

Plymouth Public Schools' Science and Technology/Engineering Program

Principles of Biomedical Science Course Syllabus

STE1032 Principles of Biomedical Science Honors

STE1033 Principles of Biomedical Science CP1

Full year course intended for 9th grade students worth 5 credits

Course Description

In the introductory laboratory course of the PLTW Biomedical Science program, students explore concepts of biology and medicine to determine factors that led to the death of a fictional person. While investigating the case, students examine autopsy reports, investigate medical history, and explore medical treatments that might have prolonged the person's life. The activities and projects introduce students to human physiology, basic biology, medicine, and research processes while allowing them to design their own experiments to solve problems. The prerequisites include enrollment in Biology and departmental recommendation.

Instructional Objectives

Students will independently and collaboratively:

1. Engage in scientific inquiry and engineering design through the use of science and engineering practices.
2. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to answer a question or solve a problem.
3. Draw evidence from literary or informational texts to support analysis, reflection, and research.
4. Produce clear and coherent writing in which the development, organization and style are appropriate to task, purpose and audience.
5. Demonstrate proficiency in phenomena related to the structures and processes of living things from molecules to organisms; the inheritance and variation of traits in heredity; biological evolution; energy, and engineering design.

Themes and Topics

1. The Mystery: influence of DNA's structure; role of DNA/chromosomes; and hierarchical organization
2. Diabetes: maintaining homeostasis; designing solutions; converting energy from one form to another; the chemistry of carbon, hydrogen, and oxygen; addressing the needs and wants of society; and evaluating solutions based on prioritized criteria
3. Sickle Cell Disease: influence of DNA's structure; use of computer simulations to model impact of proposed solutions; cellular division; role of DNA/chromosomes; inheritable genetic variations; and use of statistics and probability

4. Heart Disease: hierarchical organization; role of DNA/chromosomes; and designing solutions
5. Infectious Disease: hierarchical organization
6. Post Mortem: hierarchical organization; maintaining homeostasis

Text and Instructional Materials

[My PLTW](#) is used for communications and activities related to this course

Cheating/Plagiarism

The excerpt from the Plymouth Public Schools' Student Handbook on plagiarism and copyright infringement states, "Existing copyright law will govern the use of material accessed through network. The user will not plagiarize works found on the Internet. Plagiarism is taking the ideas or writings of others and presenting them as if they were yours. All copyrighted material used must have the express written permission of the person or organization that owns the copyright. Any student who has cheated on any academic exercise will receive no credit for that exercise. Plagiarism is a form of cheating. A parent/guardian will be notified by the involved teacher in all instances of cheating. The investigation of the claim of cheating and plagiarism will involve the student, teacher, and administration."

Grading Policy and Assessment

Levels of proficiency on various tasks and assignments determine student grades. During each grading term, students' grades will be based upon the following:

- 30% Homework
- 70% Assessments

The final year average will be calculated as follows:

- 22.5% Term 1 Grade
- 22.5% Term 2 Grade
- 22.5% Term 3 Grade
- 22.5% Term 4 Grade
- 10% Final Exam

Please note that instructors will differentiate course work for students in Honors and College Prep. This will include, but not be limited to assessments and individual/group assignments.