Stem Disciplines in the Study

- Aerospace
- Engineering
- Biology
- Biotechnology
- Chemistry
- Computer Science
- Engineering
- Engineering & Management
- Environmental Studies
- Geography
- Information Technology & Communications Design
- Manufacturing Systems
- Marine Science
- Mathematics
- Mechanical Engineering
- Meteorology & Climate Science
- Nursing
- Nutrition
- Technology

Our Vision
To create a more prepared STEM workforce in California that has acquired a variety of 21st century skills, which strengthens California’s economic well-being.

Research Findings from a Systemwide STEM Service-Learning Study
Fall 2014 – Fall 2016
Funded by the W.M. Keck Foundation

Discover. Understand. Innovate.

For an interactive, in-depth look at our Keck STEM Service Learning Research findings, visit the full report at: www.calstate.edu/cce/keck

A critical component to the future success of California’s economy, worldwide competitiveness and societal well-being is supporting a diverse Science, Technology, Engineering and Mathematics (STEM) pipeline. As the largest and most diverse university system in the country, with more than 500,000 students enrolled in 23 campuses, the California State University (CSU) has the opportunity to be an exceptional academic environment, and also volunteer opportunities for our students to be a part of those involvement and community service. CSU STEM Service-Learning (SLS) has become a cornerstone of the Keck experience, preparing students graduate with a well-developed “grand” concept of the importance of civic participation.

In July of 2014, funding from the W.M. Keck Foundation laid the groundwork for the first national pilot study on SL in STEM disciplines on common measures of student success. This executive summary highlights the findings of the quasi-experimental design and mixed methods research approach conducted from fall 2014 through fall 2016. We hypothesized that SL experiences allow students to acquire technical skills, increase interest in STEM careers, and improve attitudes and behaviors around STEM and civic engagement.

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CSU Center for Community Engagement
Long Beach, California
Rebecca Eddy & Nicole Galport
Cobblestone Applied Research & Evaluation, Inc.
La Verne, California

The National Science Foundation’s definition of what constitutes as STEM was used to recruit faculty participants; however, CCE does not include social sciences in its definition.

Understanding STEM Service-Learning Changes 2009 – 2017

STEM DISCIPLINES IN THE STUDY

STEM undergraduate courses

Lower Division Courses

www.calstate.edu
https://twitter.com/csu_cce
https://www.facebook.com/CSUCOCCE/
**Research Objectives & Questions**

**Understanding the Landscape of STEM SL in the CSU**

- **LEARNING OUTCOMES**
  - CIVIC ENGAGEMENT ATTITUDES
  - CIVIC ENGAGEMENT BEHAVIORS
- **HIGH ATTITUDES & BEHAVIORS**
  - Higher civic engagement attitudes and behaviors than students in the low quality clusters.
  - Students in the high-quality clusters reported, on average, significantly different from each other. (p < .01; a: Indicates a marginally significant result; means with superscripts (i.e., a, b) indicate that pair-wise comparisons are significantly different from each other.)
- **QUALITY OF SERVICE-LEARNING CLUSTERS**
  - Comparison of Mean Student-Reported Civic Engagement Attitudes, Civic Engagement Behaviors, and STEM Career Interest by Service-Learning Clusters Based on Assigned Quality of SL Experience (Low, Medium, High)
- **QUALITY OF SERVICE-LEARNING CLUSTERS**
  - Students in the high-quality clusters reported, on average, significantly higher civic engagement attitudes and STEM career interest.
- **QUALITY OF SERVICE-LEARNING CLUSTERS**
  - Note: (Low, Medium, High)
- **QUALITY OF SERVICE-LEARNING CLUSTERS**
  - Low: Treatment N = 88, Control N = 86; Medium: Treatment N = 87, Control N = 86; High: Treatment N = 90, Control N = 90.
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