

# EXCELLENCE

A Renewed Call for Change in  
Undergraduate Science Education



“[We] have a responsibility to  
make inclusion a daily thought,  
so we can get rid of  
the word ‘inclusion.’”

—*Theodore Melfi*

## UNDERSTANDING THE DEMAND FOR INCLUSION

Today, the demand for inclusion in undergraduate science education is situated within a shifting sociopolitical context that is: (1) increasingly complex and global, (2) influenced by an increasing number of confounding variables, (3) continuously redefined by the changing nature of the problems at hand and the criteria by which we define successful solutions, and (4) undergirded by the troubling history of race relations in America. This contemporary reality requires that we boldly embrace a more dynamic conceptualization of excellence in undergraduate science education—one that advances innovation and rightfully positions inclusion as its necessary precondition.

While this course of action includes uncertainties, the contextual truths of our day—diminishing quality of life, widening educational divides, and waning US preeminence in science and technology—make those risks minimal compared to the cost of maintaining the status quo.

## RECONCEPTUALIZING EXCELLENCE, WITHOUT PAST LIMITATIONS

For centuries, the historical norms and values of scientific discovery and innovation have shaped the definition of excellence. However, such conventions have often limited our capacity to cultivate and harness creativity from the widest possible range of perspectives, worldviews, and disciplinary expertise. Because undergraduate science education has been contingent upon these conventions, its definition, too, has been limited to the kind of traditional thinking, static explanations, and short-sighted enterprises that have misguidedly informed contemporary conceptions about what really constitutes excellence.

Reconceiving excellence in undergraduate science education, then, demands that we transcend any outcome, discrete status, or mastery of initiatives or interventions. At its core, excellence in undergraduate science education must represent a dynamic stance whereby an institution, and

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the individuals within it, are predisposed and positioned to desire, foster, recognize, and require the actions and outcomes that are simultaneously (1) quintessential to inclusion and (2) indistinguishable from excellence in scientific discovery and innovation. In doing so, inclusion becomes the obligatory factor that defines the institutional code for excellence—thereby distinguishing true meanings of inclusive excellence that are not constrained by past limitations—from the outdated historical conceptualizations that have dominated the sciences for decades.

### **THE THREE AGREEMENTS FOR EXCELLENCE**

The entire academic science community must recognize that change alone, without regard for institutional capacity to cultivate scientific talent, is inconsistent with excellence in undergraduate science education. To that end, colleges and universities, and the professional societies and funding agencies that support them, must depart from a habitual reliance on modest workaround approaches and incremental change strategies and, instead, pursue more daring shifts toward new institutional paradigms that embrace inclusion as an immutable indicator of excellence in undergraduate science education.

The shift begins with a set of Agreements for Excellence that are posited here, not as an exhaustive list of approaches to inclusion, but as a point of departure for a renewed call for change in undergraduate science education. The AAC&U Inclusive Excellence Commission recognizes the longitudinal, iterative nature of the work of institutional capacity building and change in undergraduate science education. As such, it is fully expected that these Agreements will expand, evolve, and strengthen over time. For now, we agree that:

**Excellence in science education is dynamic and both critical of and responsive to surrounding contexts.** Diverse segments of communities—including both the cultural and contextual dimensions required to produce scientists who are prepared to address the contemporary, challenging, and ever-changing problems of society—must be openly acknowledged, centrally focused upon, and fully engaged at

the institutional level. This requires that institutions add substance, not just style, to their willingness to critique and point *all* resources, policies, and daily transactions toward a single direction that continuously tunes and re-tunes the spoken and unspoken definitions, criteria, and codes for excellence. Only those institutions with the capacity—either inherent or learned—to shift and respond as the US population and its sociopolitical contexts evolve are ideally situated for excellence in undergraduate science education.

**Excellence in science education is combative toward language that marginalizes any group.** The regular, continued use of marginalized language—whether in the conventional practices of curriculum and policy development, institutional and departmental cultural practices, scholarly publications, formal and informal dialogues that shape academic advising and mentoring, or the professional discourse of academicians—is fundamentally antithetical to excellence. Therefore, institutions must adopt an entirely new lexicon for characterizing what constitutes the new majority of undergraduate science students in the US. It is incumbent upon us to redefine and replace historically constricting labels with vocabulary that reflects a root cause analysis of the “hows,” “whys,” and “to what extents” disproportionate societal burdens and educational divides have impacted new majority undergraduate science students and the faculty role models and mentors so critical to their development.

**Excellence in science education is the result of constant and critical self-examination at the institutional and individual levels.** As institutional capacity for transformative change is honed, it must also be prioritized in ways that continually explore, assume responsibility for, and avoid perpetuation of the problematic structures, systems, cultures, traditions, and practices that have sustained barriers to the inclusion and full engagement of new majority students and faculty. The result—an openness to curricular innovation and institutional reconfigurations, as well as the examinations of proposals for change with deep and reflective insight and vision—can and must inspire confidence that excellence is not only possible for all students, but probable.

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## **INCLUSIVE EXCELLENCE COMMISSION**

The Association of American Colleges and Universities (AAC&U) and the Howard Hughes Medical Institute (HHMI) have partnered to establish the Inclusive Excellence Commission. The Commission is a complement to HHMI's newest initiative, *Inclusive Excellence: Engaging All Students in Science*, and plays a crucial role in the development, implementation, and advancement of a conceptual realist model for excellence in undergraduate science education.

Members of the Commission are nationally and internationally recognized experts who function as a networked improvement community that examines the process of institutional capacity building for inclusive excellence in undergraduate science education. They are:

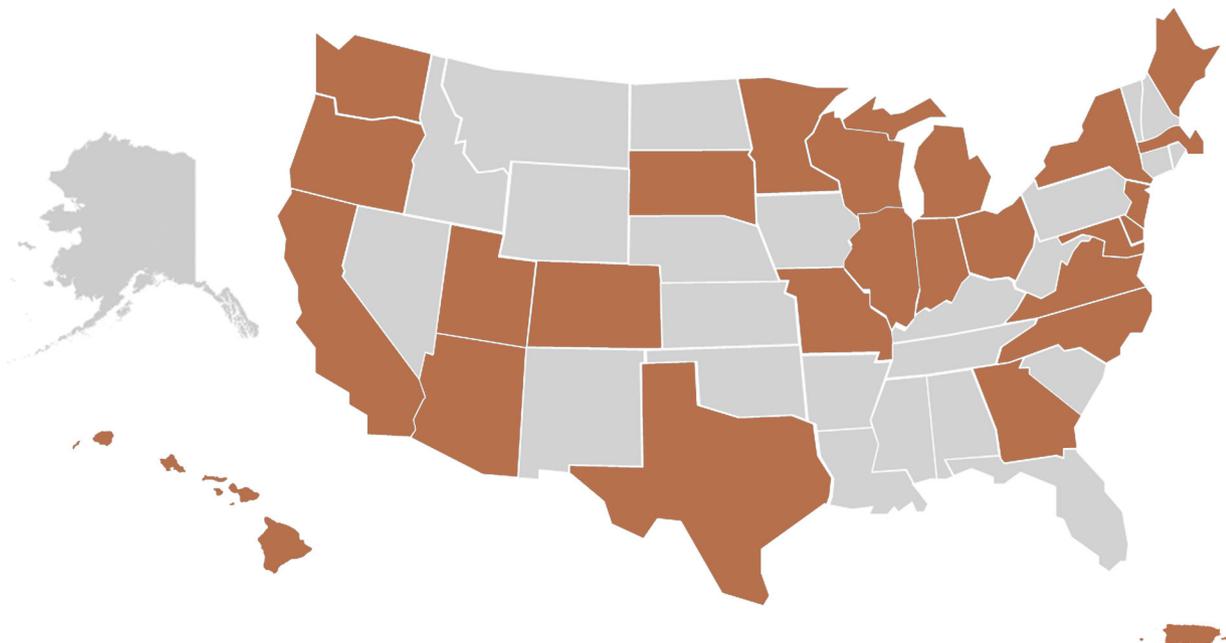
- ❖ **Melvin Hall, Ph.D.;** Professor of Educational Psychology; Northern Arizona University
- ❖ **John Matsui, Ph.D.;** Director, Biology Scholars Program and Assistant Dean, Biological Sciences; University of California, Berkeley
- ❖ **Kelly Mack, Ph.D. (Chair);** Vice President for Undergraduate STEM Education and Executive Director of Project Kaleidoscope; Association of American Colleges and Universities
- ❖ **Patrice McDermott, Ph.D.;** Vice Provost for Faculty Affairs; University of Maryland Baltimore County
- ❖ **Tykeia N. Robinson, Ph.D.;** Policy Research Fellow; Association of American Colleges and Universities
- ❖ **Kate Winter, Ph.D.;** Kate Winter Evaluation, LLC

For more information about the Commission and to track its activity, visit <https://www.aacu.org/commission>.

For more information about the HHMI Inclusive Excellence Initiative, visit <https://www.hhmi.org/>.

## WHO IS PARTICIPATING IN THE INCLUSIVE EXCELLENCE INITIATIVE?

To date, **57 institutions** representing **25 states**, the **District of Columbia**, and **Puerto Rico** have been selected to participate in the Inclusive Excellence Initiative.



## **THE HOWARD HUGHES MEDICAL INSTITUTE**

The Howard Hughes Medical Institute plays a powerful role in advancing scientific research and education in the United States. Its scientists, located across the country and around the world, have made important discoveries that advance both human health and our fundamental understanding of biology. The Institute also aims to transform science education into a creative, interdisciplinary endeavor that reflects the excitement of real research. Information about the HHMI Inclusive Excellence program can be found at [www.hhmi.org/InclusiveExcellence](http://www.hhmi.org/InclusiveExcellence).

## **THE ASSOCIATION OF AMERICAN COLLEGES AND UNIVERSITIES**

AAC&U is the leading national association dedicated to advancing the vitality and public standing of liberal education by making quality and equity the foundations for excellence in undergraduate education in service to democracy. Its members are committed to extending the advantages of a liberal education to all students, regardless of academic specialization or intended career. Founded in 1915, AAC&U now comprises 1,400 member institutions—including accredited public and private colleges, community colleges, research universities, and comprehensive universities of every type and size.

Through a broad range of activities, AAC&U reinforces the collective commitment to liberal education at the national, local, and global levels. Its high-quality programs, publications, research, meetings, institutes, public outreach efforts, and campus-based projects help individual institutions ensure that the quality of student learning is central to their work as they evolve to meet new economic and social challenges. Information about AAC&U can be found at [www.aacu.org](http://www.aacu.org).