I. Teacher Information
Teacher Name: Mr. Obinna I. Uchime
Room: 2250
Tutorial Days: Wednesday (Biology Only), Thursday (Human A&P Only)
Course Website: www.mruchime.com
Teacher E-mail: Obinna.Uchime@atlanta.k12.ga.us
School Phone #: 404-802-5200
Classroom Phone#: 404-802-2187

II. Course Description and Objectives
The Biology curriculum is designed to continue the student investigations of the life sciences that began in grades K-8 and provide students the necessary skills to be proficient in biology by focusing on the identification of patterns, processes, and relationships of living organisms. These standards include more abstract concepts such as the interdependence of organisms, the relationship of matter, energy, and organization in living systems, the behavior of organisms, and biological evolution. Students investigate biological concepts through experiences in laboratories and field work using the process of inquiry. Biology students start by developing an understanding of the cellular structure and the role these structures play in living cells. The students develop a fundamental understanding of the role of biomacromolecules, their structure and function as related to life processes. The students then analyze how genetic information is passed to their offspring and how these mechanisms lead to variability and hence diversity of species. They use cladograms and phylogenetic trees to determine relationships among major groups of organisms. Biology students are able to recognize the central role the theory of evolution plays in explaining how the diversity observed within species has led to the diversity of life across species through a process of descent with adaptive modification.

Georgia Standards of Excellence: (Biology)

SB1. Obtain, evaluate, and communicate information to analyze the nature of the relationships between structures and functions in living cells.
   a. Construct an explanation of how cell structures and organelles (including nucleus, cytoplasm, cell membrane, cell wall, chloroplasts, lysosome, Golgi, endoplasmic reticulum, vacuoles, ribosomes, and mitochondria) interact as a system to maintain homeostasis.
   b. Develop and use models to explain the role of cellular reproduction (including binary fission, mitosis, and meiosis) in maintaining genetic continuity.
   c. Construct arguments supported by evidence to relate the structure of macromolecules (carbohydrates, proteins, lipids, and nucleic acids) to their interactions in carrying out cellular processes. (Clarification statement: The function of proteins as enzymes is limited to a conceptual understanding.)
   d. Plan and carry out investigations to determine the role of cellular transport (e.g., active, passive, and osmosis) in maintaining homeostasis.
   e. Ask questions to investigate and provide explanations about the roles of photosynthesis and respiration in the cycling of matter and flow of energy within the cell (e.g., single-celled alga). (Clarification statement: Instruction should focus on understanding the inputs, outputs, and functions of photosynthesis and respiration and the functions of the major sub-processes of each including glycolysis, Krebs cycle, electron transport chain, light reactions, and Calvin cycle.)

SB2. Obtain, evaluate, and communicate information to analyze how genetic information is expressed in cells.
   a. Construct an explanation of how the structures of DNA and RNA lead to the expression of information within the cell via the processes of replication, transcription, and translation.
   b. Construct an argument based on evidence to support the claim that inheritable genetic variations may result from:
      • new genetic combinations through meiosis (crossing over, nondisjunction);
      • non-lethal errors occurring during replication (insertions, deletions, substitutions); and/or
• heritable mutations caused by environmental factors (radiation, chemicals, and viruses).
c. Ask questions to gather and communicate information about the use and ethical considerations of biotechnology in forensics, medicine, and agriculture. (Clarification statement: The element is intended to include advancements in technology relating to economics and society such as advancements may include Genetically Modified Organisms.)

**SB3. Obtain, evaluate, and communicate information to analyze how biological traits are passed on to successive generations.**

a. Use Mendel’s laws (segregation and independent assortment) to ask questions and define problems that explain the role of meiosis in reproductive variability.
b. Use mathematical models to predict and explain patterns of inheritance. (Clarification statement: Students should be able to use Punnett squares (monohybrid and dihybrid crosses) and/or rules of probability, to analyze the following inheritance patterns: dominance, codominance, incomplete dominance.)
c. Construct an argument to support a claim about the relative advantages and disadvantages of sexual and asexual reproduction.

**SB4. Obtain, evaluate, and communicate information to illustrate the organization of interacting systems within single-celled and multi-celled organisms.**

a. Construct an argument supported by scientific information to explain patterns in structures and function among clades of organisms, including the origin of eukaryotes by endosymbiosis.

Clades should include:
- archaea
- bacteria
- eukaryotes
  - fungi
  - plants
  - animals

(Clarification statement: This is reflective of 21st century classification schemes and nested hierarchy of clades and is intended to develop a foundation for comparing major groups of organisms. The term 'protist' is useful in describing those eukaryotes that are not within the animal, fungal or plant clades but the term does not describe a well-defined clade or a natural taxonomic group.)
b. Analyze and interpret data to develop models (i.e., cladograms and phylogenetic trees) based on patterns of common ancestry and the theory of evolution to determine relationships among major groups of organisms.
c. Construct an argument supported by empirical evidence to compare and contrast the characteristics of viruses and organisms.

**SB5. Obtain, evaluate, and communicate information to assess the interdependence of all organisms on one another and their environment.**

a. Plan and carry out investigations and analyze data to support explanations about factors affecting biodiversity and populations in ecosystems. (Clarification statement: Factors include population size, carrying capacity, response to limiting factors, and keystone species.)
b. Develop and use models to analyze the cycling of matter and flow of energy within ecosystems through the processes of photosynthesis and respiration.
  - Arranging components of a food web according to energy flow.
  - Comparing the quantity of energy in the steps of an energy pyramid.
  - Explaining the need for cycling of major biochemical elements (C, O, N, P, and H).
c. Construct an argument to predict the impact of environmental change on the stability of an ecosystem.
d. Design a solution to reduce the impact of a human activity on the environment. (Clarification statement: Human activities may include chemical use, natural resources consumption, introduction of non-native species, greenhouse gas production.)
e. Construct explanations that predict an organism’s ability to survive within changing environmental limits (e.g., temperature, pH, drought, fire).

**SB6. Obtain, evaluate, and communicate information to assess the theory of evolution.**

a. Construct an explanation of how new understandings of Earth’s history, the emergence of new species from pre-existing species, and our understanding of genetics have influenced our understanding of biology.
b. Analyze and interpret data to explain patterns in biodiversity that result from speciation.
c. Construct an argument using valid and reliable sources to support the claim that evidence from comparative morphology (analogous vs. homologous structures), embryology, biochemistry (protein sequence) and genetics support the theory that all living organisms are related by way of common descent.

d. Develop and use mathematical models to support explanations of how undirected genetic changes in natural selection and genetic drift have led to changes in populations of organisms. (Clarification statement: Element is intended to focus on basic statistical and graphic analysis. Hardy Weinberg would be an optional application to address this element.)

e. Develop a model to explain the role natural selection plays in causing biological resistance (e.g., pesticides, antibiotic resistance, and influenza vaccines).

III. Materials and Supplies

Campus Portal for Parents and Guardians: Visit https://ic.apsk12.org/portal to view class schedules, attendance records and grades. To activate your account, visit the school to receive your login (activation key) and/or call the main office and speak to Mrs. Michelle Dalton to receive information on setting up a parent portal account to monitor your child’s grade. If you would like to email Mrs. Dalton, here email is below:

micdalton@atlanta.k12.ga.us

Required Materials:
- 4 composition books (2 per semester)
- College rule paper
- 5 Subject Spiral Notebook
- Pencils
- Colored pencils
- One or More Reams of White Copy Paper (one will be kept in the class)

IV. Course Outline/Curriculum Overview

Major Concepts/Skills

<table>
<thead>
<tr>
<th>Unit:</th>
<th>Duration:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 0: Introduction/Lab Safety</td>
<td>08/12/19 through 08/16/19</td>
</tr>
<tr>
<td>Unit 1: Characteristics of Life</td>
<td>08/17/19 through 09/13/19</td>
</tr>
<tr>
<td>Unit 2: Molecular to Organisms</td>
<td>09/16/19 through 10/25/19</td>
</tr>
<tr>
<td>Unit 3: Heredity and Inheritance: Part I</td>
<td>10/28/19 through 11/20/19</td>
</tr>
<tr>
<td>Unit 3: Heredity and Inheritance: Part II</td>
<td>12/02/2019 through 12/20/2019</td>
</tr>
<tr>
<td>Unit 4: Biological Evolution</td>
<td>01/06/20 through 02/28/20</td>
</tr>
<tr>
<td>Unit 5: Ecosystems and Interactions</td>
<td>03/02/20 through 04/17/20</td>
</tr>
</tbody>
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V. Primary Text(s):

Miller and Levine Biology 2019 Student Edition    Price: $179

*Students will be allowed to check out a book if needed. Online access to textbook is also available*

VI. Grading Policy:

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Formative Pre-Assessment</td>
<td>0%</td>
<td>Pre-Test/Diagnostic Test/Pre-SLO</td>
</tr>
<tr>
<td>Assessment During Learning</td>
<td>25%</td>
<td>Performance-based Assessments/Quizzes</td>
</tr>
<tr>
<td>Group/Independent Practice (In Class)</td>
<td>40%</td>
<td>Classwork/Projects/Labs/Group work</td>
</tr>
<tr>
<td>Homework</td>
<td>5%</td>
<td>Homework</td>
</tr>
<tr>
<td>Summative Assessment</td>
<td>30%</td>
<td>Culminating Projects/Unit Tests/Final Exam/Post-SLO</td>
</tr>
</tbody>
</table>
Grading scale

A: 90-100  B: 80-89  C: 70-79  F: 0-69

***Students that do not complete an assignment or score below a 50% on any assignment will receive a 50% in the Infinite Campus Gradebook along with a teacher comment***

Note: Students that score below an 80% on any assessment will be required to attend tutorial and/or complete Edgenuity for remediation. Students MUST complete a remediation plan prior to being allowed to retake any assessment in Biology.

VII. Assessment Calendar

<table>
<thead>
<tr>
<th>Unit/Benchmark Assessments</th>
<th>Assessment Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1: Characteristics of Life/Classification</td>
<td>Assessment Week: September 9, 2019</td>
</tr>
<tr>
<td>Biology Standards: SB4 a-c</td>
<td></td>
</tr>
<tr>
<td>Unit 2: Molecules to Organisms: Structures &amp; Processes</td>
<td>Assessment Week: October 21, 2019</td>
</tr>
<tr>
<td>Biology Standards: SB1 a-e</td>
<td></td>
</tr>
<tr>
<td>Unit 3: Heredity: Inheritance &amp; Variation of Traits Part I</td>
<td>Assessment Week: November 18, 2019</td>
</tr>
<tr>
<td>Biology Standards: SB2 a-e</td>
<td></td>
</tr>
<tr>
<td>Unit 3: Heredity: Inheritance &amp; Variation of Traits Part II</td>
<td>Assessment Week: December 16, 2019</td>
</tr>
<tr>
<td>Biology Standards: SB3 a-e</td>
<td></td>
</tr>
<tr>
<td>Unit 4: Biological Devolution: Unity &amp; Diversity</td>
<td>Assessment Week: February 24, 2020</td>
</tr>
<tr>
<td>Standards: SB6 a-e, SB4 a, and SB5 e</td>
<td></td>
</tr>
<tr>
<td>Unit 5: Ecosystems: Interactions, Energy &amp; Dynamics</td>
<td>Assessment Week: April 13, 2020</td>
</tr>
<tr>
<td>Standards: SB5 a-e</td>
<td></td>
</tr>
<tr>
<td>Mock Milestone Exam</td>
<td>Assessment Week: April 20, 2020</td>
</tr>
</tbody>
</table>

Final Exam: (Week of December 16, 2019 /Week of May 18, 2020)

GA Biology Milestones: May 05, 2020

VIII. Classroom Expectations:

Come to class prepared to focus only with the before mentioned material. Be on time and be prepared to learn. At all times everyone in this classroom will conduct himself or herself in a professional manner. ANY deviation from acceptable behavior shall require immediate attention up to and including referral to an administrator. Any student receiving a grade of 70% or below on any graded work is expected to see me for assistance. Come prepared to discuss how to improve your performance.

Class Rules:

1. Students must enter classroom with all supplies. Students who do not come to class prepared will face the following possible consequences:
   - Verbal warning
   - Phone call or text home/email that day
   - Written Referral

2. Students must enter on time and be on task when bell sounds. Students are expected to enter quietly and complete the sponge/warm-up activity on desk or on the board. Students who enter late will be marked late in the Infinite Campus attendance system, as per district requirements. Additionally, students will be upheld to the following tardy policy:
   - 1 tardy = verbal or written warning
   - 2 tardies = phone call home
   - 3 tardies = detention
3. Students must be actively engaged in class 100% of the time (this means student has their head up and is on task). Students not in compliance with this policy will face the following sequence of consequences:
   - Warning
   - Phone call home
   - Written referral

4. Students must have a hall pass to leave the classroom.

**Notebooks/Note-taking:**

Students are responsible for maintaining an interactive notebook for this course. The interactive notebook will be turned in before each unit assessment. The interactive notebook must include the following in order to receive full credit for the unit:

- Daily Warm-ups
- All Notes from the Current Unit
- All worksheets from the Current Unit
- Classroom Lab Report/Activities
- Foldables

The interactive notebook will be graded as classwork which constitutes 40% of the overall grade. Students will receive a rubric for all of the assignments that must be included in their notebook check. Students that miss class can find the assignments (minus the labs) on [www.mrchime.com](http://www.mrchime.com).

**Quizzes:**

Quizzes are based on the biological standards covered during/in lectures, videos, and classwork activities. Students should expect to have twenty four quizzes throughout the entire school year. Students that score below an 80% on their assessment will be placed on a remediation plan and be required to retest. Students will be allowed to retest ONLY after they have been remediated by the teacher on record, Edgenuity, or by the science department’s instructional coach. Students will only be remediated on elements of the standard that they did not master (80% or higher).

**Labs:**

Students will be required to keep lab reports inside their interactive notebook. Labs are a critical component to any science student’s success. Some labs require extensive setups and the labs themselves are very time consuming. Due to the nature of labs, students MAY NOT be able to complete a lab that they missed. It is in the student’s best interest to come to class on time and to not be absent. Students that can provide an excused absence note from a doctor or the main office will be excused from missing lab grades. All labs will be graded as classwork included in the interactive notebook grade.
Projects:

All classroom projects will be given to students in class and are available online. Students will have limited time in class to work on projects, but the majority of them will be done outside of class.

<table>
<thead>
<tr>
<th>Unit 1: Characteristics of Life</th>
<th>Classification Project</th>
<th>Due Date is the week of: September 2, 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 2: Molecules to Organisms: Structures &amp; Processes</td>
<td>Cell Project</td>
<td>Due Date is the week of: October 14, 2019</td>
</tr>
<tr>
<td>Unit 3: Heredity: Inheritance &amp; Variation of Traits Part I</td>
<td>DNA/RNA Project</td>
<td>Due Date is the week of: November 11, 2019</td>
</tr>
<tr>
<td>Unit 3: Heredity: Inheritance &amp; Variation of Traits Part II</td>
<td>Genetic Disorder Project</td>
<td>Due Date is the week of: December 9, 2019</td>
</tr>
<tr>
<td>Unit 4: Biological Evolution: Unity &amp; Diversity</td>
<td>Evolution of an Organism Project</td>
<td>Due Date is the week of: February 17, 2020</td>
</tr>
<tr>
<td>Unit 5: Ecosystems: Interactions, Energy &amp; Dynamics</td>
<td>Ecosystem Project</td>
<td>Due Date is the week of: April 13, 2020</td>
</tr>
</tbody>
</table>

Homework:

Homework is given by the week. Students will be given 10 homework assignments each week. Homework can be found on www.usatestprep.com. Remediation homework assignments will be given to those students who do not display mastery of the standards. Mastery of the standard requires an 80% or higher on biology standards.

Make-up Policy

MAKING UP MISSED ASSIGNMENTS OR TESTS:

It is the student and parent’s responsibility to make arrangements for make-up work. Students should ask their teacher for any missed assignments after school hours or during classroom transition (students that come during a transition between classes will not be given a late pass). Failure to do so will result in unsatisfactory mastery of concepts.

Deficiency Notices and Progress Reports

The student will periodically receive from the teacher GRADE PROGRESS reports and DEFICIENCY NOTICES. You should review with your parent(s) or guardian(s) AND they must sign and return both the GRADE PROGRESS REPORT and DEFICIENCY NOTICE on or before the assigned due date.

Expectations for Technology:

There may be times when the teacher will ask you to utilize your own technology during a class. This technology can include a smart phone, laptop, or tablet. When the teacher does not require personal technology, the electronic device should be OFF and AWAY.

Academic Integrity

The Atlanta Board of Education recognizes that academic integrity is the foundation of academic excellence and student success. It is the responsibility of every student and employee to exhibit honesty, trust, fairness, respect, and responsibility in academic work at all times to support a positive learning environment in the school. Violations of board policy IHA-R(1) Academic Integrity shall be handled as violations of the student code of conduct and addressed via the
progressive discipline guidelines in the Student Handbook. Students caught cheating on any assessment, assignment, and/or lab will be required to retest after school with a biology teacher present and will have their parent/guardian notified prior to be allowed to retest. Students caught cheating twice in a school year will be referred to the head of discipline of the school for further action.

**Parent Expectations**
Parental communication and involvement is essential to the success of all students. We fully welcome your involvement. Parents are encouraged to contact the teacher for updates and concerns. If a parent requests a conference, one will be scheduled as soon as possible.