EL CAMINO COLLEGE

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YOUNG SCHOLARS EDITION

STEM

SCIENCE, TECHNOLOGY, ENGINEERING & MATH

focus

ENHANCING STUDENT SUCCESS AND ENCOURAGING DIVERSITY THROUGH STEM PATHWAYS

STEM Geometry Young Scholars Program

El Camino College offered an exciting new summer program designed to promote an interest in science, technology, engineering & math (STEM) careers for high school students.

The free, five-week Young Scholars Program was open to high school students concurrently enrolled in Geometry Math 60 at El Camino College.

Students had access to group and tutoring study sessions; presentations by inspiring speakers from relevant math and science fields; college readiness and career workshops; and field trips to locations such as NASA JPL, UCLA, and Northrop Grumman Space Park.

Funded by a U.S. Department of Education Science, Technology, Engineering and Math (STEM) Grant, the STEM Grant Project aims to increase the number of students pursuing and succeeding in STEM disciplines at El Camino College, transferring in STEM majors to four-year universities, or entering a related workforce.

Students met twice a week through July 30 at El Camino College, with field trips scheduled on selected Fridays.

Guest Speaker: Aerospace Engineer

Daniel Alvarez, aerospace vehicle control systems and flight dynamics engineer of Systems Technology Inc., was a recent guest speaker who addressed the Young Scholars .

Alvarez shared innovative technologies used in the aerospace industry, discussed the need for future skilled engineers, and demonstrated how mathematical concepts are at the source of the aerospace industry.

Alvarez also described the challenges faced by engineering students and the importance of a strong support network.

Alvarez concluded the discussion with an invitation for students and faculty to visit Systems Technology Incorporated and test its flight simulator.

UCLA Hosts Geometry Young Scholars

The El Camino College STEM Geometry Young Scholars Program recently visited UCLA's Center for Excellence in Engineering and Diversity CEED).

CEED's 23-year history of commitment to diversity in the engineering and high-tech workforce has developed a Science, Technology, Engineering and Mathematics (STEM) K-20 pipeline strategy which supports university and local school communities.

CEED's Coordinator of Community College Programs and UCLA Engineering Graduate, Ruby Vargas-Lainez, arranged a campus tour, organized a student leadership panel and provided a hands- on project for our students.

The student leadership panel consisted of Olaleke Owolabi, President of the National Society of Black Engineers (NSBE) and Fernando Olmos, Chemical Engineering Graduate student.

Students received an overview of the various fields of engineering and the importance of a strong understanding of math and science as a foundation for future success in related fields.

Students obtained information about CEED's programs and other student organizations that offer support services like academic and professional workshops; access to financial support and internships; research programs and academic advisement.

The hands-on activity required students to team up and construct a solar cooker. Materials included a cardboard box, aluminum foil, tape, scissors and the creative ingenuity of the students. The goal was to design the most efficient solar cooker that would melt a piece of cheese the fastest.

The trip provided an opportunity for students to learn about STEM-related careers and higher education that will enable and encourage them to become the future leaders of tomorrow.

UCLA Engineer Demonstrates Solar Cooking Concept

Students constructing a Solar Cooker

Students Visit ECC A.R.M. Center

The STEM Geometry Young Scholars toured El Camino College's Automated Robotics Manufacturing (ARM) Center during their summer session.

El Camino College Professor Eric Carlson gave the tour of the center and demonstrated functions of the new robotic arm equipment as well as introduced students to materials of manufacture, their properties, characteristics and treatment.

Students gained knowledge in various processes involved in modern manufacturing and learned about manufacturing technology courses and certificates that provide an opportunity for exciting careers in Robotics and Manufacturing.

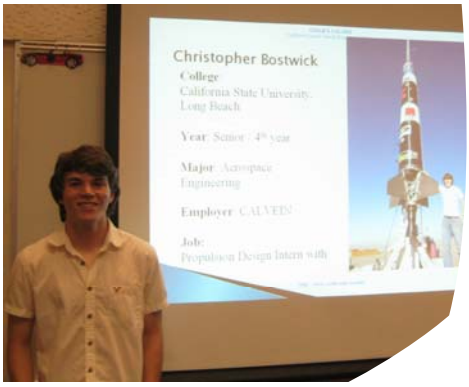
El Camino College Automated Robotics Manufacturing (ARM) Center

California Launch Vehicle Education Initiative -CALVEIN

In July, Christopher Bostwick, an Aerospace Engineering student at CSULB and Propulsion Intern with the California Launch Vehicle Education Initiative (CALVEIN), visited the Young Scholars and spoke about his research and various opportunities within CSULB.

Students learned how rockets function and the components involved in building and testing these models. They were especially impressed with the flight test videos of the various rockets Mr. Bostwick and his team designed.

Mr. Bostwick also talked about his own experiences pursuing an engineering degree and the high-tech facilities at CSULB that influenced his decision to attend the university.



MESA Alumni Speak to Students

MESA Alumni with
MESA Director, Arturo Hernandez

The Young Scholars Program hosted four former MESA and El Camino College students for an "engineering 101" panel.

Ana Orellana, Daniel Aleman, Estuardo Iriarte and Michael Arzate offered their own personal stories and experiences graduating and transitioning into engineering careers.

Ms. Orellana, who now works for Northrop Grumman, highlighted some of the challenges she faced while attending both ECC as well as when she transferred to CSULB as an aerospace engineering major.

The panel provided an opportunity for the young scholars to ask questions about the various fields in engineering as well as gain a student's perspective on specific pathways to these careers.

Industry Tours to NGC and JPL

Industry tours for the program included visits to Northrop Grumman Aerospace Systems in Redondo Beach and NASA Jet Propulsion Laboratory (JPL).

The tour at Northrop highlighted various aerospace projects the corporation has built or contributed to and followed with a private visit to the location where the James Webb Space Telescope was under development.

NASA JPL offered a similar tour of its museum and research facilities. Students were able to observe a team of engineers as they explored possible driving simulations for the Mars Rover that is currently suspended in Martian soil.

Both tours provided real world applications of math and science concepts that they have been studying and offered insights into possible careers.

Students in
the JPL museum

Young Scholars Awarded with Certificates

The final week of the program came to a close with an educational geometry jeopardy activity to prepare students for their upcoming finals.

On the final day of the program, participating students were awarded a certificate of completion. Students were congratulated by the Dean of the Mathematical Sciences Division, Dr. Don Goldberg, for their participation in the program and encouraged to continue to pursue education and careers in STEM-related fields.

Also in attendance to congratulate the students were Katie Gleason, Director of the Foundation and Bo Morton, Director of Grants, who also offered words of encouragement.

Students filled out a closing survey before departure and expressed their gratitude for the activities and experiences provided through the program.

Most of the comments received included that the program allow for more industry tours and speakers.

Surveys showed that students reported an increase in pursuing a career in a STEM-related field from 47% at the beginning of the program to an increase of 71% at the conclusion of the program.

All student surveys reflected positive feedback; a good indicator that the program would be effective if offered again, possibly expanded to a longer time period and the number of participants increased.

Dr. Goldberg, Dean of Mathematical Sciences and young scholar, Kayla Neely

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