

Center for Teaching

(<https://cft.vanderbilt.edu>)

MOOCs on Evidence-Based Teaching Practices for Future STEM Faculty: A \$750K NSF WIDER Grant

Posted by [Derek Bruff](https://cft.vanderbilt.edu/author/bruffdo/) (<https://cft.vanderbilt.edu/author/bruffdo/>) on Monday, November 4, 2013 in [News](https://cft.vanderbilt.edu/category/news/) (<https://cft.vanderbilt.edu/category/news/>).

by *Derek Bruff, CFT Director*

I'm pleased to announce that the Center for Teaching will be part of a \$750,000, three-year, multi-institution National Science Foundation WIDER grant supporting **the creation of two MOOCs (massive open online courses) on evidence-based teaching practices for future STEM (science, technology, engineering, and mathematics) faculty.**

I am one of the co-PIs on the project, which is led by PI Rique Campa (Michigan State University) and fellow co-PIs Kitch Barnicle (University of Wisconsin-Madison), Bennett Goldberg (Boston University), and Robert Mathieu (UW-Madison). I am particularly excited by the plans we have for what we're calling **"MOOC-supported learning communities,"** in which local groups of MOOC participants benefit from and contribute to the overall MOOC experience, as well as our plans to share the materials we develop for the MOOC (videos, assignments, other resources) in an open-source fashion. More on these elements below.

(https://cdn.vanderbilt.edu/vu-wp0/wp-content/uploads/sites/59/2018/07/09153629/cirtl_logo2.gif) The MOOCs will be produced as a collaborative effort of the **Center for Research, Teaching, and Learning (CIRTL)** (<http://www.cirtl.net/>), a network of research universities working together to enhance excellence in undergraduate education through the development of graduate students and post-doctoral fellows as future faculty members. CIRTL's [core ideas](http://www.cirtl.net/CoreIdeas) (<http://www.cirtl.net/CoreIdeas>) (teaching-as-research, learning communities, and learning-through-diversity) have infused programs and courses at each of the 23 institutions in the CIRTL Network.



Vanderbilt has been a member of the CIRTL Network since 2006. Locally, **CIRTL efforts at Vanderbilt** are led by Anita Mahadevan-Jansen, Orrin H. Ingram Chair of Engineering and professor of biomedical engineering and neurological surgery, and CIRTL funds have supported the Center for Teaching's Teaching-as-Research (TAR) Fellows program (<http://cft.vanderbilt.edu/docs/teaching-as-research-fellows-program/>) and Blended and Online Learning Design (BOLD) Fellows program (<http://cft.vanderbilt.edu/programs/bold-fellows/>).

The **NSF's WIDER program** (Widening Implementation and Demonstration of Evidence-Based Reforms

(http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504889) "seeks to substantially increase the scale of application of highly effective methods of STEM teaching and learning in institutions of higher education, by employing instructional materials and methods that have a convincing evidentiary basis of effectiveness." These days, if you want to "substantially increase the scale" of something in higher education, you look at MOOCs. Our goal is to leverage CIRTL core ideas and findings over the last ten years to develop MOOCs that prepare large numbers of future STEM faculty to implement and advance evidence-based, high-impact teaching practices.

We will draw on the expertise and experience of leaders across the CIRTL Network **to produce two six-week MOOCs.** The first course, launching next fall, will introduce participants to foundational evidence-based practices in undergraduate STEM teaching and learning. The second will provide deeper and broader understanding of evidence-based teaching and develop participants' skills in gathering and analyzing data about their own students' learning.

As I noted above, **we are designing these MOOCs to support local learning communities** of future (and likely current) STEM faculty. It is common in MOOCs to see small, student-organized study groups form around the world, as students geographically close to each other seek out fellow students to learn from and with. Our plan is to design for these study groups, building them into the structure of the MOOCs themselves.

(<https://cdn.vanderbilt.edu/vu-wp0/wp-content/uploads/sites/59/2018/07/09154649/MSLCs-2.jpg>) The MOOCs will provide optional discussion questions and activities for local learning communities to explore the MOOC material more deeply, and local learning communities will in turn be asked to share their ideas and perspectives with the global learning community organized by the MOOCs. Those

Quick Links

Services for Departments and Schools
(<https://cft.vanderbilt.edu/services/services-for-departments-programs-and-schools/>)

Examples of Online Instructional Modules
(<https://www.vanderbilt.edu/bold/docs/project-gallery/>)

Teaching Guides

The CFT has prepared guides to a variety of teaching topics with summaries of best practices, links to other online resources, and information about local Vanderbilt resources.

Online Course Development Resources
(<https://www.vanderbilt.edu/cdr/>)

Principles & Frameworks
(<https://cft.vanderbilt.edu/teaching-guides/principles-and-frameworks/>)

Pedagogies & Strategies
(<https://cft.vanderbilt.edu/teaching-guides/pedagogies-and-strategies/>)

Reflecting & Assessing
(<https://cft.vanderbilt.edu/teaching-guides/reflecting-and-assessing/>)

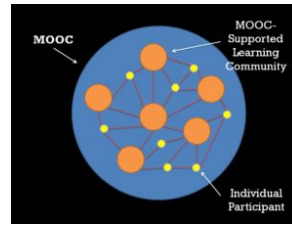
Challenges & Opportunities
(<https://cft.vanderbilt.edu/teaching-guides/challenges-and-opportunities/>)

Populations & Contexts
(<https://cft.vanderbilt.edu/teaching-guides/populations-and-contexts/>)

CFT Photostream

[View more photos \(https://www.flickr.com/photos/vandyoft\)](https://www.flickr.com/photos/vandyoft)

participating in the MOOCs individually will have a valuable learning experience. Those participating as part of MOOC-supported learning communities will have an even richer experience. Many of the CIRTl Network institutions have already committed to hosting these local learning communities, and we expect that many others will form around the world.



I'll note that we're not the first group to **blend online and face-to-face learning in this**

way. The University of Mary Washington's digital storytelling course, [ds106](http://ds106.us/) (<http://ds106.us/>), uses a similar structure, as does FemTechNet's "distributed open collaborative course," [Dialogues on Feminism and Technology](http://femtech.net/newschool.edu/docc2013/) (<http://femtech.net/newschool.edu/docc2013/>), and Duke University's upcoming MOOC, [The History and Future of Higher Education](http://www.hastac.org/future-higher-ed) (<http://www.hastac.org/future-higher-ed>), led by Cathy Davidson. We hope to learn from these experiments as we leverage expertise across the CIRTl Network in implementing learning communities on behalf of future faculty preparation.

The word "open" in the acronym MOOC can mean different things. Typically, MOOCs are open enrollment, in that students aren't vetted by any kind of admissions process. MOOCs are also usually free, another form of openness. A third notion of "open" is open-source, a term originally describing software whose code is freely available for programmers to adapt and modify.

The two CIRTl Network MOOCs will be **open-source** in the sense that the materials we develop for the courses (videos, assignments, activities, other resources) will be made available for reuse and remixing by anyone interested in preparing future STEM faculty. For instance, a faculty member teaching a graduate course on college science teaching might want to incorporate a few MOOC videos and assignments in the course without participating fully or synchronously in the MOOC. The open-source licensing on the MOOC materials will permit this, and we will provide a kind of instructor's guide for the materials to help individuals use and adapt them locally.

I'm very excited about this initiative, in part because it poses an interesting design challenge—using the global learning community of a MOOC to connect and enhance local learning communities around the world—and in part because of the positive impact on undergraduate education these MOOCs will have now and in the future.

If you have any questions about this grant, feel free to [send me an email](http://cdn.vanderbilt.edu/vu-cft/contact.php?who=bruff) (<http://cdn.vanderbilt.edu/vu-cft/contact.php?who=bruff>). If you would like to host one of the MOOC-supported learning communities next fall, let me know that, too! And if you're a Vanderbilt graduate student who would like to be involved (whether you're in a STEM field or not), get in touch, since some of the grant funds will go toward the support of two graduate student fellows in 2014.

Tags: [CIRTl](https://cft.vanderbilt.edu/tag/cirtl/) (<https://cft.vanderbilt.edu/tag/cirtl/>), [Coursera](https://cft.vanderbilt.edu/tag/coursea/) (<https://cft.vanderbilt.edu/tag/coursea/>), [Future Faculty](https://cft.vanderbilt.edu/tag/future-faculty/) (<https://cft.vanderbilt.edu/tag/future-faculty/>), [MOOCs](https://cft.vanderbilt.edu/tag/moocs/) (<https://cft.vanderbilt.edu/tag/moocs/>), [STEM](https://cft.vanderbilt.edu/tag/stem/) (<https://cft.vanderbilt.edu/tag/stem/>)

LEAVE A RESPONSE

Name (required)

Email (will not be published) (required)

Website

Submit

 (<http://creativecommons.org/licenses/by-nc/4.0/>)

Content on this site is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>).

© (https://cft.vanderbilt.edu/wp-login.php?redirect_to=https%3A%2F%2Fcdt.vanderbilt.edu%2F2013%2F11%2Fmoocs-on-evidence-based-teaching-practices-for-future-stem-faculty-a-national-science-foundation-wider-grant%2F) 2023 Vanderbilt University · All rights reserved. Site Development: Digital Strategies (Division of Communications) (<http://web.vanderbilt.edu/>)

Vanderbilt University is committed to principles of equal opportunity and affirmative action. Vanderbilt University does not discriminate against individuals on the basis of their race, sex, sexual orientation, gender identity, religion, color, national or ethnic origin, age, disability, military service, or genetic information in its administration of educational policies, programs, or activities; admissions policies; scholarship and loan programs; athletic or other University-administered programs; or employment. Accessibility information (<https://www.vanderbilt.edu/accessibility/>).

Vanderbilt®, Vanderbilt University®, V Oak Leaf Design®, Star V Design® and Anchor Down® are trademarks of The Vanderbilt University