Oxnard College Marine Center Summer Bridge Experience with Hueneme High School

WEEK 1
Theme – During week 1 students will explore endemic and native coastal and island plants, marine life (whales, dolphins, seals, and sea lions), and physical oceanography (waves, tides, harbors, reading navigation charts and charting a course).

Monday and Tuesday - Students will be introduced to these topics through classroom activities at the Oxnard College Marine Center and Aquarium. There will be a short written initial assessment on Monday.

Wednesday - Students will explore these topics during a full day trip to Santa Cruz Island. A nature hike on the Island will emphasize endemic and native plants and wildlife found on the Island. In addition, careers and opportunities with the National Park Service will be discussed.

Thursday - Students will discuss and share ideas about the learning experience. After this discussion, students will be divided into three person groups. Each group will organize and prepare a PowerPoint Presentation. Students will take photos during the educational excursion, log each photo, and use these photos in their PowerPoint Presentations.

Friday - Each student group will present their PowerPoint presentation summarizing and reviewing what they have learned during this educational experience. The entire group will discuss and critique this week's activities in order to assist in developing a better learning experience for the following week.

Leadership & Teamwork Development
“We are all caught up in an inescapable network of mutuality, tied to a single garment of destiny. Whatever affects one directly affects all indirectly.”
The Rev. Dr. Martin Luther King, Jr.

College Readiness
Oxnard College Marine Center Summer Bridge Experience with Hueneme High School continued...

WEEK 2

**Theme** – During week 2 students will explore the intertidal habitat including algae and animals that make the intertidal home.

**Monday and Tuesday** – Students will be introduced to our local intertidal creatures at the Oxnard College Marine Center and Aquarium through classroom activities including investigation and identification of the intertidal organisms.

**Wednesday** - Students will explore this topic during a full day educational excursion to the Research Experience Education Facility (REEF) at the University of California at Santa Barbara and the Ty Warner Sea Center in Santa Barbara. Personnel at both institutions will discuss careers and opportunities in science with the students. (The head aquarist at Ty Warner is a former student worker at the Oxnard College Marine Center who was employed through UCSB and the first STEM grant.)

**Thursday** - Students will discuss and share ideas about the learning experience. After this discussion, the class will be divided into three person groups. Each group will organize and prepare a PowerPoint Presentation.

**Friday** - Each student group will present their PowerPoint presentation summarizing and reviewing what they have learned during this educational experience. The entire group will discuss and critique this week’s activities in order to assist in developing a better learning experience for the following week.

WEEK 3

**Theme** – During week 3 students will explore geology, geography, and Pleistocene through Recent life. In addition, students will participate in an educational excursion to Oxnard College.

**Monday** - Educational excursion to Oxnard College including presentations by STEM faculty.

**Tuesday** - Students will investigate the concept of Geologic Time, oil formation, oil seeps, and Pleistocene through Recent life in Southern Cal.

**Wednesday** - Students will explore this topic during a full day educational excursion to the Page Museum, La Brea Tar Pits.

**Thursday** - Students will discuss and share ideas about the learning experience. After this discussion, students will be divided into three person groups. Each group will organize and prepare a PowerPoint Presentation.

**Friday** - Each student group will present their PowerPoint presentation summarizing and reviewing what they have learned during this educational experience. The entire group will discuss and critique this week’s activities in order to assist in developing a better learning experience for the following week. There will be a written final assessment on Friday.

“When a warrior learns to stop the internal dialogue, everything becomes possible; the most far-fetched schemes become attainable.”

Carlos Castaneda
Oxnard College and Hueneme High School Engineering Summer Bridge
June 11-29, 2012
Instructor: Jay Robnett

Program Goals:
To give prospective high school engineering students an immersive experience in three different engineering fields: Mechanical, Chemical and Robotics. Class projects emphasize teamwork, problem solving, analysis and revision.

Class structure:
Students are members of the 11th grade Hueneme High School Engineering and Design Career Pathways Academy. Classes are held on the OC campus for three weeks Monday – Thursday four hours each day, with educational excursions taken on Friday for an eight hour day.

Grading:
Students are assigned rotating teams to work on each project.

Each team receives a grade reflecting their performance against the project criteria or in competition against other teams.

Each student’s team grade is compiled to determine individual grades.

Week 1: Mechanical Engineering. Each team is tasked to design and build a Rube Goldberg-type device that features at least eight transfers of energy. The final outcome of the device is to deliver a quantity of toothpaste to a toothbrush.

Week 2: Robotics: Each day, students will rotate into different partnerships and be given a challenge to build a robot using the Lego Next robotics kits. Robotic challenges include navigating a maze, playing miniature golf, tractor pull, and sumo wrestling.

Week 3: Chemical Engineering. Students complete a series of laboratories with the common theme of separations of substances. Emphasis is placed on precision and technique. Separations include: sand, salt and iron filings, fractional crystallization, and distillation of alcohol.

Tell me and I'll forget.
Show me, and I may not remember.
Involve me, and I'll understand.
Native American Saying
More Summer Bridge Projects...

High School, Oxnard College and University Students will team up together at Oxnard College for 6 weeks to engage in three research projects.

The projects are detection of red tide and antibiotic resistant organisms in seawater, cardiac stem cell culture and immunofluorescence, and genetic detection of bacteria using a G+/G- PCR strategy. Posters will be generated.

Oxnard College Professor: Dr. James Harber

Oxnard College and the ACE Charter School Summer Bridge

ACE Charter School students have the opportunity to experience project-based learning in the fields of Architecture, Construction and Engineering during a two week session beginning July 23, 2012. Students will be on the Oxnard College campus for this experience which includes Industry Leader workshops and hands-on learning and classroom activities.

Oxnard College Professors: Marlene Dean and Christiane Mainzer

Cynthia Herrera, Ph.D.
Title V HSI STEM Grant Director
Oxnard College
4000 South Rose Avenue
Oxnard, California 93033

cynthia_herrera@vcccd.edu
www.oxnardcollege.edu/stem
(805) 986-5944