

HHS TODAY

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BIOTECH ENGINEERING AT HONONEGAH

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Biotech Engineering (BTE) is a new course introduced at Hononegah for the 2006-2007 school year. It is designed to expose students to the cutting-edge technology of genetic research and engineering. Currently, there are two sections averaging 26 students per class. Hononegah is only one of two high schools to offer this course in the State of Illinois. The class is part of the Project Lead the Way (PLTW) pre-engineering series of courses offered at Hononegah.

The majority of the curriculum focuses on the field of genetics; past, present, and future. Major topics include an introduction to Biotech Engineering, Bioinformatics, Alternative Energy, Environmental and Agricultural Engineering, and the Biomedical field.

The BTE course may be taken by 11th or 12th grade students as part of the PLTW sequence of courses or as an elective. Students should have experience in biology, chemistry, mathematics, and technology education. It is a project as well as a problem-based curriculum. Students in this course apply biological and engineering concepts to design materials and processes that directly measure, repair, improve, and extend living systems.

Students are required to keep a journal of all activities they complete in class. Working in groups is common, much like in most research settings. Students spend over half of their time in the lab setting researching topics and utilizing available technology.

During the first semester, students have calibrated lab equipment, researched Biotech Industries while playing a simulated stock market game, surveyed the student body on their impressions and knowledge of genetically modified organisms in their food, engineered scale DNA models and identified the source of a potential pathogen outbreak in a simulated scenario. Currently students are studying the popular field of Forensic Science. This field includes fingerprinting, hair sampling, and blood droplets. Second semester, students will engineer glowing bacteria by inserting DNA from a jellyfish into a common bacteria, create yeast-powered car models, design and build an aquaponics system, and explore the biomedical field while re-engineering prosthetic devices currently in use.

This class has been an eye-opening experience for some students because of the vast number of fields involved in Biotechnology Engineering. It affects everyone's daily lives from the food we eat, the fuel we use in our vehicles, the healthcare we receive, and the availability of potential careers. This is definitely a class students should consider taking if they are going to be a junior or senior and are interested in any of the topics discussed above.