Internships in Nanosystems Science, Engineering and Technology (INSET)
Demographics and Tracking, 2002 to 2007

The INSET internship program, hosted by the California NanoSystems Institute (CNSI) at the University of California, Santa Barbara, supports the academic advancement of community college students. INSET’s predecessor, the Community College Interns in Materials Research program, was launched in 1993 as a collaboration between the Materials Research Laboratory at UCSB and Santa Barbara City College to support research internships for students and faculty. INSET has expanded participation to Allan Hancock, Ventura and Oxnard Colleges, and other community colleges throughout California.

INSET participants gain first-hand experience in scientific investigation in a dynamic, collaborative research environment. They are matched individually with UCSB faculty and graduate student lab mentors who provide training and support for an 8-week internship. Interns attend seminars on current research topics, academic and career development workshops and weekly meetings where they develop their presentation skills.

Recruitment and Selection Demographics: The table below gives diversity demographics of our applicants and interns for Summers 2002 through 2007. We have been quite successful at both recruiting and placing female and minority students. Current national statistics (NCES, 2005) indicate that only 15% of all STEM bachelor’s degrees go towards minority students – our 46% minority participation rate greatly exceeds that.

We have polled our interns for the last 3 years on their “nontraditional” status. Nationally, 75 percent of community college students and 25 percent of university students are nontraditional. Roughly 60 percent of INSET students have been nontraditional. Nontraditional students have two or more of the following characteristics: delayed enrollment (i.e. re-entry), working full time, part-time student status, financial independence, and having children/dependents. Non-traditional students are three times more likely to drop out of a degree program as compared to traditional students (Horn, L. (1996), “Nontraditional Undergraduates, Trends in Enrollment From 1986 to 1992 and Persistence and Attainment Among 1989–90 Beginning Postsecondary Students”).

INSET Program Impacts and Student Accomplishments: We have performed extensive tracking of the activities of former INSET participants, from Summers 2002 to 2006. There have been a total of 81 students from these time periods.

Long-Term Tracking of Academic Progress:

- Transfer Success: 66 students out of 81 (from summers 2002-2006) have successfully completed their transfer to a 4-year institution. 4 students will be transferring this Fall 2007,
10 students are still enrolled at their community colleges, and the transfer status of 2 students is unknown.

- **Bachelor's Degree Completion:** Typically it takes students about 3 years to complete their degree after transfer. For the years 2002-2004, 26 out of 45 students have completed a bachelor's degree, all within science and engineering disciplines. 10 students are still enrolled at their universities, 4 have left without a degree, 5 are either still at their community college, or whereabouts unknown.

- **Progression to Graduate School:** Of the 26 students who have completed their bachelor's degree, 7 are now enrolled in science and engineering doctoral programs, and 5 are enrolled in master's program - 4 in science and engineering, one in science education. Another 4 students have applied for admissions to PhD programs this year.

**Conference Presentations and Awards:** For the years 2002-2007, a large fraction of INSET interns (50 out of 101 summer interns total) have presented their work at state and national level conferences, including the Southern California Conference for Undergraduate Research (SCCUR) and the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS). Three INSET students (Maricela Castaneda, Alma Garcia, and Nicholas Tovar) won awards for their poster presentations at the SACNAS conferences. Another intern, Leticia Rubalcava, presented her INSET poster at 3 conferences and won awards at two: she won a 1st place recognition at the CAMD Science and Engineering Research Symposium and also the 1st place prize at the Society of Hispanic Engineers National Technical and Career Conference. In 2007, two interns, Alison Morrison and Jess Crossno, won awards for their posters as the national Sigma Xi conference.

**Additional Research Experience and Student Leadership:** For the years 2002-2005, 29 out of 63 students have done more research, at their 4-year institutions or elsewhere. From these same years, 14 out of 63 students have also taken on leadership roles in science education programs, acting as peer-mentors, taking SACNAS club leadership roles, teaching science to K12 students, etc.

**INSET Student Publications:** Nine students from 2002-2005 have co-authored published articles, six students from 2005 - 2006 have papers in the submission process. One of the intern articles was featured on the cover of *Science* – the cover photo was a micrograph taken by INSET intern Michael Porter with his mentor, James Weaver (see image). Three students were co-authors on papers presented by their mentors at national conferences.

*The INSET program has been supported by grants from the National Science Foundation and the National Institute for Health.*

*Data prepared by Liu-Yen Kramer ([liu-yen@cnsi.ucsb.edu](mailto:liu-yen@cnsi.ucsb.edu)) May 2008*

*For more information about INSET, please visit [http://www.cnsi.ucsb.edu](http://www.cnsi.ucsb.edu)*