BIOL 1406 General Biology I

Course Syllabus: Spring 2020

"Northeast Texas Community College exists to provide responsible, exemplary learning opportunities."

Professor Jim Ward

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Office Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Online
	1:30-3:00 Zoom Office Online	8:30-9:30 4:30-5:00	8:30-11:00 4:30-6:00	8:30-9:30 1:30-2:00	1:30-3:00 Zoom Office Online	Mon or Fri 1:30-3:00

The information contained in this syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.

Catalog Course Description

Fundamental principles of living organisms will be studied, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Concepts of cytology, reproduction, genetics, and scientific reasoning are included. Laboratory activities will reinforce the fundamental principles of living organisms, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Study and examination of the concepts of cytology, reproduction, genetics, and scientific reasoning are included.

Co-requisite

BIOL 1001 Biology for Science Majors Laboratory I (lab)

Prerequisite

MATH 1314 College Algebra (3 SCH version) recommended, or concurrent enrollment in higher-level mathematics recommended

Contact Hours

3 Hours of Lecture plus 3 hours of Lab course work per week. Lecture meets 2X/week; Lab meets 1X/week.

Required Textbook

Raven McGraw-Hill: Biology, 12ed with Connect Inclusive Access NTCC Bookstore

Required Lab Manual

Hearron & Ward: Exploring Biology 1 Lab Manual NTCC Bookstore

Recommended Readings

Chapters 1-8, 10-15 in Lecture Textbook; Lab Units 1-12 in Lab Manual

Other Course Requirements

- Notebook along with pens/pencils for note taking during class. Tests must be taken with #2 pencils.
- 8 scantrons (2 lab practicals, 5 lecture exams, 1 final exam)

Core Curriculum Purpose and Objectives

Through the core curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world; develop principles of personal and social responsibility for living in a diverse world; and advance intellectual and practical skills that are essential for all learning.

Courses in the foundation area of **life and physical sciences** focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

General Education Competencies

Critical Thinking Skills
CT.1 Students will demonstrate the ability to 1) analyze complex issues, 2) synthesize information, and 3) evaluate the logic, validity, and relevance of data.

Communication Skills
CS.1 Students will effectively develop, interpret and express ideas through written communication.

Empirical and Quantitative Skills
EQS.1 Students will manipulate numerical data or observable facts by organizing and converting relevant information into mathematical or empirical form.
EQS.2 Students will analyze numerical data or observable facts by processing information with correct calculations, explicit notations, and appropriate technology.

Team Work
TW2. Students will work with others to support and accomplish a shared goal.

Course 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.

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)
EXAM 5 (CH 12-15)
Final Exam Review
FINAL EXAM (CH 1-8, 10-15)

Lab Schedule

Lab Topic 1 – Scientific Inquiry
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 Topics 1-6) – 100 points
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 – Bacterial Transformation
LAB PRACTICAL 2 (Lab Topics 7-12) – 100 points

Evaluation/Grading Policy (1500 points)

LECTURE: 600 points
100 pts – Connect Online Average
500 pts – 5 Lecture Exams
LABORATORY: 600 points
100 pts – Lab Quiz Average
100 pts – PreLabs Average
100 pts – Lab Reports Average
100 pts – 1 Scientific Paper
200 pts – 2 Lab Practicals
FINAL EXAM: 300 points

Grade Assignment

A = 1350 - 1500 pts (90-100%)
B = 1200 - 1349 pts (80-89%)
C = 1050 - 1199 pts (70-79%)
D = 900 - 1049 pts (60-69%)
F = 0 - 899 pts (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 and register your keycode 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. Late arrivals must complete exam by end of class time.

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. The average of all 12 pre-labs is 100 points of your course grade. Late pre-labs are not accepted.

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.

Lab Reports
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 Practicals.

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.

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 open ended questions associated with visuals from lab. Visuals may include images, specimens, lab equipment, data tables, graphs, experimental results, etc.

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.

Withdraw Date
The last day to withdraw from the course in **Thursday, April 16th**. Discontinuing with the course without officially dropping the course by this date will result in a grade earned, in most instances an "F". A stop in attendance does not equate to dropping the course.

Student Responsibilities & Expectations
Northeast Texas Community College is a "community of scholars". As scholars, you are expected to be respectful and courteous to your peers and instructors in both lecture and lab. Scholars are expected to be on time and remain for the duration of class. Scholars are expected to embrace anxiety and manage stress to be productive and responsible at all times. Scholars understand that they, and others around them, are pursuing very important goals in their life at this time and are proactive, not reactive, in regards to the assignments and grades to ensure they are on track at all times to meet their goals.

As scholars in class, it is critical that you engage yourself in the lecture material and discussions as well as the laboratory exercises. The ability to listen carefully, record information in note form, and follow directions are important skill sets required for success in higher education. Practicing these in class prepares you to study at home where you will take the important steps toward learning the course material. This leads to the ability to retain information and describe processes on major exams. Research shows writing by hand is far more effective in obtaining long term retention than is typing! Electronic devices are allowed on non-testing days as long as they do not prevent engagement. **No devices or picture taking is allowed on testing days and exam review days**. Your instructor is a valuable resource for your success. I will teach to the best of my ability and provide you with a variety learning formats to help you in your effort to be successful in Biology. I deeply care about you and your academic learning experiences here at Northeast Texas. Office Hours are designed for scholars to have an opportunity to get individual questions answered and engage in learning with the professor outside of class times. Take advantage of office hours as your ultimate success in the course depends solely on YOU!

NTCC Academic Honesty Statement and Academic Ethics
"Students are expected to complete course work in an honest manner, using their intellects and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. NTCC upholds the highest standards of academic integrity. This course will follow the NTCC Academic Honesty policy stated in the Student Handbook." The college expects all students to engage in academic pursuits in a manner that is beyond reproach. Students are expected to maintain complete honesty and integrity in their academic pursuit. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. See Student Handbook.

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 of Special Populations located in the Student Services. For more information and to obtain a copy of the Request for Accommodations, please call 903-434-8218 or refer to the NTCC website - Special Populations.

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.