



## ASSOCIATION OF AMERICAN UNIVERSITIES

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### **AAU SELECTS EIGHT CAMPUS PROJECT SITES FOR UNDERGRADUATE STEM EDUCATION INITIATIVE**

The [Association of American Universities](#) (AAU) announced today that it has selected eight AAU member campuses to serve as project sites for the association's five-year [initiative](#) to improve the quality of undergraduate education in science, technology, engineering and mathematics (STEM) fields at its member institutions. The project, which was [announced](#) in 2011, is designed to encourage departments in these disciplines at AAU universities to adopt proven, evidence-based teaching practices and to provide faculty with the encouragement, training, and support to do so.

Over the next three years, each of the eight campus sites will implement a major undergraduate STEM education project that incorporates key elements of the AAU STEM [framework](#), which is based on these more effective teaching practices.

The eight sites were chosen from among 31 AAU universities that submitted concept papers, based on a number of criteria, such as the degree of department and faculty engagement, institutional commitment, likelihood of sustained organizational change, and commitment to evaluation and assessment. In addition, the process was designed to ensure that projects would address a wide range of the elements outlined in the AAU STEM Framework. The elements focus on various challenges departments face in changing teaching methods, ranging from assessing and rewarding teaching excellence to faculty professional development and assessing student learning.

The AAU initiative received a three-year, \$4.7 million grant from The Leona M. and Harry B. Helmsley Charitable Trust last October which has enabled the association to develop the initiative framework and which will provide a total of \$500,000 seed money to each project site over the next three years for implementing change.

AAU will also create an AAU STEM network in which it expects most or all of its universities to participate. The network will enable faculty and administrators at AAU institutions to share best practices and promote sustainable change in undergraduate STEM teaching and learning.

Last month, AAU [announced](#) that it had received a two-year, \$294,000 grant from the National Science Foundation to develop a set of metrics for the initiative that will allow individual institutions to evaluate their use of evidence-based teaching practices.

“We have reached an exciting milestone in our initiative,” said AAU President Hunter Rawlings. “With the strong support provided by the Helmsley Trust, these eight project sites will each begin—or in some cases continue—to institutionalize evidence-based teaching in STEM fields. These changes will make teaching and learning far more interactive and participatory, and we hope will enhance overall student learning in STEM fields and reduce the number of students who choose to drop out of these majors.”

He added, “The selection committee faced a very difficult task, as many universities submitted concept papers of very high quality. Eventually, it is our hope that all of our institutions will participate in and benefit from this initiative, because the truth is they are all working hard to improve undergraduate STEM teaching and learning.”

Following are brief descriptions of some of the activities planned at the eight project sites:

### **[Brown University](#)**

The Brown project will address mathematical competency among STEM majors in order to ensure that all STEM majors are prepared to succeed in interdisciplinary and research-based science courses. Brown will build a teaching community to implement effective teaching practices within several departments across campus and will train graduate students to help develop and deliver revised course content.

### **[Michigan State University](#)**

MSU will develop a new “gateway” STEM curriculum for freshmen and sophomores, focused on disciplinary and cross-disciplinary “core ideas” and science practices. Michigan State has formed an alliance of STEM departments and colleges across campus to work together on these reforms. .

### **[The University of Arizona](#)**

Arizona will redesign five courses - three introductory STEM courses aimed at life science majors and two engineering courses. Three common themes will cut across all the course redesigns: 1) promotion of information and quantitative literacy, 2) use of real-life applications in problem solving, and 3) use of hands-on demonstrations and experiments to develop conceptual understanding. Arizona also will promote a STEM teaching partners program, where a faculty member with experience in active pedagogy leads a team of other faculty members.

### **[University of California, Davis](#)**

The iAMSTEM center at UC Davis will serve as a hub for providing STEM faculty with data on which teaching and learning practices are most effective in their courses. The iAMSTEM hub will also lead the redesign of five large-scale introductory STEM courses that will incorporate evidence-based teaching methods: freshman engineering design and communication, introductory chemistry, biology, mastery math, and math for biologists.

### **[University of Colorado, Boulder](#)**

Building on the University’s already-extensive work to promote departmental changes to improve STEM teaching, CU Boulder’s project focuses on using more effective measures to

assess teaching and on increasing the value of teaching in the university culture. CU Boulder will support cultural change by creating community support structures within departments, including designating faculty “anchors” to sustain support for evidence-based educational practices and quality teaching. A major outcome will be changing the institutional incentives and reward system to value effective educational practices.

### [The University of North Carolina at Chapel Hill](#)

UNC will use a network of "mentor-apprentice" relationships between faculty members to achieve widespread adoption of student-centered, active pedagogy techniques in large courses that have traditionally been taught by the lecture method.

### [University of Pennsylvania](#)

The University of Pennsylvania will couple its investment in open, online learning with in-class student engagement activities to create "blended" introductory courses in mathematics, chemistry, physics, and engineering.

### [Washington University in St. Louis](#)

Wash U's project focuses on incorporating effective active-learning techniques in STEM courses throughout the schools of Arts & Sciences and of Engineering and Applied Sciences. The university will design and implement a professional development program in active learning techniques and practices for faculty and graduate students, including a Summer Institute for Teaching. The campus also will promote cultural change by creating a faculty teaching community that integrates and values research and teaching.

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*The [Association of American Universities](#) is an association of 60 U.S. and two Canadian research universities organized to develop and implement effective national and institutional policies supporting research and scholarship, graduate and professional education, undergraduate education, and public service in research universities.*

*The Leona M. and Harry B. Helmsley Charitable Trust aspires to improve lives by supporting effective nonprofits in a variety of selected areas. Since 2008, when the Trust began its active grant making, it has committed more than \$900 million to a wide range of charitable organizations. Through its National Education Program, the Trust views education as a lever to advance both American economic competitiveness and individual social mobility. In K-12, the Trust focuses on ensuring all students graduate high school prepared for college or careers by supporting teacher effectiveness and the implementation of high academic standards. In postsecondary education, the Trust is primarily interested in increasing the number of Science, Technology, Engineering and Mathematics (STEM) graduates who can participate in high growth sectors of the economy. The Trust also focuses on policy levers that improve postsecondary completion, particularly for underrepresented populations. For more information, please visit [www.helmsleytrust.org](http://www.helmsleytrust.org).*