Intro to Biology I (for Non-Science Majors)
BIOL 1408.048DC

Course Syllabus: Fall 2025

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

Instructor: Erin Griffin

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Remind App Info: text @phsadvbio 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 and provide an example of the uses of each.
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 your 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.

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)**

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.

Fall 2025 Units of Study/Instruction **Please note, 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 29th)**
  - Topics for Notes and Lecture
    - Introduction to Themes of Biology
      - What is Biology?
        - What is Life? (Characteristics of Living Things)
      - Unifying Themes of Biology
        - Levels of Organization
        - Scientific Method
      - Scientific Theory
    - Chemistry of Life
      - Chemistry Review
        - Elements and Compounds
        - Atomic Structure/Function
        - The Periodic Table
        - Energy Levels & Electrons
        - Chemical Bonding
      - Properties of Water
        - Polarity and Its Effects
        - Water is a Solvent
        - Cohesion & Adhesion
        - Specific Heat
        - Evaporative Cooling
        - High Heat of Vaporization
        - Water is the Solvent of Life
          - Hydrophobic and Hydrophilic Substances
          - Dissociation of Water Molecules
        - pH Scale
          - Buffers
          - Acidification
      - Organic Compounds Found in Living Organisms
        - Carbon
          - Organic Chemistry
          - Carbon Bonds
          - Carbon Skeleton Variation
          - Isomers
        - Macromolecules
          - Organic vs Inorganic
          - Dehydration Synthesis & Hydrolysis
          - Carbohydrates
          - Lipids
          - Proteins
            - Protein Configuration/Protein Folding
            - Denaturation
            - Enzymatic Activity

        - Nucleic Acids
    - Readings
        - Chapter 1: Biology: The Science of Life
        - Chapter 2: The Chemical Basis of Life
        - Chapter 3: The Organic Molecules of Life
    - Assignments/Homework
        - Unit 1 Questions
    - Activities and Labs
        - Study Activity Lab
        - Unifying Themes in Biology Assignment
        - Covalent vs. Ionic Bonding Card Sort
        - Properties of Water Lab
        - Cabbage Juice Indicator Lab
        - Dehydration & Hydrolysis Simulation Activity
        - Identifying Macromolecules Lab
        - Macromolecule Structure Sort
        - Protein Structure Sort
    - Quizzes and Tests
        - Unit 1 Prefix/Suffix Quiz
        - Unit 1 Test

- **Unit 2: Cellular Structures and Functions (September 2nd – September 17th)**
    - Topics for Notes and Lecture
        - The Cell Theory
        - Prokaryotic vs. Eukaryotic cells
        - Surface Area to Volume Ratio
        - Cell Organelles and Their functions
        - Evolutionary Origins of Mitochondria and Chloroplasts
        - The Cytoskeleton
        - Specializations of the Plasma Membrane
        - Cell to Cell Recognition
        - Cell to Cell Communication
        - Apoptosis
        - Cellular Transport
            - Passive and Active Transport
    - Readings
        - Chapter 4: Inside the Cell
        - Chapter 5: The Dynamic Cell
    - Activities and Labs
        - Cell Size Comparison Lab
        - Viewing Cells Lab (Comparison of Cell Types Using Prepared and Wet Mount Slides)
        - Osmosis & Diffusion Lab
        - Types of Passive Transport Card Sort
        - View Inner Life of a Cell Video
    - Assignments and Homework
        - Unit 2 Questions
        - Unit 2 Critical Thinking Essays
    - Quizzes and Tests
        - Unit 2 Prefix/Suffix Quiz
        - Unit 2 Test

- **Unit 3: Cellular Energetics/Cellular Energy (September 18th – October 2nd)**
    - Topics for Notes and Lecture
        - Introduction to Metabolism
            - The Laws of Energy Transformation
            - Laws of Thermodynamics
            - Free Energy Change (ΔG)
        - ATP: The Energy for Cells
        - Metabolic Pathways and Enzymes
            - Enzymes and Their Active Sites
            - Activation Energy
        - Cellular Respiration
            - Phases of Glucose Breakdown
            - Structure of Mitochondrion
        - Fermentation
            - Two Forms of Fermentation
        - Photosynthesis
            - Site of Photosynthesis
            - Structure of Chloroplasts
            - Overview of Photosynthesis
            - Photosynthetic Pigments
            - Photorespiration
    - Readings
        - Chapter 6: Energy for Life
        - Chapter 7: Energy for Cells
    - Activities and Labs
        - Cellular Respiration Lab
        - Photosynthesis Lab
        - Plant Pigments Lab
    - 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 (October 6th – October 20th)**
    - Topics for Notes 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
        - Inside Cancer Activity
        - Sordaria Activity
        - Karyotyping Lab
        - Chromosomal Disorders Project
    - 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 21st – November 5th)**

    - 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
        - DNA Replication Modeling Lab
        - Transcription and Translation Practice (Or Codon Bingo)
        - DNA & Sickle Cell Lab
        - Restriction Enzyme Analysis of DNA/DNA Electrophoresis Lab
        - 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 (November 6th – November 18th)**
    - 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
        - Chi-Square Analysis
        - Drosophila Simuation
        - Genetic Disorders Research Project
    - 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 19th – December 9th)**
    - 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
        - Genetic Drift Simulation
        - Hardy-Weinberg Activity
        - 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

- **Semester Exam/Final Comprehensive Exam will be scheduled sometime between December 9th and December 12th**.

Research Project Requirement

- Students enrolled in Advanced Biology are required to complete one research assignment per semester.
    - This project will be a typed submission that is checked by a program for plagiarism, such as Turnitin.
- Advanced Biology Fall 2025 Research Project Requirements:
    - You will complete a summary and discussion of four different science-based articles.
        - You will be provided with the links to the articles that you are to review.
        - Article Reviews will be due on the following dates/days:
            - Article Review#1: September 12, 2025
            - Article Review#2: October 10, 2025
            - Article Review#3: November 14, 2025
            - Article Review#4: December 12, 2025
        - 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.

BIOL 1408.048DC – Fall 2024 – Syllabus Acknowledgement Form

I have read and I understand what is expected myself in Mrs. Griffin's BIOL 1408 course as outlined by the Syllabus and Course Information packet.

Printed Name of Student: _____

Student Signature: _____ Date: _____

I have read and I understand what is expected my student in Mrs. Griffin's BIOL 1408 course as outlined by the Syllabus and Course Information packet.

Printed Name of Guardian: _____

Guardian Signature: _____ Date:_____

Phone Number(s): _____

_____

Best time of day to call: _____

Email contact information: _____

Would you like to receive emails that contain the information/dates of upcoming tests, dates of classroom assignments and updates concerning your student's grade?

Please circle one: Yes No

Does your child have access to the internet at home? Please circle one: Yes or No

Questions/Concerns/Comments: _____

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