MAR08-2007-004410

Abstract for an Invited Paper
for the MAR08 Meeting of
the American Physical Society

Engaging undergradate students in interdisciplinary courses in nanotechnology

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Two new courses at UCSB engage both undergraduate and graduate students in situated learning so that they can acquire the knowledge and skills they will need for future academic courses and career development. These courses are designed and taught by research faculty and education staff at the California Nanosystems Institute (CNSI) at UC Santa Barbara. The speaker, Dr. Goodchild, Education Director at CNSI, collaborated in the course design and is advisor on assessment and pedagogy for both courses. The first course, entitled INSCITES, is aimed at first and second year students who are interested in the impacts of science and technology in society. This general education course is team taught by three Graduate Teaching Scholars from across engineering, science and social sciences. They collaborate with lead faculty from Materials Science and History to design both the curriculum and instructional format for the 10 week course that is supported by the National Science Foundation. INSCITES was taught for the first time in Spring 2007 and feedback indicated that the course had convinced the undergraduate students that they would like to take further courses outside their majors. The second course, entitled the *Practice of Science* is open to all majors in science and engineering, especially those in second and third year who are interested in scientific research and related career opportunities. The course has been taught for the past 4 years as a two quarter course by two research faculty who focus on the nature of scientific discovery, the role of graduate researchers and faculty, the challenges of collaboration across disciplines and the mechanisms for funding research in academia and industry. In the first quarter each students is expected to identify a mentor and a research group in which they can pursue an individual research project, to be completed during the second quarter when the classes are designed to operate like research group meetings. Evaluation indicates that both courses attract students from underrepresented groups in science who value gaining a broader perspective about nanotechnology and the career opportunities that it offers to undergraduate students.