The Maine Center for Research in STEM Education (RiSE Center) is pleased to invite faculty to apply for Faculty Course Modification Incentive Grants and Maine Learning Assistant Program (FIG-MLA). The RiSE Center fosters an integrated approach to University-based research and professional development in science and mathematics education. The purpose of the FIG-MLA program is to help faculty transform high-enrollment STEM courses in order to achieve these aims:

- To improve the quality of math and science education for all undergraduates.
- To encourage research-based teaching for ourselves and for our students.
- To encourage and prepare talented math and science majors for careers in teaching.
- To encourage institutional change in the way STEM courses are taught.

This FIG-MLA program is modeled after a highly successful program developed at the University of Colorado at Boulder with the purpose of strengthening instruction in undergraduate STEM courses. MLAs are undergraduate students who serve as peer instructors, facilitating group work and assisting faculty as they transform their course to incorporate more interactive-engagement and student-centered instruction.

I. Faculty will receive:

*Summer salary*
Selected faculty will receive $2500 summer stipend for two summers. During the first summer, prior to the first offering of the modified course, faculty will reflect on and plan instructional changes or enhancements and further develop plans for gathering data to assess student learning in their course. Faculty will receive funding for the second year and will analyze the impact of the instructional changes on student learning in their course and revise instructional plans. Faculty are encouraged to collaborate with colleagues, however, a total $5000 of summer stipend may be requested per proposal.

*Undergraduate Maine Learning Assistants*
Incorporating undergraduate students as Maine Learning Assistants (MLAs) as part of the method for implementing the proposed instructional modifications must be a component of the proposed project. These undergraduate students will assist with instruction. MLAs will be paid for 10 hours per week and, as part of that time, will attend a 1-credit course about teaching and learning. MLAs will not be expected to do grading or hold office hours. MLAs will be selected from among students who were very successful in your course during a previous semester. A formal application and interview process is required for the selection of MLAs. You will need to communicate with the program in this process and RiSE Center staff will provide assistance in identifying and selecting MLAs for your course. The RiSE Center covers two years of MLAs in the selected course at 100%. After the first two years, we will work with departments to try to get a 50% cost share from the department. Afterwards we will work with departments to try to get a 75% cost share for MLAs.

*Assistance with instructional design and evaluation*
Faculty will also have the assistance (up to 20 hours per year) of a graduate student in STEM education research to collaborate in designing data collection and analyzing data to evaluate the course modification. RiSE Center staff (Program Coordinator Erin Vinson and Research and Evaluation Coordinator Laura Millay) will also assist as needed and as time permits.
II. Requirements of proposed projects:

A. Course: The course targeted for modification must be an undergraduate course in science, technology, engineering, or mathematics. In addition, the course must fit into ONE (or more) of the following categories:
   i. In the introductory sequence for STEM majors,
   ii. Required as part of pre-service teachers' subject matter preparation, OR
   iii. Among the courses that students can select to fulfill a STEM major or a pre-service subject matter preparation requirement.

B. Course Modification: The proposed additions or enhancements to the course must involve active learning, research-supported instructional practices. These can include (but are not limited to) integrating clickers (student response systems) into a large lecture, incorporating collaborative group work into recitations, or integrating small group discussion into a large lecture.

C. Required Elements of Modification: The changes or enhancements to the course must make use of MLAs in either lecture or recitation/lab, or both. The MLAs are undergraduates who have done well in the course previously and are hired to facilitate small group interactions. The way in which MLAs are used may take many different forms including (but not limited to) having MLAs assist during recitations/labs or having MLAs in lectures to help facilitate small group discussions or Peer Instruction.

D. Description of Rationale and Assessment. Proposals should include a rationale for the proposed changes and their potential to improve student learning. Proposals should also include plans for assessing the impact of the changes on students' learning, attitudes, and experience in the course.

III. Expectations of Faculty:

- Faculty hold weekly meetings with MLAs (this may be combined with regular weekly meetings with graduate student teaching assistants (TAs), if applicable).
- Faculty administer pre- and post-semester content and attitudes-towards-science assessments in their modified course. RiSE staff are available to help administer these assessments. We are gathering these data for FIG “program evaluation” purposes and not as an evaluation of individual faculty or individual FIG projects. These assessments will be provided to faculty and are ones used broadly in undergraduate STEM courses. In cases where no appropriate assessments exist, we will work with you to develop an assessment plan.
- Faculty attend meetings with other faculty in the program to discuss project plans, assessment design, data analysis, etc.
- Faculty write year end reports of the project.

IV. Proposal Evaluation Procedure:

Proposals will be reviewed by the RiSE Center FIG Committee on a competitive basis. The application form is online. Check the FIG website for up-to-date deadlines and application links. In addition to the online submission, your CV should be submitted as an email attachment with the subject “Faculty incentive grant proposal” sent to erin.vinson@maine.edu by the deadline.

If you have questions about the eligibility of your course for the program or other questions, feel free to contact Mitchell Bruce (mbruce@maine.edu) or Natasha Speer (speer@math.umaine.edu).