



Course Syllabus

SY 2016-17

COURSE TITLE: Biology

PREREQUISITE: None

DESCRIPTION: In science, a special emphasis is placed on the research process in all grades. This includes making decisions about the generation and testing of ideas; prediction, measurement, data collection and representation; evaluation of sources of information; collaborative investigation; interpretation and communication of findings; evaluation and verification of findings and considerations relating to the social context of research. Students taking Biology gain detailed knowledge of living systems, especially at the biochemical level. Areas of investigation also include cellular organization, genetics, ecosystems and changes in organisms over time. The importance of science research is emphasized. Controlled experiments are performed and results are reported.

Note: Students enrolled in life science courses may participate in animal dissection. Students who decline to participate will be offered alternatives to dissection. A student's objection to participating in an animal dissection should be substantiated by a signed note from his or her parent or legal guardian.

MAIN TOPICS: Demonstrate proper use of compound and stereo microscopes, SI units, and experimental design.

Formulate hypotheses for problem solving.

Identify major organic compounds through structural formula and specific tests. Recognize their significance in relationship to bonding and chemical reactions.

Determine the relationship between structure and function in major cell organelles and their relevance in the life processes of diffusion, osmosis, and mitosis.

Distinguish between photosynthesis and respiration.

Demonstrate and understand genetic principles using Punnett squares, probability, and pedigrees in the inheritance of genetic traits and disorders.

Explain the relationship of DNA to heredity and evaluate the impact of genetic engineering on society, as in Bioethics and DNA fingerprinting.

Survey the scientific evidence for evolution. Understand the current and historical theories regarding the origin of life.

Use and design a taxonomic key.

Survey the diversity of living forms and how they perform life processes with emphasis on reproduction and development of organisms.

Understand the biotic and the abiotic factors which affect ecosystems, ecological succession, and biomes.

CREDIT INFO: 1 Credit. This course provides one of the credits required for the Standard or Advanced Studies Diploma.