

Brewer High School
New Courses 2017-18* (Pending Budget Approval)

American Sign Language I

This course introduces the fundamental elements of American Sign Language within a cultural context. Emphasis is placed on the development of basic expressive and receptive skills. Upon completion, students will be able to comprehend and respond with grammatical accuracy to expressive American Sign Language and demonstrate cultural awareness.

STEM Program (Project Lead the Way)

Introduction to Computer Science

Collaborate to create mobile apps that make a difference in people's lives. Solve real people's needs and wants with your creativity. With a gentle introduction to programming, you will learn how to make computers work together to put your designs into practice. People who code are the magicians of the future, useful in any career. How will computing and connectivity give you superpowers? Students learn fundamental computer science (CS) concepts using MIT App Inventor. The course aims to develop computational thinking and build student excitement. Several days in each module are targeted to build career awareness about computing skills in all fields and to improve students' cyber hygiene.

Introduction to Engineering Design

Engineers make a world of difference! Students are introduced to the engineering design process, applying math, science, and engineering standards to identify and design solutions to a variety of real problems. They work both individually and in collaborative teams to develop and document design solutions using engineering notebooks and 3D modeling software. Are you ready to design the future?

Introduction to Engineering Design (IED) is a high school level foundation course in the PLTW Engineering Program. In IED students are introduced to the engineering profession and a common approach to the solution of engineering problems, an engineering design process. Utilizing the activity-project-problem-based (APB) teaching and learning pedagogy, students will progress from completing structured activities to solving open-ended projects and problems that require them to develop planning, documentation, communication, and other professional skills. Through both individual and collaborative team activities, projects, and problems, students will solve problems as they practice common engineering design and development protocols such as project management and peer review. Students will develop skill in technical representation and documentation of design solutions according to accepted technical standards, and they will use current 3D design and modeling software to represent and communicate solutions. In addition the development of computational methods that are commonly used in engineering problem solving, including statistical analysis and mathematical modeling, are emphasized. Ethical issues related to professional practice and product development are also presented.

Principles of Biomedical Science

In the introductory course of the PLTW Biomedical Science program, students explore concepts of biology and medicine to determine factors that led to the death of a fictional person. While investigating the case, students examine autopsy reports, investigate medical history, and explore medical treatments that might have prolonged the person's life. The activities and projects introduce students to human physiology, basic biology, medicine, and research processes while allowing them to design their own experiments to solve problems.

Dual Cell Biology

The Thomas College Dual Enrollment Cell Biology Course will focus on the study of the structure and function of the cell, in both uni-cellular and multi-cellular organisms. By the end of the course students will understand the structures and purposes of basic components of prokaryotic and eukaryotic cells, especially macromolecules, membranes, and organelles. Students will understand how these cellular components are used to generate and utilize energy in cells. Students will understand the cellular components underlying mitotic cell division. Students will apply their knowledge of cell biology to selected examples of changes or losses in cell function.

Dual Environmental Science

The Thomas College Dual Enrollment Environmental Science Course will focus on the theme that all systems involving life depend on maintaining balances. Topics investigated include population, land use, and energy policies; resource depletion; pests and pest control; and disposal of domestic and industrial wastes. The intent of this course is not to make you into a scientist but to enhance your understanding of the natural world.

By the end of the course the student will be able to :

- 1) Understand the processes of photosynthesis and respiration.
- 2) Explain the flow of energy and nutrients through an ecosystem.
- 3) Discuss the value of biodiversity.
- 4) Summarize the sustainability and environmental impacts of agriculture.
- 5) Summarize the sustainability, value and impacts related to forest resources.
- 6) Summarize the sustainability and value of freshwater resources.
- 7) Discuss the issues surrounding the possibility of human-induced climate change.

Dual Ecology

The Thomas College Dual Enrollment Ecology Course will investigate how the natural world works through examination of the basic components, functions, balances, and interactions of biology, geology, weather, and water. Students investigate a life-enhancing, ethical approach to the environment. The intent is not to make you into an ecologist but to enhance your understanding of the natural world and the New England landscape that you see every day.

By the end of the course the student will be able to:

- 1) Summarize natural selection's influence on evolution of species.
- 2) Identify the flow of energy and matter through an ecosystem.
- 3) Describe population characteristics and summarize the concept of carrying capacity.
- 4) Summarize the importance of competition, predation, and succession in communities.
- 5) Summarize components and functions in aquatic ecosystems.
- 6) Summarize the importance of conserving biodiversity.

Dual English 101

The Thomas College Dual Enrollment English Course will build upon your already acquired high-school writing skills to prepare you for the more advanced writing you will do in your college career and beyond. It gives you extensive practice in the writing process, with emphasis on crafting expository texts appropriate to academic contexts.

Dual Speech Communication 245

The Thomas College Dual Enrollment Speech Course emphasizes experiential learning. Topics include audience identification, topic development, purpose recognition, organization and delivery, use of props/visuals/technology, overcoming public speaking fears, and the importance of non-verbal communication and signals.