60e Nanotechnology as Vehicle for Community College Educational Partnerships

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The California NanoSystems Institute (CNSI) at the University of California, Santa Barbara has created partnerships with local community colleges to promote the successful transfer of community college students to 4-year institutions, support their eventual degree completion, and encourage their pursuit of advanced degrees. These partnerships were developed in recognition of the highly underutilized talent pool that community colleges represent: they serve a disproportionate number of underrepresented minority and female students, as well as a hugely disproportionate number of nontraditional students, compared to 4-year institutions. ("Nontraditional" factors include full-time employment, having children or dependents, delayed enrollment, and being financially independent.) There are several aspects which make nanotechnology fields particularly appealing and appropriate for this target audience. The multi-disciplinary nature of nano-related research insures that most students will find something of interest, regardless of their varied backgrounds. Community college students are also excited by the prospect of careers in this emerging high-profile field. From the an institutional perspective, these students are also an ideal group for workforce training. For 4 years, CNSI has operated the "Internships in Nanosystems Science, Engineering and Technology" (INSET) program, which engages community college students for 8 weeks in intensive, interdisciplinary nano-related research, under the guidance of CNSI faculty and graduate student mentors. More recently, CNSI initiated another community college-focused program through the NSF "STEM Talent Expansion Program," entitled "Expanding Pathways in Science, Engineering and Mathematics." This new program involves UCSB researchers as academic and research mentors for disadvantaged/underserved community college and high school students, to encourage them to complete 4-year degrees in science, engineering and mathematics. It additionally promotes peer-to-peer mentoring through close cooperation with the INSET program. Through these programs and partnerships, CNSI is able to address the broad issues of education, mentorship and retention for students in the science and engineering disciplines that so critically underpin work in nanosystems.