Phone: 713-688-1361 **Website: www.houstonisd.org/waltrip**

Biology Course Syllabus 2018 - 2019

Instructor: Felicia L. Tanner **Email: ftanner@houstonisd.org** **Room: 2216**

Tutorials/ Office Hours: 7:30 am - 8:15 / 4:05pm -5:05 pm (Daily) and by appointment
Conference: 5th Period

Course Description:

Biology is the science that studies living things. This course focuses on the process of scientific investigation through the study of living things and the world in which we live.

Course Objective:

Throughout this school year we will collaborate to foster scientific skills of inquiry, finding alternative avenues to solve problems, cultivate resilience, and academic independence. These skills will not only translate into success in the classroom but outside of it as well.

Course Outline:

Fall Schedule	
1st Cycle	
Unit #1	
1. Safety 2. Bio-molecules – From simple to complex molecules 3. Enzymes	The focus of this unit is comparison of the functions of the different types of biomolecules: carbohydrates, lipids, proteins, and nucleic acids. Students will identify the components of DNA as well as the role of enzymes
Unit #2	
1. Cell Structure and Function – Prokaryotic cells vs. eukaryotic cells 2. Cellular Processes – Transport & Homeostasis	The focus of this unit is investigation and explanation of cellular processes, including homeostasis and transport of molecules. Students will identify cells as the basic structures of all living things; and that they have specialized parts that perform specific functions such as transporting molecules and maintaining homeostasis.
Unit #3	
1. Components of DNA – How genetic information is carried in DNA.	The focus of this unit is to identify the components of DNA and describe how genetic information is carried in DNA. Students will examine

	explanations for the origin of DNA. Students will recognize that DNA is found in all living organisms.
Unit #4	
1. Cell Growth and Differentiation - Cell specialization and Cell Cycle and Cancer	The focus of this unit is description of the cell cycle, DNA replication, and cellular differentiation. Students will describe the cell cycle, including mitosis, the importance of the cell cycle to growth and how disruptions of the cell cycle can lead to diseases such as cancer. Students will describe cell differentiation and factors that play a role in differentiation.
2nd Cycle	
Unit #5	
1. Viruses – Are they living things? 2. Viral diseases (HIV)	The focus of this unit is the comparison of the structures of viruses and cells. Students will describe viral reproduction and the role of viruses in causing diseases**.**
Unit #6	
1. Transcription and Translation 2. Gene Expression	The focus of this unit is the explanation of protein synthesis and gene expression. After identifying the components of the structure of DNA, students will explain how DNA is transcribed and translated into amino acids to make proteins
Unit #7	
1. Changes in DNA 2. Significance of Mutations	The focus of this unit is identification and illustration of changes to the nucleotide sequence of DNA resulting in mutations. Although some are harmful, mutations result in the diversity of genes in the world, making natural selection and evolution possible
Unit #8	
3. Genetic Combinations 4. Sexual vs. Asexual Reproduction 5. Genetic Engineering 6. Human Genome	The focus of this unit is the prediction of the possible outcomes of monohybrid crosses, dihybrid crosses, and non-Mendelian inheritance. Students will recognize the significance of genetic variation as a result of the possible outcomes of various genetic combinations
3rd Cycle	.
Unit #9	
1. Natural Selection 2. Diversity 3. Adaptation	The focus of this unit is analysis and evaluation of the relationship of natural selection to adaptation and to the development of diversity in and among species. Students will analyse and evaluate how elements of natural selection result in differential reproductive success in populations, not individuals.

Unit #10	
1. Evidence of Evolution – Convergence and Divergence 2. Fossil Record and Biogeography and Homologies	The focus of this unit is the analysis and evaluation of the theory of biological evolution by examining evidence of common ancestry from DNA sequences, fossil records, biogeography, and anatomical and developmental homologies.
Unit #11	
1. Genetic Drift, Gene Flow	The focus of this unit is the analysis of other evolutionary mechanisms such as gene flow, genetic drift, mutation, and recombination.
Unit #12	
1. Classification 2. Taxonomy	The focus of this unit is categorization of organisms using a hierarchical classification system based on similarities and differences among organisms at various taxonomic levels
Spring Schedule	
4st Cycle	
Unit #13	
1. Homeostasis 2. Internal Feedback Mechanisms 3. Response to the Environment	The focus of this unit is on description and investigation of the interactions that occur among systems in plants that perform various functions. Students will compare metabolic processes and energy conversions that occur in plants and animals including photosynthesis and cellular respiration. Multiple levels of organization of biological systems will also be analysed.
Unit #14	
1. Biological Processes in Animals and Plants 2. Photosynthesis 3. Cellular Respiration	The focus of this unit is the description and investigation of the interactions that occur among systems in animals that perform various functions. Students will identify metabolic processes and energy conversions that occur in animals. Multiple levels of organization of biological systems will also be analysed.
Unit #15	
1. Matter and Energy Flow in Ecosystems 2. Environmental Change and Ecosystem Stability	The focus of this unit is on analysis of matter and energy flow between organisms and their environment, as well as describing how environmental change impacts ecosystem stability. Students analyse the flow of matter and energy through different trophic levels using various models and describe how environmental change can impact ecosystem stability.

Unit #16	
1. Ecosystem Relationships 2. Predation, Parasitism, Commensalism, Mutualism and Competition	The focus of this unit is the interpretation of relationships among organisms in an ecosystem including commensalism, mutualism, parasitism, and predator-prey relationships.
Unit #17	
1. Variations and Adaptations in Ecosystems 2. Ecological Succession	The focus of this unit is the description of how events and processes that occur during ecological succession can change populations and species diversity. Students will compare variations and adaptations of organisms that help them grow, reproduce, and survive in different ecosystems.
Unit #18	
1. Staar Bootcamp	The focus of this unit is review of readiness standards in preparation for the Biology EOC.
6th Cycle	
Unit #19	
Independent Research	The focus of this unit is the implementation of scientific investigations through real-life applications of current science issues after the End-of-Course exam

Grading Policy:

Exams	35%
Labs and Free Response Questions	30%
Daily Work/Homework/Quizzes	25%
Participation	10%

**Academic dishonesty of any type, including plagiarism will not be tolerated. Consequences will be determined on case by case basis.*

Waltrip High School Grading Scale:

90 – 100	A
80 – 89	B
70 – 79	C
69 – 60	D
59 & below	F

****Assignments with a grade of 75% or lower must be corrected or retaken during office hours.***

Late Work Policy:

1 day late -10 points Max 90

2 days late -20 points Max 80

3 days late -30 points Max 70

4 days late -40 points Max 6

Class Materials:* You must bring everyday!

1. Laptop
2. Paper
3. Pens/ pencils

Classroom Rules – 5 P's

1. **Be Prompt** – Be in your assigned seat before the bell rings. Meet deadlines.
2. **Be Prepared** – Bring necessary materials for class, including homework. .
3. Be Polite – Respect school property and those around you. Discipline yourself so others don't have to!
4. **Be Productive** – Participate arduously in all class activities. Follow instructions. Use your time and energy wisely. Finish all work.
5. **Be Positive** – My expectations for you are to: set high academic and personal goals, be a problem solver, help others, and as for help when necessary.

***Additional rule: No eating or drinking of anything in the lab or during class time.**

Tardy/ Absent Policy:

School tardy policy is strictly reinforced in the classroom. A student is TARDY when he/she enters class within 15 minutes of the start time. A student is ABSENT when they enter the class 15 minutes late. If you are Absent for any reason, you have one day for each day Absent to see me for any missing assignments (This is YOUR responsibility).

Student's name _____Date _____ Period ____

Dear parents/legal guardians

I welcome you and your son/daughter in my classroom. Please read this syllabus with your child, sign it and return it with your child. If you have concerns or questions, PLEASE contact me through the school. Students please bring this syllabus signed and show it to me for credit.

I have read the course syllabus and agree to pledge all my support and cooperation in urging my son/daughter to comply with the above requirements, rules, and policies.

Parent/Guardian Name: _____ Date: _____

Signature: _____

Contact Information:

Phone Number:_____

Email:_____