

Interdisciplinarity@WMU- Phase One planning Template

1. **Brief Overview:** Provide a brief overview of the proposed interdisciplinary initiative. What types of questions would the initiative ask? What types of complex problems would it seek to solve?

TITLE: College STEM Teaching Certificate

MISE currently offers a certificate in college science teaching. This 3-credit certificate is designed for science graduate students who are interested in faculty positions. It provides them with an understanding of teaching and learning theory as well as practical considerations about things such as how to plan a course and write a syllabus. This proposal is to expand the college science teaching certificate to be a college STEM teaching certificate, where STEM refers to Science, Technology, Engineering, and Mathematics. This will require minimal changes to the current certificate program. The name of the certificate and all three classes will be changed to be “STEM” rather than “Science”. Examples discussed in the classes will be made more diverse, to involve not just science teaching, but also teaching in the related areas of engineering and mathematics.

2. **Impacted units:** What existing units, programs, and colleges would be involved in the proposed initiative? What other possibilities for collaboration across campus or in the broader community might exist now or in the future?

These changes mainly impact MISE, CEAS and MATH. The program is currently available to science students. Expanding the program would make it available to students in departments in CEAS and the math department in COAS. CEAS has expressed interest in having this program available to their graduate students.

3. **Impact on teaching, learning, and curricula:** Describe the anticipated impact of the proposed initiative on teaching, learning, and curricula. How might this initiative help to grow enrollment, including by reaching new audiences of learners through continuing education, dual enrollment, or professional certification? How will the proposed initiative positively impact the training of undergraduate and graduate students? How does it enhance our institutional commitment to diversity, equity, and inclusion?

This program would improve the training of WMU graduate students in STEM disciplines who wish to pursue careers involving teaching. In addition to providing better training, this may make WMU a more desirable destination for such graduate students. We also expect that some current and future community college instructors would be interested in this certificate. Although we do not anticipate a large number of such students, these would be new students to WMU.

4. Impact on research and creative activity: Describe the anticipated impact of the proposed initiative on research and creative activity. How will this initiative promote discovery and creative scholarship? How might it result in increased external funding?
Such a program would create some new opportunities for educational research. It might also be eligible for research or scholarship funding.

5. Efficiencies and/or cost savings: How might the proposed initiative contribute to increased efficiencies and/or cost savings, for example by reducing administrative positions (e.g. chairs/directors), sharing staff support services and/or by sharing facilities?

Expanding the certificate program to STEM would require only minor modifications to the existing science certificate. It will provide efficiencies by providing a better experience for WMU students in engineering and math without requiring any additional resources.

6. Impact on course offerings and workload: At present, proposed initiatives will only be feasible and sustainable if they can be supported by existing resources, including instructional capacity, faculty and staff time, and facilities. Will the proposed initiative streamline existing course or program offerings? Could the initiative help create more equitable and sustainable workload for faculty, for example, by reducing the need to offer under enrolled courses, reducing the frequency of course offerings or eliminating the need to teach some courses?

Since the program will be created from existing courses, there is no increase in workload. Having the program available to more students will increase the enrollment in the three courses.

7. Additional Information: What additional information would you like to provide in support of this proposal?

8. Contact

Charles Henderson, MISE