BIOL 1406 – General Biology I

Course Syllabus: Spring 2026

"Northeast Texas Community College exists to provide personal, dynamic learning experiences empowering students to succeed."

Professor:

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	Monday	Tuesday	Wednesday	Thursday
Office Hours	11 – 12:30 1:30 – 4:30		11 – 12:30 1:30 – 4:30	1:30 – 3

This syllabus serves as the documentation for all course policies and requirements, assignments, and instructor/student responsibilities.

Information relative to the delivery of the content contained in this syllabus is subject to change. Should that happen, the student will be notified.

Course Description:

4 credit hours. Lecture/Lab: Three hours of lecture and three hours of lab each week.

A study of the biological sciences for students who plan to major or minor in biology or pre-professional studies or to fulfill the laboratory science requirement of other majors. This course utilizes an integrated approach and emphasizes the molecular basis of life, cell biology, and bioenergetics. Other topics for discussion include Mendelian and molecular genetics.

Note: Additional course fee(s) required.

Prerequisite(s): None

Student Learning Outcomes:

1. Apply scientific reasoning to investigate questions and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
2. Use critical thinking, scientific problem-solving, and teamwork to make informed decisions in the laboratory.
3. Communicate effectively the results of scientific investigations.
4. Describe the characteristics of life.
5. Explain the methods of inquiry used by scientist.
6. Identify the basic requirements of life and the properties of the major molecules needed for life.
7. Compare and contrast the structures, reproduction, and characteristics of viruses, prokaryotic cells, and eukaryotic cells.
8. Describe the structure of cell membranes and the movement of molecules across a membrane.
9. Identify the substrates, products, and important chemical pathways in metabolism.

10. Identify the principles of inheritance and solve classical genetic problems.
11. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.
12. Describe the unity and diversity of life and the evidence for evolution through natural selection.

Evaluation/Grading Policy:

Lectures & Discussions

CH 1 - The Science of Biology
CH 2 – The Nature of Molecules and the Properties of Water
CH 3 – The Chemical Building Blocks of Life
EXAM 1 (CH 1-3)
CH 4 – Cell Structure
CH 5 – Membranes (Diffusion/Osmosis)
EXAM 2 (CH 4-5)
CH 6 – Energy and Metabolism (Enzymes)
CH 7 – How Cells Harvest Energy (Respiration)
CH 8 – Photosynthesis
EXAM 3 (CH 6-8)
CH 10 – How Cells Divide (Cell Cycle and Mitosis)
CH 11 – Sexual Reproduction and Meiosis
CH 12 – Patterns of Inheritance (Mendelian Genetics)
EXAM 4 (CH 10-12)
CH 13 – Chromosome Genetics
CH 14 – DNA: The Genetic Material
CH 15 – Genes and How They Work (Transcription and Translation)
EXAM 5 (CH 13-15)
Final Exam Review
FINAL EXAM (CH 1-8, 10-15)

Lab Schedule

Lab Topic 1 – Scientific Inquiry & Metric System
Lab Topic 2 – Biochemistry
Lab Topic 3 – Microscopy
Lab Topic 4 – Cytology & Cell Membranes
Lab Topic 5 – Passive Transport
Lab Topic 6 – Enzymes
Lab Topic 7 – Respiration

LAB PRACTICAL 1 (Lab Topics 1-7) – 100 points

Lab Topic 8 – Photosynthesis
Lab Topic 9 – Cell Division
Lab Topic 10 – Genetics
Lab Topic 11 – DNA & Biotechnology
Lab Topic 12 – Bacterial Transformation
Lab Topic 13 – CRISPR

LAB PRACTICAL 2 (Lab Topics 8-13) – 100 points

Evaluation/Grading Policy:

LECTURE: 50%

9% –Connect Online

40% – 5 Lecture Exams

1% - Attendance

LABORATORY: 30%

10% – Weekly Lab Grades (prelab, report)

5% – 1 Scientific Paper

15% – 2 Lab Practicals

FINAL EXAM: 20%

Grade Assignment:

A = 90-100%

B = 80-89%

C = 70-79%

D = 60-69%

F = 0-59%

Lecture Assignments

Weekly online tutorials and quizzes will be assigned to check your understanding of classrooms discussions and reading assignments. These are completed online in Connect. You will need to access Connect the first week of the semester to complete your assignments. Each assignment has a posted due date for completion. Due dates in Connect are firm – no makeups for missed homework.

Tests/Exams

The lecture exams may include both objective questions (multiple choice, matching, etc.) over classroom discussions, notes, text materials, and readings as well as descriptive questions requiring detailed explanations over broad themes. Success on the exams is a function of anxiety regulation, test prep, study strategies, and studying for retention. Retention requires repetitions, which requires time! Scantrons will be required for the major exams. Tests will not be made up for any reason without **prior** communication to your instructor. Be on time on test days.

Pre-Labs:

Weekly pre-labs are to be completed prior to the lab session. They are due at the **beginning** of the lab session prior to taking the lab quiz. Late pre-labs are not accepted.

Lab Reports:

The lab reports from the lab manual are to be completed during lab and submitted before the day of the lab practical. These, along with the pre-labs, are designed to help you prepare for the Lab Practicals. If you are absent from lab you will receive a zero for the pre-lab and the lab report for that day unless arrangements are made beforehand.

Scientific Paper:

Students will write a Scientific Paper over one lab experiment – the list of experiments you can write a paper over are in Blackboard. This paper will be in scientific format with an abstract, introduction, hypothesis, methods, results, and conclusion sections. A rough draft will be submitted the week prior to the due date. The final draft is due prior to lab on the due date. Please review the AI guidelines and note that if you use AI to complete your paper, it will be considered collusion and graded accordingly.

Lab Practicals:

A lab practical will be given twice during the semester. It is a live exam with stations that students will rotate through and answer multiple choice questions associated with visuals from lab. Visuals may include images, specimens, lab equipment, data tables, graphs, experimental results, models, etc. Scantrons will be required.

Final Exam
A comprehensive final exam will be given during the time set forth by the college Final Exam Schedule. The final exam will consist of 100 objective questions (multiple choice, matching, etc.) from all chapters listed above. A scantron is required for the final exam.

Required Instructional Materials: Raven: Biology 13th ed with Connect Inclusive Access
Publisher: McGraw Hill **ISBN Number:** Available through NTCC Bookstore

Required Instructional Materials: Hearron & Yarbrough: Exploring Biology 1 Lab Manual
Publisher: NTCC **ISBN Number:** Available through NTCC Bookstore

Optional Instructional Materials: Scantrons (8) required for major exams

Minimum Technology Requirements: Internet Access; Microsoft Office or Google Suite

Required Computer Literacy Skills: Blackboard; Microsoft Office or Google Suite

Communications: Turnaround time for email responses is 24 hours during workweek.
NTCC email is the official form of communication used by the college.

Institutional/Course Policy:
Attendance via zoom is mandatory and will affect your grade as in class quizzes will count as zeros if you are absent for any reason.

Withdraw Date: The last day to drop the course with a grade of "W" is **April 16.** If circumstances require you to withdraw from this course, you must do so by that date. It is the **student's responsibility** to initiate the withdrawal with the registrar's office. **Failure to officially withdraw will result in your receiving a grade of F.**

Alternate Operations During Campus Closure and/or Alternate Course Delivery Requirements:
In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Northeast Texas Community College to move to altered operations. During this time, Northeast Texas Community College may opt to continue delivery of instruction through methods that include, but are not limited to, online through the Blackboard Learning Management System, online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor NTCC's website (http://www.ntcc.edu/) for instructions about continuing courses remotely, Blackboard for each class for course-specific communication, and NTCC email for important general information.

Additionally, there may be instances where a course may not be able to be continued in the same delivery format as it originates (face-to-face, fully online, live remote, or hybrid). Should this be the case, every effort will be made to continue instruction in an alternative delivery format. Students will be informed of any changes of this nature through email messaging and/or the Blackboard course site.

NTCC Academic Honesty/Ethics Statement:
NTCC upholds the highest standards of academic integrity. The college expects all students

to engage in their academic pursuits in an honest manner that is beyond reproach using their intellect and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. Academic dishonesty such as cheating, utilization of AI for coursework, plagiarism, and collusion is unacceptable and may result in disciplinary action. This course will follow the NTCC Academic Honesty and Academic Ethics policies stated in the Student Handbook. Refer to the student handbook for more information on these subjects.

Statement Regarding the Use of Artificial Intelligence (AI) Technology:

Absent a clear statement from a course instructor, use of or consultation with generative AI shall be treated analogously to assistance from another person (collusion). Generative AI is a subset of AI that utilizes machine learning models to create new, original content, such as images, text, or music, based on patterns and structures learned from existing data (Cornell, Center for Teaching Innovation). Unauthorized use of generative AI tools to complete an assignment or exam is not permitted. Students should acknowledge the use of generative AI and default to disclosing such assistance when in doubt. Individual course instructors may set their own policies regulating the use of generative AI tools in their courses, including allowing or disallowing some or all uses of such tools. Students who are unsure of policies regarding generative AI tools are encouraged to ask their instructors for clarification. **(Adapted from the Stanford University Office of Community Standards-- accessed August 31, 2023)**

ADA Statement:
It is the policy of NTCC to provide reasonable accommodations for qualified individuals who are students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to request accommodations. An appointment can be made with the Academic Advisor/Coordinator of Special Populations located in Student Services and can be reached at 903-434-8264. For more information and to obtain a copy of the Request for Accommodations, please refer to the special populations page on the NTCC website.

Family Educational Rights and Privacy Act (FERPA):
The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children's educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered "eligible students." In essence, a parent has no legal right to obtain information concerning the child's college records without the written consent of the student. In compliance with FERPA, information classified as "directory information" may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student's name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.

Tentative Course Timeline:

(*note* instructor reserves the right to make adjustments to this timeline at any point in the term):

Biology 1406

Wk	MON/TUE	WED/THUR	LABS	TESTS
1	Orientation	CH 1 Science of Biology Darwin's Idea	Lab Safety Introduction to Scientific Method Lab Topic 1 Metric System	
2	CH 2 Periodic Table	CH 2 Water & pH	Lab Topic 2 Biochemistry	
3	CH 3 Chemistry of Life	CH 3 Chemistry of Life	Lab Topic 3 Microscopy	
4	**February 10** **Exam 1**	CH 4 Cell Structure	Lab Topic 4 Cytology & Cell Membranes	**EXAM 1** **(CH 1-3)**
5	CH 4 Cell Structure	CH 5 Membranes	Lab Topic 5 Passive Transport	
6	CH 5 Membranes	**February 26** **Exam 2**	Lab Topic 6 Enzymes	**EXAM 2** **(CH 4-5)**
7	CH 6 Enzymes	CH 7 Respiration	Lab Topic 7 Respiration	
8	CH 7 Respiration	Ch 8 Photosynthesis	**Lab Practical I** **March 10**	
9	Ch 8 Photosynthesis	**March 26** **Exam 3**	Lab Topic 8 Photosynthesis	**EXAM 3** **(CH 6-8)**
10	CH 10 Mitosis	CH 11 Meiosis	Lab Topic 9 Cell Division	
11	CH 11 Meiosis	CH 12 Genetics	Lab Topic 10 Genetics	
12	CH 12 Genetics	**April 16** **Exam 4**	Lab Topic 11 DNA & Biotechnology	**EXAM 4** **(CH 10-12)** **Lab Rough Draft Due**
13	CH 13 Genetics	CH 14 DNA	Lab Topic 12 Transformation	
14	CH 14 DNA	CH 15 RNA	Lab Topic 13 CRISPR	
15	CH 15 RNA	**May 7** **Exam 5**	**Lab Practical II** **May 5**	**EXAM 5** **(CH 13-15)** **Lab Paper Due**
16	**FINAL EXAM WEEK – Comprehensive Final – May 12**			