

CIRTL Massive Open Online Course (MOOC) Project

- Enhance the preparation of STEM future faculty to improve undergraduate STEM education through the use of evidence-based teaching and learning practices
- Offer career and professional development opportunities in teaching at multiple scales: globally, nationally, within institutions & departments, for individuals
- Two MOOCs offered through 3 delivery modes:
 - open participation
 - MOOC-Centered Learning Communities (MCLC)
 - eLearning modules

An Introduction to Evidence-Based STEM Teaching ***Advancing Learning Through Evidence-Based STEM Teaching***

PIs - Henry (Rique) Campa III, Derek Bruff,
Bennett Goldberg, Katherine Barnicle,
Robert Mathieu



NSF-1347605

CIRTL Massive Open Online Course: An Introduction to Evidence-Based STEM Teaching - Fall, 2014



- **4009 active participants**; 1119 took at least one quiz
- **Overall participation: 30% grad students and 20% postdocs** – hitting target audience; Also 30% faculty, split evenly between tenure-track, tenured and lecturers
- **566 completers - 14% rate**
- Postdocs completed at a 50% rate – implies large demand for preparation in teaching needed for postdocs
- STEM Grad students completed at a 40% rate

See: <http://stemteachingcourse.org/>

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Principles of Learning

Learning Objectives

Assessment

Cooperative Learning

Peer Instruction

Lecturing

Inquiry-based Labs

Writing to Learn

Problem-based Learning

Inclusive Teaching

Student Motivation

- **4000 participants** (did at least one activity); 1500 active participants
- **Overall participation:** 30% grad students and 20% postdocs – hitting target audience; Also 30% faculty, split evenly between tenure-track, tenured and lecturers
- **577 completers - 14% rate**
- Postdocs completed at a 50% rate – implies large demand for preparation in teaching needed for postdocs
- STEM Grad students completed at a 40% rate

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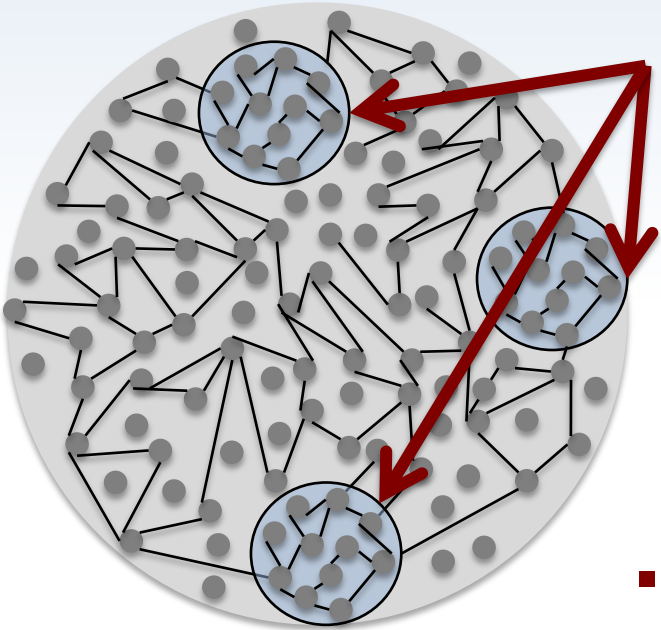
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Many individual learners in the MOOC, but also

- **47 MCLC, hosted globally (most in the US),**
- **420 MCLC participants, 80% grad students and postdocs, most groups were interdisciplinary**
- **Participants in an MCLC were twice as likely to complete as individual participants**
- Half the MCLCs were at non-CIRTL institutions, including Harvard, MIT, Tulane, Boise State, Michigan and Brandeis.

- Participants valued sharing teaching experiences; the accountability of weekly meetings; the chance to delve more deeply into a particular issue
- 90% of facilitators would do it again and 88% would recommend it to other faculty and instructors

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CIRTL Massive Open Online Course:

An Introduction to Evidence-Based STEM Teaching - Fall, 2015

We JUST finished our second offering!

2,293 visited the course. Of this group, 1,689 watched at least one lecture (all <10 min)

1,109 used the discussion forums; 763 completed at least one graded assignment.

Final grades for the course—402 “passed” the course by scoring at least a 70 out of 100.

17.5% completion (of all who visited the course)

67 MCLC globally! ~10 participants/MCLC; ~30% of participants were in an MCLC

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Visit us, get engaged with professional development associated with the use of evidence-based teaching and learning practices! Others are!

<http://stemteachingcourse.org/>

The screenshot shows a web browser window with several tabs. The active tab is titled "An Introduction to Evidence...". The website content includes a navigation menu with "Home" and "About the" visible. A main banner reads "Sign up to be an MCLC Facilitator Get an 'MCLC Facilitator's Guide'!". Below this is a "Table of Contents" section with the following items:

Week 1, Principles of Learning, Part 1	
Module 1: Prior Knowledge, Mental Models and Knowledge Organization.....	1
Week 2, Principles of Learning, Part 2	
Module 2: Feedback and Motivation	7
Week 3, Learning Objectives	
Module 3: Learning Objectives and Their Uses.....	15
Week 4, Assessment	
Module 4: Types of Assessment and Mindsets.....	23
Week 5, Active Learning	
Module 5: Principles of Active Learning.....	30
Week 6, Inclusive Teaching	
Module 6: The Importance of Inclusive Teaching and the	

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