AAU STEM Department Chair Workshop

OCTOBER 2018

Welcome

INTRODUCTIONS

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.

Progress Toward Achieving Systemic Change

AAU 5 YEAR STATUS REPORT ON UNDERGRADUATE STEM EDUCATION INITIATIVE

Lessons Learned from AAU Undergraduate STEM Education Initiative

INSTITUTIONAL AND CULTURAL CHANGE

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

Lessons Learned from AAU Undergraduate STEM Education Initiative

ROLE OF A NATIONAL ASSOCIATION

- **Using a systems approach is promising to scale change**: Work across the multiple levels within an institution as well as across the higher education system
- **Develop a multi-theory strategy for maximum impact:** Using multiple strategies to scale change can be very valuable in projects with multiple stakeholders and complex motivations.
- **Understand and intentionally plan influence strategies:** Influence leaders such as presidents and provosts as well as other prestige and influence organizations
- **Carefully evaluate the framing and language used to communicate the change** Define overarching logics or value systems:
- **Create and leverage networks**: connecting multiple networks, providing support for networks, and developing leadership to maintain networks.
- **Consider culture change at multiple levels:** Changing AAU's own culture was just as important as encouraging change within its member institutions

Workshop Objective CRITICAL ROLE OF DEPARTMENTS

- Engage teams of department chairs from AAU member campuses in discussions about their role in solving the inherent challenges in improving the effectiveness of undergraduate STEM education at research-intensive universities

- Learn about successful strategies and approaches used by AAU member universities to facilitate institution-wide reform of undergraduate STEM teaching and learning

Workshop Goals

Engage department chairs in discussions about common themes departments confront when reforming undergraduate STEM education.

- Staffing models for introductory STEM courses
- Data to inform and assess curricular innovations in STEM departments
- Creating inclusive and welcoming learning environments
- Productive partnerships between academic departments and centers for teaching and learning
- Practices to value, evaluate, and reward teaching effectiveness

Travel Ticket

- One Travel Ticket per AAU University in attendance at the Department Chair Workshop
- Travel Ticket value is $1000
- Travel Ticket Applications Due: **Friday, November 9, 2018**
- Travel Ticket Reports due one month after one month after the event occurs.

Advancing a Culture of Teaching at Research Universities

PETER LEPAGE | CORNELL UNIVERSITY

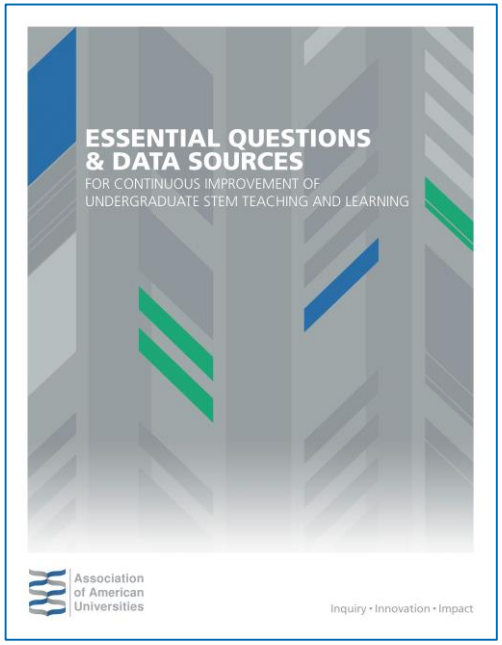
Creating Inclusive & Welcoming Classroom Environments

VIJI SATHY AND KELLY HOGAN | UNC CHAPEL HILL

Data to Inform and Assess Curricular Innovations

MARCO MOLINARO, UC DAVIS | BRAIN SATO & RAY VADNAIS, UC IRVINE

Essential Questions & Data Sources



- Provides a set of questions that can be used at multiple levels to assess progress
- Identifies data sources and analytical tools to help answer these questions
- Recommends ways to address challenges to institutional and multi-institutional evaluation

Table Top Exercise WORKSHEET

- What data and information are most important? Is it available? What additional information would you find valuable?

- What strategies and approaches would you use to facilitate productive conversations within your department about these types of data?

Practices to Value, Evaluate, and Reward Teaching Effectiveness

ANDREA FOLLMER GREENHOOT, UNIVERSITY OF KANSAS

Reflective Discussions by Academic Departments

Discipline Groupings and Locations

Biology: Light Blue Circle
Chemistry: Green Circle
Computer Science: Yellow Square
Earth and Geoscience: Green Square
Engineering: Dark Blue Circle
Mathmatics: Red Circle
Physics: Orange Square
Administrative Leaders: Yellow Circle

Discussion and "Just-in-Time" Poster

Consider both the opportunities and challenges in providing effective introductory STEM courses as well as identify actions that department chairs can take to advance a culture of teaching at research universities.

- *Consider the benefits and limitations of the various staffing models for introductory STEM courses. Is there intentionality that goes into teaching assignments?*
- *How is your department assessing curricular innovations? How do you calculate the costs of improvements?*
- *What strategies and approaches is your department using to create inclusive and welcoming learning environments?*
- *What are meaningful metrics and indicators for evaluating and rewarding faculty members contributions to improving the effectiveness of introductory STEM courses?*

Dialogue with College Deans

Productive Partnerships between Academic Departments and Centers for Teaching and Learning

Thank you