

MSU INVESTMENT PROPOSAL FOR INSTITUTIONAL PRIORITIES

PROPOSAL OVERVIEW

Title	Spatial Sciences Technology Support	Request Date	12/12/2011
Department	Land Resources & Environmental Sciences & Earth Sciences	Email	rickl@montana.edu
Requestor	Rick Lawrence	Phone	994-5409

STRATEGIC ALIGNMENT

**Core Themes
and Objectives
(check all that
apply)**

Educate Students

- Our graduates will have achieved mastery in their major disciplines
- Our graduates will become active citizens and leaders
- Our graduates will have a multicultural and global perspective
- Our graduates will understand the ways that knowledge & art are created and applied in a variety of disciplines
- Our graduates are prepared for careers in their field
- We will provide increased access to our educational programs
- Communities and external stake holders benefit from broadly defined education partnerships with MSU

Create Knowledge and Art

- Students, faculty, and staff will create knowledge and art that is communicated widely

Serve Communities

- We help meet a fundamental need of the citizens of Montana by providing degree programs for our students
- We help meet the educational needs of the citizens of Montana by providing a wide range of educational opportunities to a variety of students
- Our students, faculty, staff, and administrators reach out to engage and serve communities
- Our students, faculty, staff, and administrator reach in to build the university community

Integrate Learning, Discovery, and Engagement

- Each graduate will have had experiences that integrate learning, discovery and engagement
- Outreach activities will educate students and address the needs of the communities we serve
- Students, faculty, and staff will create knowledge and art that addresses societal needs
- MSU is a community that will be characterized by synergy within and across disciplines, roles and functions.

Stewardship

- The public trusts the institution to operate openly and use resources wisely
- The faculty and staff are well-qualified and supported
- MSU will support Native American students, programs, and communities
- MSU will be an inclusive community, supporting and encouraging diversity
- Our publicly provided resources are used efficiently and effectively
- Natural resources are used efficiently and sustainably
- MSU nurtures a culture of resource conservation and ecological literacy among students, faculty and staff
- Our physical infrastructure (e.g., building, equipment, open spaces) will be well-maintained and useful

INSITUTIONAL BENEFIT

Campuses Bozeman Billings Havre Great Falls FSTS Extension MAES

Cross Depts Please List: Earth Sciences, Ecology

TIMEFRAME

Proposed Dates Start: 7/1/2012 End: 6/30/2015

COST AND REQUIREMENTS

Funding Type	One-Time (\$)	Multi-Year (\$)			Base (\$)	FTE
		Year 1	Year 2	Year 3		
Personnel (w/benefits)					54,000	0.75
Materials & Supplies						
Travel						
Contracted Services						
Capital						
Other Operations						
TOTAL					54,000	0.75

Costs are requested to fund a systems administrator to support 10 spatial sciences courses, including one overview course, four GIS courses, two GPS courses, and three remote sensing courses.

Please comment, if necessary, regarding cost and requirements.

PROPOSAL SCOPE

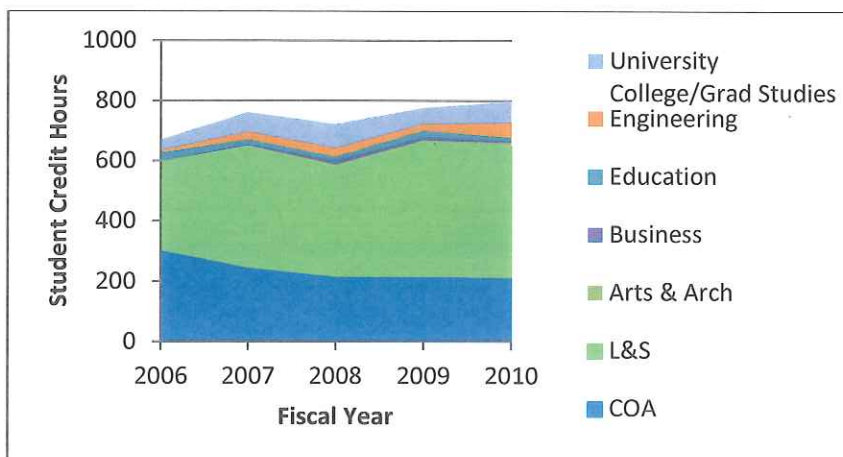
Describe the Proposal

Spatial sciences (geographic information systems (GIS), global positioning system (GPS), and remote sensing (RS)) is one of the fastest growing job markets in the U.S. (listed by the Department of Labor as #3). This has been manifested at Montana State University (MSU) in steadily increasing course enrollments (19% increase in the past 5 years, with a wide diversity of majors served, see the figure below) and a steady increase in course offerings. Spatial science courses at MSU are taught in the College of Letters and Science (L&S, approximately 570 student credit hours per year) and College of Agriculture (COA, approximately 230 student credit hours per year). Two majors (one in Land Resources and Environmental Sciences, one in Earth Sciences) and one minor (in Earth Sciences) are entirely dependent on these courses, while many other majors include these courses.

The colleges are generally responsible for the classroom costs (faculty, adjuncts, staff, GTAs) related to their respective courses. However in the interest of cooperation and economies of scale, the Spatial Sciences Center (SSC, formerly known as the Geographic Information and Analysis Center) has maintained a common teaching lab. This teaching lab has historically been fully occupied with 20-30 hours per week reserved for course laboratories and the remainder for students to work on course projects (including after hour availability for students in classes using the lab). The costs of maintaining this lab prior to FY2009 had been included in the Provost's allocation to L&S, while computers, equipment, and software have been funded by CFAC/EFAC. From FY2009 to date, IT support for this lab has been provided on an annual *ad hoc* basis, with costs being shared on different allocations each year by SSC, COA, and L&S.

A series of alternative ways to support these courses, including faculty time, teaching assistant time, and ITC support, have been examined with the relevant deans and department heads and with ITC. None of the alternatives were found acceptable, both because of lack of expertise and inefficient use of instructional time (if faculty and/or TAs had the expertise and spent time maintaining the computing infrastructure, this would necessarily result in reduced time available for student interaction). In addition, these alternatives would result in reduced course offerings and course quality, as alternative software that does not take high level IT knowledge would be necessary, which would not prepare our students as well for available jobs and graduate school. ITC has informed us that they do not have the personnel to support this lab.

SSC is not able to continue supporting academic expenses without an academic budget. L&S and COA have provided partial funding for the current academic year on a one-year only basis. Without some established basis for providing technology support for these classes after the current fiscal year, it will no longer be feasible to offer spatial sciences courses as they have been offered in the past or maintain the academic majors (Geography, Geology, Paleontology, GIS/Planning, and Snow Science in Earth Sciences; Geospatial and Environmental Analysis, and Land Rehabilitation in Land Resources and Environmental Sciences) and minor (GIS in Earth Sciences) that require these courses. We are, therefore, requesting base funding for technology support for spatial sciences classes.



PROPOSAL SCOPE

Describe the broader impacts and benefits of this proposal

As noted above, spatial sciences is one of the fastest growing job markets. In addition to the direct job market, these technologies are permeating nearly every aspect of our daily lives, with GPS and GIS in our phones, cameras, cars, and so on. Political campaigns are now driven by spatial data, economic models depend on these data, engineering and public health have heavily incorporated them, while the environmental sciences have long embraced spatial data. It is said that we live in an information age, but in this Century the information age has experienced what has become known as the Geospatial Revolution. For our students to be equipped to enter and thrive in this age, geospatial education is essential.

Geospatial courses are entirely dependent on a high quality, functioning teaching lab, with state-of-the-art hardware and software. CFAC has been very supportive in providing the funding necessary for this purpose. Further, funding from COA, L&S, and the Provost's Office has recently (May 2011) enable the creation of a new computer teaching lab space designed and dedicated to teaching geospatial courses. The computer facilities needed to teach these technologies, however, are highly specialized and required highly trained, specialized IT support. In order to provide this essential education for our students, it is necessary to fund the needed technology support. Funding of this proposal will enable the continued offering of high quality geospatial education so needed by our students.

ADDITIONAL INFORMATION

Implementation Plan *(Please describe with timelines)*



Funding from this proposal would be used to pay for an IT position dedicated to geospatial sciences educational resources.

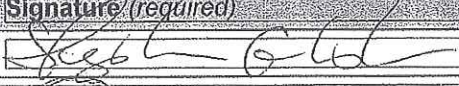
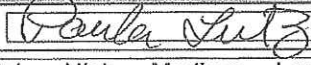
Assessment Plan *(Please describe with indicators)*

We will continue to track the course offerings and student credit hours that would be enabled by this proposal to assess the value received from the funding.

If assessed objectives are not met in the timeframe outlined, what is the plan to sunset this proposal?

If course offering and/or student credit hours were to significantly decrease relative to overall enrollment within the 3-year time frame of the requested funding, the proposal would terminate at that time.

SIGNATURES		
Department Head (please print)	Signature (required)	Date
Tracy M. Sterling		Dec. 20, 2011
Dept Head Priority (please circle one):	Very High <input checked="" type="radio"/> High <input type="radio"/> Medium <input type="radio"/> Low <input type="radio"/> Very Low <input type="radio"/>	#2
Dean/Director (please print)	Signature (required)	Date
JEFF JACOBSEN		
Dean/Director Priority (please circle one):	Very High <input type="radio"/> High <input type="radio"/> Medium <input type="radio"/> Low <input type="radio"/> Very Low <input type="radio"/>	
Executive/VP (please print)	Signatures (required)	Date
Executive/VP Priority (please circle one):	Very High <input type="radio"/> High <input type="radio"/> Medium <input type="radio"/> Low <input type="radio"/> Very Low <input type="radio"/>	

SIGNATURES		
Department Head (please print)	Signature (required)	Date
Stephan G. Custer		23 Dec 2011
Dept Head Priority (please circle one):	Very High <input type="radio"/> High <input checked="" type="radio"/> Medium <input type="radio"/> Low <input type="radio"/> Very Low <input type="radio"/>	
Dean/Director (please print)	Signature (required)	Date
Paula Lutz		29 Dec. 2011
Dean/Director Priority (please circle one):	Very High <input type="radio"/> High <input type="radio"/> Medium <input type="radio"/> Low <input type="radio"/> Very Low <input type="radio"/>	
Executive/VP (please print)	Signatures (required)	Date
Executive/VP Priority (please circle one):	Very High <input type="radio"/> High <input type="radio"/> Medium <input type="radio"/> Low <input type="radio"/> Very Low <input type="radio"/>	