

Discover PLTW – BIOMEDICAL SCIENCES

Industry Overview

Whether discovering new cancer treatments or teaching healthy lifestyle choices to their communities, today's biomedical science professionals are tackling big challenges to make the world a better place. PLTW Biomedical Science students are taking on these same real-world challenges — and they're doing it before they even graduate from high school. Working with the same tools used by professionals in hospitals and labs, students engage in compelling, hands-on activities and work together to find solutions to problems. Students at Ross High School are engaged in active classrooms which promote an interest in a highly engaging career pathway.

Student Organization

Students enrolled in the Butler Tech PLTW Biomedical Science Program at Ross High School are eligible to participate in HOSA. HOSA is an international student organization that provides a unique program of leadership development, and motivation for students who possess interests in health, science and medicine. The mission of this organization is to develop skills and knowledge to prepare the next generation of health science professionals. Members are encouraged to learn and to develop the skills necessary to help them achieve future goals. As an active member of RHS HOSA, students will have the opportunity to participate, and to serve as a positive representative for our school, community & student organization through participation in activities such as:

- Annual HOSA service project
- Local, state and international competitions
- Team and community building activities
- Volunteer opportunities

"Biomed made school fun again. It's a great class packed with knowledge, that will give you a head start on your peers in other science classes!"



Coursework

- Principles of Biomedical Sciences
- Human Body Systems
- Medical Interventions
- Biomedical Innovations



Butler Tech Course Offerings at Ross

Principles of Biomedical Sciences

In this comprehensive introductory course of the PLTW Biomedical Science Program, students will explore the vast range of careers in biomedical sciences, from design and data analysis to clinical empathy and health promotion. Blending elements of Grey's Anatomy and CSI, the course challenges students to take on the roles of various medical professionals as they solve real-world problems. They will engage in scenarios such as investigating crime scenes, diagnosing and treating patients, managing outbreaks, and stabilizing emergencies.

Throughout the year, students will use professional medical laboratory procedures, equipment, and protocols, conducting problem-based studies and applying scientific methodologies. Emphasis is placed on both technical skills and critical transportable skills like communication and collaboration. In addition, students will develop professional and ethical behavior, gaining the tools they need to thrive in both life and career.

Human Body Systems

In this hands-on biomedical course, students explore the intricate interactions of human body systems through real-world scenarios and case studies. They will diagnose and treat patients in various settings, including outpatient centers and adventure medicine trips, while also conducting research on development and aging. Through engaging projects, students will build organs and tissues on a Manikin® model, use data acquisition software to monitor body functions such as muscle movement, reflexes, and respiration, and analyze how body systems respond to physical activity, disease, and aging. Acting as biomedical professionals, students will collaboratively solve medical mysteries and evaluate clinical consequences by analyzing both normal and abnormal physiology. This course offers a comprehensive understanding of the human body while preparing students for real-world medical challenges.

Medical Interventions

In this comprehensive course, students embark on an exploration of biomedical interventions while following the life of a fictitious family. They investigate methods to prevent, diagnose, and treat diseases, gaining hands-on experience through projects such as designing a prosthetic arm. Students will delve into real-world scenarios to understand how to detect and combat infections, screen and evaluate human DNA, and explore cancer treatment options. Additionally, students will perform biomolecular analysis that emphasizes nucleic acid structure and function, including DNA replication, transcription, translation, and gene regulation in both prokaryotic and eukaryotic cells. This course aims to empower students with the knowledge and skills necessary to understand and apply medical interventions that extend and improve the quality of life. Key topics include immunology, surgery, pharmacology, medical devices, and supportive care, as well as advanced genetic principles.

Biomedical Innovations

In this comprehensive capstone course, students will build on the knowledge and skills acquired in previous biomedical studies to tackle pressing health challenges of the 21st century. Students will engage in designing innovative solutions while addressing complex, open-ended problems across various domains, including clinical medicine, physiology, biomedical engineering, and public health. They will explore advanced techniques for extracting and analyzing biomolecules such as carbohydrates, lipids, and proteins, and will gain hands-on experience in diagnostic assays to detect pathogens.

Throughout the course, students will have the opportunity to work on an independent project, potentially collaborating with mentors from universities, hospitals, or industry, thereby bringing academic knowledge with real-world applications in the biomedical sciences.

Discover PLTW –
BioMedical Sciences
through Butler Tech and
pursue a career that's
right for you.

Butler Tech connects high school students to career technical education in more ways than ever. Complete your traditional academic courses in your school and enhance your educational experience with career-focused labs and on-the-job training. Each moment in a Butler Tech career technical course is a step toward building your future.



See your guidance counselor
for registration information.

ButlerTech.org
Follow Us @ButlerTech

