

BIOLOGY B

SAUGATUCK HIGH SCHOOL

BRAD SMIT

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“Almost all aspects of life are engineered at the molecular level, and without understanding molecules we can only have a very sketchy understanding of life itself”

- Francis Crick, co-discoverer of the DNA molecular shape

GOALS OF THE COURSE

Biology literally means the study of life. Therefore, we will focus our class on the scientific study of living things, their actions and processes, how they relate to one another, and how they interact with and function in their environment. There will be lab experiences you have not had in the past and you may get a little messy at times. In the end, my hope is that you will learn much about the living world and gain a new respect for how the living world works.

This course supports the following goals for students:

- understand major biological concepts;
- understand the role, place, and interactions of humans in the biosphere;
- appreciate the diversity of living systems;
- demonstrate mastery of the process of science inquiry;
- use such cognitive skills as critical thinking, problem solving, and ethical analysis;
- understand that science is a way of knowing and that technology is a way of adapting;
- understand the personal, social, and ethical implications of biology and biotechnology and
- use educational technologies as tools for learning.

Teaching Philosophy

My approach to education is constructivist in nature and relies on inquiry to support learning. I believe deep learning occurs when students are constructing their knowledge in the midst of solving a problem or working towards a larger goal or essential question related to the unit topic. This usually translates into project-based learning. I believe all students can learn, and learn best when they are appropriately challenged with interesting real world issues and problems. To accommodate this style of learning, I see my role as a teacher as more of a guide to discovery of knowledge rather than that of an all-knowing transferor of knowledge. I prefer to help students find the answers they seek, rather than simply give them answers.

COURSE OUTLINE

The curriculum for SHS Biology is based on the National Science Education Standards and the science benchmarks established by the state of Michigan. Biology B focuses on the major organic molecules that make up cells and living things, cellular processes, genetics and the function of DNA, and how all of these are manifested in the process of biological evolution.

UNIT 1 – Organic Molecules of Living Things

All living things are made of similar atoms and molecules serving the same functions many times with in different species. Carbohydrates, proteins, lipids and nucleic acids will be the focus of the unit.

UNIT 2 – Cell Theory History and the Function of Cells

Our understandings of cells and how they function will be emphasized in this unit as well as the general characteristics and function of cell organelles of plants and animals.

UNIT 3 – Cellular Processes

How cells function in terms of their maintaining cellular homeostasis and how they continually replicate themselves by means of mitosis and meiosis is the focus of this unit.

UNIT 4 – Structure and Function of DNA

DNA is the language of life. The molecules intricate structure and function will be learned as well as the types of mutations that vary its structure and the proteins it codes for.

UNIT 5 – Genetics

Gregor Mendel's principals will be learned in this unit as you discover how the genes on your DNA that code for specific traits are passed from one generation to the next.

UNIT 6 – Evolution

Your understanding of the molecules you are made of, the DNA that determines how those molecules are used, the genetic principals of inheritance of traits and the ways that mutations alter these steps is all summarized in the understanding of biological evolution. Charles Darwin's principals of natural selection will be learned as well as the many evidences since Darwin's time that further support evolutionary theory.

Student Assessment

Not all homework or assignments are worth the same value. Some are graded, some are not. Some may be considered credit or no credit, and some will be worth varying amounts of points. Still others may be returned to you with comments only. All of the assignments are designed to help you master the material we are covering and to help you LEARN the subject matter, not EARN a grade. When you start to view assignments this way, it will be much easier for you to do well on the very important end of course and unit assessments and state tests and you will find you probably have achieved your desired grade.

Grades are determined approximately every 11 weeks, at the end of each trimester, using the grade scale in the student handbook and the criteria below:

Formative Feedback: Will be provided verbally and as comments on student work and is designed to inform students of how they can better master specific learning targets. M = mastery, PF = proficient, PG = Progressing, Beg = beginning. Your goal is to achieve proficiency for your target. Mastery will reflect knowledge beyond expectations.

10% Daily Learning Tasks (PowerSchool Label – Homework):

- Worksheets and various homework tasks such as bell ringers, study guides and practice problems completed in your Google Journal.
- Type 1 writings (all or none), and Type 2 writings.

30% Application and Performance Tasks (PowerSchool Label – Quiz):

- Labs and Lab write-ups, article reviews and other various performance assessments
- Type 3 Writings for display of knowledge and critical thinking.

40% Tests and Projects [Summary Assessments] (PowerSchool Label – Test):

- End of unit tests covering one or more chapters related to the unit topic or theme.
- Unit projects that act as the final assessment of knowledge for that unit's subject matter.

20% Trimester Exam:

- Comprehensive assessment of knowledge from the entire trimester. Multiple choice and vocabulary questions in a standardized test format that is approximately 75-100 questions.

MAKE UP TASKS

If a student has an excused absence, they have one day for each day absent to make up any assignment assigned on the day(s) they were absent. All tasks assigned prior to the absence is to be turned in on the day the student returns.

ATTENDANCE & TARDY POLICY

I will follow the guidelines stated in the school handbook for both tardiness and attendance. The office staff will always determine whether an absence is excused or unexcused. If a student's absence is declared "unexcused", **NO** credit will be given for any missed assignments – including major projects, papers, and tests!

BIOLOGY MATERIALS:

Students will need to purchase a **THREE RING BINDER & A SET OF 3 DIVIDERS and a composition book/journal**. The binder should be at least 1.5" to 2". This binder will be used for organizing the student's work. The binder and dividers are to be used exclusively for Biology and the organization will be the same amongst all Biology students. These materials need to be in class as soon as possible.

*It is suggested that **PARENTS** should regularly ask to see their student's binder. By looking at the student's assignments and graded tasks you should be able to clearly see what work is being done in class and this should help you to check to see if your student is keeping up. In addition, PowerSchool will always be a great way to check on student progress.*

CLASSROOM EXPECTATIONS AND POLICIES

1. Exhibit a positive attitude towards learning. It is your education; please make the most of it!
2. Show RESPECT, at all times, for other people and their property. Disrespectful behavior will NOT be tolerated!
3. Academic honesty is expected at all times! Students demonstrating academic dishonesty (cheating and plagiarism) will lose credit for the assignment. Multiple offenses of this policy may lead to loss of credit in the course.
4. Be to class on time and prepared to for the day with your textbook, binder, and a writing utensil.
5. No food or drink (except bottled water) should be in the classroom.

6. Per school policy, cell phones, iPods, your Chromebooks and other internet devices will only be allowed if they are A) for educational purpose and B) approved by me to be used at that time. If they are used outside these 2 conditions, they will be confiscated and turned in to Mr. Travis along with the appropriate AUP violation.
7. Follow all laboratory safety procedures. The laboratory area is an area that you must be on your best behavior for your safety and the safety of your fellow classmates.
8. When all else fails – USE COMMON SENSE!

BACKGROUND ON MR. SMIT

This is my 18th year at Saugatuck High School. I have lived in the area since 1989 and spent many summers here before that. My family and I have lived in the district for over 35 years and we are proud to send our children to Saugatuck Public Schools. There are very few better places to raise a family.

I received my Bachelors of Science degree and my Masters of Education in Biological Sciences from Grand Valley State University. In addition to teaching Biology courses at Saugatuck High School, I have been active as the JV and Varsity Golf coach and have been a class sponsor.

In my spare time, I seek opportunities to be in the outdoors to interact with our natural surroundings. I feel blessed to live in the Great Lakes region of the world and to live and work in the Saugatuck area. We live in a unique ecosystem found nowhere else on earth and I simply love playing in it.

I look forward to another rewarding year with the young people of our community.

To Contact Mr. Smit

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