

The National Academies of
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Workshop on Advancing Systemic Change in Undergraduate STEM Education

Roundtable on Systemic Change in Undergraduate STEM Education

NAS Building Lecture Room (and via Webcast)
2101 Constitution Ave, NW Washington, DC 20418
September 6 & 7, 2018

Workshop Take-aways

- Identify ideas for thinking broadly and systemically about improving student learning in undergraduate STEM education.
- Promote thinking on the interconnections between societal change and undergraduate STEM education.
- Advance strategies for change in undergraduate STEM education.

Driving Questions

Systems Issues:

- How can using systems thinking lead to new insights about improving learning for undergraduate STEM students?
- How can higher education leaders stay in touch with the broader changes in society impacting needs and delivery of undergraduate STEM education?

Key Factors:

- What are the critical changes that undergraduate STEM education must take into account?
- How can higher education meet the needs of STEM learners from diverse backgrounds and preparations?

Advancing Change:

- What do leaders need to know and do?
- What is needed to support local and national leaders?
- What are the national tasks and what are the campus level tasks?
- Are there ways to target strategies most appropriate to each local context or type of institutions?
- What does the broader higher education community need to know and do?

DAY 1: Thursday, September 6, 2018

9:30 am **Welcome and Opening Remarks**

9:45 am **Changes in the Context of Higher Education and Implications for the Future**

- **John Cavanaugh**, Consortium of Universities of the Washington Metropolitan Area
- **Rufus Glasper**, League for Innovation in the Community College
- **Christine Ortiz**, Station1 and Massachusetts Institute of Technology
- **Francesca Purcell**, American Academy of Arts and Sciences

Moderator: Ann Austin

11:30 am Lunch

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- 12:30 pm **Changes in the Learners: Increased Variety of Students and Student Goals**
- **Ryan Kelsey**, Achieving the Dream
 - **John Michael Lee**, Elizabeth City State University
 - **Lindsey Malcom-Piqueux**, California Institute of Technology
 - **Pablo Sacasa**, Miami Dade College
- Moderator: Mica Estrada
- 1:45 pm **Break out Activity #1: Reimagining Higher Education**
- Prompt for small groups: *Based on the morning's discussion about the future of higher education and learners, imagine you are given the power to redesign a model to deliver higher education. You have no restraints, financial or otherwise.*
 - Small groups will streamline ideas into a 90-second sales pitch marketing their new system/model of higher education for the future.
- 3:00 pm Break and return to Lecture Room
- 3:15 pm **Reimagining Higher Education: Reporting back by Groups from Break out Activity #1**
- 3:45 pm **Break out Activity #2: Creating Change within Our Current System: Bridging the Present and the Future of Higher Education**
- The objective of this activity will be to bridge the ideas pitched in break out activity #1 to the existing system of undergraduate education. What could be done practically within our current structures to push toward the new visions?
- 4:30 pm **Getting Practical on Creating Change: Reporting back by Groups from Break out Activity #2**
- 5:30 pm **Synthesis of the Discussions from Day 1 and Ideas for Day 2**
Mark Rosenberg and Ann Austin
- 5:45 pm Adjourn to Reception and Networking Hour

DAY 2: Friday, September 7, 2018

- 8:00 am Breakfast
- 8:45 am **Opening Remarks: Ann Austin and Mark Rosenberg**
- 9:00 am **Key Factors for Advancing Systemic Change in Undergraduate STEM Education**
- **Gita Bangera**, Bellevue College
 - **Cathryn A. Manduca**, National Association of Geoscience Teachers and Carleton College
 - **Marilyne Stains**, University of Nebraska
 - **Ivory Toldson**, Quality Education for Minorities (QEM) Network and Howard University
- Moderator: Kamau Bobb

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- 10:00 am Break
- 10:15 am **Leadership and Systemic Change to Improve STEM Learning**
- **Jaime Lester**, George Mason University
 - **Vincent Manno**, Olin College of Engineering
 - **Jeffrey Osborn**, The College of New Jersey
 - **Uri Treisman**, Charles A. Dana Center, University of Texas at Austin
- Moderator: Andrea Beach
- 11:30 am **Making Change Happen: Role of Various Actors in Driving Systemic Change to Improve Undergraduate STEM Education**
Adrianna Kezar, University of Southern California (participating virtually)
Moderator: Ann Austin
- 12:30 pm Lunch
- 1:30 pm **Potential Roundtable Actions to Elevate Ongoing Efforts and Advance the National Conversation**
Ann Austin
- 2:45 pm **Concluding Remarks on Systemic Change to Improve Undergraduate STEM Education**
Ann Austin
- 3:00 pm Adjourn