

A. Senior Personnel \$34,161

Caitlin Hayward, Principal Investigator \$16,555 Hayward is the director of Research and Development in the Center for Academic Innovation. We request 4% of her time annually (plus fringe) for all three years of the project. Hayward will be responsible for managing institutional review board submissions and compliance, organizing advisory board meetings, coordinating with collaborators on campus, serving as the primary postdoctoral mentor and reviewing protocols, analysis, and manuscripts as necessary.

Rebecca Matz, Co-Principal Investigator \$12,834 Matz is a senior research specialist in the Center for Academic Innovation at the University of Michigan. We request 4% of her time annually (plus fringe) for all three years of the project. Matz will be responsible for developing and reviewing interview protocols and surveys. She will also conduct interviews and analysis and review analysis and manuscripts as necessary

Eric Bell, Co-Principal Investigator \$4,772 Bell is a Professor and Chair of Graduate Studies in the Department of Astronomy. We request 3% of his time annually (plus fringe) for all three years of the project. Bell will be responsible for reviewing protocols, analysis, and manuscripts as necessary and serving as the secondary postdoctoral mentor.

We have included an annual 3% raise each September in accordance with standard university practice. The PIs are aware of the NSF's two-month funding limit within any year.

B. Other Personnel \$130,472

Nicholas Young, Postdoctoral Fellow \$130,472. Two years of annual salary (plus fringe) is requested for a twelve-month postdoctoral fellow for years one and two of the project. Young has experience in learning analytics, data visualization, science communication, and discipline-based education research

Under the supervision of Hayward (primary) and Bell (secondary), Young will

- Develop the focus group and interview protocols and surveys
- Conduct focus groups and interviews with STEM faculty and staff
- Analyze focus group and interviews transcripts and surveys
- Develop interactive versions of the program equity reports
- Draft conference proceedings and journal articles as appropriate, including serving as the lead author

The salary for the postdoctoral fellow is commensurate with the Center for Academic Innovation's current salary for postdoctoral fellows adjusted with an annual 3% raise. An annual 3% raise for the second year is included in the budget based on the current university rates

C. Fringe Benefits \$49,391

The university does not have a standard, negotiated rate for calculating the fringe benefits rate. The fringe benefits as a percentage of salary are based on the salary of individuals and can vary year to year. The University recommends an estimator of 30% for all personnel and we use that rate here. More information about the fringe benefits policies and estimators can be found at

<https://orsp.umich.edu/staff-fringe-benefits>.

D. Equipment

Not applicable

E. Travel \$15,000

Domestic \$5,000 in travel funds to be split amongst the research team are requested for each year of the project to support dissemination efforts of this project by attending conferences. These funds will support the postdoctoral fellow and one senior personnel to attend one conference each year during years one and two of the project and two senior personnel for year 3. Using a target conference, the American Education Research Association's annual meeting, as a sample, the estimated cost to attend is \$650 for coach-airfare, \$800 for a hotel (\$200/night for 4 nights), \$250 for transportation to and from the airport plus parking, \$300 for meals based on the General Service Administration guidance of ~\$75/day for meals and incidental expenses, and registration of ~ \$500 for a total of \$2,500 per person per conference.

F. Participant Support

Not applicable

G. Other Direct Costs \$26,840

Publication/Dissemination \$5,400 We request \$5,400 for Article Processing Charges (APC) to support publishing our findings in open access journals. The Article Processing Charge to publish open-access varies widely, from \$0 to publish in the Journal of Learning Analytics to \$4,500 to publish in Science Advances. Current APCs for targeted journals are \$1,805 for PLoS One, \$1,690 for the International Journal of STEM Education and the budget reflects modest increases in APCs over the cost of the project.

Consultant Services \$4,500. We expect to pay each advisory board member a \$1,500 stipend for their participation (\$500 annually). This is based on an expected 5 hours of work annually in terms of preparing for the annual advisory board meeting, attending the advisory board meeting, and preparing post-meeting documentation at a rate of \$100/hr. The advisory board members are Marco Molinaro, Nia Dowell, Amelia Stone-Johnstone.

Other, Human Subjects Payments \$6,500 We expect to compensate faculty and staff for their time in participating in this project. We assume an averaged rate of \$35/hr as the standard compensation rate for faculty and staff at our university and determine participant costs based on the fraction of an hour needed to complete the task. We expect 60 STEM department leaders to complete the focus group survey and it will take 15 minutes, equating to approximately \$10 of compensation and a total of \$600. We expect 30 participants in the focus group which will last an hour, for a total of \$1050. Based on our focus groups detailed in our preliminary work, we sent out 100 invitations and 20 faculty participated in our focus groups without offering compensation. With compensation for both an initial survey and participation, we expect to be able to recruit a large sample size. We expect 50 STEM faculty and staff will complete two-hour long interviews for a total compensation of \$70 each for a total of \$3,500. These faculty and staff will also complete 4, approximately 10 minute surveys and will be compensated at \$5/survey for a total of \$20/person and a total cost of \$1,000. Finally, 10 STEM faculty and staff will complete a third, hour-long interview with the interactive departmental equity reports for a total of \$350. The total incentives are then \$6,500.

Other, Transcription services \$10,440. We expect to produce 116 hours of recorded audio throughout the duration of this project. These include 6, hour-long focus groups, 50 hour long interviews with faculty and staff without the departmental equity report, 50 hour long interviews with the departmental equity report, and 10 hour long interviews with the interactive departmental equity reports. Using the rev.com 99% accurate transcription cost of \$1.50/minute (\$90/hr) as an estimate, we arrive at a total of \$10,440.

H. Total Direct Costs \$255,864

I. Indirect Costs \$143,284

The University of Michigan has a negotiated Facilities and Administrative (F&A) Costs rate of 56% as of this writing. According to university policy, the indirect costs are based on the modified direct costs which excludes equipment and tuition. We then request \$143,284. The current rate can be found at <https://orsp.umich.edu/develop-proposal/budget-and-cost-resources/facilities-administrative-fa-costs-rates>

J. Total Direct and Indirect Costs \$399,148