

Science Department Mission Statement:

Students will be able to understand, interpret, and apply scientific problem solving methods along with inquiry-based skills to novel situations.

General Overview:

Science by its nature is an international endeavor. Scientists work and communicate with each other throughout the world. While in practice the scientific method may take on a wide variety of forms, it will generally involve the formation, testing, and modification of hypotheses, through observation and measurement, under controlled conditions of an experiment. This along with the falsifiability of scientific hypothesis, distinguishes the sciences from other disciplines.

The IB Biology program is a rigorous two-year pre university course which meets the needs of highly motivated secondary school students. Students will develop a secure knowledge and a broad general understanding of Biology and how the international community has contributed to scientific discoveries over the years. In addition, they will be able to apply this general understanding as widely as possible using the scientific method.

There are four major biological concepts which run throughout this course.

1. **Structure and Function:** What structures permit some functions while, at the same time limit others?
2. **Universality versus Diversity:** How are universality and diversity interrelated? How are the same processes and molecules used differently by different organisms?
3. **Equilibrium within systems:** What checks and balances exist both within living organisms and within ecosystems?
4. **Evolution:** How does evolution unite all the themes in Biology?

Each student is required to complete 240 hours of instruction in these major areas, which includes 60 hours of lab work.

Cell Biology, Biochemistry, and Genetics are covered junior year.

Physiology, Ecology, and the Optional Categories are covered senior year.

Course Objectives: It is the intention of the IB Biology program that students should be able to:

1. (Standards 1, 4, 6) demonstrate an understanding of
 - a. scientific facts and concepts
 - b. scientific methods/techniques
 - c. scientific terminology
 - d. methods of presenting scientific information
2. (Standards 1, 2, 4, 7) apply and use
 - a. scientific facts and concepts
 - b. scientific methods/techniques
 - c. scientific terminology to communicate effectively

- d. appropriate methods to present scientific information
3. (Standards 1 and 2) construct, analyze, and evaluate
 - a. hypothesis, research questions and predictions
 - b. scientific methods/techniques and procedures
 - c. scientific explanations
4. (Standards 1, 2, 4, 7) demonstrate the personal skills of cooperation, perseverance, and responsibility appropriate for effective scientific investigation and problem solving
5. (Standards 1,2,4,6,7) demonstrate the manipulative skills necessary to carry out scientific investigation with precision and safety.

Text: Biology, Raven, Johnson, Losos, Mason, and Singer 8th Edition (2008) w/ study guide

Homework: All assignments are graded. The importance of an assignment is reflected in its point value. For example, a 50 point assignment is 5 times more important than a 10 point assignment. All homework is due by the day of the test that info appears. Any work not turned in by then will result in a zero for that assignment. Students are also expected to review their notes daily and bring any questions to class the next day.

Grading: Grades are determined by the total percentage of points obtained for all assignments, quizzes, and tests given during each quarter. Any test not made up within 1 week after it is given will result in a zero. Grades are not curved, and the final course grade is determined from the average of the four quarters. The final exam grade is averaged in the fourth quarter. (Juniors)

A	92 and above	C	74-82
B	83 – 91	D	65-73
	F		Below 65

Extra Credit: One extra credit assignment is allowed per quarter. It adds 5 points to your total point score. It can only be submitted if **all** other work including test corrections has been completed. Incomplete test corrections receive **no credit**.

Major assignments and/or projects:

Students are required to complete a Group IV project, which is a collaborative effort between Biology and Physics students. This accounts for 17% of their lab work. In addition to this project, students are required to complete another 50 hours of lab work. In completing the Group IV project and additional lab work, students are required to design, perform, and analyze their own experiments. There are very strict guidelines governing lab work in the IB program. If all labs are not complete, students run the risk of receiving a very low IB grade (or no grade at all) at the end of their senior year, since the lab grade contributes 25% to their final grade and the IB final is the other 75%.

Methods of communication: Periodic reports, student and parent conferences, phone calls.
My school **email** is **AScarozza@buffaloschools.org**

Extra Help: Open door policy. Students can come for extra help at anytime.