

NEW BRITAIN HIGH SCHOOL HEALTH ACADEMY

The objectives of the Medical Careers Program are:

1. To have students develop an understanding of the theory, concepts, technical knowledge and analytical abilities that will enable them to deliver healthcare in hospitals, nursing homes, clinics, and in the home where sick, injured, and disabled people are treated and cared for.
2. To acquire the psycho motor and competency skills needed to successfully deliver healthcare.
3. To stimulate the student to seek further education and knowledge in the field of healthcare.

Please note that health academy courses may fulfill the graduation requirement for STEM.

Pathway 1 (Honors) - PLTW

Grade 9/10

581 – **BMS 1:** Principals of the Biomedical Sciences

Grade 10/11

551 – **BMS 2:** Human Body Systems *Note: Students completing PBS 581 have priority enrolling in HBS.

Grade 11/12

501 – **BMS 3:** Medical Interventions - must have taken BMS 1 or 2

Grade 12

511 – **BMS 4:** Biomedical Innovation - must have taken 2 BMS classes prior

Pathway 2 (Accelerated) – HealthCare Science (HCS) - Career Exploration

Grade 9

768 – **HCS 1:** Discover Healthcare

Grade 10

782 – **HCS 2:** Principles of Healthcare Science

Grade 11

784 – **HCS 3:** Advanced Healthcare Career Exploration

Grade 12

792 – **HCS 4:** Practicum in Healthcare – Clinical Rotations

Additional Courses

Grade 11/12

786 Exploration of Allied Health Programs

Grade 12 (11)

764 Nursing Assistant

Grade 12 (11)

766 Hospital Training

PATHWAY 1 (HONORS) – PROJECT LEAD THE WAY BIOMEDICAL SCIENCE (BMS) PROGRAM

The PLTW Biomedical Sciences (BMS) Program is a sequence of courses, all aligned with appropriate national learning standards, which follow a proven hands-on, real-world problem-solving approach to learning. Students explore the concepts of human medicine and are introduced to topics such as physiology, genetics, microbiology and public health. Through activities, like dissecting a heart, students examine the processes, structures and interactions of the human body – often playing the role of biomedical professionals. They also explore the prevention, diagnosis and treatment of disease, working collaboratively to investigate and design innovative solutions to the health challenges of the 21st century such as fighting cancer with nanotechnology.

Throughout BMS, students acquire strong teamwork and communication practices, and develop organizational, critical-thinking, and problem-solving skills. Along the way students investigate a variety of careers in biomedical sciences.

The program is designed to prepare students to pursue a post-secondary education and career in the biomedical sciences.

Taking all four BMS courses may qualify a student for up to 12 college credits.

581 BMS 1 – PRINCIPLES OF BIOMEDICAL SCIENCES  **Honors*****1 Credit**

Grade 9 &10

Students investigate the human body systems and various health conditions including heart disease, diabetes, sickle-cell disease, hypercholesterolemia, and infectious diseases. They determine the factors that led to the death of a fictional person, and investigate lifestyle choices and medical treatments that might have prolonged the person's life. The activities and projects introduce students to human physiology, medicine, research processes and bioinformatics. This course is designed to provide an overview of all the courses in the Biomedical Sciences program and lay the scientific foundation for subsequent courses. Students may receive college quality points for receiving at least an 80% average in the course and a 6 or higher on the PLTW End of Course exam. Principles of The Biomedical Sciences qualifies for one honors credit as part of the 3-credit graduation requirement for a life science course.

551 BMS 2 - HUMAN BODY SYSTEMS  **Honors*****1 Credit**

Students completing PBS 581 have priority enrollment in HBS

Grade 10, 11

Students examine the interactions of body systems as they explore identity, communication, power, movement, protection, and homeostasis. Students design experiments, investigate the structures and functions of the human body, and use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary action, and respiration. Exploring science in action, students build organs and tissues on a skeletal manikin, work through interesting real world cases and often play the role of biomedical professionals to solve medical mysteries.

Students may qualify for AP quality points for receiving at least an 80% average in the course and a 6 or higher on the PLTW End of Course exam. Human Body Systems qualifies for one honors credit as part of the 3-credit graduation requirement for a life science course.

501 BMS 3 - MEDICAL INTERVENTIONS  **Honors*****1 Credit**

Grade 11 and 12

Prerequisite BMS 1 or BMS 2

Students investigate the variety of interventions involved in the prevention, diagnosis and treatment of disease as they follow the lives of a fictitious family. The course is a "How-To" manual for maintaining overall health and homeostasis in the body as students explore: how to prevent and fight infection; how to screen and evaluate the code in human DNA; how to prevent, diagnose and treat cancer; and how to prevail when the organs of the body begin to fail. Through these scenarios, students are exposed to the wide range of interventions related to immunology, surgery, genetics, pharmacology, medical devices, and diagnostics. Lifestyle choices and preventive measures are emphasized throughout the course as well as the important roles scientific thinking and engineering design play in the development of interventions of the future.

Students may qualify for AP quality points for receiving at least an 80% average in the course and a 6 or higher on the PLTW End of Course exam.

Medical Interventions qualifies for one honors credit as part of the 3-credit graduation requirement for a life science course.

511 BMS 4 - BIOMEDICAL INNOVATION  **Honors*****1 Credit**

Grade 12

Prerequisite BMS 2 and BMS 3

In this capstone course, students apply their knowledge and skills to answer questions or solve problems related to the biomedical sciences. Students design innovative solutions for the health challenges of the 21st century as they work through progressively challenging open-ended problems, addressing topics such as clinical medicine, physiology, biomedical engineering and public health. They have the opportunity to work on an independent project and may work with a mentor or advisor from a university, hospital, physician's office, or industry. Students will be expected to present the results of their work to an adult audience, which may include representatives from the local healthcare or business community or the school's PLTW® partnership team.

Students may qualify for AP quality points for receiving at least an 80% average in the course and a 6 or higher on the PLTW End of Course exam. Medical Interventions qualifies for one honors credit as part of the 3-credit graduation requirement for a life science course.

768 Healthcare Science 1 (9th grade)**Accelerated****½ Credit**

Grade 9

This course teaches students about the evolution of the healthcare industry and helps them to develop leadership skills. Through the course, students will build a foundation of medical terminology and basic anatomy, as well as wellness and health promotion concepts. They will explore the range of healthcare professions, develop life skills and have the opportunity to engage in career planning. Students will learn to view healthcare from the perspective of both the consumer and as future healthcare professionals. The course will introduce students to the Health Occupation Students of America (HOSA) organization.

782 Healthcare Science 2 (10th grade)**Accelerated*****1 Credit**

Grade 10

Students who have taken HCS1 have priority enrollment in HCS2

This course is designed to introduce students to the various aspects of and career opportunities in healthcare. Healthcare is a large and growing employment sector and requires a workforce with diverse talents. Topics to be covered in this course include, but are not limited to, the terminology of healthcare; an overview of the varied healthcare occupations; basic principles and dimensions of healthcare. Experiences such as site visits, job shadows, hands-on and

E-learning will be integrated as appropriate. Students will be introduced to professional organizations that represent the various healthcare professions and are encouraged to join the Health Occupations Students of America (HOSA). Students will be involved in any or all of the following activities: career exploration, field trips to healthcare organizations, laboratory experiences, job shadowing, service learning and speak with healthcare professions role models. Students will participate in a health themed team project that will be presented at the spring NBAHP Health Fair.

784 Healthcare Science 3 (11th Grade)**Accelerated****1 Credit**

Grade 11

Prerequisite: HCS 2 (Recommended)

This specialized course is designed to prepare potential health care workers, preferably juniors and seniors, for performance in an advanced technical or professional health career. Emphasis is placed on professional development, communications, safety, bioethical/legal practices, healthcare delivery systems, assessment and diagnostic practices, health maintenance practices, and problem-solving and decision-making. Students will explore in-depth the critical job categories/occupations identified by our primary healthcare partners, Hospital for Special Care and The Hospital of Central Connecticut. Careers and occupations currently in greatest demand, those that will meet anticipated future needs, and those that are difficult to fill when openings occur such as nursing, physical therapy, respiratory therapy, pharmacy, radiology and nuclear medicine technicians and others will be explored. In addition, students will have the opportunity to learn more about certificate programs that can be achieved while in high school or soon after graduation. Skills in mathematics, science, and communications are reinforced in this course. Work-based learning strategies include the development of individualized clinical skills specifically related to a selected mentorship with an exemplary health professional. HOSA activities support networking with health care agencies and professionals through the development of clinical expertise and volunteerism

792 Healthcare Science 4 (12th Grade)**Accelerated****1 Credit**

Grade 12

Prerequisite: HCS 2 and HCS 3 Required

This multidisciplinary senior level health science course exposes students to 9 weeks of stimulating, challenging, and dynamic experiences in a variety of healthcare settings. The course includes didactic and practical experience. Based on career interests, students will participate in unpaid internships at selected healthcare facilities, such as Hospital for Special Care, The Hospital of Central Connecticut, the University of Connecticut Health Center, Community Health Center, Inc., and other practice settings. Students are responsible for their own transportation to facilities. They will assist in the selection of clinical sites and will observe healthcare professionals in a minimum of three specialties, one of which will be the focus of their capstone project. They will be able to assist in delivery of patient care to the extent allowed by law. Students will identify a mentor - a healthcare professional or a teacher - to guide them in their capstone project research which will culminate in a research paper, a poster presentation and PowerPoint slides.

ADDITIONAL HEALTHCARE COURSES

786 EXPLORATION OF ALLIED HEALTH PROGRAMS

Accelerated

½ Credit

Grade 11 (Grade 12, if space is available)

This course is designed to introduce students to the various allied health programs that lead to job opportunities in healthcare. Some of these programs can be started while in high school and be completed upon graduation. Others can actually be completed in the senior year. Some of the programs require an internship component, others do not. All programs will have a practical component. In this course students will explore all the programs offered through the Connecticut Community Colleges' Health Career Academy. This virtual model is designed to develop and disseminate health career information across all 12 community colleges and partner agencies, promote professional development and help students make informed educational and training decisions.

764 NURSING ASSISTANT (OCCUPATIONAL)

Accelerated

1 Credit

Prerequisite: Application required (available in room 117)

766 HOSPITAL TRAINING

Accelerated

½ Credit

Grade 11 & 12

Prerequisite: Application required (available in room 117)

764/766 is a combined two-semester course designed for all students who want to learn the medical principles, terminology, and competency skills of basic hospital patient care. It is highly recommended for the student interested in pursuing a medically oriented career such as a doctor, nurse, nursing assistant, physical or occupational therapist, X-ray technician or lab technician. The course focuses on learning the skills of a Nursing Assistant and participates in hospital based training at Hospital for Special Care, The Hospital of Central Connecticut, and local nursing homes under the direct supervision of a Registered Nurse instructor. You will learn how to deliver patient care, techniques used in CPR, the Heimlich maneuver, how to use thermometers, the Hoyer lift, and sphygmomanometers. The successful completion of academic work, and clinical training allows you to take the skills and computerized certification test, which is done through Prometric at New Britain High School, in the spring.

LAW, PUBLIC SAFETY AND SECURITY

788 FIREFIGHTING

Accelerated

1 Credit

Grades 11, 12

Meets five periods per week. This is a fundamental course in firefighting technology. The program will enable students to gain insight and understanding relative to career path preparation needed for firefighting and other related areas of public service. This includes the job of a paid or volunteer firefighter in cooperation with police and emergency medical technicians. A variety of instructional approaches including demonstrations, hands-on lab work, guest speakers, and research will be included. Students will apply math and science skills and will discuss social, political and environmental impacts relative to the field of firefighting. The Firefighting course will be taught under the auspices of a City of New Britain firefighter instructor and will also involve New Britain Emergency Medical Services personnel.