

James Clemens High School

11306 County Line Road
Madison, AL 35756



Phone: 256-216-5313

Extension: 95237

Email: ahorne@madisoncity.k12.al.us

Course Syllabus **Introduction to Biotechnology** **Fall 2022** **Instructor: Ashley Horne**

Dear Parent/Guardian,

I look forward to having a great year! I feel fortunate to have your learner in my class this semester and hope that you will contact me should you have any concerns. With your learner, please read the policies above that go with this form, then sign and date this signature page and return this form as soon as possible. Please provide a current email address and phone number at which I can contact you should the need arise. Please contact me with any concerns. It is going to be a GREAT semester!!!

Thank you,

Ashley Horne

My child and I have read and discussed the classroom syllabus.

Student Name (Print) _____ Date _____

Student Signature _____ Date _____

Parent/Guardian Name (Print) _____ Date _____

Parent/Guardian Signature _____ Date _____

Email Address(es) _____

Phone number(s) _____
Cell Home Work



Course Syllabus
Introduction to Biotechnology
Fall 2022
Instructor: Ashley Horne

Course Description:

Introduction to Biotechnology is a biological science course designed to cultivate a deeper understanding of Mendelian genetics, gene structure and function, inheritance patterns, genetic abnormalities, biotechnology, and the Human Genome Project. Case studies in biotechnology and scenarios in bioethics will help students understand the implications and complicated issues that are emerging as the science of genetics continues to develop.

Course Objectives:

Students will:

- Identify cell structures and functions
- Model DNA replication and protein transcription and translation
- Predict patterns of inheritance using pedigrees and Punnett Squares
- Describe the significance of the cell cycle and how errors contribute to cancer
- Explain how the Hardy-Weinberg principle is used to recognize changes in gene frequency
- Describe the replication of DNA and RNA viruses and how it contributes to vaccine production.
- Differentiate among major areas in modern biotechnology such as recombinant DNA, PCR, plasmid transformation, gene therapy, and DNA profiling.
- Analyze results of the Human Genome Project and its implications.
- Use computer bioinformatics to provide information regarding DNA, protein, and human genetic diseases

Classroom Rules and Expectations:

1. **BE ON TIME.** Tardy means that you are not in the room and getting seated when the bell rings. JCHS policy governs the consequences for tardiness. In the event of an emergency hybrid schedule or virtual schedule as mandated by MCBOE, students will continue participating in class DURING the regular assigned time. Student access to assignment directions and Webex virtual meeting links will be provided by the teacher at the beginning of class.
2. **BE RESPECTFUL:** Practice courtesy and mutual respect. Treat others as you would like to be treated. The classroom and laboratory are to be regarded as a safe and supportive learning environment.
3. **BE PREPARED:** Mentally focused on reaching your goals and following class expectations; and physically bringing proper materials EVERY DAY. Cameras should remain on and microphone access should be readily available during live lessons to better facilitate class discussion. Any special circumstances must be communicated and approved by the instructor.
4. **BE RESOURCEFUL:** Thoroughly review assignments, videos, textbooks, and notes to answer questions before asking me.

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Accommodations:

Requests for accommodations for this course or any school event are welcomed from students and parents.

Concerning Laptop Utilization:

1. Student laptops should not be hard-wired to the network or have print capabilities.
2. Use of discs, flash drives, jump drives, or other USB devices will not be allowed on Madison City computers.
3. Neither the teacher, nor the school is responsible for broken, stolen, or lost laptops.
4. Laptops and other electronic devices will be used at the individual discretion of the teacher.

Grading Policy:

Test grades will account for 70% of the 9-weeks grade, with the remaining 30% being determined by quiz/daily grades. The grading scale is as follows: A (90-100%), B (80-89), C (70-79), D (65-69), and F (below 65). Grades will be a reflection of mastery of the standards. Make sure all absences are excused as class work can be made up and graded for excused absences only. The final exam counts for 20% of the final grade.

Make-Up Work Policy:

This course will follow the MCS Code of Conduct for make-up work. Make-up test time is once per week on a day determined by the instructor.

Course Materials:

- Scientific Calculator
- Roll of Paper Towels (*for lab use*)
- Pencils
- 3 ring binder (at least one inch)
- Notebook Paper

Texts/Required Readings:

Human Genetics: Concepts and Applications. 11th Edition. Lewis. 2015.



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18 - WEEK PLAN*	
WEEK 1	Introduction to Genetics
WEEK 2	Molecules and Cells
WEEK 3	Mitosis and Meiosis
WEEK 4	DNA and Chromosomes
WEEK 5	Protein Translation and Transcription
WEEK 6	Gene Mutation
WEEK 7	Human Genome Project
WEEK 8	Types of Inheritance
WEEK 9	Types of Inheritance
WEEK 10	Epigenetics
WEEK 11	Population Genetics
WEEK 12	DNA and RNA Viruses
WEEK 13	Immunity and Vaccines
WEEK 14	Cancer and Gene Therapy
WEEK 15	Cell Cycle and Cancer
WEEK 16	Genetically Modified Organisms
WEEK 17	Other Major Areas of Biotechnology
WEEK 18	Review

*** This syllabus serves as a guide for both the teacher and student; however, during the term it may become necessary to make additions, deletions or substitutions.**