2014 Hawaii University International Conferences
Science, Technology, Engineering, Math & Education
June 16, 17, & 18 2014
Ala Moana Hotel, Honolulu, Hawaii

Citizen Science: Inquiry Based Learning in the Core Curriculum to Advance College Science Literacy

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To develop scientific literacy in our students, Citizen Science was added to Bard College's common curriculum. During this, all first year students participate in scientific inquiry. Students take part in problem-based learning, laboratory experimentation, and computing activities. Varied strategies are used to develop students' abilities to critically evaluate scientific evidence, and recognize strengths and limitations of common tools. Student outcomes from years 1-4 will be discussed.

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Abstract: Bard College is a selective private liberal arts institution in New York's Hudson Valley. Bard emphasizes mandatory curricular components, common to all students during their first year of study. This common educational experience develops campus-wide conversations surrounding large questions, with a goal of preparing students for a lifetime of thoughtful engagement with complex issues. In recognition that scientific literacy is both a key feature of, and pathway to, an engaged and informed citizenry, Citizen Science was added to the College's first year core curriculum in 2011. The Citizen Science program is an intense 3-week course held over the January intersession, during which all first year students participate in common processes of scientific inquiry. The curriculum includes three compulsory topics which all faculty teach, as well as several optional topics, which provide flexibility for individual faculty to respond to the interests of their particular class. All of the topics support discussion towards answering the overarching large question, "*How can we reduce the global burden of disease?*" As students attempt to answer this question, they take part in problem-based learning, using tools such as microbiological laboratory experimentation, computer modeling, and bioinformatic analyses. These hands on experiences are coupled with the use of case studies and consideration of historical events alongside current primary research to give context and perspective. The combination of these diverse experiences is intended to challenge students to identify and critically evaluate scientific evidence in different forms. Further, students generate, analyze and interpret their own data, providing them perspective on experimental design and the strengths and limitations of commonly used tools such as computer models and bench science. Student response and outcomes from the first four years will be discussed.