Montana University System
INTENT TO PLAN FORM

Program/Center/Institute Title: Master of Science in Ecological Restoration

Campus, School/Department: Montana Tech/CLSPS/Biological Sciences

Contact Name/Info: Dr. Robert Pal, rpal@mtech.edu;

To increase communication, collaboration, and problem solving opportunities throughout the MUS in the program/center/institute development process, please complete this form not more than 18 months in advance of the anticipated date of submission of the proposed program/center/institute to the Board of Regents for approval. The completed form should not be more than 2-3 pages. For more information regarding the Intent to Plan process, please visit http://mus.edu/che/arsa/preparingacademicproposals.asp.

1) Provide a description of the program/center/institute.
The Master of Science in Ecological Restoration (MS/MSE) degree program will include thesis (30 credit-hour) and non-thesis (36 credit-hour) tracks to enable students to customize their studies to fit their career goals and objectives. It will be available to students enrolled on campus and to working professionals seeking professional advancement via distance learning. It will be structured to complement and bridge between several science and engineering degree programs and a restoration certificate, and to position its graduates for numerous career pathways for which there is a growing demand locally, throughout Montana, nationally, and globally.

2) Describe the need for the program/center/institute. Specifically, how the program/center/institute meets current student and workforce demands. (Please cite sources).

Just at the local Butte/Upper Clark Fork Superfund site there are hundreds of jobs related to ecological restoration. Restoration is a growing “industry” nationally, too, as restoring, revitalizing and bringing economically productive new uses to contaminated lands such as Superfund sites is a crucial first step. Restoration of such sites helps to develop innovative ways to address social, economic and environmental priorities that benefit people, communities, and the environment (EPA 2013). As humans do more and more environmental damage across the globe, scientists predict that restoration ecology could be the future of conservation biology (Young 2000). Thus, jobs in environmental and ecological restoration will be in increasing demand in the years ahead. The MS Restoration program will fill an educational gap in Montana, which currently has no master’s-level degree programs in Ecological Restoration, and this lack contributes to a shortfall in expertise and skilled workforce that could plan, design, and perform successful restoration projects. In addition, development based on natural resources continues to be economically important in Montana, while at the same time the state places increasing priority on minimizing environmental damage and impact from these revenue-generating and job-producing endeavors. The proposed program will provide its students and graduates with the skills and knowledge needed to enable all phases of these projects and businesses to be planned and conducted in a way that minimizes the cost, complexity, and duration of concurrent and post-closure remediation and restoration.

3) Describe how the program/center/institute fits with the institutional mission, strategic plan, and existing institutional program array.

Today’s environmentally impactful industries (e.g. mining, petroleum, construction, transportation, forestry, etc.) usually cannot start operation without written and state-approved plans for environmental protection during operation and for after-closure reclamation/restoration. Therefore, students pursuing degrees and planning careers in these fields—many of which are offered uniquely in Montana at Montana Tech—would benefit from specific education in restoration, giving them a competitive advantage in the job market. The proposed interdisciplinary M.S. in Ecological Restoration will fit Montana Tech’s mission by providing exemplary graduate education and enabling associated research, blending theory with practice and supporting the responsible development and sustainable use of natural resources. The program will build
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on Montana Tech’s strong heritage and special focus on engineering, science, and technology—especially in fields involved with natural resource extraction and use. It supports all four Montana Tech themes (quality education, achieving students, engaged faculty, and service to the community) and numerous strategic goals and objectives in the campus’ strategic plan. Montana Tech already offers a successful Restoration Certificate that enrolls students focused on restoration careers as well as those in other majors who see it as a valuable adjunct to their curriculum. Moreover, Montana Tech’s location in Butte at the heart of the largest Superfund site with environmental issues expected to continue in perpetuity and with an abundance of local opportunities and venues for master’s research projects, makes the campus particularly compelling as a home for this degree program.

Academically the proposed degree will complement existing Master of Science degree programs in Environmental Engineering, Civil Engineering, Mining Engineering, Geological Engineering, and Petroleum Engineering. It will be accessible to students from numerous bachelor’s degree programs in the biological sciences, chemistry, environmental science, forestry, agricultural sciences, natural resources, and engineering. No new courses would be needed and no schedule or teaching changes would be required, because the curriculum will utilize as core courses and as electives courses that are already offered for one or more of those programs and the Restoration Certificate. The MS in Ecological Restoration will thus increase enrollment and instructional efficiency. No changes will be needed to other programs.

4) Describe how the program/center/institute overlaps, complements, or duplicates existing efforts in the MUS. Describe efforts that will be made to collaborate with similar programs at other institutions. If no efforts will be made, please explain why.

There is no other Master of Science in Ecological Restoration in the MUS or at other institutions in Montana. The proposed program will complement and fill a gap between bachelor’s degree programs in Biology, Environmental Engineering, Mining Engineering, Geological Engineering, Petroleum Engineering, and Chemistry at Montana Tech. It will also complement the Ecosystem Science and Restoration undergraduate program and the Ecological Restoration Minor at the W.A. Franke College of Forestry & Conservation at the University of Montana in Missoula, and the Land Rehabilitation MS Program at the Montana State University in Bozeman. Any MS Environmental Restoration students interested in continuing for a Ph.D. would be mentored and encouraged to apply and enroll in appropriate doctoral programs at UM-Missoula or MSU-Bozeman, into whichever campus and program best matches their interests and career aspirations. UM’s Systems Ecology Program is an already existing collaborative link for Ph.D. level education.

Signature/Date

College/School Dean:  
Chief Academic Officer:  
Chief Executive Officer:  
Flagship Provost*:

Flagship President*:

*Not applicable to the Community Colleges.

Date of Final Review:

When submitting the proposal to the BOR, include this signed form with the Level II request.