

Science IB Courses

PIB Biology

302

Faculty: Ms. Sachs, Mr. Title

(Gr: 9, full year, weighted 4.5)

Prerequisite: Admission to PIB program

Fee: \$5

This course is similar to CP Biology but is intended to prepare students for IB Biology. Students will become familiar with the growing field of biochemistry as they learn about the molecules of life, enzyme activity, photosynthesis, cellular respiration, DNA replication, and protein synthesis. They will explore the relationship between structure and function as they learn parts of plant and animal systems and cells. Students will note the unity of life, and its diversity, as they study mitosis, genetics, evolution, and taxonomy. Other emphases in PIB Biology will be planning an investigation, becoming familiar with scientific notation and significant digits, analyzing data, checking validity of conclusions, and writing lab reports

IB Biology 11 (HL)

285

Faculty: Ms. Sachs

(Gr. 11, full year, weighted 5.0)

Prerequisite: Admission to IB. PIB Biology, PIB Chemistry/Physics

Fee: \$5

IB Biology 11 is an investigation-based science class that studies life at its varied levels, with an emphasis on written communications. Living systems are explored from the molecular level to the global level, including the biochemical processes for life, cellular structure and function, homeostasis, genetics and genetic engineering, evolution, taxonomy and comparative anatomy, reproduction and development, environment and ecosystems, population studies and the structure and function of human systems. Labs and a project are required for this classes.

IB Biology SL

287

Faculty: Mr. Title

(Gr: 11 or 12, full year, weighted 5.0)

Prerequisite: Acceptance into IB, PIB Biology, PIB Physics/Chemistry

Fee \$10

IB Biology SL is an investigation-based science class that studies life at its varied levels with an emphasis on written communication. Living systems are explored from the molecular level to the global level. Investigations for this course cover the biochemical processes for life, cellular structure and function, homeostasis, genetics and genetic engineering, evolution, taxonomy and comparative anatomy, reproduction and development, population studies, environment and ecosystems, and the structure and function of human systems. Labs, dissections, and a project are required for this class. The same general topics are covered in SL and HL, but each topic is studied in greater depth and breadth in the two-year HL class.

IB Biology 12 (HL)

288

Faculty: Ms. Sachs

(Gr: 12, full year, weighted 5.0)

Prerequisite: IB Biology 11

Fee \$10

IB Biology is the second year of the two-year Biology HL course. This is an investigation-based science class that studies life at its varied levels, with an emphasis on written communication. Living systems are explored from the molecular level to the global level. Investigations for this second year of the two-year course cover the biochemical processes for life, homeostasis, plant biology, evolution, taxonomy and comparative anatomy, reproduction and development, and the structure and function of human systems. Labs and dissections are required for this class. The same general topics are covered in SL and HL, but each topic is studied in greater depth and breadth in the HL class.

PIB Chemistry/Physics

303

Faculty: Ms. Brown

(Gr: 10, full year, weighted 4.5)

Prerequisite: admission to PIB program, PIB Biology

Fee: \$5

This course is one semester of chemistry and one semester of physics. It is designed to prepare students for IB Chemistry, IB Physics, and/or IB Biology. The course will introduce scientific problem solving, analytical thinking, and computer interfacing and data analysis. Chemistry topics include atomic theory and stoichiometry. Physics topics include mechanics and energy. Labs with written reports are required.

IB Chemistry 11

286

Faculty: Ms. Broestl

(Gr: 11 or 12, full year, weighted 5.0)

Prerequisite: Acceptance into IB, PIB Physics/ Chemistry or CP Chemistry

Fee \$5

IB Chemistry 11 is an investigation based science class. Chemical systems are studied from the aspect of electron configuration, energetic, kinetics, oxidation-reduction; organic chemistry, fuels and energy and human biochemistry. Labs and a project are required. This class will complete requirements for IB Chemistry SL or the first year of IB Chemistry HL.

IB Chemistry HL

289

Faculty: Ms. Broestl

(Gr: 12, full year, weighted 5.0)

Prerequisite: IB Chemistry 11

Fee \$5

IB Chemistry HL is the second year of the two year Chemistry HL offering. This is an investigation-based science class. Chemistry topics that are covered in greater depth than in IB Chemistry 11 include atomic theory, equilibrium, bonding, oxidation-reduction, organic chemistry and thermodynamics. Labs are required. This class will complete requirements for IB Chemistry HL.

AP/IB Physics

283

Faculty: Ms. Brown

(Gr: 11-12, full year, weighted 5.0)

AP prerequisite: Pre-Calculus/Calculus A plus CP Chemistry (grade of B or higher) or CP Physics.

Teacher permission required. Contact Ms. Brown for more information.

IB prerequisite: acceptance into IB, Pre-Calculus/ Calculus A. (Note: Can be taken concurrently with Pre-Calculus/ Calculus A.)

Fee: \$5

Advanced Placement/IB Physics B is a college level introductory course in algebra-based physics, lasting two semesters. The primary goal of this course is to provide a comprehensive introduction to

physics while using classroom techniques which will enhance the appreciation and understanding of science and its methods, the understanding of basic principles involved and the ability to apply these principles in the solution of problems. Topics covered in this class will include mechanics, kinetic theory and thermodynamics, electricity and magnetism, waves and optics, as well as topics of modern physics. Projects are required. This class will complete the requirements for IB Physics SL. AP students are expected to take the AP Physics B examination given every year by the College Board (optional for IB students).