The STEAM Academy @ Burke

Elective Course Descriptions

Project Lead the Way – Design and Modeling; Robotics and Automation

Students will begin to learn about the design process to solve problems, and understand the influence that creative and innovative design has on our lives. Students will learn to use the Computer Assisted Design (CAD) program. Students will also learn to use a robust platform to design, build and program a robot to help solve existing problems. (Grade 7)

Project Lead the Way – Medical Detectives; Flight and Space

Students will build on their experiences in 7th grade by extending the design process to experiments and by investigating the principles of flight. Students explore the causes of disease and conduct an investigation of human body systems, especially the brain and nervous system. During the second semester, they learn the history and design of aircraft, including fixed winged planes, rockets and interplanetary spacecraft. (Grade 8)

Coding and Robotics

This is an introductory semester course in computer programming that begins with programming the movement of robots on a computer screen, followed by learning to program free standing robots. In this class students will learn to write their own computer programs from an object-oriented perspective. This course also provides the opportunity for the student to design and construct their own robotic vehicle, thereby enhancing both mechanical engineering principles and computer programming skills at the same time, leading to enhanced problem solving skills.   Featured are STEM principles of hands-on mechanics and critical thinking. Throughout this course, students are encouraged to work individually and collectively to solve problems, share solutions, and make important discoveries. (Grade 6)

Advanced Robotics

Students design, build and program robots to compete in the world-wide VEX Robotics Program. Beginning with a summer school program, they acquire "soft" skills of communication and collaboration as well as the elements of the design process. They then implement the process to brainstorm and evaluate prototype chassis, lift and intake mechanisms. They build their robots using aluminum VEX robotics kits and the v5 "smart" motor system. Finally, they program the robot for autonomous and driver-controlled modes. Tournaments with other schools are held throughout the fall and winter, and students use the feedback from these competitions to revise and refine their designs.   (Grades 7-8)

Video Game Design

Students will learn basic programming and digital literacy skills as well as learn to participate in a blended-learning class. Students will learn foundational concepts of game design and

mechanics. This class will help students become proficient computer users in order to learn the fundamentals of game design and coding by creating a two-level game using languages such as Python, HTML5, JavaScript, and CSS, while following a real-world design and engineering process. (Grades 7-8)

Fundamentals of Studio Art
Basic principles of art in a variety of materials make this an excellent foundation to continue with formal art training and for lifetime enrichment. Basic techniques in drawing, painting, sculpture, perspective, and design and will be taught using pencil, paint, clay, ink, and watercolor. Students will be introduced to all the basic elements that make up an art studio. (Grades 6-8)

Intro to Graphic Arts and Design
This semester course will explore the use of the computer in the field of graphic design. Students will learn the primary skills and techniques of computer-assisted art using Adobe's Creative Cloud. Basic techniques in lettering, design, drawing, color, photo manipulation and layout will be taught. Students will create professional-quality artwork that combines images, lettering graphics and illustration that can be used to enhance classwork in all other subjects throughout the school year. Students will also develop their online researching skills. (Grade 6)

Advanced Graphic Arts and Design
This course will go deeper into the exploration of Photoshop in the Adobe's Creative Cloud. This year long class will review basic techniques learned in Intro to Graphics Arts and Design and dive into more Advanced techniques in Photoshop. Students will learn about Poster Layouts, T-shirt Design, Making Gif's, Warping Text, Fixing Photos, Making Text Portraits, Art History and much more. The techniques and skills learned can be used to enhance presentations and projects through the student's school career. Students will also continue to develop their online researching skills and make classroom presentations to share with the class during the year. (Grades 7-8)

Google Apps for EDU
This is an introductory course in Internet Safety, Security, Organization, and Productivity via Google Apps for Education. Students will learn how to access and use their district provided Gmail account and all of the benefits that accompany it. Students will learn how to harness the power of an online, cloud based productivity tool (Drive) where they can store, organize, create, share, and collaborate. Students will create an online portfolio (website) for each class where they can demonstrate what they have learned and display their work. Throughout this course, students are encouraged to work individually and collectively to solve problems, share solutions, and make important discoveries. (Grade 6)

Spanish 1
Beginning students will learn how to communicate in Spanish by developing: listening, speaking, reading, and writing skills in a Project-based learning environment. Projects are

centered on real-life applications designed to develop an understanding of the cultural and historical aspects of the numerous Spanish-speaking countries.   (Grades 6-8)

Spanish 2
Students in this advanced class will focus on developing writing, reading and speaking skills to further develop their communicative proficiency in the target language. Students will be fulfilling requirements needed to earn the Biliteracy Seal of California recognition, including project based learning activities to explore the advantages of being biliterate in the 21st century. Prerequisite: successful completion of Spanish 1A.   (Grades 7-8)

Digital Music Production
This course is designed to introduce students to the fundamentals of recording, editing, and composing. Through project-based learning experiences, students will be able to create a variety of projects using music technology. Students will work with a variety of computer software programs such as GarageBand, Windows Movie Maker, and iTunes. Students will also learn about the development of music technology and the role music plays in society and culture. (Grades 7-8)

Food Sciences and Nutrition
This introductory course includes instruction aimed to use nutrition principles to guide students into making healthier food choices. Students will be introduced to basic nutrition concepts such as energy expenditure, dietary guidelines, macro and micronutrients and their relationship to health and disease. Using a project based learning framework, students will be able to distinguish between valid and invalid sources of nutrition information, and use effective skills to model healthy decision making.   (Grades 6-8)

Mariachi – Beginning and Advanced
Students will learn the basic foundational skills, along with the history and cultural relevance of Mariachi music. Students must already have existing knowledge of music notes, reading sheet music, and basic instrument skills. Students will learn to perform classic Mariachi songs as a group. (Grade 6-8)

Choir
Students begin to learn the foundations of singing, vocal methods, and concert performance. Students are able to practice solo and group singing throughout the course. They will study the development of vocal techniques through a variety of strategies and incorporate classic song study with modern song study. (Grades 6-8)

Beginning Band and Advanced Band
Students will learn how to read music notes, sheet music, and basic instrument skills. They will begin to play an instrument in beginning band, and after one year of intensive practice, may have the ability to move on to advance band. If students have existing knowledge of reading and playing music, they may audition for advanced band. (Grades 6-8).

U.S. Cultural Studies
Students will use a variety of online archives, texts, lyrics, music, and videos to trace the development of music genres against the backdrop of U.S. History from 1920-2001. Using music as a lens, students will analyze the impact different artists and songs have had on the development of popular and mainstream culture, as well as social movements in the United States. In addition, students will develop independent projects that connect the music of today with current day social issues. (Grades 6-8).

AVID, Years 1-3
AVID is a college preparatory program for students. The AVID program favors challenging students who have had some academic difficulties, but show potential and desire for growth, and a desire to attend a 4 year university. AVID offers students access to academic support through specially developed teaching and learning strategies. Students who join AVID are placed in a daily, single-period AVID class that features a heavy emphasis on writing and inquiry supported by specialized tutoring in core academic subjects. The class is composed of several different elements, making students more successful in all their classes. Students learn note-taking and study skills, while also learning time management and goal setting. (Grades 6-8)

Creative Writing
This class is a multi-genre introduction to the art of creative writing. While examining such varied materials from the plays of Shakespeare, to John Wayne Westerns, the students will learn techniques and tools essential to effective writing. Types of writing include first person narrative, response to film and literature, persuasive essay as well as oral class presentations. Most writing will be done by the students within Google Drive. (Grades 6-8)

Drama
Students will study drama as literature as well as performance art. Students will learn to read and write scripts and perform pieces of various lengths.   Students will learn terminology used for the stage and theater, as well as theater etiquette and skills such as confident public speaking, creativity, and collaboration. (Grades 6-8).

Math Intervention
This course is designed to help students fill gaps in their previous knowledge to bring them to grade-level. To accommodate each student's needs, curriculum will be individualized for their strengths and weaknesses as well as learning styles. Students will use hands-on exploration, visual clarification, and written expression with symbols. (Grade 6)

ASB
Members of the Student Council are entrusted to work with others to plan, organize, execute, and attend all class meetings and class activities. Members will have the chance to learn, improve upon, and perfect their professional skills, such as: team building, interpersonal and intrapersonal communication in different modalities, event organization, and event advertisement, amongst

others. It is a fast paced, deadline oriented leadership experience that requires students to work hard while staying on top of their other responsibilities.   (Grades 6-8)