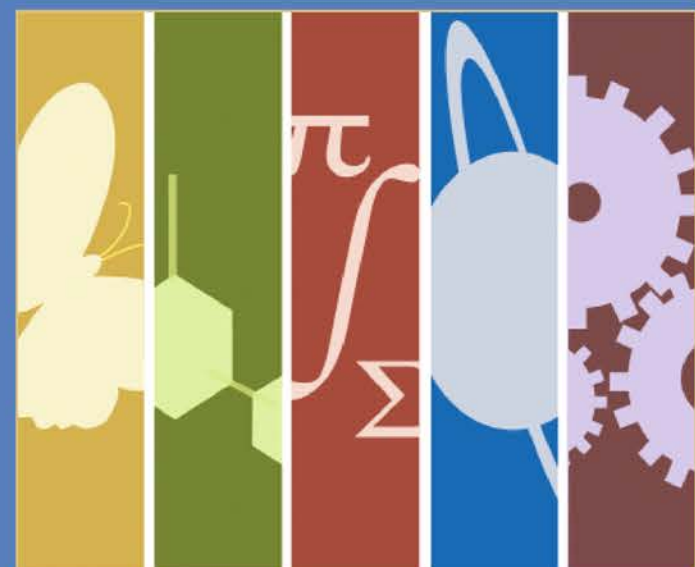




# The CIRTTL Network: Linking National and Institutional Efforts to Prepare Future STEM Faculty as Effective Teachers

Ann E. Austin, Michigan State University; Lucas Hill, University of Wisconsin-Madison;  
Jessica Schein, Michigan State University



## Center for the Integration of Research, Teaching and Learning

### Mission of the CIRTTL Network

To develop a national STEM faculty committed to implementing and advancing effective teaching practices for diverse student audiences as part of their professional careers.

### Strategy

Graduate students will shape the future of STEM undergraduate education as they flow into the faculties of all U.S. undergraduate institutions. 80% of STEM PhDs are granted at only 100 research universities, allowing a highly targeted intervention.

### Implementation

Each graduate university of the CIRTTL Network develops, implements, and evaluates programs and learning communities for future faculty development. In addition, the universities contribute to a cross-Network learning community that allows all future faculty to draw on the diversity of the CIRTTL Network

[www.cirttl.net](http://www.cirttl.net)

- This material is based on work supported by:
  - National Science Foundation (DUE-1231286.)
  - Alfred P. Sloan Foundation
  - Great lakes Higher Education Corporation

## Network Characteristics

- Commonality amidst institutional diversity
  - Shared mission and values
- Collegiality
  - Active, friendly, supportive group
- Meaningful Interactions
  - Regular in-person & online meetings
  - Knowledge exchange
  - Collaboration
- Support Mechanisms
  - Formal & informal leadership structures
  - Logistical Support (e.g., meetings, technology, paperwork, etc.)

## Campus Attributes that Influence Local Development & Impact

- Local CIRTTL leaders
  - Formal & informal connections related to *finding, translating, diffusing, & gaining support* behaviors
  - Mix of institutional roles & responsibilities
  - Commitment to CIRTTL ideals
- Local CIRTTL programs
  - Campus unit participation
  - Sense of “fit” with the CIRTTL mission
  - Programmatic infrastructure
  - Academic/administrative unit support
- Campus context
  - Campus culture
  - Reward structures
  - Decentralization



## The Impact of CIRTTL

- Local CIRTTL Leaders
  - Professional development
  - Increased social capital
  - Expanded & supportive colleague network
- Local Teaching Development Programs
  - Access to program ideas & resources
  - Benchmarking with peer institutions
  - Program enrichment through CIRTTL’s core ideas, learning outcomes, & cross-network offerings
- Grad Students & Postdocs
  - Expanded teaching development opportunities
  - Teaching self-efficacy gains
  - Learn & adopt effective teaching practices
  - Career preparation; shift towards more teaching-focused roles
- University
  - Prestige & cache of CIRTTL membership raises awareness of the importance of preparing future faculty
  - Interdisciplinary STEM learning communities
  - Institutionalized CIRTTL programs
  - Enhanced undergraduate education
- National
  - 42 CIRTTL Network universities represent a major percentage of STEM PhD production in the United States.
  - CIRTTL campuses train thousands of graduate students & postdocs each year in evidence-based teaching practices
  - CIRTTL MOOC trains thousands per year
  - Expected yield equals 25% of the current national production rate of faculty 6 years out of graduate school.

## CIRTTL Core Ideas

Three ideas form the foundation of CIRTTL.

### Teaching-as-Research

TAR is the systematic use of research methods to develop and implement teaching practices that advance the learning outcomes of students.

### Learning Community

Active LCs enable participants to learn collaboratively and come together to achieve learning goals. CIRTTL fosters the growth of learning communities in classes, on the campuses of the CIRTTL Network partners, and nationally across the CIRTTL Network.

### Learning-through-Diversity

LtD is founded on the principle that excellence and diversity are necessarily intertwined. Faculty and students bring an array of experiences and skills to the learning process. Effective teaching capitalizes on these rich resources to the benefit of all.

## The CIRTTL Network

- |                                       |   |
|---------------------------------------|---|
| Auburn University                     | University of California, San Diego         |
| Boston University                     | University of Colorado Boulder              |
| Columbia University                   | University of Delaware                      |
| Cornell University                    | University of Georgia                       |
| Drexel University                     | University of Houston                       |
| Emory University                      | University of Iowa                          |
| Florida International University      | University of Maryland, Baltimore County    |
| Georgia Institute of Technology       | University of Maryland, College Park        |
| Howard University                     | University of Massachusetts Amherst         |
| Indiana University                    | University of Missouri                      |
| Iowa State University                 | University of Nebraska-Lincoln              |
| Johns Hopkins University              | University of North Carolina at Chapel Hill |
| Louisiana State University            | University of Pittsburgh                    |
| Michigan State University             | University of Rochester                     |
| North Carolina State University       | University of Tennessee, Knoxville          |
| Northwestern University               | University of Texas at Arlington            |
| Oregon State University               | University of Texas at El Paso              |
| Texas A&M University                  | University of Wisconsin-Madison             |
| Tufts University                      | Vanderbilt University                       |
| University at Buffalo                 | Washington University in St. Louis          |
| University of Alabama at Birmingham   | Yale University                             |
| University of British Columbia        |   |
| University of California, Irvine      |   |
| University of California, Los Angeles |   |

