

Yearly Report for the Institute for Research and Innovation in STEM Education (RISE Institute)

2018-19

Michigan Technological University

The purpose of the Research and Innovation in STEM Education Institute (RISE Institute) is to recognize, strengthen and encourage collaboration in STEM education pedagogy through fundamental and discipline-based education research (DBER) and to establish Michigan Technological University as a leader in Michigan, the nation, and the world in the area of STEM education research. The initial charter states that the RISE Institute will:

- Develop and serve a community of scholars engaged in fundamental and discipline-based education research.
- Promote collaborations with K-12 schools and educators; other institutions of higher education; and state, regional, and national stakeholders.
- Highlight the education research expertise of RISE faculty.
- Contribute to the Graduate Certificate in STEM Education and future graduate program development in the area of STEM Education.
- Act as a hub for DBER research centers that may be developed in the future.
- Provide methodological expertise and assessment for educational components of grants.

The RISE Institute activities for 2018-19 are aligned with the vision for Centers and Institutes on the Michigan Tech campus, which is to “help to promote interdisciplinary work that involves faculty from several different departments on and off campus”. Examples of activities for 2018-19 are as follows:

- Reviewed and updated the RISE website to highlight current projects and active members.
- Developed marketing methods for increased visibility of RISE.
- Communicated with advisory group to secure/renew membership.
- Collaborated in 6 proposals (one pending) on interdisciplinary projects from Departments in the Colleges of Engineering, and Sciences and Arts.
- Submitted a letter of support for Square One Education Network’s Michigan Space Grant Consortium (MSGC) Underwater Remotely-Operated Vehicles (UROV) in the Classroom workshop proposal.
- Developed a 2020-21 proposal for a secondary Career Technical Education Mechatronics program in collaboration with CCISD to be offered at Michigan Tech campus.
- The Institute has spent \$12,285 to support faculty research summer compensation, marketing materials, and designated fund administrative fees. (See Appendix A for major expenditures)

Facts and Figures, Specific to Fiscal Year 2018-2019

- The IRAD 18% return generated by grants and other non-mandatory transfers associated with RISE through the last four quarters (2018-2019) provided a total revenue of \$11,684. (See Appendix B for total revenue and budget).
- There were 3 awarded grants affiliated with RISE in this fiscal year. (See Appendix C for a complete list)
- There were 6 proposals to NSF affiliated with RISE in this fiscal year. A single proposal is pending review, and 5 proposals were declined. (See Appendix D for a complete list)

Appendix A: Major expenditures

| Category | Expense (\$) |
|--|---------------------|
| <hr style="border-top: 1px dashed black;"/> | |
| Faculty research summer compensation: John Irwin, Institute Director | 9,399.00 |
| Fringe Benefits | 1,927.00 |
| Marketing: Business Cards | 15.00 |
| Fees: Designated fund administration | 945.00 |
| Total Expenditures: | 12,285.00 |

Appendix B: Total revenue & budget

| Category | Expense (\$) |
|---|------------------|
| <hr style="border-top: 1px dashed black;"/> | |
| IRAD Transfers In | 8,282.00 |
| Other Transfers In | 3,402.00 |
| Total Revenue: | 11,684.00 |
| Carryforward: | 20,946.00 |
| Expenditures: (See Appendix A) | -12,285.00 |
| Account Budget Balance: | 20,345.00 |

Appendix C: Ongoing awarded proposals affiliated with RISE, 2018-2019

1) Michigan Middle School Master Teachers Fellowship Program

Date Submitted: 8/29/2017

Principal Investigator: Jacqueline E. Huntoon

Division/Dept: Administration/Provost Office

Co-PIs: Shari Stockero, Joshua A. Ellis, Kedmon N. Hungwe, and Amanda L. Gonczi

Sponsor: National Science Foundation

Requested Amount: \$1,887,979

Budget Start: 1/1/2018

Budget End: 12/30/2023

2) Knowing What You Eat: Measuring the Effectiveness of Educational Interventions on Animal Consumption

Date Submitted: 6/16/2017

Principal Investigator: Adam D. Feltz

Division/Dept: College of Sciences and Arts/Cognitive and Learning Sciences

Co-PIs: L. Syd M. Johnson and Silke H. Feltz

Sponsor: Animal Charity Evaluators

Requested Amount: \$15,437

Budget Start: 8/1/2017

Budget End: 2/1/2019

3) Collaborative Research: Building on MOSTs: Contributing to a Theory of Productive Use of Student Mathematical Thinking

Date Submitted: 12/2/2016

Principal Investigator: Shari Stockero

Division/Dept: College of Sciences and Arts/Cognitive and Learning Sciences

Sponsor: National Science Foundation

Requested Amount: \$590,590

Budget Start: 9/1/2017

Budget End: 8/31/2021

Appendix D: Proposals submitted affiliated with RISE, 2018-2019

| Submitted Date | Principal Investigator | Division | Department |
|-----------------------|-------------------------------|----------------------------|-------------------------------|
| 7/2/2018 | Charles R. Wallace | College of Sciences & Arts | Computer Science |
| 7/20/2018 | Kelly Steelman | College of Sciences & Arts | Cognitive & Learning Sciences |
| 11/7/2018 | Charles R. Wallace | College of Sciences & Arts | Computer Science |
| 12/10/2018 | Shari Stockero | College of Sciences & Arts | Cognitive & Learning Sciences |
| 2/12/2019 | Nilufer Onder | College of Sciences & Arts | Computer Science |
| 2/28/2019 | Michelle E. Jarvie-Eggart | College of Engineering | Engineering Fundamentals |