**Bio Medical Sciences Course Descriptions**

### Bio Medical Sciences Program Courses

**Principles of Bio Medical Sciences**

Grade 9

Credit 1

In this course, students explore concepts of biology and medicine as they take on roles of different medical professionals to solve real-world problems. Over the course of the year, students are challenged in various scenarios including investigating a crime scene to solve a mystery, diagnosing and proposing treatment to patients in a family medical practice, to tracking down and containing a medical outbreak at a local hospital, stabilizing a patient during an emergency, and collaborating with others to design solutions to local and global medical problems

**Human Body Systems**

Grade 10

Credit 1

Students examine the interactions of human body systems as they explore identity, power, movement, protection, and homeostasis in the body. Exploring science in action, students build organs and tissues on a skeletal Maniken®; use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary action, and respiration; and take on the roles of biomedical professionals to solve real-world medical cases.

**Medical Interventions**

Grade 11

Credit 1

Students follow the life of a fictitious family as they investigate how to prevent, diagnose, and treat disease. Students explore how to detect and fight infection; screen and evaluate the code in human DNA; evaluate cancer treatment options; and prevail when the organs of the body begin to fail. Through real-world cases, students are exposed to a range of interventions related to immunology, surgery, genetics, pharmacology, medical devices, and diagnostics.

**Bio Medical Interventions**

Grade 12

Credit 1

In the final course of the PLTW Biomedical Science sequence, students build on the knowledge and skills gained from previous courses to design innovative solutions for the most pressing health challenges of the 21st century. Students address topics ranging from public health and biomedical engineering to clinical medicine and physiology. They have the opportunity to work on an independent project with a mentor or advisor from a university, medical facility, or research institution.

### Anatomy and Physiology Honors-QPT: Course Reserved for Bio-Medical Sciences Program.

Grade Level 11-12

Credit 1

Prerequisite Biology I, Chemistry I, PBS, and HBS

This advanced course will cover essentially the same topics as regular anatomy and physiology but at higher levels of complexity, greater depth, and faster pace. The reading level will be higher and more reading will be required. Students will be required to use a higher level of vocabulary, do more writing, do more homework, and meet the standards of more challenging tests.

**Forensic Sciences**

Grade Level 12

Prerequisites Biology I, Chemistry I, PBS, HBS, and MI

**Science and Engineering Practices** (NRC *Framework for K-12 Science Education, 2010*)

* Asking questions (for science) and defining problems (for engineering).
* Developing and using models.
* Planning and carrying out investigations.
* Analyzing and interpreting data.
* Using mathematics, information and computer technology, and computational thinking.
* Constructing explanations (for science) and designing solutions (for engineering).
* Engaging in argument from evidence.
* Obtaining, evaluating, and communicating information.