



# BIOL 1406 – General Biology I

Course Syllabus: Fall 2021

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

## Professor James Ward

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Office Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Online
	9:00-9:30	9:00-9:30	9:00-9:30	9:00-9:30	9:00-11:30	Mon-Thur
	1:30-3:00	11:00-12:30	4:30-5:00	11:00-12:30	Online Only	By Appt.
		4:30-5:00				

***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 properties of substances needed for life.
7. Compare and contrast 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
- EXAM 4 (CH 10-11)**
- CH 12 – Patterns of Inheritance (Mendelian Genetics)
- CH 13 – Chromosome Genetics
- CH 14 – DNA: The Genetic Material
- CH 15 – Genes and How They Work (Transcription and Translation)
- Final Exam Review
- FINAL EXAM (CH 1-8, 10-15)**

### Laboratory Schedule

- Introduction to Scientific Method
- Lab Topic 1 – 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 PRACTICAL 1**
- Lab Topic 7 – Respiration
- Lab Topic 8 – Photosynthesis
- Lab Topic 9 – Cell Division
- Lab Topic 10 – Genetics
- Lab Topic 11 – DNA & Biotechnology
- Lab Topic 12 – Bacteria Transformation
- LAB PRACTICAL 2**

### Grading Points (1300 points)

- LECTURE: 600 points**
  - 100 pts – COVID Research Paper
  - 100 pts – Honors Assignment
  - 400 pts – 4 Lecture Exams
- LABORATORY: 500 points**
  - 100 pts – Lab Quiz Average
  - 100 pts – Lab Report Average
  - 100 pts – Scientific Paper
  - 200 pts – Lab Practicals (2)
- FINAL EXAM: 200 points**

### Grade Assignment

- A = 1170 - 1300 pts (90-100%)**
- B = 1040 - 1169 pts (80-89%)**
- C = 910 - 1039 pts (70-79%)**
- D = 780 - 909 pts (60-69%)**
- F = 0 - 779 pts (0-59%)**

### **Connect Online Assignments (OPTIONAL):**

Each chapter has an assigned Smartbook activity, chapter assignment, and chapter quiz to check your understanding of chapter topics and reading assignments. These are completed online in Connect which is accessed through McGraw Hill. Students will work at their own pace. Activities and Assignments are not timed. The chapter quizzes each consist of 25 questions with a 25 minute timer. Each assignment has a posted due date for completion. Students will need to earn 3,500 connect points out of the 4,900 possible to earn a 100 for their connect grade. Every 100 points over 3,000 will be worth 1 extra credit point. Students who choose to complete the optional connect assignments will be graded out of 1400 points.

### **COVID Research Paper**

Students will write a research paper on the covid virus. Guidelines, requirements, and grading rubric are found in the covid folder in blackboard.

### **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. Late arrivals must complete exam by end of class time.

### **Lab Quizzes**

Weekly lab quizzes will be given the first 10 minutes of lab to check your understanding of laboratory discussions, experiments, and reading assignments. Quizzes will consist of 10 questions with 7 questions from the previous lab week (based on terminology, experimental procedures, and experimental results) and 3 questions from the current week topic yet to be completed. Students should read the Introduction ahead of lab and complete the pre-lab to be prepared for lab as well as these final 3 questions. Quizzes will not be made up for late arrivals. The quizzes are designed to help prepare you for the Lab Practical Exams.

### **Pre-Labs & Lab Reports**

Weekly pre-labs are to be completed prior to the lab session. Pre-Labs are designed to prepare you for the last three questions on the quiz. Pre-Labs are due at the beginning of the lab session prior to taking the lab quiz. Late pre-labs are not accepted.

The lab reports from the lab manual are to be completed during lab and submitted at the end of the lab period. These, along with the quizzes, are designed to help you prepare for the Lab Practical Exams.

### **Scientific Paper**

Students will write a Scientific Paper over one lab experiment. 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. Guidelines, requirements, and grading rubric are found in the scientific paper folder in blackboard.

### **Lab Practicals**

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

### **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 12<sup>th</sup> ed with Connect Inclusive Access  
**Publisher:** McGraw Hill      **ISBN Number:** Available through NTCC Bookstore

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

**Optional Instructional Materials:** None

**Minimum Technology Requirements:**

- Internet capable desktop, laptop, or chromebook (Tablets/ipads//Phones not recommended)
- Microsoft Office or Google Suite
- Video conferencing capability with webcam using Zoom app through computer.
- Access to printer if hard copies of assignments are desired

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

- Web browsing skills for working with the online homework system
- Ability to use Blackboard for access to course information and assignments
- Functional use of Microsoft Office or Google Suite and Zoom app
- Competent and professional emailing skills
  - Emails should have the following format in subject line: Last Name, First Name -Course ID
    - Example: Ward, James BIOL 1406.001

**Student Expectations:**

- Adhere to Classroom Etiquette including Zoom Virtual Classroom (see addendum in Blackboard)
- Adhere to Proctored Exam Etiquette (see addendum in Blackboard)
  - Proctored exams are monitored by McGraw Hill through Connect with Proctorio
    - Students will be recorded in the following ways during proctored exams:
      - Video, Audio, Screen, and Environment
    - Testing Violations from all recordings will be reported by Proctorio

**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: Withdraw Date**

The last day to withdraw from the course in **Tuesday, November 16<sup>th</sup>**. Discontinuing with the course without officially dropping the course by this date will result in a grade earned, in most instances an “F”. A stoppage in attendance does not equate to dropping the course.

**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, 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.

**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.

**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.

**COVID Statement**

Students, science majors in particular, are expected to exhibit personal responsibility in response to the statistical COVID data at the time. Students should adhere to current CDC guidelines in regards to social distancing and mask usage when indoors to prevent transmission. Students should be vaccinated if gathering indoors to prevent serious reactions if infected. If viral infection rates are above 1.0 and if viral positivity rates are above 5%, students should exercise extreme caution and following CDC mask guidelines all times when indoors. Visit [covidactnow.org](https://www.covidactnow.org) for current statistical data and risk levels for Titus County and the NTCC service area.

## Tentative Course Timeline:

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

### Biology 1406 - FALL 2021

Wk	MON/TUE	WED/THUR	VIRTUAL LABS	READINGS
1	8/23-8/24 Orientation	8/25-8/26 CH 1 Science of Biology	Lab Safety & Intro to Scientific Method	CH 1 pages 1-16 Lab Intro pages 7-18
2	8/30-8/31 CH 1 Darwin's Idea	9/1-9/2 CH 2 Periodic Table	Lab Topic 1 Metric System	CH 2 pages 17-32 Lab 1 pages 19-28 Inner Fish CH 1
3	9/6-9/7 <b>LABOR DAY</b> <b>Introduction Due</b>	9/8-9/9 CH 3 Chemistry of Life	Lab Topic 2 Biochemistry	CH 3 pages 33-58 Lab 2 pages 29-43 Inner Fish CH 2
4	9/13-9/14 CH 3 Chemistry of Life	9/15-9/16 <b>EXAM 1</b> <b>(CH 1-3)</b>	Lab Topic 3 Microscopy	STUDY FOR EXAM 1 Lab 3 pages 44-55 Inner Fish CH 3
5	9/20-9/21 CH 4 Cell Structure	9/22-9/23 CH 5 Membranes	Lab Topic 4 Cytology & Cell Membranes	CH 4 pages 59-87 Lab 4 pages 56-73 Inner Fish CH 4
6	9/27-9/28 CH 5 Transport	9/29-9/30 <b>EXAM 2</b> <b>(CH 4-5)</b>	Lab Topic 5 Passive Transport	CH 5 pages 88-106 Lab 5 pages 74-88 Inner Fish CH 5
7	10/4-10/5 CH 6 Energy	10/6-10/7 CH 6 Enzymes	Lab Topic 6 Enzymes	CH 6 pages 107-121 Lab 6 pages 89-110 Inner Fish CH 6
8	10/11-10/12 CH 7 Respiration	10/13-10/14 CH 7 Respiration	<b>LAB PRACTICAL 1</b> <b>(1-6)</b>	CH 7 pages 122-146 <b>STUDY FOR LP1</b> Inner Fish CH 7
9	10/18-10/19 CH 8 Photosynthesis	10/20-10/21 <b>EXAM 3</b> <b>(CH 6-8)</b>	Lab Topic 7 Respiration	CH 8 pages 147-167 Lab 7 pages 111-123 Inner Fish CH 8
10	10/25-10/26 CH 10 Cell Cycle	10/27-10/28 CH 10 Mitosis	Lab Topic 8 Photosynthesis	CH 10 pages 186-206 Lab 8 pages 124-135 Inner Fish CH 9
11	11/1-11/2 CH 11 Meiosis	11/3-11/4 <b>EXAM 4</b> <b>(CH 10-11)</b>	Lab Topic 9 Cell Division	CH 11 pages 207-220 Lab 9 pages 136-148 Inner Fish CH 10
12	11/8-11/9 <b>Special Event</b>	11/10-11/11 <b>Special Event</b>	Lab Topic 10 Mendelian Genetics <b>Scientific Paper Due</b>	CH 12 pages 221-238 Lab 10 pages 149-169 Inner Fish CH 11
13	11/15-11/16 CH 12 Genetics	11/17-11/18 CH 13 Genetics	Lab Topic 11/12 DNA/Biotechnology	CH 13 pages 239-255 Lab 11/12 pages 170-184 <b>TUESDAY, NOV 16 (W)</b>
14	11/22-11/23 <b>Covid Research</b> <b>Project Due</b>	11/24-11/25 <b>THANKS</b> <b>GIVING</b>	<b>NO LABS</b> <b>THIS WEEK</b>	CH 14 pages 256-277
15	11/29-11/30 CH 14 DNA	12/1-12/2 CH 15 RNA <b>Final Exam Review</b>	<b>LAB PRACTICAL 2</b>	CH 15 pages 278-303 <b>STUDY FOR LP2</b>
16	<b>FINAL EXAM WEEK – Comprehensive Final CH 1-8,10-15 (Mon, Dec 6-Thur, Dec 9)</b>			

