# General Biology I – Attributes of Living Systems

BIOL 1306-002, 3 credits
Texas A&M University San Antonio, College of Arts and Sciences
Fall 2024 Syllabus

## Instructor Contact Information

Name: Rebbekah Watson
Email: rwats07@tamusa.edu
Office Hours: Fridays 10:00am-12:00pm via Zoom

## Class Meeting Times and Location

Lecture: Tuesdays & Thursdays 3:30pm-4:45pm
Location: STEM 145

## Contacting Your Instructor

I will typically respond to emails from students within 24 hours. However, over the weekend and holiday periods responses may be delayed.

## Course Description and Prerequisites

This course examines the fundamental molecular, cellular, and genetic principles characterizing living organisms including the role of the scientific method in the discovery of these principles. Specific concepts include the chemical basis for life, energy transformations, cell structure and function, the metabolic processes of respiration and photosynthesis, cell reproduction, and basic concepts of heredity and genetics. This course is designed for students majoring in science fields. This course meets the standards for the life and physical Sciences category of courses under the core curriculum.

## Required Textbook

*Biology*, 13th edition, Raven et al., McGraw-Hill

IMPORTANT: The course materials listed below are being provided to you. You will have access to the course materials through Blackboard on or before the first day of class.

- Access to the textbook comes with an eBook. An actual hard copy of the textbook is **NOT** required, although can be purchased through the publisher.

## Other Required Materials

To complete the work in this course, you will also need:

- Lab: MUST BE ENROLLED IN BIOL 1106 LAB CONCURRENTLY (unless already taken)
- Blackboard – this is where you will go for lectures, grades, and weekly announcements
  - Google slide decks of lectures will be posted on Blackboard
  - Announcements regarding lectures may be posted on Blackboard
  - Grades for individual assignments will be posted on Blackboard.
- On-Line Learning System Components
  - We will be using "McGraw Hill Connect" which is an on-line tool for learning and studying modules. You will have access to this via Blackboard. It will require a one-time set-up.

## Learning Outcomes

1. Students will develop critical thinking skills, communication skills, and empirical and quantitative skills.
2. Students will understand and apply the scientific method to novel questions in order to develop a strategy to answer those questions.
3. Students will understand the role of the scientific method in scientific discovery.
4. Students will summarize the laws of matter and energy as they apply to living organisms
5. Students will classify the organic and inorganic components that make up living organisms
6. Students will explain the role of water in the fitness of the environment
7. Students will demonstrate an understanding of the differences between eukaryotic and prokaryotic cells.
8. Students will identify components of plant and animal cells, including the structure and function of cell organelles.
9. Students will understand cellular membranes as they relate to transportation of molecules into and out of cells.
10. Students will understand the energy transforming principles of photosynthesis and cellular respiration.
11. Students will understand the cellular cycles of mitosis and meiosis
12. Students will understand the basic principles of gene to protein
13. Students will apply the principles of Mendelian genetics to solution of basic genetics problems to better understand inheritance patterns and be able to discuss how they can contribute to the solution of medical and social dilemmas.
14. Students will be able to discuss recent advances in modern genetics considering the medical, social, and economic impacts of the new findings.

## Graded Work

The table below provides a summary of the graded work in this course.

*Summary of Graded Work*

| Assignment | Points Each | Total Points |
|---|---|---|
| Lecture Exams | 4 @ 100 pts each | 400 points |
| Project | | 100 points |
| Cumulative Final Exam | | 100 points |
| In-Class Activities | varies | 150 points |
| Homework Assignments | 13 @ 10 pts each<br>14 completed, lowest dropped | 130 points |
| SmartBook Assignments | 12 @ 10 pts each<br>13 completed, lowest dropped | 120 points |
| **Total Points** | | **1000 points** |

### *Calculating Current Grade*

Your current grade can be calculated by 1) adding all of your points, 2) adding the points you would have received if you had made perfect scores on the same assignments, 3) dividing the number earned by the points possible, then 4) multiplying by 100.

A = 90 - 100%  B = 80 - 89%  C = 70 - 79%  D = 60 - 69%  F = below 60

You can also find your current grade in the Grade Center on Blackboard.

*Description of Graded Work*

| Type | Description |
|---|---|
| **Lecture Exams** | Lecture Exams are composed of questions covering lecture material. Each exam will have questions ranging from multiple choice, short answer, true/false, drawing, matching, fill-in-the-blank, etc. Not all types of questions will be on every exam. |
| **Cumulative Final Exam** | A comprehensive final exam will be given on a specific day during finals week. This will be a multiple choice, true/false exam. |
| **Project** | Student will complete a project covering the last chapters (Ch 14-16). |
| **Homework Assignments** | For each chapter, you will complete an activity that is designed to reinforce your knowledge of the chapter material. This will consist of a variety of questions, such as video questions, interactive modules, fill-in-the-blank composition, among others.<br>• There is no time limit for this activity.<br>• You will be allowed unlimited attempts.<br>• Your lowest grade will be dropped.<br>• 10% late penalty for each day late |
| **In-Class Activities** | There will be hands-on activities throughout the semester that will help demonstrate concepts, practice word problems, and reinforce concepts that you will be responsible for completing in class.<br>• Attendance is required for these in-class activities and cannot be made up if absent. If you are absent, you cannot receive points for that day's activity.<br>• These in-class activities should help assess where you are in terms of the concepts being taught. If you struggle with these activities, this should help identify where you need to focus your studying or where you need to ask for more help. |
| **SmartBook Assignments** | SmartBook Assignments are to be completed BEFORE the associated lecture (per the deadlines listed). These are designed to help students prepare for the upcoming lecture. Late work is not accepted on the SmartBook assignments. Your lowest grade will be dropped. |

## Make-up and Late Work Policy

*Exams:*

You may make up an exam only if:

- you contact me within one day (24 hours) of the scheduled exam
- your absence is one approved by TAMUSA policies (illness, death in the family, other immediate-family emergencies). Documentation will be required.
- Again – if I do not hear from you within 24 hours of the scheduled exam, you have forfeited the right to make up the exam.

*Homework Assignments*:
Because these are on-line and because they will be open and available for more than one day, you should have ample opportunity to complete these.

- There are no make-ups.
- There is a 5-day grace period for turning in these assignments; however, you will lose points (10%) per day late.
- Your lowest grade will be dropped.
- If there is an emergency that is considered a university-excused reason that prevents you from completing the assignment in the allotted timeframe, you must contact me within one day of the due date. If I do not hear from you within that time period, you have forfeited the right to make up the assignment or quiz.

*In-class activities:*
As mentioned above, any hands-on activities we conduct in class cannot be made up as they require your presence and will usually be conducted as a group.

- However, if you miss for an excused reason, we can discuss the reason why and then you will be exempt from the points given in class.

*SmartBook Assignments*:
Since these assignments are designed to prepare you for the upcoming lecture, there will be no make-ups or late work accepted.

- Your lowest grade will be dropped.

## Attendance Policy and Participation

*Lecture Attendance:*
Attendance will be taken daily; however, you will not be assessed points. Keep in mind that in-class activities are completed during many lectures, and these are not announced beforehand. See the make-up policy above regarding missed in-class activities.

- If you must miss a class, you are responsible for obtaining what you missed (announcements, class notes, handouts, etc...) from a fellow classmate.

*Exam Day Attendance:*
Attendance on exam day is mandatory. If you arrive late, you have only until the end of the period to take it. See the make-up policy above regarding missed exams.

## Time Commitment & Individual Accountability

In college, it is expected that for every credit hour you spend in class, you spend 3 hours working on that material at home. Thus, in the class, it is expected that in addition to coming to class every Tuesday and Thursday, you also spend 9 hours a week on outside school pertaining to this class. This of course takes time-management skills. Please take this into consideration when planning your semester activities.

## Fairness in Learning

This class is a safe environment. We are all part of a learning community comprised of diverse backgrounds, skills, ideas, and orientations. People of all diversity dimensions are welcome and valued and I am committed to an inclusive learning environment free from harassment, sexual misconduct, discrimination, or violence. Hate speech will not be tolerated and any form of harassment will be reported to the proper Texas A&M University- San Antonio authority.

## Other Course Policies

*Do's and Do not's*

- Do come to class regularly and on time – it affects your grade, not because of points assessed, but because of understanding the material.
- Do take notes, either on the print outs of my lectures or in a separate notebook.
- Do ask questions in class.
- Do seek out help from me and your peers.
- Do NOT have your cell phone out during class unless asked to do so.
- Do NOT check social media sites on your laptop during my lecture feigning that you are taking notes.
- Do NOT leave early without talking to me prior to class beginning

*Contacting Instructor*

When sending an e-mail to me, you must include your full name, class and section number, and the problem or issue you are having. If your email does not include these items, I may not respond back.

*Academic Dishonesty*

Academic dishonesty (cheating) will not be tolerated in this course. If cheating is observed, points for that activity will be disallowed, and grades of zero given for cheating will not be dropped.

Academic dishonesty/ violations are considered (but not limited to): activities such as copying answers from other students, collaboration with students who have completed lecture exams, plagiarism, collusion, fabrication, and/or using outside resources during the exams. These are considered cheating and will result in a ZERO for that exam/ assignment. Grades of zero given for cheating will not be dropped.

## Important Policies and Resources

*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 https://www.tamusa.edu/Disability-Support-Services/index.html or email us at **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 disability-related needs with Disability Support Services and their instructors as soon as possible.

*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 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 Madla 120.
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. For more information on SCC services visit tamusa.edu/studentcounseling
*Crisis support is available 24/7 by calling the SCC at 210-784-1331 (after-hours select option '2').*
Additionally, the TELUS Student Support App provides a variety of mental health resources to including support for in the moment distress, 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. 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: https://www.tamusa.edu/about-us/emergency-management/.
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 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.

*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://www.tamusa.edu/academics/.

*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 referral (https://www.tamusa.edu/university-policies/Student-Rights-and-Responsibilities/file-a-report.html) for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to direct you to available resources.

*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 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 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 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, gender expression, or pregnancy/parenting status. 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 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 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 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@tamusa.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 students with information regarding support services and other resources.

*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, gender identity, gender expression, 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, sexual orientation, 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 (https://www.tamusa.edu/university-policies/student-rights-and-responsibilities/documents/Student-Handbook-2022-23.pdf) or visit the resources available in the OSRR website (https://www.tamusa.edu/university-policies/student-rights-and-responsibilities/academic-integrity.html).

*Use of Generative AI Permitted Under Some Circumstances or With Explicit Permission:*
There are situations and contexts within this course where you may be asked to use artificial intelligence (AI) tools to explore how they can be used. Outside of those circumstances, you should not use AI tools to generate content (text, video, audio, images) that will end up in any student work (assignments, activities, discussion responses, etc.) that is part of your evaluation in this course. Any student work submitted using AI tools should clearly indicate with attribution what work is the student's work and what part is generated by the AI. In such cases, no more than 25% of the student work should be generated by AI. If any part of this is confusing or uncertain, students should reach out to their instructor for clarification before submitting work for grading. Use of AI-generated content without the instructor's permission and/or proper attribution in this course qualifies as academic dishonesty and violates Texas A&M-San Antonio's standards of academic integrity.

*Important Dates:*

| | |
|---|---|
| August 26 | First day of class |
| September 2 | Labor Day – No classes |
| September 11 | Census Day |
| October 7-18 | Midterm grading period |
| November 11 | Last day to drop with "W" |
| November 19 | Last day to withdraw from the university |
| November 27 | Study Day – No classes |
| November 28-29 | Thanksgiving Holiday – No classes |
| December 5 | Last day of scheduled weekday classes |
| December 6 | Study Day – No classes |
| December 7-13 | Final Exams |
| December 17 | Commencement |

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

## Course Schedule

The table on the next page lists the topics covered in this course. For a more detailed calendar, see the Course Calendar on Blackboard. This is a tentative schedule that is subject to change at the instructor's discretion.

| Week of | Tuesday Lecture Topic | Thursday Lab Topic |
|---|---|---|
| 8/27 | Syllabus, McGraw-Hill Connect<br>Expectations, Study Tips | Ch. 1 – Scientific Method |
| 9/3 | Chapter 2 - Atoms Molecules & Water | Chapter 2 - Atoms Molecules & Water<br>Chapter 3 – Organic Molecules |
| 9/10 | Chapter 3 – Organic Molecules | Chapter 4 – General Features of Cells |
| 9/17 | **Lecture Exam 1 (Ch 1-3)** | Chapter 4 – General Features of Cells |
| 9/24 | Chapter 26 – Non-living Particles | Chapter 5 – Membrane Structure, Synthesis & Support |
| 10/1 | Chapter 5 – Membrane Structure, Synthesis & Support | Chapter 6 – Energy & Metabolism |
| 10/8 | **Lecture Exam 2 (Ch 4,5,26)** | Chapter 6 – Energy & Metabolism |
| 10/15 | Chapter 7 – How Cells Harvest Energy | Chapter 7 – How Cells Harvest Energy<br>Chapter 8 – Photosynthesis |
| 10/22 | Chapter 8 – Photosynthesis | Chapter 10 – How Cells Divide |
| 10/29 | **Lecture Exam 3 (Ch 6-8)** | Chapter 10 – How Cells Divide<br>Chapter 11- Sexual Reproduction & Meiosis |
| 11/5 | Chapter 11 Sexual Reproduction & Meiosis | Chapter 12 – Patterns of Inheritance |
| 11/12 | Chapter 12 – Patterns of Inheritance<br>Chapter 13 – The Chromosomal Basis of Inheritance | Chapter 14 – DNA: The Genetic Material |
| 11/19 | **Lecture Exam 4 (Ch 10-13)** | Chapter 14 – DNA: The Genetic Material<br>Chapter 15 – Genes and How They Work |
| 11/26 | Chapter 15 – Genes and How They Work | **NO CLASS – THANKSGIVING BREAK** |
| 12/3 | Chapter 16 – Control of Gene Expression | Chapter 16 – Control of Gene Expression<br>Final Exam Review |
| The final exam for this class is on Thursday 12/12 from 2:00pm-3:50pm | | |