2	Lab #5: Histology Day 2- Integumentary, reproductive, nervous systems.	
<b>8</b>	<b>M 3/9</b>	<b>Spring Break</b>	<b>No Lab</b>
9	M 3/16	Lab #1 Aseptic technique Make media Lab #2 Start cell culture	
10	M 3/23	Lab #3.1 Split cells Lab #3.2 Count cells and seed them	
11	M 3/30	Lab #4 Cell membrane experiment Trypan blue Membrane labeling experiment Fluorescent scope	Quiz 4
12	M 4/6	Lab #5 Cellular organelles: Visualization of mitochondria Fluorescent microscope Lab #6 Use cells to look at cytoskeletal Components-actin/microtubules	
13	M 4/13	Lab #7 Plan your experimental set up and read outs-Killing cells and observing outcomes	
14	M 4/20	Lab #8 Kill cells in different ways to observe morphological differences in cell death Trypan blue Morphology Viability stain DAPI Mitochondria/Caspase staining	Quiz 5
15	M 4/27	Lab notebooks due	

## Appendix A

\*\*\*You might want to split your cells on a Monday/Friday schedule. Splitting cells will take approximately 25 to 45 minutes (proficiency dependent). You may split cells during open lab times on those days but please make sure you are not in there when other classes are starting/finishing.