

TRESTLE MINI SEED GRANT PROPOSALS

TRANSFORMING EDUCATION, SUPPORTING TEACHING AND LEARNING EXCELLENCE

Date: March 30, 2016

To: All CU faculty and instructors

From: Stephanie Chasteen, Center for STEM Learning (CSL)

Contact: chasteen@colorado.edu.

Proposal Deadline: Rolling (applications considered at the end of the month in which submitted)

Maximum award: \$1000 per award (\$2000 total available per semester); award period one year

TRESTLE Website: <https://www.colorado.edu/csl/TRESTLE>

OVERVIEW

All instructors of record are invited to apply for the mini-grants, up to a maximum of \$1000. Application deadlines are rolling, and will be considered at the end of the month in which they are submitted. Mini-grants may be used for faculty salary, stipends, equipment, travel, hourly funding for undergraduate assistance, equipment purchase, etc.

These grants should, in some way, support the goal of increasing the use of evidence-based teaching practice, through supporting course redesign or faculty ability to use active learning and effective assessment. Since the intention is to increase and disseminate expertise on-campus, proposals which may broadly affect faculty and/or departments – or lead to projects which may broadly affect departments -- are encouraged.

BACKGROUND

There is a substantial and growing body of research that has identified several pedagogical approaches that are significantly more effective than the traditional lecture-based format used in most STEM teaching today^{1,2,3}. The STEM pedagogies that have been shown to be effective emphasize student-centric practices that stress active learning, with much more interaction among students, and between students and instructors, than in the traditional lecture-based format. These methods emphasize building a course backwards from carefully articulated learning goals for the course as a whole, and incorporate fine-grained, real-time assessment of student learning in relation to the learning goals. The current grant (TRESTLE) is a project of the Center for STEM Learning (CSL), and was developed as part of a multi-institution consortium

¹ Singer, S. R., Nielsen, N. R., & Schweingruber, H. A. (2012). *Discipline-based education research: understanding and improving learning in undergraduate science and engineering*. Washington, D.C.: The National Academies Press.

² Freeman et al., (2014) "[Active learning increases student performance...](#)" *PNAS*, 222, 8410-8415.

³ For more detail, see the reference above and http://www.cwsei.ubc.ca/resources/course_transformation.htm.

(the [Bay View Alliance](#)) interested in improving teaching and learning at their respective campuses, with the Science Education Initiative as one strong model for how this might be accomplished. The TRESTLE grant is intended to build on the expertise of CU Boulder's campus in STEM education transformation.

TRESTLE supports course re-design and faculty learning, with the aim of increasing the effective use of evidence-based teaching practice, such as active learning and assessment-driven instruction. We invite proposals from STEM departments and faculty for mini-grants to support this goal. Note that TRESTLE also supports larger proposals for faculty learning and/or course design: <http://www.colorado.edu/TRESTLE>.

THE PROPOSAL

Please address the following questions in your proposal (1-2 pages) using the headings below.

Submit your proposals online at <https://www.colorado.edu/csl/TRESTLE> and email Chasteen@Colorado.edu to confirm receipt. Awards will be considered at the end of the month in which they are submitted.

1. **Project title and person submitting.** What is a descriptive title for your project? Provide name, title, and department of person submitting the proposal, including contact information. Only CU Boulder STEM faculty and staff are eligible to apply.
2. **The project and rationale.** What are you proposing, and how will the proposed project help support improved student learning, or contribute to the teaching and learning needs in your unit or in your college? In this section, make a case for why the project is likely to be successful (e.g., the expertise of the project leader, synergy with other departmental efforts, etc.)
3. **Broader impacts.** Are there ways in which this work will impact faculty and practices in your department, or other departments? Will the project be able to support, even if in a small way, the broader use of evidence-based teaching and assessment practices on campus? Might success in this endeavor lead to larger projects? Does it have the potential to impact multiple faculty, or help support sustainability of educational innovations?
4. **Assessment.** What data can you gather to indicate whether the proposed project has had the intended impact?
5. **Budget.** How will funds be used? A maximum of \$1000 is available. The budget needs only to include project expenses; benefits and overhead charges incurred will be covered separately by TRESTLE.
6. **Resources leveraged.** Grants that propose leveraging existing internal or external resources are preferred – such as financial resources, awards, or collaborations with other units or programs.
7. **Agreement to expectations.** Do you agree to fulfill the "expectations of successful applicants," as described below?

EXPECTATIONS OF SUCCESSFUL APPLICANTS

1. **Submit report.** Project leaders will submit a report on the project outcomes, including assessment, within 6 months of the expenditure of funds.
2. **Complete evaluation measures.** If courses are affected by the proposed work, faculty teaching the transformed courses will complete a survey about their teaching practices before and after the course transformation. Classroom practices may be observed using a structured observational tool, and faculty will be asked to submit their syllabus and report on basic statistics relevant to the transformed course.
3. **Share expertise.** Where appropriate, faculty leaders may be requested to provide some support to other faculty (within or outside their department) who engage in similar efforts, either by providing short individual consultations, giving a workshop, or leading a faculty group, as their time permits.
4. **Participate in project gathering.** As possible, leaders will attend an annual gathering of all TRESTLE project participants.

REVIEW CRITERIA

1. Proposals will be reviewed by the TRESTLE advisory board, with funding decisions to be provided within two weeks of the end of the month in which the proposal is submitted. However, proposals that are unsuccessful within a given month will be kept in consideration until the end of that semester.
2. A maximum of \$2000 of funding (across all awards) will be made in a given semester; thus, typically, 2 awards will be made in a semester.
3. Critical elements include specificity of the proposal; feasibility of the scope, budget, and timeline of the work proposed; scale of impact; evidence for the capability of the team leading the work; a focus on evidence-based teaching practices; clear leadership and oversight plans; and potential for the project to positively impact faculty and/or courses in this or other departments, or lead to such impacts.
4. Elements which are viewed favorably include leverage of other resources and collaborations, and support and coordination by the department as a whole.