

Niagara Falls High School

S.T.E.M. Course Descriptions

STEM: APPLIED MATH/SCIENCE INNOVATIONS

MAT336 – 2.0 Credits (1 credit – Science; 1 credit – Math)

The STEM classroom entitled Applied Innovations offers a rich exposure to computer design, product based engineering, bio manufacturing, and nanotechnology. STEM (Science Technology Engineering and Mathematics) careers are the most rapidly growing fields in today's work force. Students will have an opportunity to work with 3D Scanners and Printers, CNC Routers, and Laser Cutters to create both physical and virtual manipulatives while studying pre-engineering, engineering, and advanced manufacturing topics. The focus of the class will be project-based inquiry learning which develops a student's ability to adapt to modern day work force skills.

We are a project based classroom. Each unit of study explores current advancements in STEM related fields while focusing on a different area of Science. Applied mathematical concepts will be needed in every aspect of the course as well. Students must be comfortable with working independently and in groups to complete in-class activities and projects, including quarterly portfolio assessments.

Upon enrollment and successful completion of this course, students can earn 3 total transferable DRF275 – Advanced Computer Aided Design & Drafting credits from NCCC.

PREREQUISITE: Successful completion of the NYS Living Environment Regents Exam, NYS Integrated Algebra/Common Core Algebra I Exam and the NYS Global Exam.

STEM: BIOSCIENCE/MATH INTERACTIONS

SCI336 – 2.0 Credits (1 credit – Science; 1 credit – Math)

This is a very unique course only offered at Niagara Falls High School in one our brand new state-of-the-art STEM classrooms. STEM (Science Technology Engineering and Mathematics) careers are the most rapidly growing fields in today's work force. Using the latest technology and the newest equipment such as autoclaves, gel electrophoresis, and digital microscopy, students will gain real-world experiences in some of the most relevant 21st century topics. Concussion awareness, infectious diseases, and the human genome project are just some of the topics that will be studied in detail. The focus of the class will be project-based inquiry learning which develops a student's ability to develop modern day work force skills.

Upon enrollment and successful completion of the course, students can earn 6 total transferable BIO101 and STAT100 credits from Niagara University.

PREREQUISITE: Successful completion of the NYS Living Environment Regents Exam, NYS Integrated Algebra/Common Core Algebra I Exam, and NYS Global Exam.

EXAM: Final Exam

STEM II: CAREER EXPLORATIONS

SCI436 – 1.0 credit

This class is a career exploration course that provides students with the opportunity to explore a STEM career they might be interested in pursuing. This is a full-year course; students must have successfully completed either BioSciences or Applied Innovations STEM coursework in their junior year and be able to provide their own transportation. Applications are required with a teacher recommendation for their upcoming senior year internship. Applicants will be reviewed to determine eligibility and placement. Consideration for acceptance into the program includes student availability, responsibility, dependability, and attendance/tardiness as determined by the internship coordinator.

Semester 1: students work on STEM Application to include resumes, scholarship searches, career information, college research, beginning a new job, problem solving, worker rights and protections, expectations of employers, correct business etiquette, appearance on the job, human relations at work, listening and speaking skills (including proper telephone etiquette), safety skills, leadership skills, and various speakers who discuss their career.

Semester 2: students only meet on Wednesdays and intern on the other day(s) to include job shadow experiences and mentoring activities. The semester topics include career exploration, creation of a portfolio, soft skills/dealing with stress/situations on the job, and lifelong learning. Various STEM projects will be assigned throughout the year. The internship coordinator will find an appropriate placement in the community for the student. The student must intern 50 hours during the second semester.

The class provides an excellent opportunity to gain insightful experience in STEM careers, an opportunity to work in a professional site, start networking in their future career field, and a start toward professional growth.

PREREQUISITE: Successful completion of SCI336 and/or MAT336

EXAM: NFCSD Final Exam

STEM: READING/WRITING FOR MATH & SCIENCE

ENG432 – 1.0 credit

The first half of this class is designed to follow the NCCC Eng 101 syllabus. The five main rhetorical modes will be taught and students will write frequently. Students will make use of research methods and MLA and APA citations style. This course is taught in conjunction with Eng 103.

The second half of the course is designed for students who are interested in pursuing careers in science, technology, engineering, math, or the health professions, but students of any discipline can benefit. This class reinforces writing skills emphasized in ENG 101, Writing I, presents more sophisticated writing skills not included in ENG 101, and guides students toward a more fully rhetorical understanding of the writing process. Students will read, write, and analyze texts and present arguments both individually and in groups. Students will use formatting for all papers appropriate to the discipline in which they are writing.

Suitable candidates for this class are 11th or 12th grade students who have taken and passed the NYS English Regents Comprehensive (CCLS) Exam and are, ideally, co-enrolled in the STEM courses offered at Niagara Falls High School. **STEM English - Offered through NCCC for ENG101 and 103 credit (6 credit hours upon completion)**