NEW SEMINAR WILL PREPARE SCIENCE FACULTY MEMBERS TO USE MOST EFFECTIVE TEACHING METHODS

(WASHINGTON, DC) The Council of Independent Colleges (CIC) announced a new program designed to prepare faculty members at CIC member institutions to adopt active learning methods proven to be successful in teaching science. Small colleges have long been recognized for the high percentages of their science majors who complete undergraduate degrees, earn advanced degrees, and enter STEM careers.

Supported by a $300,000 grant from the W. M. Keck Foundation, the CIC Seminars on Science Pedagogy will take place in summer 2019 and 2020. Based on the findings of Nobel laureate Carl E. Wieman’s research, they are designed to improve teaching effectiveness and student learning in biology, chemistry, and physics courses.

While Wieman and his collaborators at Stanford University, the University of British Columbia, and the University of Colorado at Boulder, as well as many other STEM faculty members have used these specially developed methods and new evaluation tools with success for years, this new seminar marks the first systematic attempt to promote this powerful pedagogy among faculty members at smaller independent colleges and universities. Wieman provided the inspiration for and has been the guiding force in developing the seminars, recommending the faculty, providing the syllabus, and shaping the process.
“Colleges and universities must offer incentives and support for faculty to adopt new, more effective methods of teaching and of evaluating teaching and student learning, to ensure those improvements persist,” emphasized Wieman.

CIC President Richard Ekman commented, “We must acknowledge that proven methods exist that far exceed the effectiveness of lectures to educate students in STEM fields. The ability to think like a scientist is critical for all students, not just those who will major in STEM or plan to pursue an advanced degree. Systematic change is needed to create the science-literate population needed to understand research-based science policy, which affects all aspects of today’s society. Colleges and universities must adopt incentives and rewards for faculty members who use evidence-based instruction methods. Smaller institutions are nimble enough to make these changes quickly with sufficient motivation.”

Despite numerous studies that have demonstrated improved effectiveness if instruction were changed from traditional lectures to more effective, active learning methods—in the sciences as in other fields—research indicates that the lecture is still the default method for many faculty members. The recent Association of American Universities’ progress report on the AAU STEM initiative begins with a message from AAU President Mary Sue Coleman about evidence-based teaching methods such as Wieman’s: “We cannot condone poor teaching of introductory STEM courses because we are trying to weed out the weaker students in the class or simply because a professor, department and/or institution fails to recognize and accept that there are, in fact, more effective ways to teach…. This change is what is needed to ensure that we have the STEM-literate workforce and general population required to propel the nation forward into the 21st century and beyond.”

A new analysis of more than 2,000 classes in science, mathematics, and technology found that in 55 percent of the classrooms the lecture remains the dominant method of teaching and the primary way that class time was spent. The study, published in the journal *Science*, represents the largest observation of STEM teaching ever completed. Slightly more than 25 percent of the classes were based on lectures but incorporated some measures of interactivity. Less than 20 percent of classes used group activity and discussions as primary teaching methods. The report urged colleges and universities to focus more on training faculty members in active-learning techniques instead of simply sharing articles about their effectiveness.

CIC will select nine institutions to participate in each Science Pedagogy Seminar through a competitive application process. Each institution will support a team of four faculty members from no more than two disciplines (biology, chemistry, or physics), including at least one department or division chair or dean. The team will receive intensive training that will prepare them to implement and assess research-based active learning methods in introductory courses in their departments when they return to campus.

The first seminar will take place July 15–19, 2019, at Holy Names University in Oakland, California. All seminar facilitators have extensive experience with the methods and materials to be developed in the seminar and have been trained by Wieman. After the
seminar, college faculty members will participate in webinars, as well as conference calls and a site visit for each institution.

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The **Council of Independent Colleges** (CIC) is an association of 770 nonprofit independent colleges and universities, state-based councils of independent colleges, and other higher education affiliates, that works to support college and university leadership, advance institutional excellence, and enhance public understanding of independent higher education’s contributions to society. CIC is the major national organization that focuses on services to leaders of independent colleges and universities and state-based councils. CIC offers conferences, seminars, publications, and other programs and services that help institutions improve educational quality, administrative and financial performance, student outcomes, and institutional visibility. It conducts the largest annual conferences of college and university presidents and of chief academic officers. Founded in 1956, CIC is headquartered at One Dupont Circle in Washington, DC. For more information, visit [www.cic.edu](http://www.cic.edu).