Course Descriptions

Students that attend TGS can expect to embark upon engaging and stimulating subject matter. Coursework consists of a combination of STEM (Science, Technology, Engineering & Math) classes as well as courses that explore the broader impact of science and technology in society. Students also engage in classes aimed at improving their general and technical writing abilities. In addition TGS students give in-depth consideration to future educational and professional goals.

Skip to: Science, Technology, Engineering and Math | Courses Examining the Broader Impact of Science and Technology | Additional Courses

Science, Technology, Engineering and Math Courses

Micro and Nano Technologies
Instructors: J. C. Chiao & Tim Sanchez

In this course, we will learn about advanced micro- and nano-technologies including micro- and nano-robots, nanomedicine, sensor and actuators, wireless microsystems, nanomateirals, micro-/nano-electromechanical systems. We will discuss the basic principles behind these advanced technologies and their potentials in the future.

Chemistry
Instructors: Guido Verbeck & Patrick Matous

This course will look at the foundational concepts of chemistry, (atoms, molecules, bonding, and structure) and apply these concepts to field analysis in the environment and crime scene. From this, students will establish an understanding of atoms and molecules, develop skills and introduce tools for chemical analysis, & utilize these chemical skills applied to real-world analysis of environmental concerns, and forensic investigations.

Math: Endless Ideas
Instructors: John Ed Allen & Scott Dean

The math class offered at TGS is a collection of mathematical ideas that are both historically significant and intrinsically interesting. A collection of ideas will be explored ranging from the Mandelbrot Set to the percent of possible acute triangles in the universe. The topics will be explored through a number of methods including manipulation, simulation, programming and proof.

Ecological Footprints
Instructor: Cynthia Powers & Kevin Stevens

Ecology is the study of the interactions of organisms with each other and with their environment. Understanding ecological concepts is a necessary first step to understanding our impacts on our planet and developing approaches to minimize those impacts. In this course we will explore ecological concepts with emphasis on their relevance to wetland habitats.

Energy Use and Our Future: what to do when we can't do it anymore?
Instructors: Srinivasan Srivilliputhur & Chris Smith

The Energy course will ask and discuss a variety of important questions related to our energy use habits and their likely impact upon our civilization. Our discussions will be framed around the likely energy alternatives to fossil fuels, and will encourage the students to critically analyze the outcome of changing our current energy consumption habits, especially associated costs and benefits to our society.

Courses Examining the Broader Impact of Science and Technology

Philosophy: The Big Questions
Instructors: Kevin Roden & Julie Brem

We live in a confused culture. The discussion taking place on the most meaningful topics is too often reduced to witty one-liners that can be placed on the bumper of a car. Philosophy helps us ask important questions to our culture, to our scholars, to our leaders, and, most importantly, *to ourselves* - all in the hopes of finding a way out of this confusion and sound-byte discourse. We will raise and explore answers to some of the big questions of human life, all the while asking how these questions relate to the project of science. Because scientific investigation often leads to intersections with important human questions, we will discuss how science relates to culture, religion, ethics, and other disciplines.

History
Instructors: Gerard O'Donavan & David Jensen

The History of Science and Technology will move from the ancient Greeks to Star Trek with hands on activities and research. A particular emphasis will be on the history of microbiology from antibiotics to bioterrorism.

Art: Stop Motion Madness
Instructors: Jack Campbell & Jeff Seidal

Have you always wanted to make your own movie? Then this is the class for you. In this class you will work with a small group to create a stop motion claymation film from scratch. You will create a storyboard, develop characters, sculpt your characters, design a set, shoot the digital pictures and download your pictures into Flash to create your film.

Jazz
Instructors: Akira Sato & James Hannah

This course will be an exploration of topics in the area Music literacy and Jazz.

Additional Courses

Mythbusting: Uncovering the Truth about Transitioning from High School to College
Instructors: Moe McGuinness & Jennifer Akins

This interactive course will set out to expose the most commonly held misconceptions about making the transition from high school to college so that students will feel empowered to embark on a successful college journey. Students will begin securing the tools and strategies necessary to achieve excellence both inside and outside of the classroom through collaborative discussion and research. We will assist students in navigating the college selection and application process as well as provide practical advice for ensuring a positive initial college experience. Students will exit the course with a framework in hand for making the next steps towards fashioning an ideal education

Life Directions
Instructors: Donna Fleming & Harlan Austin

"Life Directions" is an interactive program to help high school students think about their future life goals. The process involves activities that are designed to assist students in exploring their interests, values and abilities for the purpose of choosing occupations and educational areas that will meet their life goals. A career interest inventory called the Career Decision-Making System and a personality type indicator called the Myers-Briggs will be administered. Students will receive feedback on these results and will create a plan to research and explore the careers that are a good fit for them.

Writing Workshop
Instructors: Sam Matteson, Carolyn Matteson, Marshall Armintor, Kari Haile, David Taylor & Scott Perry

This year the writing workshop will be producing a virtual newspaper as well as a hard copy newspaper that showcases the various people and events of TGS 2008.

Click here to enter the Virtual Newspaper

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