



TRESTLE

TRANSFORMING EDUCATION, STIMULATING TEACHING AND LEARNING EXCELLENCE

November 2016



TRESTLE Annual Meeting and Course Transformation Institute

The first TRESTLE Annual Meeting and Course Transformation Institute was held October 20-22, 2016 at the University of Colorado Boulder. This event, co-hosted with the CU Center for STEM Learning, brought together 45 individuals from the US and Canada to share progress and to further the work of TRESTLE. Attending were faculty and postdoctoral scholars facilitating change, by collaborating with instructors in their departments to incorporate effective teaching methods into courses. TRESTLE is building intellectual communities within and across institutions to share in these efforts. The annual meeting was an opportunity for representatives from each of the institutions to share course design ideas, methods for assessing student learning gains, innovative teaching approaches, and tips for working productively with faculty to incorporate these methods. *Meeting website, with links to materials:* <http://www.colorado.edu/csl/trestle/trestle-annual-meeting>

What is TRESTLE? TRESTLE is a multi-institution, NSF-funded project focused on improving STEM education methods at research universities through embedding educational expertise directly into departments, and building intellectual communities around educational improvements. TRESTLE builds on the Science Education Initiative at CU and UBC and is rostered in the CU Center for STEM Learning, and network partners include: U. of Kansas, Indiana U., Queens U. of Ontario, U. of British Columbia, U. of Colorado Boulder, U. of California-Davis, and U. of Texas San Antonio.

CU TRESTLE News

- **TRESTLE Spring Scholars applications open**, "How can I help students take charge of their own learning?" Apply online by Dec 7.
- **CU TRESTLE annual gathering**, January 23, 3-5pm, by invitation.
- **Virtual meetings on facilitating change**; monthly, TBA
- **Congratulations to TRESTLE Type II Awardees**: PHYS (Daniel Bolton) & ENVS (Eve-Lyn Hinckley, Jason Neff).
- **TRESTLE mini grants** available, \$1000 each, rolling deadline.

See <http://colorado.edu/csl/TRESTLE> or contact CU TRESTLE PI, Stephanie Chasteen, Chasteen@Colorado.edu



Center for STEM Learning
UNIVERSITY OF COLORADO BOULDER

Campus Spotlight: CU

At least 20 faculty and staff from CU Boulder contributed to the TRESTLE Annual Meeting. Kathy Perkins spoke on the history of the Science Education Initiative, Anne-Barrie Hunter (E&ER) shared reasons why undergraduates leave the sciences. Janet Casagrande and Ruth Heisler (IPHY) provided an in-depth illustration of how case



studies are being applied in a Human Anatomy and Physiology course sequence. Alexandra Jahn (ATOC) shared a poster describing the process of how the backward design approach was used to design a new undergraduate major. Faan Tone Liu (MATH) and David Webb (EDUC) modeled how they applied "Tactivities" to undergraduate calculus (<http://math.colorado.edu/activecalc1/index.html>). Ariel Paul (PhET; <http://phet.colorado.edu>) facilitated a workshop on PhET interactive simulations, and Devon Quick (University of Oregon) created a lot of excitement in her workshop about the Learning Assistant Model (laa.colorado.edu). Stephanie Chasteen, along with UBC colleague Warren Code, facilitated a workshop about supporting postdocs and other embedded experts (<http://www.cwsei.ubc.ca/resources/STLF-develop.htm>). Several other campus leaders (Valerio Ferme, Kyle McJunkin, Steven Pollock, Andrew Martin) came to contribute and learn.

"I'm proud to be able to connect my TRESTLE partners to our fantastic CU community!" - PI Stephanie Chasteen

Success with Case Studies in IPHY @ CU

In Integrative Physiology, instructors noticed that students often fail to recognize how concepts fit together across the three core introductory courses, and how this material relates to real life.

To address this challenge, three instructors (Ruth Heisler, Janet Casagrand and Teresa Foley) took advantage of a TRESTLE course transformation award to develop case studies, with materials that would span across three courses. To see if the newly developed celiac disease case study was indeed improving student outcomes in the digestive system portion of her Human Anatomy lecture of 250 students, Ruth Heisler embedded questions from previous semesters into her Fall 2016 exam. All the questions showed a dramatic improvement in



student performance, with correct answer responses on some questions improving by 30%. Additionally, students commented on how the use of a case study made the information more real and memorable. "I was really amazed at the impact from what seemed like a small intervention," said Heisler. For a description of IPHY's ongoing work, including example assessments, see their project materials on the CU TRESTLE website.