

**Course Name:** Medical Interventions

**Duration:**  1 Semester  Full Year

**Grade Level:**  9th  10th  11th  12th (check all that apply)

### Are there any prerequisites for the course?

Students will be prepared for success in this course if they have already completed a year of chemistry and biology. Ideally, students will have also taken the first- and second-year Biomedical Sciences courses, but that is not necessary to enroll in Medical Interventions.

### WHAT this course is about:

This course investigates the biology of human diseases and disorders in a variety of ways. Students will learn about viral and bacterial infectious diseases, the immune system, genetic disorders, cancer, and the ways that medical interventions are used to treat and diagnose these conditions.

### WHY take this course:

This course provides you with a background in the foundations of medicine and gives you an opportunity to learn lab skills that are not available in any other course. The course introduces you to a wide range of topics and gives you the opportunity to see how the fundamental biology and chemistry you have learned is used in the medical field. The course complements other AP sciences, especially AP Biology, very well. Students who take this course will also be prepared to take an industry recognized certification test, the Biotechnician Assistant Certification Exam (BACE) at the end of the year.

### WHAT you'll learn:

- Fundamentals of infectious diseases and their treatments
- Fundamentals of genetic disorders
- What CRISPR is and how it may revolutionize medicine
- Fundamentals of cancer and how it is treated
- Fundamentals of biotechnology and molecular biology and their applications in medicine

### WHAT you'll do:

You will complete a wide range of lab activities over the course of the year while investigating case studies across numerous health and disease related scenarios. You work with bacteria and antibiotics, learn how to purify and study DNA, do multiple experiments using polymerase chain reaction (PCR), genetically modify bacteria to glow in the dark, complete an experiment using CRISPR to disable a gene in bacteria, learn how to suture wounds, analyze DNA using gel electrophoresis, complete a protein purification experiment, and much more.

### **WHERE this could take you:**

This course is a great option for juniors or seniors considering a major in the biological or medical sciences. The experiments that are completed in this course will give you the real-world lab skills that will prepare you not only for your college lab courses, but also for many jobs in the medical and research sciences. Students will be well prepared for taking an industry recognized certification exam that can open some exciting employment opportunities for students who want to enter the workforce after high school.

### **OPTIONAL Course Outline (“scope and sequence”, sequence chart, etc.)**

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