UPWARD BOUND PROGRAMS

2010 SUMMER/STEM ACADEMY

Summer Theme

The Wide World of Sports:
Exploring Topics and Concepts in Math, Science, Literature and Language as They Apply to Sports

COURSE DESCRIPTIONS

ENGLISH CLASSES

Course Title: English 10/11 & 11/12
The Wide World of Sports:
The Nature and Consequences of Competition
Instructor: Timothy Zalunardo

Description: In the “Wide World of Sports” course, students will develop an understanding of competition and the ways in which American culture has been positively and negatively affected by our embracing of it. Students will consider how competition and individual achievement are woven into the fabric of American society, best exemplified through the importance of sports in our culture.
Students will begin by looking at their own athletic pursuits, what excites them in the process of athletic competition, and the ways in which sports bring communities together. This examination will lead to exploring how competition in sports has opened up opportunities for racial integration. The course will conclude with a review of how intense competition drives the use of performance-enhancing drugs, how the pay structure of sports exaggerates the impact of athletes on society, and how youth sports are becoming hyper-competitive and selective.

**MATH CLASSES**

**Course Title:** Geometry  
**Instructor:** Deborah Bertolucci

**Description:** The study of geometry includes math vocabulary, organization of proofs, points, lines, planes and angles, parallel lines and planes, transformations and congruence, congruent triangles, similar polygons, right triangles, circles, areas of plane and solid figures, volumes and surface areas of solids, using formulas in solving problems, visualizing geometric situations, and using geometric ideas in real situations. The objective of this course is to provide the student with the requisite foundation for the study of advanced algebra and trigonometry.
Course Title: Algebra 2
Instructor: Deborah Bertolucci

Description: Students who have successfully completed Algebra I and geometry should plan to take Algebra II which starts with a continuation of concepts studied in Algebra I. Students will be challenged by new concepts that require graphing skill, function analysis, solving higher-order equations, investigating complex number systems, and working with conic sections, logarithms, data analysis and probability. Students will be involved in communicating information mathematically, solving problems from real-world context and justifying solutions to problems. Algebra II prepares students for further mathematics, such as math analysis, trigonometry, AP Statistics, and calculus.

Course Title: Trigonometry of Athletes
Instructor: Shirley Johnson-Foell

Description: This course is designed to provide the advanced math student a learning environment that will both motivate and encourage further investigation into higher math. Instruction consists of a series of lectures followed by an opportunity for hands-on application and group activities. The lectures will cover material that is not only applicable to the discipline but also interesting and entertaining. The course will highlight the theme:
"The Wide World of Sports" by applying trigonometric identities and functions to evaluate various scenarios found in sports. School children who play double dutch jump to a complex rhythm. Cyclical motion occurs in countless other areas in the physical world. Knowing of the angle of the object and distance apart, students can calculate the position of a jump rope. These problem-solving exercises will strengthen the students' ability to apply critical thinking that is invaluable to other areas of study such as science, history, and art as well.

Course Title: Calculus
Instructor: Deborah Bertolucci

Description: This course is designed to introduce students to the four main concepts to be mastered in the first course in calculus: limit, derivative, definite integral, and indefinite integral. Students encounter the concept of derivative and instantaneous rate of change and the concept of indefinite integral as a way to find the product of the dependent and independent variables of a function. Students explore ways to investigate concepts numerically, graphically, algebraically and verbally. By using multiple representations, students will better be able to apply knowledge to real world applications.
**Course Title:** The Athletic Body: How Far, How Fast, How Strong?  
**Instructor:** Magi Discoe

**Description:** This course will view sports through the perspective of the biological and physical sciences. The study units will be divided into six short units. Under the heading of “What makes a good sports competitor?”, we will discuss strength, coordination and reaction time. Under the heading of “How can we maintain good conditioning?”, we will discuss nutrition and endurance. Lastly, we will look at two of the most common sports injuries: knee injuries and head injuries. All of these topics will be supported by fun and academically-challenging labs and activities. We will dissect a sheep brain to gain an understanding of head injuries, dissect a muscle, test our reaction time, build a model inner ear, perform a series of food chemistry labs, and research baseball and/or levers on the internet.

**Course Title:** Chemistry  
**Instructor:** Steve Salkovics

**Description:** This class will serve as an introduction to chemistry, taking students from the basics to several specific chemistry topics. Activities will include journals, lectures, wipe-boarding, class discussions, group work current events, presentations, worksheets, partner work, demonstrations, videos, hands-on activities and chemistry mystery stories as well as specific lab experiments. Additionally, students will learn to compile, analyze, prepare and present lab reports.
Course Title: The Physics of Sports  
Instructor: Steve Salkovics

Description: This class will investigate physics concepts as they apply to sports. Activities will include a combination of lecture, group work, lab work, class discussions, demos, videos, computer work, worksheets, tests, creative work and other activities.

ELECTIVE CLASSES

Course Title: Sport, Race and Society: the Socioeconomic Impact of Sport on Society's Ethnic Population  
Instructor: Natalie Mendoza

Description: This course will address the sociology of sport. Students will first learn about the economic importance of the sport industry in our society. In particular, they will understand the impact of sport of people of color—nationally and internationally. Special attention will be paid to recruitment efforts made by colleges and national sports teams and the consequences of these efforts on society's ethnic population. Students will learn and be able to show understanding of this topic through reading and writing exercises, as well as through discussion.
Course Title: Organizational/Study Skills Survival Guide  
Instructor: Manisha Hall

Description: The purpose of this course is to increase student success through teaching effective organizational/study skill techniques. Just as a soccer player needs the right tools (such as cleats and a soccer ball) and the basic skills (such as how to dribble and pass a ball), students need the right tools to perform to their academic potential. By providing students with the necessary tools, such as time management skills, learning style inventories, organizational skills, and note-taking strategies, we are equipping students with an essential survival guide to be most successful in school.

College Placement

Course Title: College Placement 2-JC  
Instructor: Aimee Jimenez

Description: This course is designed specifically for rising seniors. College Placement 2 will prepare students for attending the SRJC and transferring to the 4-year college of choice. Additionally, this course will help students organize the many deadlines that occur during their senior year. Several topics are covered, including how to fill out the BOG Fee Waiver Application; high school graduation requirements; resume writing; learning strategies; financial aid information; and an extensive college research project. Students will enter their senior year with the knowledge and confidence they need to graduate from high school, attend a community college, and transfer to a 4-year college.
**Course Title:** College Placement 1-CSU/UC  
**Instructor:** Andrea Chambers

**Description:** This course is designed specifically for rising seniors. College Placement will prepare students for the many college deadlines and stresses that occur during their senior year. Several topics are covered, including how to fill out CSU, EOP, UC, and private school applications; introduction to the UC personal statement prompt; scholarship essay writing; financial aid and the FAFSA; and several college research projects. Students will also receive one-on-one academic counseling from their Outreach Advisor. Students will enter their senior year with the knowledge and confidence they need to apply for and get into the college of their choice!