

## Using Institutional Data to Identify and Address Educational Inequities in STEM

### Postdoctoral Mentoring Plan

One goal (and a broader impact) of this project is to build the capacity of our postdoc as an independent researcher. Structured oversight and mentoring are significant correlates of postdoc development and success, both in research productivity and overall satisfaction. The postdoc will be a key collaborator, primarily mentored by PI Hayward with supplemental mentoring from the other project personnel. Following guidance from the National Academies on how to enhance the postdoctoral experience (NAS, 2000) and from the Graduate School at University of Michigan (UM) on individual development plans, our mentoring activities include the following elements in addition to regular project team and individual meetings. Co-PI Matz has used (and is using) these guidelines successfully in other NSF IUSE projects (1725520 and 2120252).

***Development of a structured mentoring plan.*** As a team with the postdoc, we will develop specific goals for research, teaching, and career development, tasks to achieve those goals, and a timeline for the tasks. Progress will be evaluated formatively according to this plan at least every six months, making modifications as necessary. This formative evaluation will require a brief written reflection on progress toward goals from the postdoc and written feedback from the PIs. At least twice during the postdoc's tenure, we will require a more in-depth reflection detailing their accomplishments, progress towards goals, public sharing of work through papers and presentations, and feedback.

***Career planning assistance.*** The postdoc will describe development goals in the structured mentoring plan that are specifically geared toward their desired career path. If they are interested in securing a tenure-track position, we will discuss and work toward key research metrics and writing research and teaching statements to prepare for job applications and interviews. We would also discuss long-term goals that could support earning tenure at their eventual institution. Alternatively, we can help the postdoc lay out a path to early success in a non-tenure-track position either in or outside of academia.

***Skill development.*** We will help the postdoc develop their proficiencies in research communication by writing conference proposals and preparing conference presentations, writing articles for publication, and co-authoring grant proposals. Several UM resources are relevant and will be available to the postdoc as well, such as the UM DEI certificate program and the Postdoctoral Association which promotes seminars and workshops for personal and professional development. Michigan has a large set of available resources for supporting all aspects of research, such as a statistical consulting center, a writing center, and several databases of funding opportunities.

***Opportunities to mentor students.*** The postdoc will have the opportunity to develop their own mentoring capabilities by supervising research students, such as undergraduate student research assistants through the University's Undergraduate Research Opportunity Program (UROP). UROP is a large program that connects hundreds of students to research experiences every year.

***Expanding the postdoc's professional network.*** The professional network is key in advancing along one's desired career path. We will endeavor to expand the postdoc's professional network through exposure at conferences; connecting to contacts from other education research groups, projects, and units at Michigan; and our own personal networks as well. These contacts will broaden the postdoc's intellectual perspective and provide a network of people who can give them advice.

National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. 2000. Enhancing the Postdoctoral Experience for Scientists and Engineers: A Guide for Postdoctoral Scholars, Advisers, Institutions, Funding Organizations, and Disciplinary Societies. Washington, DC: The National Academies Press. <https://doi.org/10.17226/9831>.