



Intro to Biology I (for Non-Science Majors)

BIOL 1408.048DC

Course Syllabus: Fall 2021

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

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Remind App Info: text @phsdcbio to 81010 to join

	Monday	Tuesday	Wednesday	Thursday	Friday	Online
Office Hours	Before school: 7:30 am to 7:50 am After school 3:30 pm to 3:45 pm You can make arrangements with me to stay later if needed.					Email anytime between 7:00 am and 10:00 pm. These are the times that I can/will respond.

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: Three Credit Hours. Provides a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function and reproduction.

Prerequisite(s): If none, state none.

Student Learning Outcomes: Upon successful completion of this course, students will:

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 and scientific problem solving to make informed decisions in the laboratory.
3. Communicate effectively the results of scientific investigations.
4. Distinguish between prokaryotic, eukaryotic, plant and animal cells, and identify major cell structures.
5. Identify stages of the cell cycle, mitosis (plant and animal), and meiosis.
6. Interpret results from cell physiology experiments involving movement across membranes, enzymes, photosynthesis, and cellular respiration.
7. Apply genetic principles to predict the outcome of genetic crosses and statistically analyze results.
8. Identify the importance of karyotypes, pedigrees, and biotechnology.
9. Identify parts of a DNA molecule, and describe replication, transcription, and translation.
10. Analyze evidence of evolution and natural selection.

Evaluation/Grading Policy:

Daily Assignments/Homework/Connect Assignments = 20%

Unit Exams = 40%

Laboratory Experiments/Activities = 20%

Final Exam = 20%

Required Instructional Materials: Essentials of Biology E-text with Connect Plus, Mader, 5th Edition

Publisher: McGraw-Hill

ISBN Number: 9781259948312

Inclusive Access: We have negotiated with the Publisher to obtain a discounted price for your lecture course materials. Your ebook and Connect Access Code are included with your tuition and will be available through Blackboard on the first class day. The materials are required for your class and essential in your success. If you also determine that you would like a print copy of your text in addition to your exclusive access loose-leaf copies will be available in the College Store at a discounted price. You may opt out of purchasing materials from the College Store through the Census Date for the course. If you choose to opt out you will be responsible for purchasing your Connect Access Code from another website. You will receive a refund for the Exclusive Access if you opt out.

Optional Instructional Materials: None.

Minimum Technology Requirements: Students will need a Chromebook or laptop with access to high speed daily internet in order to complete their assignments.

Required Computer Literacy Skills: Student must know how to access Blackboard and how to access and submit assignments in Blackboard. Students must also know how to join a Google Classroom, as well access assignments in Google Classroom via Google Forms, Docs, and Slides.

Course Structure and Overview: This course covers Chapters 1 through 16 in the textbook, Essentials of Biology. The following is a general time frame for each Unit. Also listed are the readings, assignments, labs, activities, quizzes, and exams that correlate with each unit.

Communications: Between the hours of 7:00 am and 10:00 pm is the only time that I can/will respond to you whether it is email, Remind message or phone call. Email or Remind message is the preferred method for contacting me. I will typically respond within the hour to your email/message.

Institutional/Course Policy: Students will be required to follow all rules and guidelines as listed in the Pittsburg High School Student Handbook and Code of Conduct.

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, 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.



Proctorio Syllabi Description - US Higher Education

Instructions: Paste the following information below into your course syllabus

Proctorio is a Learning Integrity resource

This course will use Proctorio, a browser-locking and remote proctoring solution designed to protect the integrity of this course's assessments, within some of your Connect assignments. As your instructor, I've chosen the secure exam settings required by this course, and only I will make a judgment as to any potential academic integrity violation.

Assignments with Proctorio

You'll be able to see which assignments in Connect include Proctorio settings because they will be clearly labeled with "Proctoring Enabled" in the assignment title. The settings that I use may vary depending on the assignment. When you start a proctored assignment, the settings in use will be indicated.

Proctorio Minimum System Requirements

Proctorio offers a flexible service, which may include recording of video, audio, and screen activity or none of the above. The [Proctorio system requirements](#) are dependent on the exam settings and may require a webcam and a microphone. Test takers are encouraged to use a practice exam to test their system prior to taking an exam. Virtual machines and proxy connections will not work.

Equity and Fairness

The reason I've chosen to enable Proctorio settings for specific assignments in this course is to make education

more equal by allowing each student to earn the grades they deserve. The US Federal Government also requires that all schools have a process in place for verifying student identity to protect against Federal Student Aid (FSA) fraud.

Privacy

Proctorio is a trusted resource for remote proctoring because of the company's commitment to student privacy. Proctorio uses single sign-on through Connect, and only I or approved individuals, here at our institution, will have access to your exam data. Proctorio never requires personally identifiable information from students, and Proctorio will never sell your data to third parties. Read more about [Proctorio's approach to privacy](#).

Security

Proctorio only runs as an extension in your Chrome browser. This means that Proctorio works within a sandbox and has limited access to your computer system, unlike traditionally installed software applications that have complete access to your computer's hard drive, or other resources.

Proctorio does not continuously run in Connect. Proctorio only runs while you are taking your proctored Connect assignment. After your proctored assignment ends, you may uninstall the extension by right-clicking on it, to bring you peace of mind. Just remember, if you choose to do this, you'll need to reinstall the extension again before starting your next proctored assignment.

All student data is kept safe using zero-knowledge encryption, meaning student data is scrambled and unreadable by anyone outside of our institution's learning platform. Proctorio cannot see your proctored assignment data. Read more about [Proctorio security](#).

Getting Started

Before getting started on your first proctored assignment, please watch the Student Orientation Video on Proctorio, and then make sure to follow the instructions in [Proctorio's Quick Start Test Taker Guide](#) for the extension. To verify your computer system meets the requirements, take the practice quiz. This will ensure that everything will run smoothly on the day of the proctored assignment.

If, after reading the Quick Start Test Taker Guide, you have any trouble while using Connect & Proctorio, you can access quick help guides or reach out to Connect or Proctorio support for troubleshooting. Support can assist in troubleshooting any extension related issues before, during, and after your proctored assignment.

Fall 2020 Units of Study/Instruction **Please note, that due to the unique circumstances with the COVID-19 pandemic, the dates, readings, assignments, activities/labs, quizzes, and tests contained on this course outline are subject to change. However, the content/material covered in this course and the detail or depth at which it is covered will not change. Students will be notified of any changes.*

- **Unit 1: Introduction and Biochemistry (August 14th – August 31st)**
 - Topics for Notes and Lecture
 - Introduction to Themes of Biology
 - Definition of Science
 - What is Biology?
 - Levels of Organization
 - Characteristics of Life
 - Unifying Themes in Biology
 - Chemistry of Life
 - Atomic structure/function
 - Chemical bonds
 - Properties of Water
 - Organic Compounds Found in Living Organisms
 - Carbon and Macromolecules
 - Readings

- Chapter 1: Biology: The Science of Life
 - Chapter 2: The Chemical Basis of Life
 - Chapter 3: The Organic Molecules of Life
 - Assignments/Homework
 - Essential Chemistry Review
 - Properties of Water Review Questions
 - Carbon Compounds
 - Reviewing Macromolecules Questions
 - Unit 1 Critical Thinking Essays
 - Activities and Labs
 - Unifying Themes in Biology Assignment
 - Properties of Water Lab
 - Identifying Functional Groups using the Organic Molecules Model Kits
 - Activity of Enzymes Lab (formal lab report)
 - Acids/Bases Quick Lab
 - Quizzes and Tests
 - Unit 1 Prefix/Suffix Quiz
 - Summative Test over Introductory Material and Biochemistry
- **Unit 2: Cellular Structures and Functions (September 1st – September 14th)**
 - Topics for Notes and Lecture
 - Prokaryotic vs. Eukaryotic cells
 - Cell Organelles and their functions
 - Membrane structure and function
 - Cell Cycle and Mitosis
 - Evidence of common origins based on cellular composition
 - Readings
 - Chapter 4: Inside the Cell
 - Chapter 5: The Dynamic Cell
 - Activities and Labs
 - Comparison of Cell Types Using Prepared and Wet Mount Slides
 - Complete Biological illustrations of animal, plant and generalized bacterial cells to compare and contrast structures
 - Limits on Cell Size Activity
 - Diffusion and Osmosis Lab (Formal Lab Report)
 - View Inner Life of a Cell Video
 - Assignments and Homework
 - Cells and Organelles Questions
 - Cell Membrane and Cell Transport Questions
 - Cellular Tonicities Worksheet
 - Unit 2 Critical Thinking Essays
 - Quizzes and Tests
 - Unit 2 Prefix/Suffix Quiz
 - Summative Test over Cellular Structures and Functions
- **Unit 3: Cellular Energetics/Cellular Energy (September 15th – September 28th)**

- Topics for Notes and Lecture
 - Introduction to Metabolism and ΔG
 - Photosynthesis
 - Cellular Respiration
- Readings
 - Chapter 6: Energy for Life
 - Chapter 7: Energy for Cells
- Activities and Labs
 - Energy and Metabolism Questions
 - Photosynthesis Lab
 - Cellular Respiration Lab (Formal Lab Report)
- Assignments and Homework
 - Thermodynamics Questions
 - Cellular Respiration Questions
 - Photosynthesis Questions
- Quizzes and Tests
 - Unit 3 Prefix/Suffix Quiz
 - Summative Test over Metabolism, Cellular Respiration and Photosynthesis
- **Unit 4: Cellular Reproduction (September 29th – October 12th)**
 - Topics for Note and Lecture
 - The Cell Cycle
 - Regulation of the Cell Cycle
 - Mitosis
 - Meiosis
 - Asexual Reproduction
 - Readings
 - Chapter 8: Cellular Reproduction
 - Chapter 9: Meiosis and the Genetic Basis of Sexual Reproduction
 - Activities and Labs
 - Mitosis in Onion Root Tip Lab
 - Biological Illustrations of the Phases of Mitosis
 - Cell Division Lab
 - Inside Cancer Activity
 - Karyotyping Lab
 - Assignments and Homework
 - The Cell Cycle Questions
 - Mitosis Questions
 - Regulation and Binary Fission Questions
 - Meiosis Questions
 - Researching Chromosomal Disorders
 - Quizzes and Tests
 - Unit 5 Prefix/Suffix Quiz
 - Summative Test over Cellular Reproduction
- **Unit 5: Molecular Genetics and Biotechnology (October 13th – October 27th)**

- Topics for Notes and Lecture
 - Early Contributions of Scientists that Helped Develop Knowledge of DNA Structure and Function
 - DNA Structure and Function
 - DNA Replication
 - Protein synthesis/Transcription and Translation
 - Viruses, Viral Replication and how they cause disease
 - Mutations and their significance
 - Biotechnology
 - Bacteria's use in genetic engineering, cloning, PCR, principles of electrophoresis RFLP analysis
- Readings
 - Chapter 11: DNA Biology
 - Chapter 12: Biotechnology and Genomics
 - Chapter 13: Mutations and Genetic Testing
- Activities and Labs
 - Protein Synthesis Activity
 - Restriction Enzyme Analysis of DNA/DNA Electrophoresis Lab (Formal Lab Report)
 - Recombinant DNA Simulation Lab
 - Bacterial Transformation Lab/pGlo Lab
- Assignments and Homework
 - Search for Genetic Material Questions
 - DNA/RNA/Protein Synthesis Packet
 - Genetics of Bacteria Questions
 - DNA Technology Questions
- Quizzes and Tests
 - Unit 5 Prefix/Suffix Quiz
 - Summative Test over Molecular Genetics, Viruses and DNA Biotechnology
- **Unit 6: Genetics and Heredity (October 29th – November 12th)**
 - Topics for Notes and Lecture
 - Mendel and the Gene Idea
 - Probability
 - Chi-square
 - Non-Mendelian Genetics including: Codominance, Incomplete Dominance, Polygeny, Pleiotropy
 - Human Genetics and Pedigree analysis
 - Chromosomal Basis of Inheritance
 - Control of Gene Expression
 - Readings
 - Chapter 10: Patterns of Inheritance
 - Activities and Labs
 - Fruit Fly Genetics Virtual Lab
 - Genetic Disorders Research Project
 - Chi-square Analysis

- View the movie (or various clips from the movie) “Gattaca.”
 - Assignments and Homework
 - Punnett Square Worksheet
 - Genetics Practice 1
 - Genetics Practice 2
 - Genetics Practice 3
 - Genetics Practice 4
 - Even More Punnett Square Practice
 - Chromosomal Basis of Inheritance Questions
 - Unit 6 Critical Thinking Essays
 - Quizzes and Tests
 - Unit 6 Prefix/Suffix Quiz
 - Summative Test over Mendelian Genetics, Punnett Squares, Non-Mendelian Genetics, Chromosomal Inheritance, and Control of Gene Expression
- **Unit 7: Evolution, Natural Selection, Population Genetics and Microevolution (November 13th – December 7th)**
 - Topics for Notes and Lecture
 - Definition of Theory
 - Evolution
 - Ideas that Influenced Darwin
 - Darwin’s Theory of Evolution
 - Natural Selection
 - Evidence of Evolution
 - Evolution of Populations
 - Hardy-Weinberg Principle and Equation
 - Genetic Drift
 - Types of Selection
 - Speciation
 - Readings
 - Chapter 14: Darwin and Evolution
 - Chapter 15: Evolution on a Small Scale
 - Chapter 16: Evolution on a Large Scale
 - Activities and Labs
 - Comparing Homologous Structures
 - View the Video (or various clips from the video) “What Darwin Never Knew.”
 - Hardy-Weinberg Activity (using Goldfish Crackers, Teddy Grahams or dried beans)
 - Mathematical Modeling: Hardy-Weinberg
 - Peppered Moth Activity
 - Genetic Drift Lab
 - Bird Beak/Speciation Lab
 - Assignments and Homework
 - Reviewing Influential Ideas
 - Reviewing Genetic Drift, Gene Flow and Types of Selection
 - Types of Reproductive Barriers
 - Unit 7 Critical Thinking Essays

- Quizzes and Tests
 - Unit 7 Prefix/Suffix Quiz
 - Summative Test over Evolution, Natural Selection, Population Genetics and Microevolution

Research Project Requirement

- Students enrolled in Mrs. Griffin's BIOL 1408 course will complete research assignments this semester.
 - This project will be a typed submission via Turnitin. (Turnitin is a program that will check for plagiarism.)
- Fall 2020 Research Project Requirements:
 - You will complete a summary and discussion of four different science-based articles.
 - You will be provided with the link to the articles that you are to review.
 - Article Reviews will be due on the following dates/days:
 - Article Review#1: September 15, 2020
 - Article Review#2: October 13, 2020
 - Article Review#3: November 17, 2020
 - Article Review#4: December 15, 2020
 - The grades from these four Article Reviews will be combined for your Final Research Project Grade.
 - These Article Reviews will need to be typed in 12-point font, double spaced and have one-inch margins.
 - Citations will be made using APA Format.
 - For each Article Review, there will be two parts you must complete:
 - In the first half of the review, you will state the main ideas, discussion points, and conclusions that are presented in the article. In the second half of your review, you will discuss and reflect on the article using a list of questions that Mrs. Griffin will provide.
 - You will receive a handout with more detailed information regarding this Research/Article Review Project once class starts.