**General/College Prep Biology**

**Mr. Zachary Higgins Prep Period:** 11

Room 905 **Class Zoom Link:**

(717) 566-5330 ext. 2075 

Email: zhiggins@ldsd.org

### **Course Description and Course Goals**

This course covers the science of life from molecules through the biosphere with a focus on molecular biology, genetics, and ecology. It is aimed at preparing students for the challenges of advanced science courses like AP biology, as well as science-focused post-secondary programs of study. General/College Prep Biology also prepares students for the Keystone Biology Exam (KBE), and provides students with the knowledge necessary to be biologically literate citizens in the 21st Century, and beyond.

### **Course Materials and Resources**

* Lower Dauphin 1:1 Laptop Device (Required)
* Biology Textbook: Biology; Kenneth R. Miller and Joseph Levine, Pearson © 2014
* Instructors Canvas Course:
	+ Available on the district website: <https://ldsd.instructure.com/>
* Graphing calculator or similar app
* Zoom app
* Home, library, or commercial internet access

### **Content**

|  |  |
| --- | --- |
| **Unit Name** | **Approx. Duration (School Days)** |
| **A.1 – Basic Biological Principles** | 15 |
| **A.2 – The Chemical Basis of Life** | 25 |
| **A.3 – Bioenergetics** | 25 |
| **A.4 – Homeostasis and Transport** | 30 |
| **B.1 – Cell Growth and Reproduction** | 30 |
| **B.2 – Genetics**  | 30 |
| **B.3 – Evolution** | 25 |

### **Brief Content Description**

* Basic Biology Principles
	+ Scientific Method
	+ Define Life
	+ Cell Parts Structure& Function
* Biochemistry
	+ Properties of water
	+ Biochemical molecules structure and function
	+ Enzyme action
* Bioenergetics
	+ Photosynthesis - equation, reactants, products, purpose, location it occurs
	+ Respiration - equation, reactants, products, purpose, location it occurs
* Homeostasis & Transport
	+ Cell Membrane structure & Function
	+ Methods of transport across membranes – types of active & passive transport
	+ Cell transport as a method of maintaining homeostasis
* Cell Growth & Reproduction
	+ Mitosis - Somatic cell reproduction
	+ Meiosis - Gamete reproduction
* Genetics
	+ Heredity & Inheritance
	+ Mendelian Genetics - laws of segregation & independent assortment – dominant & recessive, homozygous & heterozygous, genotype & phenotype, monohybrid & dihybrid crosses
	+ Non-Mendelian Genetics – codominance, incomplete dominance, polygenic, multiple alleles, sex linked
	+ Genetic Mutations – deletion, duplication, frameshift, nonsense, silent, crossing over, jumping genes
* Evolution
	+ Scientific infrastructure – Idea to Theory to Law
	+ Natural Selection – biodiversity, adaptation, evolution, genetic variation, evolutionary fitness
	+ Evidence for Evolution
	+ Speciation

### **Grading**

###

|  |  |
| --- | --- |
| **Tests** | **35%** |
| **Laboratories** | **35%** |
| **Projects** | **10%** |
| **Quizzes** | **13%** |
| **Classwork/Homework** | **7%** |

## **Assignments & Homework**

* Assignments that are handed/turned in for a grade (homework, lab reports, projects not involving presentations, etc.) are due no later than **11:59:59 PM** on the specified date **unless otherwise stated**. Printed or written assignments must be turned in by the end of the school day they are due. Any assignments turned in late will be subject to **10% marked off the assignment per each day** from the original due date.

## **Make-up Work/Quizzes/Tests**

* It is the student’s responsibility to get all missed work (notes, worksheets, lab activities, homework, quizzes and tests) if they are absent from class. Paper copies of make-up work will be placed in a folder with your name on it in your class bin. It is the student’s responsibility to collect their make-up work, turn in appropriate assignments (online or in paper) and schedule a time to make up labs.
	+ Quizzes, tests labs must be made up within **ONE WEEK** of your return to class. You can make up work during 11th period (my prep period), but **YOU must make the arrangements**.

### **Classroom Etiquette & Rules**

* You are expected to treat yourself and everyone you encounter in the school environment with courtesy and respect.
* You are expected to come to class prepared to learn whether that is in-person learning, hybrid, or full virtual. This also includes having the necessary tools for learning (laptop, notes, labs, and activities, etc.) with you wherever you need to learn.
* You are expected to do your best to prepare for and complete any class assignments, homework, quizzes, projects, etc.
* Cell phone use is at the discretion of the classroom teacher. I see value in using technology in the classroom, therefore I will allow students to use cell phones in class when directed, and only for classroom activities, discussions, biology related use, etc. However, **I reserve the right to restrict your phone privileges if I deem that the content is not relevant, or it proves to be more of a distraction than a supplement to learning.**
* You are expected to behave in a mature, safe, and professional manner when in class, completing laboratories or other activities in any learning environment. It is essential that you follow all procedures and take all safety precautions as explained to you by your teacher.
* It is the students’ responsibility to do their own work. **PLAGIARISM** and **CHEATING** are **NOT** acceptable and will **NOT** be tolerated.
* You will be removed from class if you do not comply with these rules and expectations.

### **Course Expectations and Requirements**

* Students are expected to come to class prepared. **Students should come to class, get their computers/notebooks out, review the “Weekly Schedule” on Canvas and have the necessary documents on their computers or the paper copies available at the front of the room**. The books will be available in the classroom as needed and they can be signed out if needed.
	+ There will be paper copies for most of the documents we will have for class at the front of the room at my demo table.
* Students are expected to participate in class discussions and activities, including all lab activities.
* **Assignments**: Assignments are an integral part of the Biology classroom, and reinforce what has been taught in class. They also serve as preparation for upcoming exams and/or lessons and encourage students to manage their time effectively and efficiently.
* **Attendance**: Students are expected to attend all classes unless otherwise excused. If you know of an absence in advance, please see me for make-up work.
* **Tardiness**: Students are expected to be in their seats and working by the time the bell rings. As per school policy, students are not permitted into the classroom after the bell rings without a pass. Please let me know if you are coming from the opposite end of the building so we can arrange timely attendance. Each tardy will be recorded and, on the fourth tardy, you will be entered into the discipline referral system and a detention will be assigned.
* **Hall Passes**: Students must ask permission to go somewhere outside of the classroom. Class time is important and students should not make a habit of using the restrooms/fountains during class. A sign out sheet is required to be filled out to leave the class once permission is granted by the instructor.
* **Labs**: Laboratory Activities allow students to apply what they have learned in class and provide opportunities for discovery by using hands-on activities to enhance learning. See the **Lower Dauphin High School Science Department Student Safety Acknowledgement**.
	+ Laboratory safety is essential. All students are required to submit a properly signed safety contract which will be distributed on the first day of class. Students who do not return the signed contract **WILL NOT** be able to participate in a laboratory activity. A student may begin participating in laboratory activities only after a properly signed safety contract is submitted. Students will receive a **0** until the contract is submitted.
	+ A student who does not have the appropriate footwear or clothing cannot participate in the laboratory activity and will receive a **0** on the laboratory activity.
* **Exams**: A unit exam, quiz or project will be given after the majority of each unit of study. There will also be announced and/or unannounced quizzes based on certain aspects of previous class periods including information from homework, reading assignments and class activities. These quizzes may be given periodically throughout the course. Students will participate in CDT diagnostic testing throughout the year to establish necessary data in order to prepare for the Keystone Biology Exam.
	+ Students will take the **Keystone Biology Exam** in place of a final exam in **May**. There will be a final project at the end of the fourth marking period that will count for 10% of the fourth marking period grade.
* **Academic Honesty**: Honesty is an essential component for success in both academic and the professional biological field; therefore the school’s academic honesty policy will be strictly enforced. Cheating includes, but is not limited to: talking during a test or quiz, **plagiarism** (which includes incorrect citation, copying answers (including lab responses) and allowing others to copy your work).  **At the very least, these actions will result in a 0 for the work and an office referral**.

### **Discrimination/Title IX Sexual Harassment Affecting Students**

* Lower Dauphin School Board Policy 103 declares it to be the policy of this district to provide an equal opportunity for all students to achieve their maximum potential through the programs and activities offered in the schools without discrimination on the basis of race, color, age, creed, religion, sex, sexual orientation, ancestry, national origin, marital status, pregnancy or handicap/disability. The Board also declares it to be the policy of this district to comply with federal law and regulations under Title IX prohibiting sexual harassment, which is a form of unlawful discrimination on the basis of sex. Such discrimination shall be referred to throughout this policy as Title IX sexual harassment. Inquiries regarding the application of Title IX to the district may be referred to the Title IX Coordinator, to the Assistant Secretary for Civil Rights of the U.S. Department of Education, or both. The district is committed to the maintenance of a safe, positive learning environment for all students that is free from discrimination by providing all students course offerings, counseling, assistance, services, employment, athletics and extracurricular activities without any form of discrimination, including Title IX sexual harassment. Discrimination is inconsistent with the rights of students and the educational and programmatic goals of the district and is prohibited at or, in the course of, district-sponsored programs or activities, including transportation to or from school or school-sponsored activities. Violations of this policy, including acts of retaliation as described in this policy, or knowingly providing false information, may result in disciplinary consequences under applicable Board policy and procedures.

**In closing, my philosophy is having an open and honest line of communication between myself and my students. If there is anything you need or have questions about, please ask.**