AAU Undergraduate STEM Education Initiative

…. to influence the culture of STEM departments at AAU universities so that faculty members are encouraged to use teaching practices proven by research to be effective in engaging students in STEM education and helping them learn.
Framework for Systemic Change in Undergraduate STEM Teaching & Learning

- Pedagogical Practices
  - Articulated Learning Goals
  - Educational Practices
  - Assessment
  - Access & Inclusion

- Scaffolding
  - Provide Faculty Professional Development
  - Provide Faculty with Accessible Resources
  - Collect Data on Program Performance
  - Align Future Facilities Planning

- Cultural Change
  - Leadership Commitment
  - Establish Strong Measures of Teaching Excellence
  - Align Incentives with the Expectation of Teaching Excellence

Essential Questions & Data Sources

- Provides a set of questions to use at multiple levels within your institution to assess progress along the set of key institutional elements identified in AAU’s Framework

- Associated with questions are data sources and analytical tools available to answer these questions

- Recommendations section to address cross-cutting challenges to institutional and multi-institutional evaluation

Cross-Cutting Strategies for Reform

- Levers for cultivating a culture of effective and inclusive teaching

Five-Year Status Report

October 2017

1. Shift from individual to collective responsibility by departments for introductory course curriculum.
2. Hire educational experts within departments to bolster reforms.
3. Harness institution-wide data to support student engagement and learning.
4. Reorganize administrative support services to better support departmental reform.
5. Develop new institutional business and financial models to promote sustained improvement.
6. Develop and re-engineer learning spaces.
7. Better manage the simultaneous pursuit of high-quality teaching and research.

Report from Virtual Workshop

May 2020

1. Build Community
2. Foster Equity and Inclusion
3. Provide high-quality educational experiences
4. Refine assessments of teaching and learning
5. Ensure safety and well-being
6. Acknowledge financial pressures

Project Sites & Network

To be as excellent in teaching as we are in research.
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To be as excellent in teaching as we are in research.

Miller, et. al., Catalyzing Institutional Transformation: Insights from the AAU STEM Initiative, CHANGE Magazine Sept/Oct 2017

Coleman, M. S., Smith, T. L., & Miller, E. R., Catalysts for achieving sustained improvement in the quality of undergraduate STEM education. Daedalus Fall 2019

www.aau.edu/stem
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Current Drivers

National discourse on inclusive and equitable learning environments

Calls for widespread adoption of evidence-based educational practices (EBEPs)
  • Recognition and reward systems are a key lever

Accumulating evidence of and attention to the limitations of student ratings
  • Bias, links to poorer learning, narrow range of teaching activities
  • Faculty frustration, student voice

How to evaluate for promotion
  • Proliferation of new teaching positions
  • Rapid transition to remote instruction in various modalities
  • International engagement on topic
Our Collaboration: Evaluating Teaching Effectiveness

• Shared vision of effective teaching, one that includes the **intellectual work** in teaching

• Frameworks and processes for documenting and evaluating all of the components of effective teaching

• Scaffolding for practical implementation and scaling of those approaches
Recognizing and Evaluating Science Teaching in Higher Education

- Student ratings are a primary form of summative evaluation of teaching.
- There are questions about the validity of student ratings.
- More effective evaluation methods can recognize and reward evidence-based teaching practices.
- Workshop started to frame the national conversation around the reform of teaching evaluation.
- Participants included experts in the fields of teaching and learning, as well as faculty from a range of institutional types, who are engaged in evaluation reform.
Engaging Community Stakeholders

- AAC&U Annual Meeting Panel (January 2020)
- AAU STEM Network Meeting – Summary Report (May 2020)
- APLU NSEC Workshop with STEM Education Centers (October 2020)
National Dialogue on Transforming STEM Teaching Evaluation in Higher Education

January 14-27, 2021

Opening Plenary: National Dialogue on Reforming STEM Teaching Evaluation in Higher Education

Teaching Evaluation Poster Symposia and Project Officer Hours

Closing Plenary: Cross-cutting Challenges and Opportunities to Improving Teaching Evaluation
What Can I Do?

- **Contribute** your framework, tools, approaches to a national repository OR **Use** the national repository to inform your efforts
  - ASCN February 2021 interactive repository launch
  - [https://ascnhighered.org/index.html](https://ascnhighered.org/index.html)
- **Join** a Community of Practice/Transformation
  - ASCN Spring 2021
- **Join** Continuing Discussions at National Meetings:
- **Support** the call for a consensus study by the National Academies and add your perspective, initiatives, and research to the invited public comments
- **Follow** the work of NASEM Board on Science Education and lend your voice to the work.
  - [https://www.nationalacademies.org/bose/board-on-science-education](https://www.nationalacademies.org/bose/board-on-science-education)
- **Spread** the word, the work, and the community
What key factor(s) need to be central to reimagining faculty reward structures?

What do you believe could be a strong starting point on your campus to transform teaching evaluation?
AAU Reports


Publications


Teaching Evaluation Resources

Advancing Teaching Initiative: Global initiative to improve the recognition, reward and evaluation of university teaching

Dutch Universities – Room for Everyone’s Talent


Fostering connections among the conversations to value the full range of faculty members portfolio of work (e.g. NASEM BHEW - Promotion and Tenure Policies and Incentives in Higher Education)