

Equitable and Effective Teaching in Undergraduate STEM Education: A Framework for Institutions, Educators and Disciplines

3rd Committee Meeting, NAS 125, 2101 Constitution Ave. NW, Washington, DC

Purpose

- Share feedback on compiled draft framework.
- Identify additional evidence needed and additional writing required.
- Hear presentations on literature on equitable teaching, observation protocols for teaching, approaches to creating accessible and inclusive learning environments.
- Develop plans for additional writing and editing to prepare our draft to enter review shortly after our September meeting.

WEDNESDAY, JULY 26, 2023

Open Session

11:30–11:35 Welcome

11:35–1:00 Presentations on Observation Protocols and Other Tools for Evaluation of Teaching

Teaching Direct Observation (TDOP)

Matthew Hora, University of Wisconsin-Madison

Classroom Observation Protocol for Undergraduate STEM (COPUS)

Michelle Smith, Cornell University

EQUIP Tool, Teaching Quality Framework (TQF)

Dan Reinholz, San Diego State University

Commentators:

Ruthmae Sears, University of South Florida

Jayme Dyer, Durham Technical Community College

Cassandra Horii, Stanford University

2nd Committee Meeting

1:00–2:00 Lunch

2:00–2:45 Overview of Literature on Equitable Teaching

Equity Based Teaching Collective

Corbin Campbell, American University

Brian McGowan, American University

Milagros Castillo-Montoya, University of Connecticut

Bryan Dewsbury, Florida International University

2:45–3:15 Equity in Undergraduate STEM Education

Ebony McGee, Johns Hopkins University

3:15-3:30 Break

3:30-4:15 Designing Accessible Learning Experiences

Luis Perez, CAST

Suzanne Wakim, Butte College

Carol Hurney, Colby College

Flower Darby, University of Missouri

4:15 Open Session Concludes

Statement of Task:

The National Academies of Science, Engineering, and Medicine will convene an ad hoc committee on equitable and effective teaching in undergraduate STEM education. Through examination of successful efforts to improve and support instruction, the committee will develop a framework for equitable and effective teaching in undergraduate STEM and identify policies and practices at the departmental, programmatic, and institutional levels that can facilitate implementation of the principles in the framework.

The committee will conduct a two phase study. The first phase will produce a discussion draft that outlines a framework for equitable and effective teaching. It will call out practices that may be particularly important for virtual, blended, and hybrid instruction. The discussion draft will serve as a tool to solicit input from stakeholders that will be used to improve the framework. The second phase will revise the framework, call out areas in need of further research, and provide guidance and recommendations for institutions, educators, and disciplines. Specifically, the final report will:

1. Present a framework for equitable and effective teaching that includes attention to:
 - Approaches to and guidelines for evidence-based, inclusive teaching;
 - Equitable and effective teaching practices for different modes of teaching (e.g., in-person, online, blended and hybrid teaching), and different educational contexts (e.g., 2-year colleges, hybrid program, research institutions);
 - The roles that technology does, or can in the future, play in supporting equitable and effective teaching.

2. Discuss the experiences and training opportunities graduate students and postdoctoral students will need in order to be prepared to employ equitable and effective instruction as future faculty members.
3. Examine the institutional infrastructure, policies, and practices needed to encourage and support evidence-based teaching, such as opportunities for professional development, faculty evaluation policies and practices, and reward and advancement systems.
4. Provide actionable recommendations for institutions, disciplinary societies, funders, and policy makers on steps that could support implementation of the framework.