

SCIENCE EDUCATION FOR NEW CIVIC ENGAGEMENTS AND RESPONSIBILITIES

SENCER—Science Education for New Civic Engagements and Responsibilities—is a comprehensive faculty development and science education reform project funded by the National Science Foundation. SENCER engages student interest in the sciences and mathematics by supporting the development of **undergraduate courses and academic programs that teach “to” basic science and mathematics “through” complex, capacious, and unsolved public issues.**

SENCER courses and academic programs aim to **strengthen learning in science, technology, engineering, and mathematics (STEM) disciplines.** These courses and programs employ rigorous interdisciplinary approaches to teaching basic science and bolstering students’ capacities to become engaged citizens. They have shown great promise in contributing to improving general education for the student who has expressed little interest or inclination to study in the sciences and mathematics. There is emerging evidence that the SENCER approach **strengthens learning for women, minorities, and students who major in non-STEM fields** as well as for those who have chosen to major in a STEM field. An independent evaluation has found that 80% of SENCER projects planned at Summer Institutes and implemented on campus are now considered permanent parts of the curriculum.

SENCER works to encourage and support **faculty development** and **campus leadership** through a coordinated set of activities and programs. Throughout the year, numerous **national, regional, and local symposia and outreach activities** sponsored or co-sponsored by SENCER offer opportunities for SENCER alumni to report on what has been learned and to invite participation by faculty who are newly attracted to the SENCER approach.

RESOURCES

SENCER Featured Models

The SENCER Model Series features 40 field-tested courses, programs, and learning communities that take rigorous interdisciplinary approaches to teaching basic science and strengthening students’ capacities to become engaged citizens. View the full text of all models at www.sencernet.net.

SENCER Backgrounders

SENCER Backgrounders are commissioned papers in which scholars explore the wider range of issues that link science and complex civic challenges and identify opportunities to use the best learning research we have to increase the likelihood that a course or program will achieve its intended goals. Backgrounders can be accessed at www.sencernet.net.

SENCER Summer Institutes (SSI)

The SENCER Summer Institutes (SSI) are annual, invitational, national faculty development and academic reform opportunities for faculty, academic leaders, and students. The Institutes provide excellent learning and networking opportunities and feature a rich mix of plenary sessions, workshops, and concurrent sessions that focus not only on what students learn, but how that learning might best be accomplished.

SENCER Leadership Fellows

Leadership Fellows represent SENCER on campus by guiding course development or other projects, offering seminars and presentations on campus and in the local area, mentoring colleagues, and collaborating with regional organizations. Fellows are elected to 18-month terms by the National Fellowship Board, chaired by David Ferguson, distinguished service professor at Stony Brook University.

SENCER Visiting Scientists & Mathematicians

Faculty members on sabbatical or summer leave may apply to join the SENCER National Office staff to help implement SENCER’s national dissemination initiative. Cindy Kaus of Metropolitan State University served as Visiting Mathematician during the 2008-2009 academic year.

The Assessment of Learning in SENCER Courses and Projects

Assessing the learning that happens, as well as the efficacy of the SENCER approach, is a key program goal. SENCER has sponsored the development of the SENCER-SALG (Student Assessment of Learning Gains) Instrument. This is an online, validated pre-/post-course assessment tool that may be customized by faculty who are using it. Please visit <http://salgsite.org> to access the instrument.

SENCER Centers for Innovation (SCI)

SENCER Centers for Innovation are cores of the strong regional networks that support alumni and those new to SENCER. Each SCI—New England, West, Midwest, Midatlantic, and South—offers workshops or symposia to complement annual, national events such as the SENCER Summer Institutes and the Washington Symposium and Capitol Hill Poster Session, provides local experts for on-site consultations, supports the work of Leadership Fellows, and offers guidance on course development. SCIs are directed by Leadership Councils whose members represent institutions in the regional area.

SENCER Senior Associates

SENCER core faculty, called SENCER Senior Associates, maintain real connections with SENCER teams via e-mail, visits, and by telephone and help organize regional meetings of faculty, academic leaders and students involved in SENCER.

SENCER House Calls

The House Calls program matches SENCER consultants with institutions to support their on-going work at their institutions. Visit www.sencernet.net if you’d like SENCER to make a house call to your campus.

The SENCER Virtual Community

SENCER maintains a vibrant, informative web presence at www.sencernet.net. Please visit often for updates on regional and national events, news, and opportunities to get involved.



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2010 SENCER Summer Institute

July 29th—August 2nd
Asheville, NC

Please visit www.sencernet.net for more information.

NATIONAL CENTER FOR SCIENCE AND CIVIC ENGAGEMENT

The **National Center for Science and Civic Engagement (NCSCE)** seeks to inspire, support, and disseminate campus-based science education reform strategies that **strengthen learning and build civic accountability** among students in colleges and universities. The Center serves as a national resource for the improvement of undergraduate science education and will provide a platform for **enabling faculty and administrators to broaden the impact of their innovations and reforms** beyond their campuses. NCSCE was established in affiliation with **Harrisburg University of Science and Technology**, a private, not-for-profit teaching institution that offers undergraduate and graduate students an applied science and technology education. NCSCE's signature programs are SENCER and GLISTEN, the Great Lakes Innovative Stewardship Through Education Network. GLISTEN was funded in 2009 by the Corporation for National and Community Service's Learn and Serve America program. Learn more at www.NCSCE.net.

AREAS OF FOCUS

The Center seeks partners to expand current efforts and develop new projects focused on:

Personal and Public Health—Health is a major civic and trans-disciplinary challenge, embracing selected broadscale, community-based threats and challenges to health, as well as specific diseases and conditions.

Democracy, Itself—Our special inheritance as Americans obligates us to promote democratic ideals and improve democratic practice. Several matters of current importance offer excellent opportunities for learning mathematics, statistics, and the application of science through technologies. This study also stimulates students to be conscientious, engaged citizens.

Assessment—Does the approach of connecting learning in the sciences to critical issues facing our society improve learning? Does it stimulate informed, conscientious and effective civic engagement? To get evidence of effectiveness requires the development of—and a commitment to implementing—specific and sensitive assessment tools. Moreover, there is an absolute need to use assessment to learn how to reduce the unnecessarily high “casualty rates” among those engaged in the serious study of science and mathematics.

Globalization—NCSCE regards globalization as a vehicle (a subject) for learning science and an occasion for establishing international collaborations that stimulate the engagement of U.S. students, campuses, communities, and citizens with issues and problems that are not confined within national borders.

The Environment—Matters affecting the environment constitute key challenges for those making public and civic policy. Knowledge developed in the fields of science, technology, engineering, and mathematics (the so-called STEM disciplines) is an essential ingredient in democratic deliberations regarding the environment, just as issues affecting the environment hold special promise as vehicles for improving learning in the STEM disciplines.

Educational Practice—NCSCE's SENCER program has, at its core, a theory about how learning in science and mathematics can be enhanced, especially for those who have not succeeded at learning within currently common instructional practices. At the heart of this is a focus on “the science of learning” as applied to the learning of science.

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