

SCIENCE TECHNOLOGY ENGINEERING AND MATH (STEM) SEQUENCE

Lewiston-Porter Senior High School has put together a sequence of unique courses that focus on giving students exposure to real life signature experiences that promote inquiry and project based learning.

The goal of these courses is to immerse students into the diverse aspects of Science, Technology, Engineering, and Math. Students will develop and expand the skills necessary to be successful in career and higher education relating to the realm of STEM. Students will be prepared to lead and contribute to the evolving aspects of the field - utilizing a rigorous, performance-based, and multifaceted curriculum that unfolds a foundation of authentic learning experiences.

Students can begin participating in these courses as early as grade 9. There is a track that students will follow over a four year period if they wish to get recognition for the sequence. Some of the courses that are offered can be taken as free electives while other courses do have prerequisites that must be taken prior to acceptance into the course.

Credit for these courses do not substitute for Regents level courses in Math and Science, these courses would be taken in addition to those courses.

STEM Sequence Courses

Environmental Science and Biotechnology (3022)

This STEM-based course explores the world of biotechnology, including the basics of microbiology, bio-processing, genetic engineering, and biotechnology careers as well as examining the role of biotechnology in the medical field. Bioengineering, forensics and food biotechnology are also topics students will explore. This course also is a general introduction to sustainability and renewable energy. Often as individuals, we do not understand the impact of simple choices we make every day. This course will attempt to offer insight into these and other decisions we make. Major topics to be discussed are food, shelter, water, air, energy, waste, transportation and consumerism. Also included will be a study of the 101 things we all need to know. This investigation of these topics will be at the global, national, local and personal levels. This course is a hand-on, experiment based experience that will keep students interested with exciting lab-based learning and is taught by one Math and one Science teacher.

Credit: ½ credit in Math and ½ credit in Science – 40 weeks

Prerequisite: None

Principals of Engineering (9155)

This course provides students an introduction to the types of problem solving situations commonly faced by engineers and technicians. The hands-on and laboratory based course will introduce students to concepts of engineering. The application of these concepts will be focused on solving problems contained in “real world” case studies. The major engineering concepts to be explored are: modeling, systems, optimization, technology, society interaction, design and ethics. Activities and competitions involving problem solving and modeling will be included.

Credit: 1 unit (40 weeks)

Prerequisites: This is a grade 11 or grade 12 course requiring prior successful completion of DDP

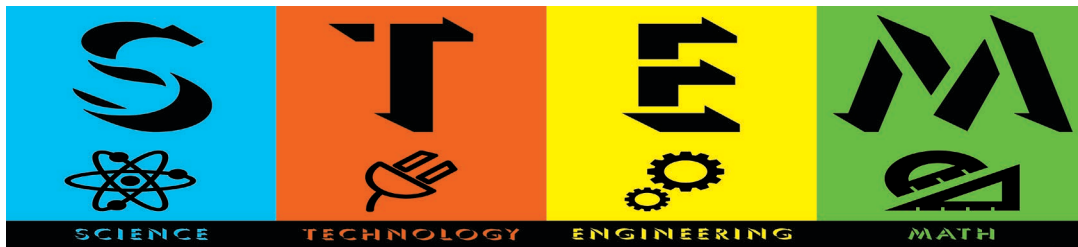
Introduction to Scientific Research and Technical Writing

This course will give students the opportunity to engage in authentic scientific research of a topic of interest. Students will be expected to perform high quality research, with a College or University affiliation, or mentoring by an expert in their proposed field of study, as available. This course will merge the writing of an APA formatted paper detailing the methodology, results and conclusions of the student's research topic presented by the student.

This is a lab-based course that may also require students to visit appropriate off campus sites own their own time, and travel accordingly.

Credit: 1 unit (40 weeks)

Prerequisites: None



STEM Sequence Chart

Year #1	Year #2	Year #3	Year #4
STEM #1	STEM #2	STEM #3	STEM #4
Full Year Course	Full Year Course (Students can choose one)	Two Semester Courses (Students must take both)	Internship/ Independent Study
Environmental Science & Biotechnology <ul style="list-style-type: none"> • Taught by Math & Science Teacher • Students receive ½ elective credit in Math & ½ elective credit in Science 	Principles of Engineering <ul style="list-style-type: none"> • Taught by Technology Department • Students receive 1 full credit of Technology 	Introduction to Scientific Research <ul style="list-style-type: none"> • Taught by Science Department • Students receive ½ credit of Science 	Internship Option <ul style="list-style-type: none"> • Students complete internship through coordination with CEIP (Business Department) Independent Study Option <ul style="list-style-type: none"> • Students can complete an independent study with a teacher of their choosing to participate in a research project to be done independently under the guidance of teacher(s).
	Data Analytics <ul style="list-style-type: none"> • Taught by Math Department • Students receive 1 full credit of Math 	Technical Writing (Writing for Research) <ul style="list-style-type: none"> • Taught by English Department • Students receive ½ credit of English 	