



Research Briefs

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Mission Statement

Citrus College delivers high quality instruction that empowers students to compete globally and to contribute to the economic growth of today's society.

We are dedicated to fostering a diverse educational community and cultural learning environment that supports student success in pursuit of academic excellence, economic opportunity, and personal achievement.

Research Briefs is a publication of the Institutional Research Division. Questions may be directed to Dr. Lan Hao, director of institutional research, lhao@citruscollege.edu.

Effectiveness of the Supplemental Instruction Program at Citrus College
Presented at the California Association of Institutional Research Conference
Sacramento, CA
November 19, 2009

Sunny Liu and Kay Nguyen
Office of Institutional Research

STEM Grant

In fall 2008, Citrus College was awarded a Federal College Cost Reduction and Access Act (CCCRA) HSI grant. The purpose of the grant is to increase the number of Hispanic, low-income, and underrepresented students attaining degrees in the fields of science, technology, engineering, or mathematics (STEM) and to develop model transfer and articulation agreements between two-year, Hispanic-serving institutions and four-year institutions in such fields. Thus, at Citrus College, this grant focuses on opening a pathway for Citrus College students in the STEM field.

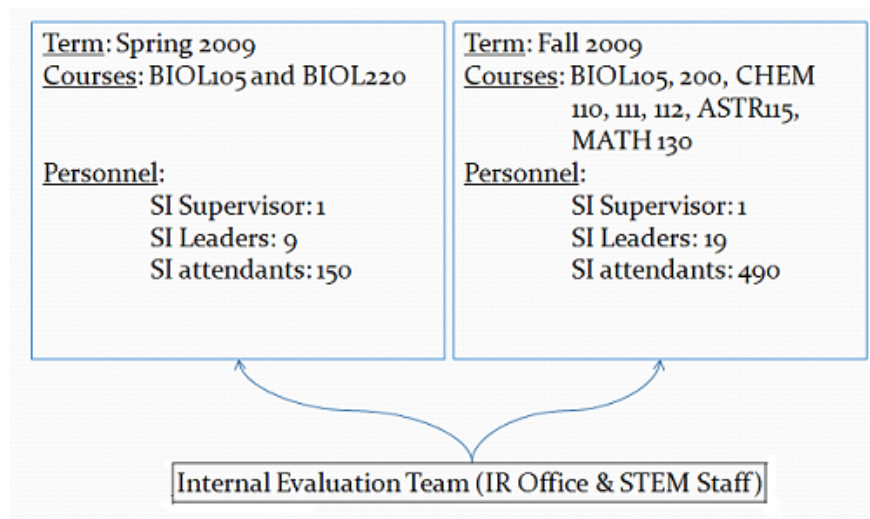
Supplemental Instruction Background

Supplemental Instruction was developed by Dr. Deanna Martin at the University of Missouri, Kansas City. Its purpose is to increase student performance and retention in traditionally difficult academic subjects such as math and science. In addition, there are long-term benefits such as increasing students' persistence in their academic endeavors. Supplemental Instruction (SI) is a series of weekly review sessions for students in selected math and science courses. The sessions are taught by SI leaders who have successfully completed the course they are teaching. These sessions are voluntary and students can go to as many sessions as they want.

Supplemental Instruction in Spring 2009

In spring 2009, Citrus College offered Supplemental Instruction for Biology 105 (General Biology) and Biology 220 (Microbiology) with 150 students attending the SI sessions. The SI program was overseen by one SI supervisor and the sessions were led by nine SI leaders.

The following figure describes the SI structure for Spring Semester 2009 and Fall Semester 2009. Compared to spring 2009, fall 2009 sees more courses being offered with SI sessions and the expansion of SI staff as well as student attendants.



In addition to the organizational structure of SI's personnel, this figure also links the relationship of the Research Office with SI. The Research Office and the STEM staff make up the Internal Evaluation Team with the Research Office responsible for conducting studies in tracking students' progress, monitoring the efficacy of the STEM projects, and holding monthly Internal Evaluation meetings. Research analysis through survey results and students' academic data indicated that students who attended SI sessions had better grades than students who did not attend any SI sessions. For example:

- Course success rates (A, B, C, and CR) were higher for SI attendants than non-attendants (74.7 percent vs. 65.6 percent).
- SI attendants were likely to achieve higher grades than non-attendants (e.g., the probability of getting As and Bs are 1.5 times greater).
- The higher the frequency of attending SI sessions, the higher the likelihood that a student obtained a higher grade (e.g., the probability of getting As and Bs are 1.1 times greater for each unit of increase in the frequency of attending SI sessions).

In addition to the quantitative results, many students have confirmed that SI has helped them improve their grades and that they enjoy going to the SI sessions. Some of the comments made by students about Supplemental Instruction include:

- *"Usually I got Bs in my classes. Now I get As on all my tests."*
- *".....at home when I study, I easily got distracted. But I know when I was there [SI sessions], that's all I was focused on. So it really helps."*
- *"I think it's nice to have different perspectives also ... It's kind of ways to open up your mind to your study and look at different ways to really understand it. It's a nice thing ... So it was not the book who took me one step beyond."*
- *"I like it because it helped to explain the materials better. Teachers just give out the information, but they (SI leaders) explain things more in detail."*

Improvements to the Instructional Program and Fall 2009 Updates

The success of the Supplemental Instruction program in spring 2009 led to the addition of more classes offered with SI in fall 2009 as well as various improvements to the SI program. Citrus College recently created a new STEM Center where students have a permanent designated location for their SI sessions. In addition, more SI leaders were hired in fall 2009 to accommodate the extra SI sessions for the fall term. For fall 2009, SI sessions are offered for BIOL105 (General Biology), BIOL 200(Anatomy), Chemistry series 103, 110, 111, 112 (General Chemistry), ASTR115 (Planetary Astronomy) and MATH 130 (Elementary Algebra). We currently have 490 students attending the SI sessions. This is a significant increase in attendance, as in spring 2009 only 27 percent of students in classes with SI attended the SI sessions, but in fall 2009, 36 percent of students in classes with SI attend the SI sessions. Survey results and data will be collected to show the effects of Supplemental Instruction on students' performance after Fall 2009 is completed.

Goals and Future Improvements

In spring 2010, there will be more classes offered with Supplemental Instruction. In addition, extra steps have been implemented to train SI leaders. Former SI leaders who were successful in their roles will mentor SI leaders hired for spring 2010. In addition, the Research Office will continue to expand the evaluation methods and administer more surveys to validate the success and effectiveness of SI.