



## MEDICAL SCIENCE

Assumption High School's Medical Science Pathway offers students a rigorous and comprehensive foundation in health and medicine through in-depth coursework in anatomy, biology, and chemistry. This academic pathway is further enriched by the AP Research program, where students have the opportunity to explore and investigate a medical topic of their choice. By combining theoretical knowledge with hands-on research, students not only develop a strong understanding of medical science but also gain critical-thinking, analytical, and communication skills. This interdisciplinary approach equips students with the tools necessary for success in future medical, nursing, or health science programs, providing a well-rounded preparation for careers in the healthcare field.

**FOUNDATIONAL COURSES** of Biology, Chemistry, and Physics

### **PATHWAY COURSES:**

**AP BIOLOGY II** - This intensive course includes a detailed study of molecular biology, explores the role of genetics in evolution, and includes a comparative study of microorganisms, plants, animals, physiology, and their impact on the environment.

**AP CHEMISTRY II** - This course builds heavily upon the foundation laid in Advanced Chemistry I and includes advanced topics in atomic structure, structure and properties of compounds, intermolecular forces, solubility, equilibrium, redox, kinetics, electrochemistry, and acid-base systems.

### **AP PHYSICS C: MECHANICS**

Designed for engineers, this course explores concepts such as kinematics; Newton's laws of motion, work, energy, and power; systems of particles and linear momentum; rotation; oscillations; and gravitation. Students will engage in hands-on laboratory work and in-class activities to investigate phenomena and use calculus to solve problems.

### **PROJECT LEAD THE WAY: PRINCIPLES OF BIOMEDICAL SCIENCE**

In this course, students explore concepts of biology and medicine as they take on roles of different medical professionals to solve real-world problems. 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, 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.

### **PROJECT LEAD THE WAY: HUMAN BODY SYSTEMS**

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.

### **ANATOMY AND PHYSIOLOGY**

This lab course investigates the structure and function of the tissues, organs, and systems of the human body. Lab experiments and dissections are required.

### **AP RESEARCH**

This course is the second course in the AP Capstone Diploma Program. Students design, plan, and conduct a yearlong research-based investigation using a variety of research methods from multiple perspectives. The project can build on a topic, problem, or issue covered in AP Seminar or on a new topic of the student's choosing. At the end of the project, students will submit a 4,000-5,000 word academic paper as well as complete a presentation and oral defense of the research findings to a panel. Students complete research ethics training and employ ethical practices in their research processes. The academic paper and presentation and oral defense components contribute to the overall AP Research score.

### **CLUBS & INVOLEMENT**

- Participate in one of our medically focused clubs: National Science Honor Society or the Future Physicians of America
- Complete a job shadow experience with a healthcare professional—such as a physician, nurse, medical technician, or public health specialist—to gain firsthand exposure to clinical environments, patient care, and the daily responsibilities of medical science careers.
- Attend career-related sessions that introduce students to various medical science fields, healthcare systems, and emerging trends in medicine.
- Participate in the Seeds of Change Costa Rica research trip.