### **Dyson Biology**

### **Course Description:**

Biology, a one-credit course, is a course that is designed to build a life science foundation emphasizing patterns, processes, and interactions among organisms. Students are expected to master conceptual understandings based on both individual investigations and the investigations conducted by others. Individual learning experiences are used to support claims and engage in evidence-based arguments. In this way, students explore the organization of life; the interdependence between organisms and their environment; the chemical composition of life; the role of DNA, RNA, and protein in cellular structure and function; inheritance; and evolution. Local resources coupled with external resources, including evidence-based literature, will be used to extend and increase the complexity of these core ideas.

### **Required Materials:**

Supplies should be kept in backpack and brought to class daily

* Three-ring binder with paper for notes and handouts
* Pens, pencils, highlighters, and colored pencils
* MacBook/Chromebook (charged) & compatible ear buds
* Textbook - Each student will be given a copy of each unit and it will be available in Canvas at the top of each module under the heading "Unit Resources".

### **Basic Expectations and Procedures:**

Students will:

* **Be Respectful** to me, your peers, and yourself.  Your behavior is a *reflection* of who you are.
* **Be Responsible**.  Please come prepared to class with completed assignments and required materials listed above.
* **Be a Team Player**.   You are expected to work cooperatively with your peers.
* **Be Aware**.  Ask questions when you need something clarified.
* Class begins when the bell rings.  You are expected to be in your seat. You will sit in the same desk each day. Please come to class with a pass if you are late and join in quietly.
* Begin work on the DO NOW/BELLRINGER assignment that is on the board as soon as you are seated.  Please do this silently.
* Be silent during all announcements.
* You must have a pass and SIGN OUT to leave the room.  If it is a bad time, you may not be able to leave the room.  Protocol must be followed.
* **Cell phones** and **ear buds** must be "parked" away in backpacks and in ***silent*** mode at all times.
* **Gaming**will not be tolerated.  The student will first be warned, then the parent will be notified. It is very disrespectful and disruptive.
* Students are required to wear a mask that covers the nose and mouth and to follow all social distancing guidelines.  The desks in the room are not to be moved to ensure social distancing to the best extent possible.
* All guidelines in place regarding Covid -19 must be followed at all times.
* **NO food** in the classroom.  However, students may bring a ***full*** **water bottle** from home.  The water bottle should have a closed top.  No fast food cups with straws/disposable coffee cups, etc. will be allowed in the classroom.

### **Tentative Course Outline Based on MS Standards:**

**Unit 1: Characteristics of Life, Organization & Organic Molecules**

BIO.1A Students will demonstrate an understanding of the characteristics of life and biological organization.

**Unit 2: Organic Macromolecules**

BIO.1B Students will analyze the structure and function of the macromolecules that make up cells.

**Unit 3: Cell Structure & Function**

BIO.1C Students will relate the diversity of organelles to a variety of specialized cellular functions.

**Unit 4:  Membrane Structure & Transport**

BIO.1D Students will describe the structure of the cell membrane and analyze how the structure is related to its primary function of regulating transport in and out of cells to maintain homeostasis.

**Unit 5: Energy Transfer**

BIO.2 Students will explain that cells transform energy through the processes of photosynthesis and cellular respiration to drive cellular functions.

**Unit 6: Cell Division**

BIO.1E Students will develop and use models to explain the role of the cell cycle during growth, development, and maintenance in multicellular organisms.

**Unit 7: Protein Synthesis & Mutation**

BIO.3C Students will construct an explanation based on evidence to describe how the structure and nucleotide base sequence of DNA determines the structure of proteins or RNA that carry out essential functions of life.

**Unit 8: DNA Technology**

BIO.3C.4 Research and identify how DNA technology benefits society. Engage in scientific argument from evidence over the ethical issues surrounding the use of DNA technology

**Unit 9: Meiosis & Cell Differentiation**

BIO.3A Students will develop and use models to explain the role of meiosis in the production of haploid gametes required for sexual reproduction.

**Unit 10: Mendelian Genetics**

BIO.3B Students will analyze and interpret data collected from probability calculations to explain the variation of expressed traits within a population.

**Unit 11: Complex Patterns of Inheritance**

BIO.3B.3 Investigate traits that follow non‐Mendelian inheritance patterns (e.g., incomplete dominance, codominance, multiple alleles in human blood types, and sex‐linkage).

**Unit 12: Ecology**

BIO.5 Students will Investigate and evaluate the interdependence of living organisms and

their environment.

**Unit 13: Evolution**

BIO.4 Students will analyze and interpret evidence to explain the unity and diversity of life.

Assignments and Grading:

**All grades need to be**[**viewed in ActiveStudent (Links to an external site.)**](https://madison.activestudent.net/Login.aspx)**. Canvas grades are not your final grades.**

**Assignments** can be found in Canvas under the Modules tab.  Due dates are listed on each assignment.  If assignments are turned in late, 10 points will be deducted for each day the assignment is late. This class is Canvas based and you should check Canvas daily.

**Grades** will be assigned according to the ranges and weights established in the student handbook.  Major - 60%; Minor - 30% & Homework - 10%  You will have at least 3 Test/Major grades each nine weeks.  Retests are not given.  Be sure to adequately prepare for each unit test.

### **Homework/Classwork Policy:**

Classwork is to be completed when assigned in class.  If for some reason it isn't completed it will become homework.

Homework must be turned in at the beginning of class or by the submission date listed in Canvas.  If not, then you will not receive full credit for the assignment.

**If you are absent on the due date of a major assignment or similar project, the assignment is still expected on or before that due date unless prior arrangements are made with me.**In the event of an unforeseen absence, papers and projects or questions can always be e-mailed to me.  **If your attached document cannot be successfully opened, it does not count as being turned in! You can't send me things saved in your One Drive.  You must save to your computer first.**

### **Late Work:**

You are responsible to make up any missed work due to an absence.  All work is found on Canvas.  However many days you were absent, you have that many days to make up the work.  Please see me after class to learn about what you missed.  ***It is YOUR responsibility to find out what you have missed.*** I will not chase you down to provide you with your missing work.  If your assignment is late due to an unexcused absence, your grade will be impacted negatively.  In the event of excused absences, you may make up a missed quiz or test outside of class time by making arrangements with me .  Please see me or email if you have an issue.

### **Cheating or Plagiarism:**

You are expected to pursue your work with integrity and honesty.  **Falsifying your work in any way will not be tolerated.**  Please cite sources properly.  Should you resort to such a choice, consequences will be determined in accordance with school policy.  Your grade will be negatively impacted and your parents, your guidance counselor, and administration will be notified immediately.

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\*\*Please check Active Student / Parent for grades.  Contact the main office if you have trouble logging in.  You will also be updated on your current average every three weeks with progress reports.\*\*

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Be a responsible student and individual.
Every assignment counts, so make every attempt to do them on time! ☺

*Let’s make it a great year!*