

Title:

Science Education for New Civic Engagements and Responsibilities (SENCER) in
Community Colleges

Presenters:

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Kapi`olani Community College

Dennis Leman
Special Assistant to the President
SCI-Midwest Co-director
Professor, Chemistry
Harold Washington College

Session Description:

*The Science Education for New Civic Engagements and Responsibilities in
Community Colleges* session will provide opportunities for CCNCCE members to engage
SENCER faculty, discuss SENCER approaches, and consider developing regional
collaborations. SENCER seeks to improve science education by helping to develop and
strengthen efforts that teach *through* complex social issues *to* the basic science necessary
to comprehend and intelligently act on them. SENCER courses promote critical thinking
and research skills for problem-solving through service-learning, community-based
research on important public policy issues, and a variety of other approaches. Finally,

SENCER courses foster student engagement in the community to create a greater sense of place and responsibility.

The session will include short presentations and discussion covering the following topics:

SENCER Overview (Shachter)

A dynamic introduction to the SENCER project including an overview of an interdisciplinary set of SENCER Model courses

SENCER Course Presentations:

Renewable Environments: Transforming Urban Neighborhoods

(Bachofer)

The Science of Sleep and other courses (Franco)

Urban Asthma and other courses (Lehman)

Chemistry and the Environment (Shachter)

SCI-West Regional Research Project and other SCI Activities (Bachofer and Lehman)

The overall goal of this SENCER session is to assist faculty in designing science courses for community colleges with civic engagement components. To achieve this goal, the presenters will provide and discuss course materials for the set of SENCER courses described above including several courses that have been chosen as SENCER national models. Each model offers a particular approach for linking science education with civic and community engagement. The SENCER session will also include a discussion of a community-based regional research project that participants will be invited to become involved in and to develop curricula around. The presenters will provide syllabi and

other course materials for the SENCER models and other SENCER courses. An interactive workshop approach will be used throughout the session.

SENCER and SCI-WEST Background. Initiated in 2001, SENCER¹ is a national dissemination project funded by the National Science Foundation. SENCER has established and supported an ever-growing community of faculty, students, academic leaders, and others to improve undergraduate STEM (science, technology, engineering and mathematics) education for non-science majors by connecting learning to critical civic questions. The SENCER community currently counts as its members 1,100 educators, academic leaders, and students from over 300 colleges and universities from the US and 13 other countries. SENCER is housed in the National Center for Science and Civic Engagement (NCSCE), which was established in affiliation with Harrisburg University of Science and Technology.

In 2007, the SENCER project received an additional three years of funding from NSF. As part of the next stage of project, five regional SENCER Centers of Innovation (SCI) have been established. The SCIs expand the work of SENCER by organizing regional workshops designed to foster a multi- and interdisciplinary approach to science education with a focus on civic engagement. SCIs create a multi-institutional community with outreach to regional academic institutions and related organizations as well as to strategic national institutions and organizations related to a SCIs theme or expertise.

The SCI-West is sponsored by Santa Clara University and NCSCE. The main theme is sustainability with a focus on water resources and a secondary emphasis on undergraduate research. The SCI-West co-directors are Amy Shachter (Santa Clara

¹ <http://www.sencer.net/About/projectoverview.cfm>

University) and Steven Bachofer (Saint Mary's College). The Leadership Council members for SCI-West include: Stephen Carroll (Santa Clara University), Virginia Carson (Chapman University), Larry Duffy (University of Alaska, Fairbanks), Bob Franco (Kapi`olani Community College), Garon Smith (University of Montana), Julia Smith (Holy Names University), and Greg Van Doren (Heritage University).

In addition to fostering new approaches to science education through service learning and civic engagement, SCI-West is launching a regional watershed research project: *Precious Water and Watersheds*. Healthy watersheds are crucial to ensuring high-quality drinking water. Many potential contaminants threaten our watersheds and require detailed monitoring of waterways. The SCI-West Research Project seeks to actively engage students and faculty from various educational institutions in biological, chemical, and environmental science courses to monitor watersheds for specific contaminants. The research results will become a resource for the community as well as water regulatory agencies. The compiled research will be presented at SCI-West workshops and other professional meetings, posted on the SCI-West website, communicated in the scientific literature and shared with water districts and regulatory agencies.