

## Request for Proposals - Faculty-Driven Course Reform Projects

Are you satisfied with how much your students learn in your courses? **The WIDER (Widening Implementation and Dissemination of Evidence-based Reforms) Steering Committee seeks proposals for projects to revise science and math courses. Projects should lead to the implementation of evidence-based practices leading to learner-centered classroom experiences across the STEM curriculum.** These practices focus on encouraging students to become active and collaborative learners in class. Improving student diversity in progression towards STEM degrees is highly encouraged and explicit incorporation of interventions and affirmations that support inclusive classrooms and the success of all students should be described. *It is strongly recommended that teams read and discuss resources listed in the appendix prior to planning their proposals, especially if faculty members are unfamiliar with evidence-based instructional practices.*

- Grant applications can be for a maximum of \$100,000; funding levels will vary depending on the scope of the project and the resources required to carry out the plan.
- Proposal duration should include at least 2 iterations of each course involved so that delivery can be revised and implemented in response to formative assessment and classroom observations. Therefore, anticipated project duration may be 2 years, but there is flexibility depending on the courses involved.
- Proposals may focus on a single course or a series of consecutive courses within a major sequence.
- Proposals may focus on lecture format classes and/or laboratory curricula.
- Preference will be given for developmental and foundational courses for science and math majors (i.e. 1000- and 2000-level courses required for science and math majors), especially those that traditionally have high D/F/W rates or challenges with student success in subsequent courses.
- Course reforms in upper division classes will be considered, but must be clearly linked to impact on degree completion and student achievement.
- An annual assessment plan, required in all proposals, must include both formative and summative elements. The use of the OTL MAP and COPUS observation program is required as part of the formative assessments.

### Allowed budget expenses

Nationally, faculty describe the greatest barriers to the implementation of evidence-based instructional practices as the time required to learn and implement these pedagogical tools. To address these challenges, this program offers support to offset these time commitments and provide mentoring for teaching development. In all cases, justification for the requested funds must be provided and linked to the project.

- **Salary support:** Up to 1 month of faculty summer salary (max. \$10K per individual) may be requested for course development.
- **Co-teaching:** There are pro-active, positive benefits to co- and team-teaching. In the context of this project, co-teaching means that both faculty members are present and engaged with *every* class session. Co-teaching requests must be reviewed and approved by the Dean's Office and the Provost and buy-out costs can be requested as part of the budget.
- **Post-doctoral fellow support:** Post-docs interested in teaching careers at Primarily Undergraduate Institutions are especially well-suited to collaborate on these projects by splitting their time between research and instructional responsibilities. Partial support of a post-doc is encouraged. Submission of a professional development plan for the post-doc that clearly delineates time-sharing between research and instructional time is required.

This project is supported under NSF Grant #1524878 (PIs – Feig, Bruner, Hoffmann, Myhr and Ouellett)

- **Undergraduate learning assistants, graders and peer-instructors:** Learning assistants and peer instructors (LAs/PIs) are helpful in facilitating group work, project-based instruction in class, and exam formats that provide options other than multiple choice questions. Costs associated with training and paying for LAs/PIs are encouraged.
- **Materials and Supplies:** Requests for supplies for the generation of instructional materials (e.g. lab reagents) required to pilot new, interactive experiences are allowed.
- **Other expenses may be allowable with justification.** Please consult with the WIDER Steering Committee if you have questions or concerns as you build your budget (afeig@chem.wayne.edu).

### **Systemic Change and Alignment with Institutional and Departmental Priorities**

- Student-centered, evidence-based instruction plays a central role in the University Strategic Plan. These projects should align with institutional and departmental efforts to support these goals with data on course improvement and student success.
- Project elements that lead to the mentoring of instructors who are new to evidence-based instructional strategies are highly encouraged.
- Applications should explicitly address the issue of sustainability such that effective course reforms remain in place even as teaching assignments rotate and new personnel take over teaching assignments for the target course(s).
- As a transformative element, the department chair and/or chair(s) of the undergraduate affairs or curriculum committee (or its equivalent in your unit) must be involved in the project and approve of the proposal.

### **University-wide Resources Available to all Teams**

- A STEM instructional designer (Christy Hartman, Ph.D.) will be available to assist across all approved projects.
- The Office for Teaching and Learning will be available to support all project participants.
- Assistance with hiring and training undergraduate peer instructors is available upon request.
- The OTL will offer a series of professional development workshops in collaboration with the WIDER Project to assist project teams. In addition to the current collection of workshops, the OTL can offer project-specific workshops to support project goals.
- A faculty learning community (FLC) comprised of instructors associated with all of the approved course reform projects will share ideas, resources, and strategies.
- If specific additional resources would be helpful, please contact the WIDER team:  
Andrew Feig <[afeig@chem.wayne.edu](mailto:afeig@chem.wayne.edu)>, Peter Manfred Hoffmann <[hoffmann@wayne.edu](mailto:hoffmann@wayne.edu)>, Robert R. Bruner <[robert.bruner@wayne.edu](mailto:robert.bruner@wayne.edu)>, Saliha Asli Koca <[aokoca@wayne.edu](mailto:aokoca@wayne.edu)>, Karen Lindsey Myhr <[ar7662@wayne.edu](mailto:ar7662@wayne.edu)>, Matt Ouellett <[MathewO@wayne.edu](mailto:MathewO@wayne.edu)>, Christy Hartman <[christine.hartman@wayne.edu](mailto:christine.hartman@wayne.edu)>

## Required Proposal Elements

### A. Cover Sheet and Project Team (Qualtrics form provided)

List the personnel who will work on this project and how they will collaborate effectively on the project. Briefly describe the skills that each individual brings to the team and the project.

### B. Course Reform Plan (limit 3 pages)

- Identify the course(s) are you targeting for reform and why the project is a high priority for your department or program.
- Identify the current course objectives and how you anticipate they will change as a product of the project. Also indicate how these align with the overall major or program.
- Identify the current pedagogical strategies used in this course (these courses) and what evidence-based practices you expect to incorporate into the course design and why.
- What institutional support do you need to implement the changes to your course(s)?
- Do you have existing baseline data that informs your project goals and approach to program improvement (i.e. pass rates or DWF rates, success rates in subsequent courses or progression towards graduation)?

### C. Implementation and Continuous Improvement (limit 1 page)

- Describe the prospective milestones and timeline of your project.
- Identify the most significant challenges to the implementation of your project and how you anticipate overcoming them.
- Describe your plan to collect and monitor student learning and faculty teaching effectiveness during the project. For example, will you compare pretests to posttests to monitor learning semester-to-semester?

### D. Institutionalization (limit 1 page)

Describe how you will ensure that the revised curriculum is sustainable?

For example, how will new instructors be mentored to maintain the reformed teaching approach?

### E. Budget (limit 1 page)

Provide a description of requested expenses related to your project in table and narrative formats. (Separate proposals can be submitted if a sequence of courses is involved and additional resources are necessary.)

### F. Letter of Support from Department Chair and/or Chair of Undergraduate Program

A letter from the department chair addressing how the project advances departmental priorities for student success and undergraduate education is required.

**Review Process:** All proposals will be reviewed internally and by one or more off-campus external reviewers. Sufficient context should be included to ensure non-Wayne State faculty will understand your project and its significance within your program/department. **If you do not wish your identity to be revealed to the external reviewers, you may choose to have the team member names redacted to have an anonymous external review.**

Due Date: Wednesday Feb. 8, 2017

Submission mechanism: Please submit a single PDF including all proposal elements via the Qualtrics form ([2017 WIDER-SSTEP Request for Proposals](#)). Questions regarding the submission process should be directed to Christy Hartman ([christine.hartman@wayne.edu](mailto:christine.hartman@wayne.edu)).

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## **Appendix – Background Reading on Evidence-Based Instructional Practices**

Handelsman, J.; Miller, S.; Pfund, C., *Scientific Teaching*. W.H. Freeman: New York, 2007.

Ambrose, S. A.; Bridges, M. W.; DiPietro, M.; Lovett, M. C.; Norman, M. K., *How Learning Works: Seven Research-Based Principles for Smart Teaching*. Jossey-Bass: New York, 2010.

James Fairweather. Linking Evidence and Promising Practices in Science, Technology, Engineering and Mathematics (STEM) Undergraduate Education. 2014. National Research Council, Board on Science Education.

Holdren, J. P.; Lander, E. *Engage to excel: Producing one million additional college graduates with degrees in science, technology, engineering, and mathematics*; President's Council of Advisors on Science and Technology: Washington, D.C., 2012.

Freeman, SA, Eddy, SL, McDonough, M, Smith, MK, Nnadozie, O, Jordt, H, Wenderoth, MP. 2014. Active learning increases student performance in science, engineering, and mathematics PNAS 111, 8410-8415 DOI. 10.1073/pnas.1319030111

2016 Wayne State University Strategic Plan – Distinctively Wayne  
<http://strategicplan.wayne.edu>