

L E V E L   I I  
M E M O R A N D U M

**DATE:** August 31, 2010

**TO:** Chief Academic Officers, Montana University System

**FROM:** Sylvia Moore, Deputy Commissioner for Academic & Student Affairs  
Mary Moe, Deputy Commissioner for Two-Year Education

**RE:** Level II Submission Items for action at **November 2010** BOR meeting

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The campuses of the Montana University System have proposed new academic programs or changes under the Level II approval process authorized by the Montana Board of Regents. The Level II proposals are being sent to you for your review and approval. If you have concerns about a particular proposal, you should share those concerns with your colleagues at that institution and try to come to some understanding. If you cannot resolve your concerns, you need to raise those concerns at the Chief Academic Officer's conference call on **September 1, 2010**. Issues not resolved at that meeting should be submitted in writing to OCHE by noon on Friday, September 3. That notification should be directed to Summer Marston, Executive Assistant to the Deputy Commissioners.

**The Level II submissions are as follows:**

**Montana State University-Bozeman:**

- Establish a Minor in Mechatronics  
[ITEM #148-2006-R0910](#) | [Level II Request Form](#) | [Curriculum Proposals](#)
- Establish an accelerated alternative post-baccalaureate in the BS in Nursing  
[ITEM #148-2008-R0910](#) | [Level II Request Form](#) | [Curriculum Proposals](#) | [Current Curriculum](#) | [Survey Results](#) | [Letters of Support](#) | [Board of Nursing Approval Letter](#)

**Montana Tech of The University of Montana:**

- Change Statistics Option to a Statistics Degree  
[ITEM #148-1501-R0910](#) | [Level II Request Form](#) | [Curriculum Proposals](#)

**The University of Montana-Western:**

- New Equine Studies Department be created from the current Equine Studies Program in the Department of Business and Technology  
[ITEM #148-1601-R0910](#) | [Level II Request Form](#) | [Curriculum Proposals](#)
- New major in Environmental Science with Options in Geology; Geochemistry; Wetlands Management; and Sustainable Natural Resource Management to replace its current B.A. Option in Environmental Sciences with its six Related Areas (sub-options). New major in Environmental Interpretation with Options in Geological Naturalist; Biological Naturalist; and Pre-Professional Conservation Officer  
[ITEM #148-1603-R0910](#) | [Level II Request Form](#) | [Level II Request Form – Part 2](#) | [Curriculum Proposals](#) | [Curriculum Proposals – Part 2](#) | [Detail](#)
- New B.S. Major in Biology with Options in Molecular Bioscience; Wildlife Ecology; and Integrative Biology. Proposing to eliminate the BA: Biology Option with its six associated Related Areas  
[ITEM #148-1604-R0910](#) | [Level II Request Form](#) | [Curriculum Proposals](#) | [Detail](#)
- New B.S. Major in Mathematics with three options in Mathematical Biology; Mathematical Ecology; and Mathematical Geology. Discontinue its B.A. Option in Mathematics with its five Related Areas  
[ITEM #148-1605-R0910](#) | [Level II Request Form](#) | [Curriculum Proposals](#) | [Detail](#)

- New B.A. Major in English with three Minors in Creative Writing, Professional Communications, and Literature. Discontinue its B.A. Option in Literature and Writing with its three Related Areas (sub-options)

*ITEM # 148-1606-R0910 | Level II Request Form | Curriculum Proposals*

**ITEM 148-2006-R0910**

**Minor in Mechatronics, Montana State University**

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**THAT**

The Board of Regents of Higher Education authorizes Montana State University to establish a Minor in Mechatronics

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**EXPLANATION**

Montana State University-Bozeman seeks approval to establish a Minor in Mechatronics for the students majoring in Mechanical, Electrical, and Computer Engineering (ME, EE, and CpE) at Montana State University. The Minor will complement the ongoing cross-disciplinary activities of the College of Engineering, providing opportunities for students from ME, EE, and CpE departments. Mechatronics is an emerging engineering field that has altered the traditional boundaries of engineering education, particularly in the disciplines of mechanical, electrical, and computer engineering. An ever expanding array of products comprising electro-mechanical systems is found in all aspects of our everyday life, ranging from automobiles to home appliances to entertainment systems.

The objective of the proposed Minor program is to identify a key set of existing courses in the undergraduate curricula of ME, EE, and CpE, so that interested students can acquire the cross-disciplinary knowledge and skills necessary for product design, development, and manufacturing. Students in the relevant majors do not ordinarily take courses that cross the established discipline boundaries, so the proposed Mechatronics Minor provides a credential recognizing the integration of ME, EE, and CpE, within a contemporary engineering design methodology.

This program will allow engineering students to expand their opportunities and knowledge base to be productive engineers in a wide variety of job descriptions throughout the communities of Montana. The minor will be offered within the framework of the current catalogs, curricula, courses, and teaching schedules of the Mechanical and Electrical Engineering programs.

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**ATTACHMENTS**

Level II Request Form  
Curriculum Proposals

**M O N T A N A   B O A R D   O F   R E G E N T S**  
**LEVEL II REQUEST FORM**

Item Number:	<b>148-2006-R0910</b>	Date of Meeting:	<b>Sept. 22-23, 2010</b>
Institution:	<b>Montana State University-Bozeman</b>	CIP Code	<b>14.4201</b>
Program Title:	<b>Minor in Mechatronics</b>		

Level II proposals require approval by the Board of Regents.

**Level II action requested (check all that apply):** Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

- 1. Change names of degrees (e.g. from B.A. to B.F.A.)
- 2. Implement a new minor or certificate where there is no major or no option in a major;
- 3. Establish new degrees and add majors to existing degrees;
- 4. Expand/extend approved mission; and
- 5. Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

**Montana State University-Bozeman seeks approval to establish a Minor in Mechatronics for the students majoring in Mechanical, Electrical, and Computer Engineering (ME, EE, and CpE) at Montana State University. The Minor will complement the ongoing cross-disciplinary activities of the College of Engineering, providing opportunities for students from ME, EE, and CpE departments. The objective of the proposed Minor program is to identify a key set of existing courses in the undergraduate curricula of ME, EE, and CpE, so that interested students can acquire the cross-disciplinary knowledge and skills necessary for product design, development, and manufacturing. This program will allow engineering students to expand their opportunities and knowledge base to be productive engineers in a wide variety of job descriptions throughout the communities of Montana. The minor will be offered within the framework of the current catalogs, curricula, courses, and teaching schedules of the Mechanical and Electrical Engineering programs.**



LEVEL II BOARD OF REGENTS ITEMS

**1. Overview**

**A Mechatronics Minor at MSU is being sought**

We propose a new Minor in Mechatronics for the students majoring in Mechanical, Electrical, and Computer Engineering (ME, EE, and CpE) at Montana State University. The Minor will complement the ongoing cross-disciplinary activities of the College of Engineering, providing opportunities for students from ME, EE, and CpE departments.

**2. Need**

**a. To what specific need is the institution responding in developing the proposed program?**

Mechatronics is an emerging engineering field that has altered the traditional boundaries of engineering education, particularly in the disciplines of mechanical, electrical, and computer engineering. An ever expanding array of products comprising electro-mechanical systems is found in all aspects of our everyday life, ranging from automobiles to home appliances to entertainment systems. The automotive industry, traditionally the domain of mechanical engineering, now incorporates tens of digital microcontrollers into modern vehicle systems such as computer-controlled fuel injection, airbag deployment, antilock brakes, emission controls, and so forth. Vehicles on the drawing board will incorporate still more microcontroller-based technologies in hybrid propulsion, “steer-by-wire”, “brake-by-wire”, collision avoidance, communication and navigation, etc., and automobiles with such capabilities will hit the market in the near future. Mechatronics has already fulfilled the promise of smart, autonomous, electromechanical systems in NASA's Mars Expedition Rover missions currently operating on the surface of Mars. While some of today's most advanced applications are enabled by mechatronics as described above, there are also thousands of important applications that are more commonplace, such as measuring load size in a washing machine using a sensor, transporting paper through a computer printer or photocopier, or reading a microscopic pit track in a DVD player.

The objective of the proposed Minor program is to identify a key set of existing courses in the undergraduate curricula of ME, EE, and CpE, so that interested students can acquire the cross-disciplinary knowledge and skills necessary for product design, development, and manufacturing. Students in the relevant majors do not ordinarily take courses that cross the established discipline boundaries, so the proposed Mechatronics Minor provides a credential recognizing the integration of ME, EE, and CpE, within a contemporary engineering design methodology.

In addition, the state of Montana is engaged in an intense economic development effort focused on technology-based businesses and companies. Among other initiatives, the Montana Legislature created the Montana Board of Research and Commercialization Technology (MBRCT) in 1999 to provide a predictable and stable source of funding for research and commercialization projects. One of the conditions for supporting the proposal

is that the work is to be conducted at research and commercialization centers in Montana. The Mechatronics Minor at MSU will create a critical mass of talent local companies can draw upon as they increase their commercialization efforts.

**b. How will students and any other affected constituencies be served by the proposed program?**

Based on national and regional demands, several universities have initiated Mechatronics education. Electronic, automotive, and aerospace industries hire many graduates with a Mechatronics background. For example, Department of Mechanical Engineering at Villanova University (VU) (<http://www.villanova.edu/engineering/departments/mechanical/undergrad/mechatronics.htm>) Department of Electrical and Systems Engineering at Washington University (WU) at St. Louis (<http://www.ee.wustl.edu/Academics/mechatronics.asp>) offer Minor in Mechatronics. The Minor offered by WU is primarily designed for students in the Electrical and Systems Engineering and Mechanical and Systems Engineering Departments. The minor program consists of 4 required courses, 2 electives and 1 prerequisite. The course listings are given below:

Four (4) required courses:

1. MASE 255 Engineering Mechanics II [Dynamics]
2. MASE 411 Mechanical Engineering Design Project (Mechatronics project)
3. ESE 446 Robotics: Dynamics and Control
4. ESE 444 Sensors and Actuators

Two (2) electives from the following:

1. MASE 431 Structural Dynamics & Vibration
2. MASE 5101 Fluid Power Systems
3. MASE 4301 Modeling, Simulation and Control or MASE 4302 Aircraft Flight Dynamics and Control or ESE 441 Control Systems
4. ESE 336 Principles of Electronic Devices
5. ESE 442 Digital Control Systems
6. CSE 467S Embedded Computing Systems
7. ESE 482 Digital Signal Processing
8. CSE 550A Mobile Robotics

Prerequisite course:

Basic programming course: CSE 131 or CSE 126 or CSE 200.

To our knowledge, there are no institutions in Montana, Washington, Wyoming, South Dakota, and North Dakota that offer Minor in Mechatronics. Regionally, the University of Utah offers a Certificate in Mechatronics, the University of Washington and Washington State University offer a Degree in Mechanical Engineering with concentration in Mechatronics. Thus, a Minor in Mechatronics at MSU will serve Montana residents and will potentially lower the barrier for students from the other states to choose to attend MSU.

**c. What is the anticipated demand for the program? How was this determined?**

No explicit analysis of the demand has been conducted, but an interest in Mechatronics is mentioned routinely by prospective students during campus visits, and also in exit interviews with students graduating with majors in ME, EE, and CpE. As was mentioned above, there is an increasing trend among technology sector companies in Montana. Virtually every engineering workplace has become cross-disciplinary in nature in recent years. MSU's College of Engineering is also promoting a cross-disciplinary approach in engineering education and practice. This is explained further in section 3d below.

**3. Institutional and System Fit**

**a. What is the connection between the proposed program and existing programs at the institution?**

The proposed Minor is a combination of mechanical, electrical, and computer engineering. Currently, MSU does not have any similar program.

**b. Will approval of the proposed program require changes to any existing programs at the institution? If so, please describe.**

No new courses need to be developed to start the proposed Minor program. The Minor is designed to utilize existing courses, instructors, and lab facilities.

**c. Describe what differentiates this program from other, closely related programs at the institution (if appropriate).**

There is no counterpart of this Mechatronics Minor at MSU.

**d. How does the proposed program serve to advance the strategic goals of the institution?**

This proposed Minor will add to the diverse learning environment of the university as stated in the university's mission statement. Engineering has always been a key component of land grant institutions such as MSU. This proposed Minor will allow engineering students to expand their opportunities and knowledge base to be productive engineers in a wide variety of job descriptions throughout the communities of Montana.

MSU's College of Engineering (COE) has three Strategic Goals for the 2009-2014 period: (1) GLOBAL CONNECTIONS, (2) CROSS-DISCIPLINARY COLLABORATION and (3) TECHNOLOGICAL LEADERSHIP. Based on the cross-disciplinary nature of current work in academia and industry, the proposed Mechatronics Minor is directly aligned to COE's strategy to increase opportunities for cross-disciplinary projects. Moreover, COE has been offering a cross-disciplinary course entitled ENGR 310 since spring 2007. ENGR 310 is required of all ME, EE, and CpE students.

The proposed Minor is inherently cross-disciplinary because of the combination of major courses in three traditional disciplines (ME, EE, and CpE). The proposed Minor will promote senior design projects with participation by students from different engineering majors. Thus, the Minor in Mechatronics will enhance and complement the ongoing cross-disciplinary activities.

**e. Describe the relationship between the proposed program and any similar programs within the Montana University System. In cases of substantial duplication, explain the need for the proposed program at an additional institution. Describe any efforts that were made to collaborate with these similar programs; and if no efforts were made, explain why. If articulation or transfer agreements have been developed for the substantially duplicated programs, please include the agreement(s) as part of the documentation.**

To our knowledge, there is no similar program in the Montana University System.

#### 4. Program Details

**a. Provide a detailed description of the proposed curriculum. Where possible, present the information in the form intended to appear in the catalog or other publications. NOTE: In the case of two-year degree programs and certificates of applied science, the curriculum should include enough detail to determine if the characteristics set out in Regents' Policy 301.12 have been met.**

The students seeking Minor in Mechatronics must *satisfy the degree requirements for an ME, EE or CpE degree* plus the following courses to obtain a Minor in Mechatronics.

Course#	Course Title	Credits	Coreq or Prereq
CS 160	Introduction to Computer Science	4	M 151Q
CS 201	Program Design with C	3	CS 160
EM 251	Statics and Particle Dynamics	3	Phys 211
EM 252	Rigid Body Mechanics	3	EM 251
EM 253	Mechanics of Materials	3	EM 251
ME 117	Mechanical Engineering Design Graphics	1	Permission
ME 118	Mech Eng Design Graphics Lab	1	Permission
ME 320	Thermodynamics I	3	EM 251
ME 326	Fundamentals of Heat Transfer	4	ME 320
EE 261	Introduction to Logic Circuits	3	M 171
EE 262	Logic Circuits lab	1	EE 261
EE 321	Introduction to Controls	4	Permission
EE 371	Microprocessor Hardware and Software System	4	EE 261
	<b>Total</b>	<b>37</b>	

Students pursuing the BS in Mechanical, Computer or Electrical Engineering at MSU will have to take 18-22 additional course credit (including prerequisites) to obtain a Minor in

## ITEM 148-2006-R0910: Curriculum Proposal

Mechatronics. Additional courses need to be taken by ME, EE, and CpE students are tabulated below:

### ME Additional Courses:

Course#	Course Title	Credits
CS 160	Introduction to Computer Science	4
CS 201	Program Design with C	3
EE 261	Introduction to Logic Circuits	3
EE 262	Logic Circuits Lab	1
EE 321	Introduction to Controls	4
EE 371	Microprocessor Hardware and Software System	4
Total		<b>19</b>

### EE Additional Courses:

Course#	Course Title	Credits
CS 201	Program Design with C	3
EM 252	Rigid Body Mechanics	3
EM 253	Mechanics of Materials	3
ME 117	Mechanical Engineering Design Graphics	1
ME 118	Mech Eng Design Graphics Lab	1
ME 320	Thermodynamics I	3
ME 326	Fundamentals of Heat Transfer	4
Total		<b>18</b>

### CpE Additional Courses

Course#	Course Title	Credits
EM 251	Statics and Particle Dynamics	3
EM 252	Rigid Body Mechanics	3
EM 253	Mechanics of Materials	3
ME 117	Mechanical Engineering Design Graphics	1
ME 118	Mech Eng Design Graphics Lab	1
ME 320	Thermodynamics I	3
ME 326	Fundamentals of Heat Transfer	4
EE 321	Introduction to Controls	4
Total		<b>22</b>

### **b. Describe the planned implementation of the proposed program, including estimates of numbers of students at each stage.**

The Mechatronics Minor is primarily applicable to students majoring in Mechanical, Electrical, or Computer Engineering, although students majoring in Computer Science, Industrial Engineering, and Physics could potentially be interested. Thus, it is difficult to state with precision the total number of students who might be interested in the Minor.

## ITEM 148-2006-R0910: Curriculum Proposal

However, it is estimated that a dozen or more students may be enrolled in the Minor shortly after its commencement.

While filing the *Application for Baccalaureate Degree* for the major, students pursuing the Minor in Mechatronics will also have to submit the *Application for a Non-teaching Minor* by the deadlines set forth in the University Catalog. For example, Dr. Ahsan Mian and Dr. Todd Kaiser will serve as the Minor certifying officers for the Mechanical & Industrial Engineering Department and the Electrical & Computer Engineering Department, respectively. They will certify that the M&IE and ECE students have completed the required course credits (as given in Section 4a) for the Minor in Mechatronics.

### 5. Resources

**a. Will additional faculty resources be required to implement this program? If yes, please describe the need and indicate the plan for meeting this need.**

Limited additional faculty resources are needed to implement the Mechatronics Minor program. The Minor will be offered within the framework of the current catalogs, curricula, courses, and teaching schedules of the Mechanical and Electrical engineering programs. The College of Engineering is fortunate to have faculty members with the necessary background in the related fields to provide student advising and counseling as part of their regularly assigned advising duties.

We do anticipate that future senior design projects will need to accommodate cross-disciplinary work related to Mechatronics. This additional work by the faculty advisors for the design projects will be handled on a case-by-case basis within the existing senior design rubrics.

**b. Are other, additional resources required to ensure the success of the proposed program? If yes, please describe the need and indicate the plan for meeting this need.**

The proposed Minor requires limited additional resources, principally to accommodate the inevitable increase in administrative overhead necessary to publicize the program, advise students, and process the *Application for a Non-teaching Minor* paperwork when a student is ready to graduate.

### 6. Assessment.

**How will the success of the program be measured?**

M&IE, ECE, and the other departments in the College of Engineering incorporate a systematic assessment plan (<http://www.montana.edu/wwwprov/assessment/assessmentplans.htm>) for all of the academic programs and courses. We continually assess objectives and outcomes at the program and course levels. These assessments are mandatory for our continued national

## ITEM 148-2006-R0910: Curriculum Proposal

accreditation (ABET), and we must demonstrate the assessment and evaluation processes as part of the periodic accreditation review. Therefore, our current assessment plans and evaluation methods will be applied consistently to the Mechatronics Minor.

In addition, we will provide specialized assessment based on student, employer, and alumni satisfaction towards the Minor through appropriate surveys. The M&IE department has been doing this kind of survey for many years to assess the outcomes of the Mechanical Engineering program. Any changes in student enrollment or graduation rate will be monitored, reviewed, and the program will be revised accordingly.

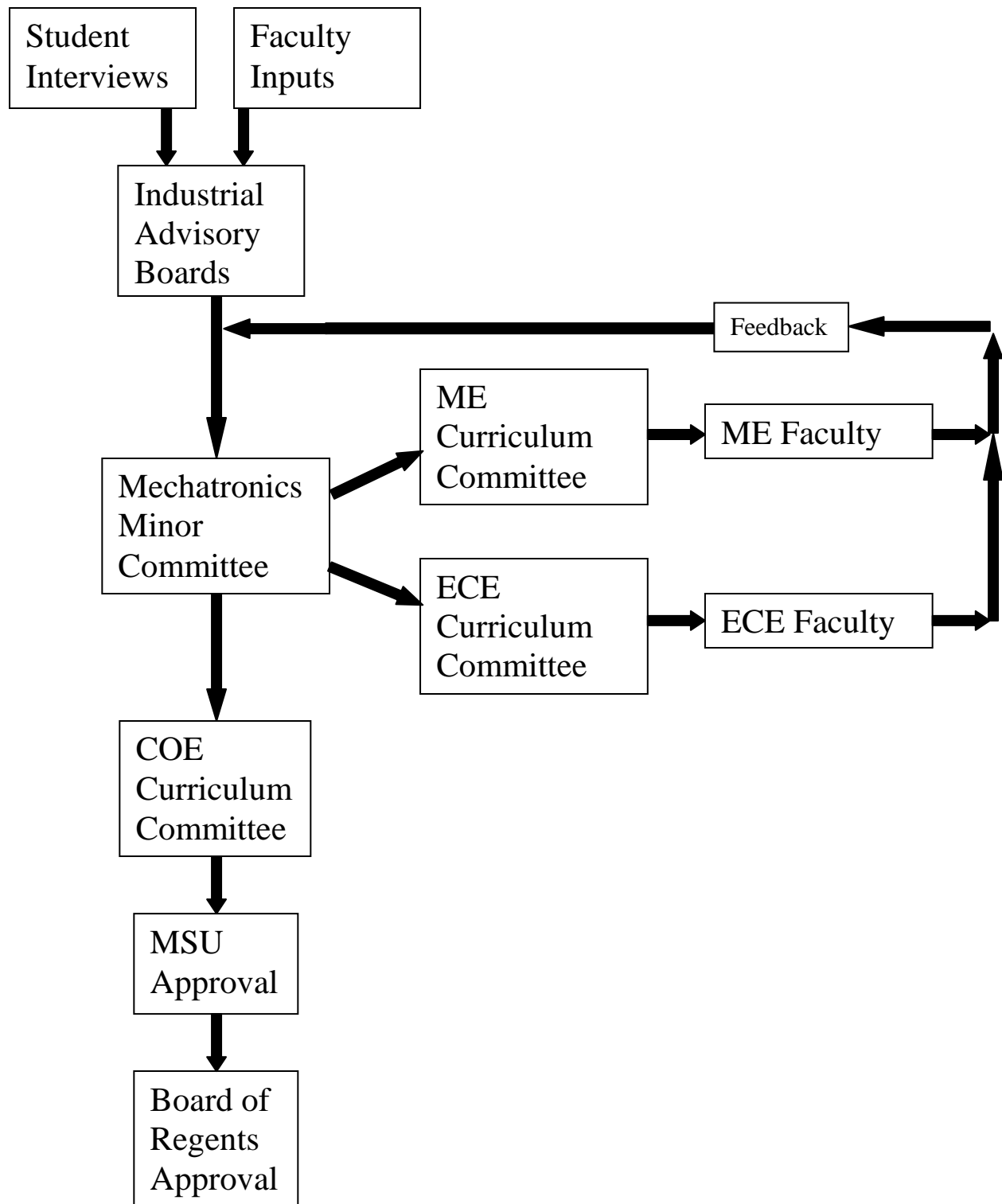
### 7. Process Leading to Submission

**Describe the process of developing and approving the proposed program. Indicate, where appropriate, involvement by faculty, students, community members, potential employers, accrediting agencies, etc.**

The present Mechatronics Minor proposal was presented before the departmental Industrial Advisory Boards (IABs) for both the Mechanical & Industrial Engineering and the Electrical & Computer Engineering Departments. Both the IABs were very receptive about the proposal and they responded strongly in favor of the proposal. Several members said that they wish they had the opportunity of having some exposure to mechatronics when they were students at MSU.

The exit interviews of ME graduating seniors show that they feel that the Minor in Mechatronics will add value to our engineering program. Also, this program will allow the students to gather knowledge in control that is necessary for many industrial applications.

The following flow diagram depicts the step-by-step procedure leading to the final approval of the proposed Minor in Mechatronics program at MSU.





**ITEM 148-2008-R0910**

**Accelerated Alternative Post-Baccalaureate, BS in Nursing (BSN), Montana State University**

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**THAT**

The Board of Regents of Higher Education authorizes Montana State University to establish an accelerated alternative post-baccalaureate in the BS in Nursing (BSN)

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**EXPLANATION**

The College of Nursing at Montana State University is seeking approval to begin offering an accelerated second degree alternative for students to earn a baccalaureate degree in nursing. This alternative would be available only to students who already have a baccalaureate degree in a discipline other than nursing. Students would be required to have completed the same or equivalent pre-requisite courses as basic students. Once admitted to the nursing major, they would be able to complete the nursing degree in approximately 16 months, as opposed to the 29 months it takes basic students. This alternative would not be a new program. The curriculum, number of credits earned, and degree would be the same as the basic BSN degree program.

This proposal responds to an ongoing need for more nurses to enter the workforce, both within the state and beyond. The accelerated alternative will meet the needs of degreed students who seek to become registered nurses. It will offer a route to a baccalaureate degree in nursing that is tailored to their needs as adults and their background of having an earned degree. There is not another second degree accelerated alternative in Montana.

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**ATTACHMENTS**

- Level II Request Form
- Curriculum Proposals
- Survey Results
- Letters of Support
- Board of Nursing approval letter

**M O N T A N A   B O A R D   O F   R E G E N T S**  
**LEVEL II REQUEST FORM**

Item Number:	<b>148-2008-R0910</b>	Date of Meeting:	<b>Sept. 22-23, 2010</b>
Institution:	<b>Montana State University-Bozeman</b>	CIP Code	<b>51.1601</b>
Program Title:	<b>Accelerated Alternative Post-Baccalaureate, BS in Nursing (BSN)</b>		

Level II proposals require approval by the Board of Regents.

**Level II action requested (check all that apply):** Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

- 1. Change names of degrees (e.g. from B.A. to B.F.A.)
- 2. Implement a new minor or certificate where there is no major or no option in a major;
- 3. Establish new degrees and add majors to existing degrees;
- 4. Expand/extend approved mission; and
- 5. Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

**The College of Nursing at Montana State University is seeking approval to begin offering an accelerated second degree alternative for students to earn a baccalaureate degree in nursing. This alternative would be available only to students who already have a baccalaureate degree in a discipline other than nursing. Students would be required to have completed the same or equivalent pre-requisite courses as basic students. Once admitted to the nursing major, they would be able to complete the nursing degree in approximately 16 months, as opposed to the 29 months it takes basic students. This alternative would not be a new program. The curriculum, number of credits earned, and degree would be the same as the basic BSN degree program.**

## ITEM 148-2008-R0910: Proposal

### **A Proposal to the Board of Regents of the Montana University System Requesting Approval to Initiate an Accelerated Alternative for Post-baccalaureate Students in the Bachelor of Science in Nursing (BSN) program at Montana State University**

#### **1. Overview**

*Provide a one paragraph description of the proposed program. Be specific about what degree, major, minor or option is sought.*

The College of Nursing at Montana State University is seeking approval to begin offering an accelerated second degree alternative for students to earn a baccalaureate degree in nursing. This alternative would be available only to students who already have a baccalaureate degree in a discipline other than nursing. Students would be required to have completed the same or equivalent pre-requisite courses as basic students. Once admitted to the nursing major, they would be able to complete the nursing degree in approximately 16 months, as opposed to the 29 months it takes basic students. This alternative would not be a new program. The curriculum, number of credits earned, and degree would be the same as the basic BSN degree program.

#### **2. Need**

*a. To what specific need is the institution's response in developing the proposed program?*

This proposal responds to an ongoing need for more nurses to enter the workforce, both within the state and beyond. On December 4, 2009, the US Bureau of Labor Statistics (BLS) reported that "the healthcare sector of the economy is continuing to grow, despite significant job losses in nearly all major industries." The BLS went on to report that healthcare settings, "added 21,000 new jobs in November 2009, a month when 85,000 jobs were eliminated across the country" and that RNs, the largest segment of the healthcare workforce, will likely be recruited to fill these new positions. They also confirmed that 613,000 jobs have been added in the healthcare sector since the recession began. Predictions are that more than 581,500 new RN positions will be created through 2018, which would increase the size of the RN workforce by 22%.

In 2008, there were about 8315 RNs employed in Montana. The estimated growth rate for registered nurses in Montana between 2008 and 2018 is 9.5% or about 302 annual job openings which includes both new growth jobs (165) and replacements (137). In 2009, average starting salary for registered nurses in Montana was \$43,537; the mean salary was \$56,377; and the average salary for experienced nurses was \$62,797. There are jobs available, there is projected job growth, and nurse's salaries exceed the average salaries for Montanan's which linger at about \$32,000-\$33,000.

At the state level, according to the Montana Department of Labor and Industry, Workforce Services Division, Gallatin County is Montana's fastest growing county, boasting a 28.8% growth from 2000-2007. In 2007, Gallatin County's population surpassed that of Flathead County, making it the state's third largest county, with an estimated 87,359 residents. Bozeman, the county seat, remains the state's fourth largest city, with an estimated population of

## **ITEM 148-2008-R0910: Proposal**

37,981 as of July 1, 2007. According to the 2000 US Census Bureau, the population of Gallatin County has very high levels of education with 28.1% having a bachelor's degree compared with 17.2% of Montanan's with bachelor's degrees, and 15.5% of US citizens with bachelor's degrees. With those demographics, it makes sense that there are so many prospective nursing students with previous bachelor's degrees who are interested in an accelerated option. Bozeman Deaconess Hospital is the largest employer (over 1000 employees) of the top 20 private companies in Gallatin County. About half of the residents of Park County live in the county seat of Livingston which had a population of 7411 in 2007. The city of Livingston has a hospital and two clinics in addition to numerous other healthcare facilities.

According to the American Association of Colleges of Nursing (AACN) Issues Bulletin, May 2010, "one innovative approach to nursing education that is gaining momentum nationwide is the accelerated degree program for non-nursing graduates. . . . These programs build on previous learning experiences and transition individuals with undergraduate degrees in other disciplines into nursing." The challenge is to increase student capacity and reach out to new student populations in order to quickly produce competent nurses while maintaining the integrity and quality of the nursing education provided. Though not new to nursing education, accelerated programs have proliferated over the past fifteen years. Today, 230 accelerated BSN programs are operating in the US. Graduates of accelerated programs are prized by nurse employers who value the many layers of skill and education these graduates bring to the workplace. Employers report that these graduates are more mature, possess strong clinical skills, and are quick studies for the job. Montana is one of three states where such an alternative is not offered.

### ***b. How will students and any other affected constituencies be served by the proposed program?***

The accelerated alternative will meet the needs of degreed students who seek to become registered nurses either because they are unable to find employment under their current credentials, are dissatisfied with their current employment, or simply because they have a desire to become a nurse. It will offer a route to a baccalaureate degree in nursing that is tailored to their needs as adults and their background of having an earned degree. There is not another second degree accelerated alternative in Montana so this option creates no competition with other nursing programs. Health care agencies will benefit from this program in that an additional 16 baccalaureate prepared nurses will enter the workforce every sixteen months. Students who graduate from accelerated programs often choose to go on to graduate school, thus this alternative could result in an increase in the number of master's prepared nurses, thus helping to alleviate the nursing faculty shortage in Montana.

### ***c. What is the anticipated demand for the program?***

The College of Nursing posted an online interest survey beginning in March 2010. The survey remained posted for three months. See Appendix B for a summary of interest survey results. Responses to the survey totaled 140 with 127 respondents stating they were very interested in a post-baccalaureate accelerated option; 12 interested; and 1 somewhat interested. The geographical areas of residence were primarily in Montana, but 39 non-resident prospective students also responded. The bachelor's degree was the highest degree of 118 of the

## **ITEM 148-2008-R0910: Proposal**

respondents, the master's degree of 19, and two respondents had an earned doctoral degree. When asked "Why are you interested in a post-baccalaureate accelerated nursing option?" 127 out of 140 respondents stated "I want to be a nurse because I believe I can make a difference in peoples' lives." Anecdotally, since planning began for this alternative, College of Nursing admission personnel report a significant number of calls, letters, e-mails and visits from prospective students who express enthusiasm and interest in enrolling in this alternative. In the fall of 2009, of the 786 undergraduate (pre-nursing and nursing) students, 107 already had a degree. This high number of degreed students seeking a BSN via the traditional route indicates a strong potential demand for this alternative.

The College has begun accepting applications for the summer 2011 with the caveat clearly stated to all applicants that Board of Regents approval is still pending. It was necessary to initiate the application process to assure applicants would have time to complete the required pre-requisite courses prior to the beginning of the summer 2011 term. August 1, 2010 was the deadline established for students who are interested in this alternative to apply. Fifty three applications were submitted by that deadline. With more than three applicants per available slot it is evident that there is a strong demand for this alternative route to a baccalaureate degree in nursing.

### **3. Institutional and System Fit**

#### ***a. What is the connection between the proposed program and existing programs at the institution?***

This alternative will be offered through the College of Nursing on the Bozeman campus at MSU. The same administrative structure will oversee the accelerated alternative as the basic degree program and the same faculty on the Bozeman campus who teach basic students will teach the accelerated students. The physical space in Sherrick Hall that is used for classroom and lab (skills and simulation) instruction for the basic students on the Bozeman campus will be used for the accelerated students. The same contracted clinical agencies will be used for clinical instruction of the accelerated students as are used for basic students. Though no curriculum modifications are required for the accelerated alternative, the scheduling of the courses will be compressed to fit into four consecutive semesters (e.g. summer, fall, spring and summer) over 16 months rather than using five academic year semesters of 29 months total, hence the term "accelerated."

The anticipated student population for this proposed new accelerated option is 16 students to be admitted each year which would double the current number of upper division nursing students on the Bozeman campus to a total of 64 upper division students when fully implemented. As an explanation, currently 16 students are admitted each year resulting in 32 upper division (junior and senior) students on the Bozeman campus. With an additional 16 students admitted each year, the total student population on the Bozeman campus will increase to 64. These additional 16 students will begin the accelerated nursing alternative after they have completed all required pre-requisite courses at MSU or a transfer school. Impact on the current nursing courses will be

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nil given these students will be taking their nursing courses in a different sequence that utilizes two summer terms which are currently not being used for the generic students in the basic BSN program. Though they will be taking some nursing courses during the fall and spring semesters, they will be in the required courses with their own cohort rather than in courses with the basic students. The literature emphasizes that keeping accelerated students in their own cohort as planned by the College is recommended for the best outcomes. The accelerated students will have access to all of the student resources on the MSU-Bozeman campus including the library, student health, financial aid, advising, and all other student support services.

***b. Will approval of the proposed program require changes to any existing programs at the institution?***

There will be no changes required of any existing programs at MSU. Because there will be an additional cohort of 16 students enrolling in the upper division of the College of Nursing annually, there will also be an additional cohort of 16 students enrolling in lower division pre-requisite courses if applicants do not complete those courses at a transfer institution.

***c. Describe what differentiates this program from other, closely related programs at the institution (if appropriate).***

Students enrolled in the post-baccalaureate accelerated alternative will complete the same curriculum as basic undergraduate nursing students – the same courses, the same number of credits, and the same number of clinical hours. A differentiating factor is that applicants to the accelerated option must have an earned baccalaureate degree from an accredited college or university. Applicants for this alternative will be interviewed, write an essay, and provide two professional references prior to admission to assess their readiness and commitment for this intense option. Additionally, an admission requirement is a minimal cumulative grade point average (GPA) of 3.0 as opposed to basic students who have a minimal cumulative GPA requirement of 2.5. These additional and more rigorous admission requirements are designed to help assure those accepted to the program will be successful.

***d. How does the proposed program serve to advance the strategic goals of the institution?***

The Vision of MSU is: “Montana State University will be the university of choice for those seeking a student-centered learning environment distinguished by innovation and discovery in a Rocky Mountain setting.” The proposed accelerated alternative is designed to meet needs of adult learners not only because it offers them a career option in an expeditious manner, but it will be offered in a manner consistent with adult learning principles and theory. Specifically, the program will advance the following “MSU Five Year Outlook – FY 09 to 14” goals:

**Student Body**

- “Montana State University will increase enrollment to approximately 13,000 students” - This alternative will result in an increase in enrollment of 16 nursing students each academic year”
- “The student body will be more diverse than it is today.” All students enrolling in this alternative must have an earned baccalaureate degree thus they will bring more life

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experiences and educational background to the College increasing the diversity of the student body.

### Curriculum

- “MSU will be nationally recognized as a leader in the integration of learning and discovery at the undergraduate level”- The curriculum for undergraduate and graduate students emphasizes the importance of evidenced based practice which is essential if learning and discovery are to be integrated. The accelerated option will continue with that tradition and also serve to further establish the College of Nursing as a leader in nursing education.
- e. Describe the relationship between the proposed program and any similar programs within the Montana University System. In cases of substantial duplication, explain the need for the proposed program at an additional institution. Describe any efforts that were made to collaborate with these similar programs; and if no efforts were made, explain why. If articulation or transfer agreements have been developed for the substantially duplicated programs, please include the agreement(s) as part of the documentation.*

Since this accelerated alternative will be offered on the Bozeman campus initially, the expansion should not have any effect on the other nursing programs in the state for two reasons: 1) None of the other nursing programs currently utilize Bozeman and the surrounding area of Gallatin and Park Counties for clinical placements so there will not be any competition for clinical placements for their students; and 2) None of the other nursing programs offer an accelerated alternative, so there will not be any competition for students seeking an accelerated option in Montana. A letter was sent to each of the program directors providing the results of the feasibility study and asking for their support. Those letters are found in the Appendix A to this document.

If the College were to seek approval in the future to offer this alternative on some of the other campuses, we would negotiate with the other programs as we have always done to work out a clinical schedule that would accommodate the needs of all the students from each school. Since this proposal heavily utilizes summer terms in addition to the academic year, it is likely there would be few, if any, issues with clinical placements during summers. It is also possible for clinical sites to be used on week-ends and evenings as is currently done for some courses. In Bozeman, the generic BSN program only offers each course once a year leaving the option of teaching the accelerated courses in the opposite semesters, if needed.

#### 4. Program Details

- a. Provide a detailed description of the proposed curriculum. Where possible, present the information in the form intended to appear in the catalog or other publications. NOTE: In case of two-year degree programs and certificates of applied science, the curriculum should include enough detail to determine if the characteristics set out in Regents' Policy 301.12 have been met.*

Currently, MSU-Bozeman offers a Bachelor of Science degree in Nursing (BSN). The curriculum is based on The American Association of Colleges of Nursing's *Essentials of Baccalaureate Education for Professional Nursing Practice* (2008). The program has been accredited by The Commission on Collegiate Nursing Education (CCNE) and approved by the

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Montana State Board of Nursing (MSBON) for many years. In the fall of 2008 the school was visited by both CCNE and the MSBON and received 10 more years of full accreditation by CCNE and full approval by the MSBON.

The curriculum for the accelerated alternative is no different than the approved curriculum that the basic students take – same courses, same number of credits, and the same number of clinical hours. The schedule of courses is different in that students will complete the accelerated alternative in four academic terms, as opposed to the five academic terms that a basic student needs to complete. See Appendix C for a comparison of the schedule of classes in the accelerated alternative versus the traditional program. Appendix C includes a listing of the approved curriculum in terms of required pre-requisite and nursing courses.

***b. Describe the planned implementation of the proposed program, including estimates of numbers of students at each stage.***

If approved, the accelerated alternative will be offered beginning summer, 2011. A cohort of 16 students will be admitted to the Bozeman campus at that time with studies continuing for four consecutive academic terms (summer 2011 → fall 2011 → spring 2012 → summer 2012). Upon conclusion of the summer term, 2012, the students will graduate and at that time will be eligible to sit for the NCLEX-RN, the national licensing examination to enter professional nursing practice, and to become licensed in Montana or any other state.

The plan at this time is to admit another cohort of 16 students to begin classes each summer on the Bozeman campus. Depending on evaluative data and approval processes, the option may be expanded in future years to include additional College of Nursing campuses.

### **5. Resources**

***a. Will additional faculty resources be required to implement this program? If yes, please describe the need and indicate the plan for meeting this need.***

Additional faculty will be needed to teach some summer courses as well as extra sections of courses during the academic year as the accelerated students will be taught in separate classes as a cohort as opposed to mixing them with basic students. As previously stated, this segregation of the accelerated students is supported by the literature which indicates that students in accelerated options do best when they are taught in their own cohort rather than having them in classes with the basic generic students. Thus, they will move through the curriculum as a cohort of highly motivated students who have already experienced success in previous college degree programs and are anxious to enter the workforce to provide professional nursing care to the citizens of Montana and beyond. Additionally, these students will be taking courses on a somewhat different schedule than basic students, so it would be logistically challenging if not impossible to combine the two groups of students. To address the need for additional faculty in the summer, several current College of Nursing faculty (who do not currently teach in the summer) have expressed interest in teaching students enrolled in this alternative. Additional course sections during the academic year will be covered by increasing part-time faculty to full-time (if desired), use of Graduate Teaching Assistants (GTA) and Clinical Resource Registered Nurses (CRRNs) in college and clinical labs, and recruitment of additional full or part-time faculty as may be



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needed. Faculty/student ratios never exceed 1:10 in any clinical nursing courses as required by MT Board of Nursing rules.

- b. Are other additional resources required to ensure the success of the proposed program? If yes, please describe the need and indicate the plan for meeting this need.*

Additional resources are needed to ensure the success of the proposed accelerated alternative. Nursing is inherently an expensive program due to three main factors: 1) faculty can earn more in the practice environment, thus to recruit them, higher salaries must be offered; 2) the equipment and expendable supplies required to provide realistic and adequate training is expensive, and 3) the mandated low faculty/student ratios (1/10) for clinical experiences require additional faculty be hired for clinical courses. Because of these factors, the cost of educating nursing students is slightly greater than the total revenue generated in tuition dollars. One way to conceive of it is that for the group of 16 additional accelerated students being proposed, we will have to pay for 93 credits of instruction, while each student pays for only 70 credits (each cohort of 16 students needs to be split into two sections of eight students). These 93 credits of instruction above and beyond the number of credits currently offered at the Bozeman campus equates to approximately 4.5 to 5 faculty full-time equivalents, dependent on faculty qualifications. Additionally, MSU's tuition "flat spot" kicks in at 12 credits. This means that for any given semester students only pay up to 12 credits worth of tuition regardless of how many credits they may be enrolled for above that number. In order to compress the basic five semester program into four semesters, students will essentially be taking more credits (five to nine credits above the 12 credit flat spot for three of the four semesters) that they will not have to pay for. Finally, for every tuition dollar that comes into the university through the standard registration process, 45 cents goes to pay for administrative overhead thus is not available to pay for the instructional costs.

It is with these issues in mind that we are proposing to register students through Extended University at MSU. Extended University operates on a cost recovery basis outside of the standard university registration and funding process. This allows us to set student tuition so that the instructional costs are covered. The estimated cost of instruction for the accelerated program is approximately \$324,145 per cohort of 16 students. Thus for each student, we propose to charge approximately \$20,260 for the entire program, or \$289/credit. While this is more than the \$235/credit current in-state, post-baccalaureate students pay, it is significantly less than the \$717/credit paid by out-of-state, post baccalaureate students.<sup>1</sup> This will cover only the direct cost of instruction (faculty salaries). We propose to cover any additional administrative "costs" internally. As with the current nursing students, additional program fees also apply which cover, for example, the cost of non-reusable supplies, educational materials, maintenance and upkeep of simulation equipment. Program fees for 2010-2011 are \$193/semester.

Even though students in the accelerated alternative will pay a higher per credit tuition (relative to other in-state nursing students), because the time to program completion is 12 months shorter, they will enter the workforce more quickly than basic students. When considering the additional year of employment earnings, the tuition disparity would be eliminated after approximately two

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<sup>1</sup> All figures based on FY10 tuition and salary rates.

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months, and those accelerated students would have earned an additional \$23,688 (approximately), after taxes.

### **6. Assessment**

*How will success of the program be measured?*

The accelerated option will be evaluated using the same criteria as all other academic programs in the College. The College has a Master Evaluation Plan (see Appendix D) which is formatted according to the four standards that must be met for ongoing national accreditation by the Commission on Collegiate Nursing Education. Standard III refers to the “Program Quality: Curriculum and Teaching-Learning Practices” and Standard IV refers to “Program Effectiveness: Student Performance and Faculty Accomplishments.” Student outcomes will be assessed by: conducting surveys of employers as to their level of satisfaction with our graduates’ work performance; tracking success rates of graduates on the NCLEX-RN, the licensing exam for entry into professional practice; conducting exit surveys of graduating students; collecting job placement data; and conducting alumni satisfaction surveys. Application numbers and adequacy of clinical resources will also be assessed annually.

### **7. Process Leading to Submission**

*Describe the process of developing and approving the proposed program. Indicate, where appropriate, involvement by faculty, students, community members, potential employers, accrediting agencies etc.*

The alternative has been discussed extensively in the College of Nursing among faculty and administrators. During the 2009-2010 academic year, this option was an agenda item on at least two meetings of the entire nursing faculty. The Associate Dean for the Undergraduate Program charged an ad hoc group of faculty on each of the four campuses to develop a proposed course schedule. Each campus group did just that and brought back proposed plans to the entire faculty. More discussion ensued. The faculty voted on the option at an all-faculty retreat in May, 2010. The results of the vote were: 46 in favor; 6 opposed; and 0 abstentions.

The incoming chair of the Faculty Senate at MSU has been consulted as has the Vice-Provost for Undergraduate Education. Both are supportive of the alternative and both concurred this option does not need approval from the university Undergraduate Studies Committee at MSU in that it is not a new program – rather simply a condensing or change of course schedule of an existing program or curriculum.

As previously stated, in the fall of 2009, of the 786 undergraduate (pre-nursing and nursing) students, 107 already had a degree. Those students would have been excellent candidates for this alternative. Informal discussions were held with some of these students who enthusiastically expressed support for this alternative. Many stated they wished it had been available for them as they most likely would have been interested.

The proposal was reviewed by the Montana State Board of Nursing at their July 2010 meeting and approval was received (see Appendix E letter of approval from the Board of Nursing). The Commission on Collegiate Education (CCNE) requires notification of a change such as this, but

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states that “the substantive change report must be submitted to CCNE no earlier than 90 days prior to implementation or occurrence of the change, but no later than 90 days after implementation or occurrence of the change” (CCNE; 2009; *Procedures for Accreditation of Baccalaureate and Graduate Degree Programs*). Thus the College will notify CCNE of this proposal in spring 2011.

**BOZEMAN PROPOSAL  
ACCELERATED CURRICULUM PLAN OF STUDY ~ SUMMER ADMISSION (4 Semesters)**

**Semester 1 ~ Block #1 (12 Weeks)  
Summer (TOTAL of 21 crs)**

Course/Credit <sup>1</sup> Online	Lecture Hours	R/D Hours	College Lab Hours	Clinical Lab Hours	Clock Hrs per Week	Current Hours per Semester
NRSG 115 (2) <sup>1</sup>	2.5				2.5	30/00
NRSG 220 (1/1R) <sup>1</sup>	1.25	1.25			2.5	15/15
NRSG 258 (3) <sup>1</sup>	3.75				3.75	45/00

**Semester 1 ~ Block #2 (1<sup>st</sup> 6 Weeks)**

NRSG 238 (2/2Col)	5		10		15	30/60
NRSG 336 (2/1Col)	5		5		10	30/30
<b>TOTAL → B #1 &amp; #2</b>	<b>17.5</b>	<b>1.25</b>	<b>15</b>		<b>33.75</b>	

**Semester 1 ~ Block #3 (2<sup>nd</sup> 6 Weeks)**

NRSG 341 (2/1Col)	5		5		10	30/30
NRSG 225 (2/2Cl)	5			15	20	30/90
<b>Total → B #1 &amp; #3</b>	<b>17.5</b>		<b>10</b>	<b>15</b>	<b>38.75</b>	

**SEMESTER 2 ~ Block #1 (1<sup>st</sup> 7.5 Weeks)  
Fall (TOTAL of 18 crs)**

NRSG 387R (2/1Col)	4		4		8	30/30
NRSG352 (2/3Clin)	4			18	22	30/135
<b>Total → B #1</b>	<b>8</b>		<b>4</b>	<b>18</b>	<b>30</b>	

**Semester 2 ~ Block #2 (2<sup>nd</sup> 7.5 Weeks)**

NRSG346 (2/3Clin)	4			18	22	30/135
NRSG348 (2/3Clin)	4			18	22	30/135
<b>Total → B #2</b>	<b>8</b>			<b>36</b>	<b>44</b>	

**Semester 3 ~ Block #1 (1<sup>st</sup> 7.5 Weeks)  
Spring (TOTAL of 16 crs)**

NRSG 377 (2) <sup>1</sup>	4				4	30/00
NRSG437 (3/3Clin)	6			18	24	45/135
<b>Total → B #1</b>	<b>10</b>			<b>18</b>	<b>28</b>	

**Semester 3 ~ Block #2 (2<sup>nd</sup> 7.5 Weeks)**

NRSG 418 (2) <sup>1</sup>	4				4	30/00
NRSG454 (3/3Clin)	6			18	24	45/135
<b>Total → B #2</b>	<b>10</b>			<b>18</b>	<b>28</b>	

**Semester 4 ~ Block #1 (1<sup>st</sup> 6 Weeks)  
Summer (TOTAL of 15 crs)**

NRSG477 (3/3Clin)	7.5			22.5	30	45/135
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**Semester 4 ~ Block #2 (2<sup>nd</sup> 6 Weeks)**

NRSG444 (2/1R)	5	2.5			7.5	30/15
NRSG487 (3/3Clin)	7.5			22.5	30	45/135
<b>Total → B #2</b>	<b>12.5</b>	<b>2.5</b>		<b>22.5</b>	<b>37.5</b>	

RED ~ OVERLAPS WITH GENERIC CURRICULUM

## Results of Interest Survey (Partial)

Base		140
		100.0%
<b>1. What is your level of interest in a post-baccalaureate accelerated program?</b>	Very Interested	127
		90.7%
	Interested	12
		8.6%
	Somewhat interested	1
		0.7%
	Not very interested	-
		-
	Not interested at all	-
		-
Total		140

Base		138
		100.0%
<b>2. Why are you interested in a post-baccalaureate accelerated program?</b>	I want to be a nurse because I believe I can “make a difference” in people’s lives	127
		92.0%
	I want a career with better advancement opportunities	88
		63.8%
	I want a career with better pay	60
		43.5%
	I want a career with better benefits	45
		32.6%
	There are limited jobs available in my current field	58
		42.0%
	I want an education that can be finished in a reasonable amount of time	86
		62.3%

**2a. Other:**

- "I've always wanted to go into nursing but have not had the opportunity due to the limited programs available in MT. I am looking at second degree programs out of state since I can complete a program in a shorter amount of time when compared to a traditional BSN."

- "I'm an older student with a degree and a significant amount of work experience (relevant and non-relevant), and an accelerated program is more targeted for me, more feasible time-wise and financially, and seems a more efficient use of time."
- "A nursing degree would complement my Master in Public Health degree and open the door to additional job opportunities in my field."
- "I feel that nursing studies is the 'missing piece' in my Physician Assistant clinical sciences career/degree."
- "Fulfillment"
- "I have been looking for an accelerated program to attend. I am from Montana and am glad that MSU is starting an accelerated program soon."
- "I want to pursue a Master's Degree in nursing after completion of a Bachelor's."
- "I have been a flight medic for 12 years. This is my passion."
- "I currently have a BA in Sociology and Global Studies from the University of Minnesota Twin Cities. I'm interested in nursing because it would offer me many opportunities when combined with my sociological knowledge to work in a variety of different fields and places. I'm interested in the post-baccalaureate accelerated option because it would allow me to progress through the program as quickly as possible."
- "After completing a four year degree I would rather spend as little time necessary completing a second degree rather than experiencing the traditional college system again."
- "I want a Bachelors in Nursing, instead of an Associates. Seems more reasonable to get a Bachelors in 16 months versus an Associates in 2 years!"
- "was born in and grew up in Montana. I have a BA from UofM, and having lived outside of Montana for a while, I have decided to move back to my home state where I would like to live, raise a family and contribute something positive to my community. Health and wellness have been recurring themes in my life and I would like to pursue a career in nursing in Montana. However, as a post-bacc student in Montana, I have found pursuing that goal difficult as my needs are different than those of a first degree student. I have been disappointed that there is not currently an accelerated Nursing option for people like me in this state and have been considering moving away again. I am almost thirty and I am tired of moving. I love Montana and I want to stay here, but if I were to have to move yet again to achieve the training that suits me best, I doubt that I would still have the energy to uproot my family to move back here again. I am so excited to hear that MSU is considering an accelerated nursing option."
- "In layman's terms. I think I would be good at it."
- "In June, I will graduate with a history major from a liberal arts college. I have long been interested in health related fields, and I believe that a career as a nurse would best fit my interests and be fulfilling."
- "To augment my current healthcare career."

- "I would like more time off than my current profession allows. So working 3-4 days per week would be great. Currently, I have 5 days off per month and I work 10 hour days eleven days straight before I get only 3 days off."
- "I already have a bachelor's degree in another field, and I wish to obtain a higher degree, but in nursing."
- "I originally started in pre-nursing in Seattle and finished all but two prerequisite courses. We moved to Montana, but there was a waiting to list to get into the nursing program and so I went into business instead. I finished my business degree, but have always felt more comfortable in the healthcare field (worked as a CNA several years ago) and still want to finish that nursing degree. I am 48 years old and believe I can put my skills to good use in the nursing field."

Base		106
		100.0%
<b>3. What barriers might keep you from enrolling in the proposed alternative?</b>	Family responsibilities	36
		34.0%
	Financial responsibilities	75
		70.8%
	Job responsibilities	19
		17.9%
	Reside a long distance from Bozeman	36
		34.0%
	Concerned that I can't be successful	5
		4.7%

### 3a. Other

- "I would make it work. It would be a closer option than going out of state. I am a bit concerned about transfer credit to MSU and possibly having to take coursework over."
- "None."
- "none"
- "I don't believe there would be any barriers to my enrollment."
- "None, I have the funds (GI Bill) and I live in the local area."
- "Acceptance to another accelerated program. I have begun the application process to other programs, and they are far away. No programs were offered in Montana, and since I am a graduate of Montana State (and LOVE it), I would much rather attend here in Bozeman."

- "NONE I want to do this and I want to go to MSU"
- "None"
- "Nothing could keep me from enrolling."
- "Currently not a Montana State resident, out of state tuition is a barrier"
- "That it doesn't start soon enough!"
- "There isn't anything that would prevent me from enrolling in the accelerated program. I would love to go to school at Montana State but the only thing preventing me from applying is the fact that currently there isn't an accelerated program offered."
- "Although I do live far from the Bozeman area, I believe that attending the accelerated program would outweigh the cons of moving to a different area for a short period of time."
- "I will apply if the option becomes available"
- "None"
- "The possibility of not being accepted into the program due to the relatively small group allowed."
- "Financial responsibilities are why I have to work"
- "I had a so-so GPA in undergrad and now I have an awesome GPA, I know I can do the work but am concerned that I won't get the opportunity to show that I am able to do this program, due to my lack of focus and family issues my freshman and sophomore years of college."
- "It depends on if my wife gets a job she just interviewed for, then we will move to Bozeman."
- "I don't see any barriers at this time."
- "Would like to be based in Billings and take distance courses."
- "I am currently enrolled in an Entry Level Master's in Science in Nursing in California. I chose to complete my pre-licensure courses and plan to take my NCLEX by September. If the post-baccalaureate accelerated nursing option is not compatible with the program I am in now, then this program would not be suitable for me."

Base		139
		100.0%
<b>4. What time for classes would work best for you? (Check all that apply)</b>	Days	124
		89.2%
	Evenings	87
		62.6%
	Week-ends	58
		41.7%

Base		127
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		100.0%
<b>5. Would week-end and/or evening classes create an undue hardship for you?</b>	Yes	21
		16.5%
	No	106
		83.5%

**5a. Maybe (please explain)**

- "I am a single Mom so I just need to get reasonable child care and evenings are always a bit more difficult to cover."
- "Evenings aren't a problem, but it would be nice to have weekends free."
- "It would be harder for me to commute to spend time with my family, but if the courses were infrequent (rather than every week) or if they were for only a period of a few weeks at a time, the inconvenience would not be insurmountable."
- "No, but in a full time accelerated program my work would be limited to none so I would prefer weekday daytime hours."
- "Mother of four children and need to be home when they are home. (Dinner, homework...)"
- "I figure 16-months is a relatively short amount of time in the whole scheme of things. I would be fine with occasional or routine evening and or weekends. You do still have to give us time to rest with our other halves though."
- "If I am accepted into the accelerated program, I will dedicate myself fully. I want to finish on time and become a nurse as quickly as possible."
- "Sundays would not be an option for me though."
- "My current job is Sat./Sun. 8a-8p and Mon. 4p-8a(tues)...if this option were offered, I would most likely rearrange my schedule to accommodate school."
- "I hope to be working on the weekends so having to attend classes would make it harder to afford school."
- "My understanding is that these accelerated programs are so intense there is little time to have a job or other obligations. If this is in fact true it would seem that it doesn't matter if the classes are on weekends or nights. That being said I don't have a family and it would seem to me that that would be one of the major drawbacks to such a schedule. The other benefit to not having classes on weekends is the time to complete class related assignments during the day not at night after classes."
- "currently not certain"
- "I would rather have the weekends to study but if I was to have clinicals or so on weekends, I would have no problem showing up."
- "I would prefer day classes, but I am not sure what my schedule will be like yet."

- "Sunday mornings would work poorly"
- "Probably not"
- "It would be hard to find childcare at night."
- "Possibly only because I would need to maintain some type of employment in order to pay rent/groceries etc"
- "Although I could participate in evening/weekend classes, I would greatly prefer to have the classes during the daytime of the work week in order to spend time at home with my husband on weekends and after his work days."
- "Sunday classes would not work for me."
- "it would be nice to have evenings to study or work at a part time job if possible"
- "I do still have children at home, but they are getting old enough to take care of themselves and each other as necessary. I would be willing to go to school either online and/or on campus, though a combination of online/campus would be easier for my schedule."

Base		140
		100.0%
<b>6. Would you prefer courses that are offered (check all that apply)</b>	Online	45
		32.1%
	On campus	57
		40.7%
	Combination of online and on campus	97

Base		139
		100.0%
<b>8. Your age:</b>	20-29	75
		54.0%
	30-39	48
		34.5%
	40-49	13
		9.4%
	50-59	3
		2.2%
	60+	-
		-

**12. In what field is your current bachelor's degree?**

- "Sociology. Justice Studies with an emphasis in Biology (MSU didn't offer and minor in Biology, just shy of a double major."

- "Biological Sciences with an emphasis in Neurobiology, Physiology, and Behavior"
- "Bachelor of Art, majoring in Art."
- "BA: Languages, Literatures and Cultures; Spanish Minor: Biomedical Sciences"
- "Psychology"
- "B.S. Family and Consumer Science MSU 2004 Minor Business Admin."
- "Natural Resources"
- "AAS & BA Psychology"
- "BS: Biology, University of Montana"
- "english literature"
- "Marine Science and Biology"
- "English and Spanish"
- "kinesiology"
- "Education"
- "Vision science (optometry/physics)"
- "Microbiology"
- "UM Mathematics, Statistics emphasis"
- "Music Education"
- "Family and Consumer Education (K-12)"
- "BFA"
- "B.S. in Management Park University A.A.S. EMS-Para medicine MSU-COT Great Falls  
A.A.S. Information Management Community College of the Air Force A.A.S. Logistics  
Management Community College of the Air Force A.A.S. Healthcare Management  
Community College of the Air Force"
- "Cell Biology and Neuroscience (Biomedical Sciences option)"
- "Outdoor Recreation Therapeutic Recreation"
- "Biology, Chemistry"
- "Genetics, Cell Development and Growth with a minor in Psychology"
- "I have a BS in Physical Geography from the University of Montana-Missoula"
- "B.A. History from Washington State University"
- "Physiology"
- "Sociology with an emphasis in criminology"
- "Bachelors in Geology/Humanities and Masters in Accountancy"
- "Geology"
- "BA Psychology, Magna Cum Laude"
- "Health and Human Development, Exercise Science"
- "Microbiology"
- "B.A. Biology Minor: Chemistry Concentration in Sports Medicine Whitman College  
'06"
- "Economics"

- "Wildlife Biology"
- "Political Science"
- "Health Administration"
  
- "Psychology"
- "Clinical Sciences"
- "Double Major in Communication and Business Administration"
- "Education"
- "I will be graduating in Fall 2010 with a bachelor's degree in psychology from Carroll College."
- "International Relations/Religion"
- "BA in Business Administration Currently enrolled in a Masters of Divinity in Missouri"
- "Bachelor of Science in Liberal Studies--Organizational Communications/Public Relations Concentration"
- "Natural Resources"
- "medical anthropology/public health"
- "Community health"
- "Molecular Biology and Microbiology"
- "Exercise Biology"
- "psychology"
- "Sociology/Criminology"
- "BA-History"
- "Double major is Sociology and Women's Studies"
- "I have two bachelor's degrees. BS in Earth Science and a BS in Biology"
- "Social Work and Public Admin"
- "Spanish"
- "Sociology; Global Studies"
- "Psychology"
- "Commerce"
- "Psychology"
- "Molecular Biology/Biochemistry"
- "Cell Biology/Neuroscience"
- "Psychology with an emphasis in human and family development."
- "Environmental Biology"
- "Animal Science"
- "Environmental Studies - UM Missoula      When I was 18 with no clue as to what I wanted to pursue EVST was an intriguing option. Now that I have graduated and worked as a mountain/ river guide as well as a ski patroller in the winters, I have decided that nursing is a great match for my career goals and skill set. I will say that so far my only

reservation is that my GPA (see next answer) was ok but not great. I keep hearing that GPAs are a crucial part of admissions to accelerated nursing programs. I would assert, as is the case for myself, GPA's that are acquired when individuals have yet to decide what their career interests are, is not a good indicator of that individuals motivation or academic capabilities."

- "B.S. Criminal Justice"
- "Business Management"
- "kinesiology"
- "Microbiology (Clinical Laboratory Science)"
- "History"
- "Divinity"
- "Psychology with a minor in biology"
- "BA Anthropology (with emphasis in cultural and ethnic diversity) UofM-Missoula 2004"
- "Economics"
- "Horticulture with landscape design option"
- "bachelor of science in horticulture"
- "Health Administration"
- "1: Anthropology 2: French Education"
- "Human Performance and Exercise Science"
- "Japanese language"
- "Biology"
- "Health & Fitness and Health Promotion"
- "Elementary Education"
- "Biology/Pre-health Science"
- "Accounting. Graduate Certificate in ""Financial Markets and Institutions"""
- "Health and Human Development: Family Science"
- "Environmental Engineering"
- "Bachelor of Photography from Montana State University."
- "Biological Sciences with an emphasis in Neurobiology, Physiology, and Behavior"
- "health and human performance- exercise science"
- "Health Science, Community Health, Health and Physical Education"
- "Outdoor Education & Leadership"
- "Finance"
- "Elementary Ed"
- "Exercise Science, Fitness and Programming Emphasis"
- "Strong emphasis in science, environmental science and health safety"
- "health care management"
- "Elementary education"

- "Psychology"
- "Exercise Science Bachelors Degree"
- "psychology"
- "I will graduate in June as a History major with a minor in Latin America and the Caribbean Studies."
- "Food and Nutrition concentration in Dietetics"
- "Bachelor of Science Psychology"
- "Business-Finance"
- "Sociology/Criminology"
- "Business Administration"
- "Bachelor of Science"
- "Communication Disorders and Sciences"
- "Master's degree in Acupuncture"
- "Master's degree in Acupuncture"
- "Cell biology and Neuroscience"
- "BA w/a concentration in Marketing"
- "Biology"
- "Music"
- "Biology"
- "Business"
- "Bachelor's of Arts in Anthropology with minors in Chemistry, Biology and Archaeology. Master of Arts in Medical Anthropology. I also have a doctorate in Veterinary Medicine and am currently in practice."
- "Psychology"
- "Elementary Education"
- "Business Administration: Small Business & Entrepreneurship (GPA 3.98)"

Base		138
		100.0%
<b>13. What was your undergraduate cumulative grade point average?</b>	2.5 - 2.69	5
		3.6%
	2.7 - 2.99	21
		15.2%
	3.0 - 3.49	51
		37.0%
	3.5 +	52
		37.7%
	I don't remember	9
		6.5%

Base		139
		100.0%
<b>14.How many years of work experience have you had since earning your degree?</b>	0 - 4	65
		46.8%
	5 - 10	51
		36.7%
	11 - 15	15
		10.8%
	16 - 20	6
		4.3%
	21+	2
		1.4%



August 10, 2010

Montana University System  
2500 Broadway St., P.O. Box 203201  
Helena, MT 59630-3201

Dear Board of Regents:

Enclosed is a proposal for an accelerated post-baccalaureate undergraduate nursing alternative submitted by the College of Nursing at Montana State University. We are excited about this proposal believing that this alternative will provide a quality route for individuals with a degree in a discipline other than nursing to enter the profession of nursing. As is evident in our packet, this proposal clearly meets a need. Montana is one of three states without a second degree post baccalaureate option. Our needs assessment has shown a high degree of interest and enthusiasm for this alternative. Hardly a week goes by that we don't hear about a degreed student that has chosen to leave the state because there is not an accelerated second degree option available in the state.

The second degree alternative is just that – a new option – not a new program. Students enrolling in this alternative will follow the same curriculum as our basic students with the same number of credits, same courses, and same number of clinical hours. The difference is simply the schedule. The curriculum will be condensed into four academic terms (including summers) so students can complete the curriculum in 16 months beginning in summer 2011 (summer 2011 → fall 2011 → spring 2011 → summer 2012). We plan to admit a cohort of 16 students to our Bozeman campus. Bozeman was selected in that we only admit once a year to that campus and do not compete with other nursing schools for clinical placements.

The faculty in the College of Nursing at MSU are enthusiastic about this proposed alternative as is the MSU administration. We have worked closely with budgetary officials to develop a cost effective plan for the alternative with the intent of offering it through Extended University. Our primary clinical partner in the community, Bozeman Deaconess Hospital, is supportive and eager to collaborate with us on this endeavor. The Montana State Board of Nursing reviewed this proposal at its July 2010 meeting and gave full approval.

Thank you for the consideration you will give this proposal.

Sincerely,

A handwritten signature in black ink that reads 'Helen I. Melland'.

Helen I. Melland, PhD, RN  
Dean and Professor

**Main Campus**

Sherrick Hall  
P.O. Box 173560  
Bozeman, MT 59717-3560

Tel (406) 994-3783  
Fax (406) 994-6020

**Billings Campus**

1500 University Drive  
MSU-Billings Campus, Box 574  
Billings, MT 59101

Tel (406) 657-2912  
Fax (406) 657-1715

**Great Falls Campus**

400 15th Ave. South, Suite 106  
Great Falls, MT 59405

Tel (406) 771-4450  
Fax (406) 771-4449

**Missoula Campus**

32 Campus Drive #7416  
Missoula, MT 59812-7416

Tel (406) 243-6515  
Fax (406) 243-5745





May 27, 2010

Attn: Montana State Board of Nursing  
Montana State Board of Regents

*Re: BSN Accelerated Program*

Please accept this letter on behalf of Kalispell Regional Medical Center to extend our support of the proposed BSN Accelerated Program at Montana State University. In hiring nurses with prior bachelor's degrees, we have found that these students are more mature and focused in what they want for their careers, and they go on to become excellent nurses. This option would enable such students to advance more quickly through the requirements to become a registered nurse.

Because Montana offers healthcare in a rural setting, finding top-notch nurses who will develop into leadership staff can, at times, be very challenging. An accelerated program will give Kalispell Regional Medical Center another strategy to help assure an adequate supply of nurses for the future.

Thank you so much for considering this proposal and for the potential it represents to our organization, our community and our patients.

Very sincerely,

A handwritten signature in black ink that reads "Pat Wilson". The signature is written in a cursive, flowing style.

Pat Wilson RN, MSN  
Executive Director, Education Services

2715 Dickinson  
Miles City, MT 59301  
www.milesc.edu



(406) 874-6100  
Fax: (406) 874-6282  
*Equal Opportunity in  
Education and Employment.*

June 1, 2010

Helen Melland, PhD, RN  
Gretchen McNeely, DNSc, RN  
Montana State University  
College of Nursing  
Sherrick Hall  
Box 173560  
Bozeman, MT 59717-3560

Dear Dr's Melland and McNeely,

This letter is in support of Montana State University College of Nursing to offer an accelerated post-baccalaureate option. Miles Community College Nursing Program does not find any objections to MSU College of Nursing adding a cohort of 16 post-baccalaureate students in an accelerated BSN program. There is a need for more nurses, and this need will only increase. We applaud Montana State University College of Nursing for developing the accelerated post-baccalaureate option.

We wish you well in this endeavor, looking forward to the results of the cohort group.

Sincerely,

Karla Lund, MSN, RN  
Director of Nursing  
Miles Community College  
2715 Dickinson  
Miles City, MT 59301

June 2, 2010

Helen Melland, PhD, RN  
Gretchen McNeely, DNSc, RN  
Sherrick Hall  
P.O. Box 173560  
Bozeman, MT 59717-3560

Dear Dr. Melland & MS. McNeely,

I offer this letter of support on behalf of the MSU-Bozeman's College of Nursing efforts to establish a program expansion that would allow baccalaureate students to advance their degree in Nursing. The "accelerated" option sounds like a wonderful idea and I have also noticed that grant opportunities apply with this type of program expansion.

Today's economic changes do stimulate a large number of students with previous bachelor's degrees to seek Nursing as a second career. The utilization of clinical sites in the Gallatin and Park county areas would not compete with our program at MSU-Billings College of Technology. The shortage of nurses is projected to grow at the same time those who will require the skills of a nurse are growing. The plain demographics make a strong case for development of more nursing programs.

We at MSU Billings College of Technology Nursing Program wish you well in your endeavors.

Sincerely,



Cindy Rossmith, EdDc, RN  
Nursing Director  
MSU-Billings College of Technology



Montana Board of Nursing  
301 South Park Avenue  
P.O. Box 200513  
Helena, MT 59620

June 3, 2010

Dear Members of the Montana Board of Nursing,

The purpose of this letter is to support the proposed accelerated post-baccalaureate nursing option being developed by the College of Nursing at MSU-Bozeman. We applaud their innovative planning for an accelerated educational professional nursing program to meet the increasing nursing and health needs of the citizens of Montana and global communities.

The Admissions Department, as well as the Department of Nursing at Carroll College, receives regular inquiries from post-baccalaureate students requesting information related to accelerated professional nursing options in the state on Montana. The news that Montana is one of three states which currently does not offer this option for professional nursing education is frequently met with dismay. Until this time, options for post-baccalaureate students included moving out of state or completing a lengthy and, often times costly, second college career to obtain the necessary nursing education.

We thank the College of Nursing at MSU-Bozeman for their diligence and foresight in providing an alternative educational path for post-baccalaureate students pursuing a degree in nursing.

On behalf of the faculty,

A handwritten signature in black ink that reads "Jennifer Elison".

Jennifer Elison, EdD, APRN  
Chair, Department of Nursing  
Carroll College







June 7, 2010

Montana State University  
College of Nursing  
PO Box 173560  
Bozeman, MT 59717-3560

Dear Gretchen and Helen;

I am writing this letter to express support for the accelerated post-baccalaureate option that you are developing for students who have a previous degree. I am especially pleased to see that you are using clinical facilities in the Gallatin and Park county areas where there are no other nursing programs using clinical units as some practicum sites are heavily utilized.

I do agree with you that there is a need for an accelerated baccalaureate nursing program in Montana. I wish you well in your endeavors to institute this program offering.

Sincerely;

A handwritten signature in cursive script that reads "Mary Pappas".

Mary Pappas RN, Ed.D.  
Director of Nursing and Professor



*Improving Lives  
Through Learning*

# *Flathead Valley Community College*

777 Grandview Drive, Kalispell, MT 59901 • 406/756/3822 • Fax 406/756/3815  
fvccinfo@fvcc.edu • www.fvcc.edu

June 8, 2010

Dear Dr. Melland and Dr. McNeely:

Flathead Valley Community College Administration, Nursing Program Director and faculty are pleased to have the opportunity to support MSU College of Nursing's proposed accelerated post baccalaureate option for a BSN in Nursing.

Due to the current economic situation, many individuals in Northwest Montana are finding themselves in need of education in order to gain employment in other fields. Many of these individuals have a bachelor or higher degree in other disciplines and are now looking to nursing as a second career. Having the option of an accelerated BSN for these individuals in Montana is a positive step in expanding nursing education opportunities.

The projected nursing shortage continues to be of concern and adding this option will provide more BSN nurses in a shorter amount of time to help meet this need.

The Flathead Valley and surrounding area have many individuals who would qualify for this option and would possibly be willing to relocate for the 16 months rather than 29 months it takes to complete the generic BSN.

By locating the program in the Bozeman area, there will be no conflict regarding the needs for clinical space with the FVCC Nursing program.

We wish you every success with this proposal and look forward to working with MSU CON in the future on expanding nursing education opportunities in Montana.

Sincerely,

Kathy Hughes MEd  
Vice President of Instruction

Myrna Ridenour BSN RN BC  
Nursing Program Director





# Bozeman Deaconess HOSPITAL

June 9, 2010

To Whom It May Concern:

Bozeman Deaconess Hospital and Montana State University College of Nursing have enjoyed a very close partnership over the past 5 years. Bozeman Deaconess Hospital has been privileged to serve as a clinical site to junior and senior nursing students and employ several newly graduated nurses annually.

Being acutely aware of the aging nursing workforce and the significant number of current RN's who will be leaving the workforce in the next several years, Bozeman Deaconess Hospital is supportive of the MSU College of Nursing's visionary direction to provide an accelerated post-baccalaureate undergraduate nursing option. The provision of additional RN's in a shorter period of time would aid in alleviating the expected nursing shortage.

The American Association of Colleges of Nursing has reported that the enrollment in current baccalaureate programs is not sufficient to meet the projected demand for nurses. HRSA official's state that "to meet the projected growth in demand for RN services, the U.S. must graduate approximately 90% more nurses from U.S. nursing programs" ([www.aacn.nche.edu](http://www.aacn.nche.edu)). As a result forty-seven states have developed an "accelerated option". Montana State University College of Nursing leadership has recognized the need and benefit of the accelerated option.

Bozeman Deaconess Hospital would gladly increase our support by providing additional clinical opportunities for the post-baccalaureate students in this "accelerated" program. There are currently no other nursing programs utilizing these clinical facilities. Our commitment, first and foremost, is to the Montana State University College of Nursing students.

Bozeman Deaconess Hospital respectfully requests that permission be granted to Montana State University to expand the BSN program with this accelerated option.

Sincerely,

*Vickie Groeneweg*

Vickie Groeneweg, RN, MSN, MBA  
Vice President of Patient Services/CNO  
Bozeman Deaconess Health Services

**From:** Scott, TaraL [mailto:TaraL.Scott@mso.umt.edu]  
**Sent:** Tuesday, February 16, 2010 3:53 PM  
**To:** McNeely, Gretchen  
**Subject:** MSU Accelerated BSN

Hi Gretchen,

I was thrilled to get your memo about the possibility of MSU offering an accelerated second degree program. I advise many post-baccalaureate students and students looking at changing majors to nursing in their junior or senior year who are planning to travel out of Montana to complete their nursing education with either a second degree BSN or direct entry MSN program. Many other candidates for second degree programs give up on a BSN education because their circumstances don't allow them to relocate or they don't have the time to dedicate to a traditional BSN. I believe having a program in Montana will really benefit many of our students and the nursing profession in Montana by keeping more graduating nurses here for work.

I look forward to hearing details about admission requirements, application process, and other logistics. I have sent my students a link to your survey and will continue to direct students to the MSU website for more information.

Please feel free to contact me if you have any questions or concerns with regard to UM's pre-nursing population.

*Tara L. Scott*

UM Pre-Nursing Advisor  
Lommasson Center Room 286  
(406) 243-5658  
[tara.scott@umontana.edu](mailto:tara.scott@umontana.edu)  
[www.umt.edu/prenursing](http://www.umt.edu/prenursing)



**From:** Claire Oakley [mailto:oakleyc@rocky.edu]

**Sent:** Friday, February 19, 2010 10:20 AM

**To:** McNeely, Gretchen

**Subject:** post-bacc nursing degree!!!!

Hello Gretchen,

I received your letter about the potential for a post-bacc degree in nursing. GO FOR IT--we need it!!! I often have biology majors who decide as juniors or seniors to pursue a health career--one student did the WY program for 18 months and loved it.

This is a wonderful option for students and you will have students with great science backgrounds. Our bio majors graduate with a year of physics, a year of organic chem, and a semester of biochem--and most have had a year of cadaver anatomy/physiology.

YOU have all of my support. I handed out copies of your letter to a bunch of my students and asked them to fill out your survey.

--

Claire R. Oakley, Ph.D.

Professor of Biology and Physician Assistant Studies

1511 Poly Drive

Billings, MT 59102

406-657-1089

May 26, 2009

Re: Accelerated Option for the BSN program

As the Maternal Newborn Manager at Bozeman Deaconess Hospital, I am excited that you are moving forward towards provided an accelerated option for the BSN program at the Montana State Board of Nursing because we have found that the nursing graduates from MSU are excellently prepared to begin their work as Registered Nurses. Our staff has been impressed with the MSU student's assessment skills as they rotate through our Labor, Delivery, Nursery, NICU, Post Partum, and Lactation units.

In the last ten years, I have hired many MSU graduates have been so exceptional in their performance; they have been selected as Team Leaders by their peers.

With the national aging nursing pool, this option is vital and I applaud your move towards the Accelerated option.

I expect accepting students who have proven their ability to study with a BS degree under their belt will produce highly productive and talented nurses, which we need in the work force.

Thank you,

Susan Connell, RN  
Maternal Newborn Manager

May 27, 2010

Montana State Board of Nursing  
PO Box 200513  
Helena MT 59620-0513

Montana Board of Regents  
PO Box 203201  
Helena MT 59620-3201

To whom it may Concern:

I am writing to you regarding Montana State University's request for approval to conduct an accelerated option for the BSN program. I am currently a student at Carroll College where I am pursuing my BSN; however the program is set up as a four year degree program and does not take into consideration individuals who have already obtained a BA or BS from another University. I would like to take this opportunity to explain why the state of Montana needs an accelerated nursing program and why I support a program such as this at Montana State University.

I am a 38 year old wife and mother of three who has worked as a professional for the State of Montana for over 12 years. I have also been a member of the Montana National Guard for 19 years, 13 of which I have spent as a Flight Medic. My time in the guard is what made me make the decision to return to school to pursue my nursing degree. After spending a year in Iraq and performing several medical evacuation missions here in the state of Montana, I felt my true passion in medicine. I decided to leave my full time job and return to school. Carroll College only offers a standard four year degree therefore I am attending school at a part time level because I have already taken the general education courses required by the program and Carroll does not allow for acceleration.

At my age and point in life as a person with family and life responsibilities, I feel being able to get the best education in the least amount of time would benefit not only me and my family but also the profession of nursing in the following ways. Because I am attending school at a part time level I have had to secure a full time job to help provide for my family as it's not feasible to live four years without an income source other than that of my husband. An accelerated program would put far less strain on our family as it would only be a 16 month sacrifice not 4 full years. My service in the National Guard as well as with the State of Montana as a professional has provided me with vast life experience to offer an accelerated program at MSU and also the nursing profession as a whole. Currently the nursing profession has a shortage that will only increase over the years. Montana is one of only three states in the U.S. that does not currently offer an accelerated option for the BSN program. I believe that Montana State University has the ability to put together an accelerated program that will both meet the requirements of the Montana State Board of Nursing and Board of Regents but also the need for qualified professional nurses in the state of Montana.

I am asking that you approve and support the accelerated option for the BSN program at Montana State University. I feel this is in the best interest of our great state. If you would like to contact me regarding this letter please call me at 406-465-2435 or write to me at 3806 Timothy Ln, Helena MT 59602.

Thank you for your consideration in this matter,

Amanda Sell  
Sergeant First Class  
Montana National Guard

May 28, 2010

Montana Board of Nursing,  
PO BOX 200513,  
Helena, MT 59620- 0513 and

Montana Board of Regents  
Office of Commissioner of Higher Education  
Montana University System  
2500 Broadway Street  
PO Box 203201  
Helena, MT 59620-3201

Dear Representatives of the Montana Board of Nursing and the Montana Board of Regents:

I am a returning post-baccalaureate student currently enrolled at Montana State University in the Pre-Nursing program. While talking with my academic adviser in April, I learned that there is a possibility that Montana State University may start an accelerated BSN program for post-bac students like me. I am enthusiastically supportive of this, and I would like to help make it happen whatever way I can. Given the current demand for nurses in our economy and strong indication that the demand will only continue to increase, it would be a great asset for our state to offer an accelerated program like this that would enable people re-entering the job market, or changing careers to expedite their education.

I strongly encourage you to support this program.

Sincerely,  
Tara Gallagher  
Prospective "accelerated program" student  
114 East Alderson  
Bozeman, MT 59715  
taragall@aol.com  
406-600-6616

May 28, 2010

Montana State Board of Nursing  
301 South Park Avenue  
Helena, MT 59601-6282

To Whom It May Concern:

I am writing this letter in support of the proposed accelerated nursing program at Montana State University. I am a stay at home mom with a degree in finance from MSU and this program would be a perfect fit for me to get my RN.

Feel free to contact me if you have any questions at (406)582-5434.

Sincerely,

A handwritten signature in cursive script that reads "Amy Connell". The signature is written in black ink and is positioned above the printed name.

Amy Connell  
Prospective "Accelerated" Student

June 2, 2010  
Melissa Gutzman  
College of Nursing  
Montana State University  
PO BOX 173560  
Bozeman, MT 59717

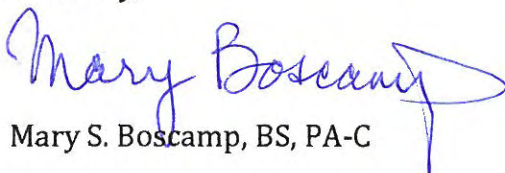
Dear Melissa:

I am writing in support of an accelerated option for the BSN program here at MSU. I am currently a Physician Assistant looking for work. I have thirty plus years of clinical experience, first as a radiology tech and then as a Physician Assistant in primary care. I did my pre-requisite coursework here while working and received my Bachelor of Clinical Sciences from the University of Washington. After graduation in 2004, I went to work in an underserved community in Wyoming. After serving with NHSC successfully for four years, my husband and I wanted to return to our home here in Bozeman. Fortunately, he has been able to secure a full-time job with benefits. While I have been able to work several temporary jobs, I have not been able to secure a permanent job.

Apparently, because Bozeman is such a desirable place to live, there is no shortage of primary care providers. I do believe there is a nursing shortage here as everywhere, and that an accelerated BSN program here at MSU would get that many more skilled nurses working.

I do hope this vision can become a reality, and I thank-you for your time and consideration.

Sincerely,

  
Mary S. Boscamp, BS, PA-C

June 9, 2010

To Montana State Board of Nursing and the Montana State Board of Regents:

I am writing to express my support for the establishment of an accelerated Bachelors of Science in Nursing program at Montana State University in Bozeman. With a high number of students holding previous bachelor's degrees applying to the current nursing program, an accelerated option would offer a more efficient option for advanced education of nurses in Montana. Many states have already successfully established such a program, and with the resources that are available in Bozeman the time is ripe for such a program at MSU. On a greater scale, such a program would help to ensure that Montana is utilizing all of it's resources to educate as many healthcare professionals as is possible. With a growing shortage of primary care providers nationwide, the demand for nurses and nurse practitioners is expected to skyrocket as well over the next decade. With a limited number of nursing education programs in the country, it is important now more than ever that every program pushes itself to its full potential in making education available and accessible to potential nurses.

For students like myself, who have completed prerequisite coursework for medical or other healthcare graduate programs, entering nursing education offers the possibility of taking a slightly different career path while still utilizing knowledge garnered through an initial Bachelor's program. Using this prior knowledge, and having an advanced base of prerequisites, makes the accelerated option feasible and realistic for many students. Having the option available in Montana would make attainment of a BSN practical and within reach for Montana students.

Sincerely,

Allison Phillips  
Prospective Accelerated BSN student  
Bachelors of Science, Health and Human Development '10

Contact Information:  
allison.phillips@msu.montana.edu  
541-390-5730

Casey W. Jardine  
3191 Oliver St.  
Bozeman, MT 59718  
(406)570-4660  
June 9, 2010

Montana State Board of Nursing  
Montana State Board of Regents

Re: Accelerated BSN Program Offering at Montana State University

Dear Board Members,

Thank you for taking the time to consider implementing an accelerated BSN program to be offered at Montana State University's Bozeman campus. Accelerated BSN programs are currently being offered in many states and if feasible, should also be offered in Montana.

Accelerated programs are not only advantageous to the students but also to the nursing profession which currently is experiencing a nursing shortage that is predicted to only get worse as many nurses retire. Students who already have a Bachelor's degree have proven that they are scholastically able to perform at an advanced level. Furthermore, many second degree seeking students are older and have family obligations that make an additional four year commitment extremely difficult.

I personally was involved in a serious accident that required me to stay in the hospital for a lengthy period of time. The nurses that cared for me were truly amazing. They were counselors as well as caretakers. But most importantly, for that period of time, they were my friends. I want the opportunity to comfort and help injured people just as I was aided in my time of need. The accelerated program will make my professional aspirations a little more attainable. Thank you again for your time.

Sincerely,

Casey W. Jardine

Current MSU Pre-nursing student  
Prospective Accelerated BSN student  
B.S. HHD Consumer Science MSU 2004  
Business Administration minor MSU 2004



To The Montana State Board of Nursing and the Montana State Board of Regents:

The establishment of an accelerated nursing program at Montana State University would be of great benefit to many post-baccalaureate students across the state. Currently, there are no accelerated nursing programs in the state of Montana. In order for Montana residents to enter an accelerated nursing program, they must attend an out of state school and pay out of state tuition. The accelerated nursing program at MSU would provide a great opportunity for Montana residents to earn their BSN degree quickly without acquiring a substantial amount of debt. The accelerated pace of the program would also allow for students to enter the work force as quickly as possible.

I strongly support the decision to approve the accelerated nursing option at MSU. If the program were approved, I would be able to receive a BSN degree within sixteen months instead of three to four years. This is extremely important to me as I would like to launch my nursing career as soon as possible. Although earning an associate's degree in nursing within a two year time frame is an option, I would prefer to receive the BSN degree as it would provide me with a more comprehensive education as well as the opportunity to earn an advanced nursing degree. The approval of the accelerated option at MSU would allow me to complete my BSN degree in the time that it would take me to earn an associate's degree in nursing. It is vital that the accelerated program become approved as it would not only benefit me, but many others around the state of Montana.

Sincerely,

Kaitlyn Broderick  
Prospective Accelerated Student  
684 West Main  
Helena, Montana 59601  
406-459-4290

Aimee Ramaeker

Potential Student

11152 Albion Ct.  
Thornton, CO 80233  
[Aimee.ramaeker@yahoo.com](mailto:Aimee.ramaeker@yahoo.com)  
970-596-1613

Dear Dean Melland,

I am a potential student for your Accelerated Nursing option. Overall, I have been very excited about this potential offering. I currently have a Bachelor's degree and am looking only at an Accelerated Nursing option to continue my education. MSU in Bozeman is my top choice, as I am looking to relocate to an area I could see myself starting a career in.

Many students in my pre-requisite classes are seeking a drastic change from their current career paths. Why wouldn't MSU jump on this opportunity? Montana is lacking, as they are one of the only states that does not currently offer this option to current professionals. They also are not part of the option that allows students certified as an RN in bordering states, to practice in MT. Many bordering states (ID and CO) offer this option. An RN is a career always in demand and as a student, I am looking to go to school where I can continue to raise a family. MT is my top choice due to its culture and landscape.

I look forward to continued communication regarding your efforts to officiate your Accelerated Nursing program. Feel free to reach out if there is any additional support you need from me.

Sincerely,

Aimee Ramaeker  
Future MSU, Accelerated Nursing Student

June 10, 2010

Dear Montana State Board of Nursing and Montana State Board of Regents,

I am writing this letter in full support of the prospective accelerated nursing program at Montana State University. An accelerated nursing program has benefits for students seeking to further their education, first-degree students and faculty. For post-baccalaureate students, it is faster and a more convenient way of earning a bachelors in nursing. For first-degree students, it provides more space for acceptance into the standard program. As for faculty, it exposes them to students who are familiar with how to learn, have a desire to learn and know what is required and expected of them.

As a Montana State University graduate, I feel this is a great opportunity for former students to further their education. It is a quicker way of starting a career that I plan on pursuing. Now, with the shortened program, it is more appealing and gives me the desire and opportunity to continue my education with Montana State University. This program is intriguing, as the students receive the full education with the same number of courses; it is just condensed into a smaller time frame. Students who already have bachelor degrees are looking to further their education, but do not want to spend another four years in school. After the given pre-requisites are achieved, earning a bachelors in nursing in 16 months versus 29 months will save students and faculty both time and money.

With several diverse bachelor degrees, the students are more mature and can show different levels of leadership and experiences within the program. These second-degree students will show more responsibility and be driven to succeed in their education. This is an excellent opportunity that will assist post-baccalaureate students to achieve their career goals on a much faster timeframe. Thank you for your time and interest in this program.

Sincerely,

A handwritten signature in cursive script that reads "Whitney Melton". The signature is written in black ink and is positioned above the typed name.

Whitney Melton  
Prospective Accelerated BSN Student  
whitney\_melton@hotmail.com  
(406)369-1087

6/11/2010

College of Nursing  
Montana State University  
Sherrick Hall  
P.O. Box 173560  
Bozeman, MT 59717-3560

Re: Letter of Support for MSU-Bozeman College of Nursing Accelerated Option

Dear Montana State Board of Nursing and the Montana State Board of Regents:

As the University of Montana's Pre-Nursing Advisor, I serve approximately 350 students in various stages of their educational pursuit toward nursing. The majority of the students I advise have a desire to complete a bachelor's level program beginning at UM with the intent to complete through MSU at the Missoula upper division campus. Due to the competitive nature of MSU's Traditional BSN Program, particularly for Missoula upper division placement, many of my students decide on a different route through either Missoula COT or out of state BSN programs.

As you may know, due to the nation-wide nursing shortage, many second degree programs have been and are currently being developed. Montana is one of the few states in the United States that does not offer second degree options for nursing. Furthermore, there are few programs even within the northwest states, Boise, Idaho being the closest.

The development of a second degree program in Montana would be ideal for the following students in my advising population:

- 1) Individuals returning to school for a second career who have completed a bachelor's degree in another field.
- 2) A junior or senior wanting to change his or her major to nursing. By completing their initial bachelor's degree and following up with a second degree BSN, they can complete much faster than going back and starting over for another four years in a traditional BSN program.
- 3) Student athletes or scholarship recipients who would lose funding if they were to transfer institutions.
- 4) Students who would like to double major or minor in studies in addition to nursing.
- 5) Non-traditional students who do not have the flexibility to relocate to another city for two years of upper division, but may consider a shorter time (12-16 months) to complete studies elsewhere.

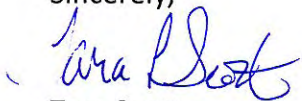


Approximately 40% of my students are non-traditional transfer, junior or senior (non-nursing majors), or second degree/post- baccalaureate students. I field an average of 4 to 6 calls per week from prospective students who are seeking a second career in nursing. When they ultimately consider that it is not feasible for them to complete any program that is offered in Montana, they go elsewhere. From the pool of nursing students and prospective students I work with, I believe a second degree cohort of nursing in Montana would be easily filled.

Not only would a second degree program be great for our community and state students, but would also attract out-of-state students seeking a nursing education. After contacting many other institutions offering second degree programs, and researching second degree programs at American Association of Colleges of Nursing website (<http://www.aacn.nche.edu/Publications/issues/Aug02.htm>), students experience excellent outcomes post graduation. Between the liberal arts background with previous undergraduate degrees along with life experience, second degree students perform very well and are highly sought by healthcare employers.

I would be delighted to be involved in the discussions related to expanding nursing education opportunities in Montana and collaborating with the Montana University System campuses and take part in the implementation of future programs involving nursing. Thank you for your time and consideration and please feel free to contact me with any questions or if I can be of assistance.

Sincerely,



Tara Scott  
Pre-Nursing Advisor  
Undergraduate Advising Center  
The University of Montana  
Phone: 406.243.5658  
Fax: 406.243.2684  
email: [TaraL.Scott@mso.umt.edu](mailto:TaraL.Scott@mso.umt.edu)



**The University of Montana - Helena**  
COLLEGE OF TECHNOLOGY

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June 16, 2010

To Whom It May Concern:

The purpose of this letter is to offer support for the accelerated post-baccalaureate option being proposed by the Montana State University College of Nursing. I believe this option is needed in Montana to address the nursing shortage. The fact that it will be an accelerated program will enhance the number of nurses available to meet the needs of Montana patients.

These types of programs have been very successful in other parts of the country. Allowing post-degree students to take a compressed curriculum while maintaining the rigor and quality follows national trends in professional nursing education.

As a nursing program director in Montana, my concern always relates back to the availability of clinical sites and faculty. The survey results and proposal information sent out by MSU College of Nursing addresses these issues. I am confident that this program will prove to be a win-win situation for students as well as Montana nurses and patients.

Sincerely,

*Sandy Sacry MSN, RN*

Sandy Sacry MSN, RN  
Nursing Program Director  
UM-Helena COT



Governor Brian Schweitzer

# Montana

Department of Labor and Industry

Business Standards Division

## BOARD OF NURSING

July 28, 2010

Helen Melland, PhD, RN  
Dean of the College of Nursing  
Montana State University- Bozeman  
115 Sherrick Hall PO Box 173560  
Bozeman, MT 59717

Dear Dean Melland,

The Board of Nursing (BON) is pleased to provide you with this letter documenting the unanimous approval of acceptance on July 14, 2010 of the Special Report submitted June 14, 2010 to the BON titled: *Accelerated Option for Post-baccalaureate Students in the Bachelor of Science degree in Nursing (BSN) program*.

The BON was in agreement of the documented need for this option for students in our state and how this option is an excellent use of state resources for providing an increase to the number of professional nurses available for employment in Montana. We commend you for the planning and cooperative work this special report demonstrates.

Montana State University College of Nursing has an excellent reputation as a premier institution for nursing education in the state and region. The edition of this accelerated option will contribute to the types of educational offerings in nursing provided to the citizens of Montana.

On behalf of the Board,

A handwritten signature in black ink, appearing to read "Cynthia Z. Gustafson".

Cynthia Z. Gustafson, PhD, RN  
Executive Director  
[cgustafson@mt.gov](mailto:cgustafson@mt.gov) (406)841-2380

P.O. BOX 200513 • 301 SOUTH PARK • HELENA MT 59620-0513 • PHONE (406) 841-2340

FAX (406) 841-2305 • TTD (406) 444-0532

"AN EQUAL OPPORTUNITY EMPLOYER"

June 2010 Board of Regents | Page 59 of 119

**ITEM 148-1501-R0910**

**Approval to change the Statistics Option to a Statistics Major; Montana Tech of The University of Montana**

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**THAT**

In accordance with Montana University System Policy, Montana Tech requests approval from the Board of Regents of Higher Education to change its Statistics Option to a Statistics Degree.

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**EXPLANATION**

The faculty in the Department of Mathematical Sciences at Montana Tech feels that changing the Statistics Option to a major would;

- be helpful in recruiting students to Montana Tech by having a Statistics program separate from the math program. With the current popularity of the AP Statistics Exam it is likely that some high school students will be looking for programs in statistics when choosing a college;
  - enhance the career opportunities of students earning the current statistics option. Many employers prefer to hire graduates having a degree in statistics over students having degrees in mathematics. The current status of the non-teaching job market for students earning undergraduate degrees in mathematics is primarily for students having statistics/data analysis skills. The job as a statistician is currently one of the top rated jobs (#3) in the science and engineering fields according to CareerCast.com;
  - increase our graduates' chances of being accepted into the top-rated graduate programs in statistics. The overwhelming majority (> 90%) of our graduates attending graduate programs pursue advanced degrees in statistics;
  - be the first official undergraduate Statistics Program at a Montana University System school.
- 

**ATTACHMENTS**

Level II Request Form  
Curriculum Proposals



# MONTANA BOARD OF REGENTS

## LEVEL II REQUEST FORM

<b>Item No.:</b>	<b>148-1501-R0910</b>	<b>Date of Meeting:</b>	<b>September 22-23, 2010</b>
<b>Institution:</b>	<b>Montana Tech of the University of Montana</b>		
<b>Program Title:</b>	<b>Statistics</b>		

Level II proposals require approval by the Board of Regents.

**Level II action requested (check all that apply):** Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

- 1. Change names of degrees (e.g. from B.A. to B.F.A.)
- 2. Implement a new minor or certificate where there is no major or no option in a major;
- 3. Establish new degrees and add majors to existing degrees;
- 4. Expand/extend approved mission; and
- 5. Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

**Specify Request:**

The Department of Mathematical Sciences at Montana Tech would like to convert the Statistics Option in the Mathematical Sciences Program into a separate program (i.e., degree) called the Statistics Program. The Statistics Option has been a popular and successful option in the Mathematical Sciences degree. Students graduating with the Statistics Option have been very successful in finding jobs and have been accepted in graduate programs in Statistics at Texas A&M, University of Washington, UC Davis, Colorado State, University of Wisconsin, Purdue University, Oregon State University, Montana State University, and the University of Idaho.

Rationale: The faculty in the Department of Mathematical Sciences at Montana Tech feels that it would

- help in recruiting students to Montana Tech by having a statistics program separate from the math program. With the current popularity of the AP Statistics Exam it is likely that some high school students will be looking for programs in statistics when choosing a college;
- enhance the career opportunities of students earning the current statistics option. Many employers prefer to hire graduates having a degree in statistics over students having degrees in mathematics. The current status of the non-teaching job market for students earning undergraduate degrees in mathematics is primarily for students having statistics/data analysis skills. The job as a statistician is currently one of the top rated jobs (#3) in the science and engineering fields according to CareerCast.com;
- increase our graduate's chances of being accepted in the top rated graduate programs in statistics. The overwhelming majority (> 90%) of our graduates attending graduate programs pursue advanced degrees in statistics;

- be the first official undergraduate Statistics Program at a Montana University System school. The Department of Mathematical Sciences currently offers a Statistics Option and Minor in Statistics.

Cost: The proposed relabeling of the Statistics Option in the Mathematical Sciences Program will not require any new faculty or the creation of a new department head, and thus has no anticipated cost to the university. The Department of Mathematical Sciences currently has three Ph.D. statisticians teaching the department's statistics courses. The Statistics Program faculty will continue to serve as members of the Department of Mathematical Sciences.

The curriculum for a degree in Statistics will be the same as it currently is under the Statistics Option in the Mathematical Sciences Program, so no new classes are being proposed with the Statistics Program proposal.

## CURRICULUM PROPOSALS

1. **Overview:** The Department of Mathematical Sciences at Montana Tech would like to convert the existing Statistics Option in the Mathematical Sciences Program into a separate program (i.e., degree) called the Statistics Program. The current Statistics Option was approved in 2000 and has been the most popular option in the Mathematical Sciences program and our graduates have been very successful in obtaining jobs and in their pursuit of advanced degrees. The Department of Mathematical Sciences also offers a Minor in Statistics.

### Rationale:

The faculty in the Department of Mathematical Sciences at Montana Tech feels that changing the Statistics Option to a major would;

- be helpful in recruiting students to Montana Tech by having a Statistics program separate from the math program. With the current popularity of the AP Statistics Exam it is likely that some high school students will be looking for programs in statistics when choosing a college;
- enhance the career opportunities of students earning the current statistics option. Many employers prefer to hire graduates having a degree in statistics over students having degrees in mathematics. The current status of the non-teaching job market for students earning undergraduate degrees in mathematics is primarily for students having statistics/data analysis skills. The job as a statistician is currently one of the top rated jobs (#3) in the science and engineering fields according to CareerCast.com;
- increase our graduates' chances of being accepted into the top-rated graduate programs in statistics. The overwhelming majority (> 90%) of our graduates attending graduate programs pursue advanced degrees in statistics;
- be the first official undergraduate Statistics Program at a Montana University System school.

Cost: The proposed relabeling of the Statistics Option in the Mathematical Sciences Program will not require any new faculty or the creation of a new department head, and thus has no anticipated cost to the university. The Department of Mathematical Sciences currently has three Ph.D. statisticians teaching the department's statistics courses. The Statistics Program faculty will continue to serve as members of the Department of Mathematical Sciences.

The curriculum for a degree in Statistics will be the same as it currently is under the Statistics Option in the Mathematical Sciences Program, so new classes are being proposed with the Statistics Program proposal.

2. **Need:** The need for well trained statisticians in industry and government was recognized by the Department of Mathematical Sciences in the late 1990's, and henceforth, the department added the Statistics Option to the program in 2000. Over the last 10 years approximately half of the graduates in Mathematical Sciences have graduated with the Statistics Option. Our graduates have been highly successful in finding jobs which have been primarily in Montana, Nevada, Colorado, California, Washington, and Oregon; our graduates have also been very successful in some of the top-rated graduate programs in Statistics including Texas A&M, UC Davis, Oregon State University, Purdue University, Montana State University, and the University of Idaho.
  - a. The job market for bachelor's graduates in the Mathematical Sciences is primarily in the area of statistics and data analysis. There are very few non-teaching jobs for students earning only a bachelor's degree in mathematics.

b. Students will be better prepared for jobs in the 21<sup>st</sup> Century and well suited for graduate programs in Statistics. Students earning a Statistics degree will have a better chance of being employed in Montana than those with only a degree in Mathematical Sciences. In fact, several of our graduates with the Statistics Option have found employment in Montana over the past decade.

c. The demand in industry and government for trained statisticians is not currently being met by the current supply of statisticians. Statistics jobs are available in all regions of the country for a graduate having a B.S. in Statistics.

**3. Institutional Fit:**

- a. The proposed program has been offered for the last ten years as an option in Mathematical Sciences.
- b. No changes to existing programs will be required with changing the Statistics Option within Mathematical Sciences to a separate degree program in Statistics.
- c. There are no programs at Montana Tech similar in nature to the proposed program in Statistics.
- d. The Statistics program fits well with advancing the reputation of Montana Tech, scholarly activity and research by the Montana Tech faculty, and providing educational access and opportunities to students attending Montana Tech.
- e. Montana State University-Bozeman and The University of Montana both have Statistics Options within their Mathematical Sciences programs. In the last 10 years several of our Statistics Option graduates have pursued advanced degrees from the MSU-Bozeman graduate program in Statistics.

4. **Program Details:** The curriculum for the proposed Statistics program currently exists and has been in place for the last 10 years as the Statistics Option within Mathematical Sciences. The curriculum worksheet for the Statistics Program is listed below.

Montana Tech of the University of Montana  
**Bachelor of Science in MATHEMATICAL SCIENCES**  
Statistics Option

Fall Semester				Spring Semester					
				Credits					Credits
<b>FRESHMAN YEAR</b>									
M	171	Calculus I	3	COMM	1216	Principles of Speaking	<b>OR</b>		
WRIT	101	College Writing I	3	COMM	1226	Public Speaking		3	
STAT	216	Intro. to Statistics	3	M	172	Calculus II		3	
M	194	Freshman Seminar in Mathematical Sciences	1	*		Science Elective		4	
*		Science Elective	3	**		General Elective		3	
**		General Elective	2	**		General Elective		2	
Total Credits				15	Total Credits				15
<b>SOPHOMORE YEAR</b>									
M	242	Methods of Proof	3	M	274	Intro. To Diff. Equations		3	
M	273	Multivariable Calculus	4	M	331	Statistics for Scientists & Engineers		3	
M	333	Linear Algebra	3	CS	2136	Matlab for Engineers and Scientists	<b>OR</b>		
**		General Elective	3	CS	2146	C Programming for Engineers and Sci		3	
**		General Elective	2	M	323	Methods of Proof II		3	
**		General Elective	2	**		General Elective		3	
Total Credits				15	Total Credits				15
<b>JUNIOR YEAR</b>									
STAT	421	Probability Theory	3	M	410	Numerical Compt. for Engineering & Sci		3	
M	435	Advanced Calculus I	3	M	435	Advanced Calculus II		3	
M	xxxx	3000/4000 Elective	3	STAT	422	Mathematical Statistics		3	
**		General Elective	3	**		General Elective		3	
**		General Elective	3	**		General Elective		3	
**		General Elective	3	Total Credits				15	
Total Credits				15	Total Credits				15
<b>SENIOR YEAR</b>									
STAT	441	Experimental Design	3	STAT	435	Statistical Computing & EDA		3	
M	xxxx	3000/4000 Elective	3	STAT	432	Regression & Model Building		3	
M	4xxx	Math Elective	3	**		General Elective		3	
**		General Elective	3	**		General Elective		3	
Total Credits				15	Total Credits				15

**	General Elective				3
		3	**	General Elective	
**	General Elective				2
		3		Total Credits	14
M	494	Senior Seminar in Mathematical Sciences			1
		Total Credits			16

*Minimum credits for B.S. degree in Mathematical Sciences - Statistics Option = 120*

\* Science Electives must include at least one semester of laboratory science, either (1) BIOL 1026,1116, 1236, or 2016; (2) CHMY 141 with lab 142; (3) GEO 101 with lab GEOE 104 or GEO 209; or (4) PHYS 1046 and PHYS 2076 with lab 2096.

\*\* Electives must be chosen so that the Gen. Ed. Requirements in the Communication Core, Humanities Core, Physical and Life Sciences Core, and Social Sciences Cores are met.

The sequences M 405-406, STAT 421-422, and the courses STAT 432 & STAT 435 are offered on alternate year basis.

M 330 does not count as an approved M 3000/4000 elective.

M 329 only counts as an approved M 3000/4000 elective for those students seeking Secondary Education Certificate.

*Last Updated 4/14/2009*

All courses in the above Statistics curriculum currently exist and no new courses are planned for in the near future.

5. **Resources:** No new resources will be needed to implement the Statistics program. There are currently three Ph.D. statisticians within the Department of Mathematical Sciences teaching statistics courses and overseeing the Statistics Option. A department of Statistics is not currently planned for or needed. The faculty in the Statistics program will remain members of the Department of Mathematical Sciences.
6. **Assessment:** The success of the Statistics program will be measured by the graduation rate and the acceptance rate for graduate programs in Statistics as is currently being used to measure the success of the Statistics Option.
7. **Process Leading to the Submission:** During the 2006-7 academic year several Mathematical Sciences students asked the Department Head of Mathematical Sciences at Montana Tech why Montana Tech did not have a B.S. degree in Statistics. This initiated a discussion among the faculty who are responsible for the Statistics Option at Montana Tech which led to a department-wide discussion. The Department of Mathematical Sciences faculty were well aware of the success of the students earning the Statistics Option, the demand for statisticians in industry and government, the widespread use of the AP Statistics course by incoming students and decided in a unanimous vote (Fall 2009) to pursue a Statistics Program. The Dean of the College of Letters and Sciences was consulted and he voiced his strong support for this proposal. The proposal to create a Statistics Program was approved by both the Curriculum Review Committee and the Montana Tech faculty in the fall of 2009.

**ITEM 148-1601-R0910**

**Equine Studies Department**

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**THAT**

The University of Montana Western requests that a new Equine Studies Department be created from the current Equine Studies Program in the Department of Business and Technology.

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**EXPLANATION**

Current equine programs have grown substantially both in numbers of students and in number of faculty. While some of the equine degree programs and options have a substantial business component, most have a substantial component of social and behavioral science as well as natural science. Thus, they do not fit well into any existing department at Montana Western. Equine program inclusion in the Business and Technology Department has made it more difficult to recruit students, and to secure outside funding.

The two degrees in Natural Horsemanship were initially begun in partnership with local business and with the support of the local community. That support has been increasing over time but these partners are also questioning the appropriateness of having these interdisciplinary degrees residing in the Business and Technology Department.

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**ATTACHMENTS**

Level II Request Form  
Curriculum Proposals

**M O N T A N A   B O A R D   O F   R E G E N T S**  
**LEVEL II REQUEST FORM**

Item Number:	<b>148-1601-R0910</b>	Date of Meeting:	<b>Sept. 22-23, 2010</b>
Institution:	<b>The University of Montana - Western</b>	CIP Code	<b>N/A</b>
Program Title:	<b>Equine Studies Department</b>		

Level II proposals require approval by the Board of Regents.

**Level II action requested (check all that apply):** Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

- 1. Change names of degrees (e.g. from B.A. to B.F.A.)
- 2. Implement a new minor or certificate where there is no major or no option in a major;
- 3. Establish new degrees and add majors to existing degrees;
- 4. Expand/extend approved mission; and
- 5. Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

**The University of Montana Western requests permission to form an Equine Studies Department from existing equine programs and faculty currently housed in its Business and Technology Department.**



## LEVEL II BOARD OF REGENTS ITEMS

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### CURRICULUM PROPOSALS

1. Overview

**The University of Montana Western seeks to create a new Equine Studies Department incorporating programs and faculty that currently reside in its Business and Technology Department. Equine programs began at Montana Western in 2002. They were originally housed in the Business and Technology Department because the initial A.A.S. in Equine Studies had a strong business focus. Later program additions have been more interdisciplinary in nature with a strong focus on natural science, equine skills, and sometimes business. The program has grown and diversified to the extent that a new department would benefit both the program and its students with no additional costs to the campus.**

2. Provide a one paragraph description of the proposed program. Be specific about what degree, major, minor or option is sought.

**A new department is sought.**

3. Need

a. To what specific need is the institution responding in developing the proposed program?

**There is a need for an interdisciplinary Equine Studies Department because the current equine programs and faculty do not have a close fit with any existing department, including the Business and Technology Department where they are currently housed. The number of faculty and students are comparable to those of some other current departments.**

b. How will students and any other affected constituencies be served by the proposed program?

**Students would be better served by establishing a new department since the new department would better indicate to potential students, potential employers, and graduate and professional schools the interdisciplinary nature of the equine degree programs. For example, a number of current students are interested in graduate school in the sciences or preparation for veterinary school. They are therefore sometimes reluctant to sign up for a degree program housed in the Business and Technology Department.**

c. What is the anticipated demand for the program? How was this determined?

**There were a total of 78 students enrolled in the A.A.S. in Equine Studies and the A.A.S. and B.S. in Natural Horsemanship in the fall of 2009. Additional numbers of equine students were enrolled in equine option areas within other campus degree programs. This increase has been from an initial enrollment of 7 students in the fall of 2002, the first year of the A.A.S. in Equine Studies. Student interest in the programs remains strong.**

4. Institutional and System Fit

a. What is the connection between the proposed program and existing programs at the institution?

**The current Equine Studies Program would become an interdisciplinary Equine Studies Department. As such, it would continue to incorporate much coursework in its programs from other departments in addition to general education.**

b. Will approval of the proposed program require changes to any existing programs at the institution? If so, please describe.

**No. The programs will remain the same within the new department.**

- c. Describe what differentiates this program from other, closely related programs at the institution (if appropriate).  
**This new department will contain programs that are all interdisciplinary in nature containing significant natural science, social science, business, and/or equine skills coursework.**
  - d. How does the proposed program serve to advance the strategic goals of the institution?  
**This new department would contain programs that have been a natural fit for a university in a rural setting in Montana with access to horse care and training facilities in the private sector. These programs have led to a more socially diverse student body and have improved relationships with the community.**
  - e. Describe the relationship between the proposed program and any similar programs within the Montana University System. In cases of substantial duplication, explain the need for the proposed program at an additional institution. Describe any efforts that were made to collaborate with these similar programs; and if no efforts were made, explain why. If articulation or transfer agreements have been developed for the substantially duplicated programs, please include the agreement(s) as part of the documentation.  
**Montana Western faculty have worked with the faculty of Miles Community College to ease transfer of MCC students to Montana Western after those students have completed a two-year degree at MCC.**
5. Program Details
- a. Provide a detailed description of the proposed curriculum. Where possible, present the information in the form intended to appear in the catalog or other publications. NOTE: In the case of two-year degree programs and certificates of applied science, the curriculum should include enough detail to determine if the characteristics set out in Regents' Policy 301.12 have been met.  
**There are no new curricula**
  - b. Describe the planned implementation of the proposed program, including estimates of numbers of students at each stage.  
**The new department, if approved by the BOR, would be phased in during the 2010-11 academic year. Numbers of students are expected to be stable to growing over the next several years.**
6. Resources
- a. Will additional faculty resources be required to implement this program? If yes, please describe the need and indicate the plan for meeting this need.  
**No**
  - b. Are other, additional resources required to ensure the success of the proposed program? If yes, please describe the need and indicate the plan for meeting this need.  
**The new department, as with most departments at Montana Western, would have no staff paid with state funds. As with all current department chairs at Montana Western, the chair of the new department would receive no release time or compensation for additional services. The small operating budget would come from the budget currently assigned to the Equine Programs in the Business and Technology Department. Costs to students of the program compared with similar programs across the nation have been kept low due to the generosity of private industry, primarily La Cense Montana, which has provided facilities and employee assistance to the program. Possibilities for the expansion of this support from other individuals, companies, and foundations are currently being pursued.**
7. Assessment

How will the success of the program be measured?

**The success of the new department will primarily be measured by its success at attracting and graduating students; maintaining current and developing new relationships with private industry; and attracting external funds to enhance the primary teaching mission of the university.**

8. Process Leading to Submission

Describe the process of developing and approving the proposed program. Indicate, where appropriate, involvement by faculty, students, community members, potential employers, accrediting agencies, etc.

**The Equine Faculty initially discussed this with the administration of the university and then went through Faculty Senate for its recommendation. Faculty Senate recommended to the administration that the new department be approved. Students, faculty, staff, and community members were all involved in the discussions leading to the Faculty Senate positive recommendation. This included community members with close ties to the equine industry. There was general agreement that this would be a positive move.**

## LEVEL II BOARD OF REGENTS ITEMS

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### CURRICULUM PROPOSALS

1. Overview

**The University of Montana Western seeks to create a new Equine Studies Department incorporating programs and faculty that currently reside in its Business and Technology Department. Equine programs began at Montana Western in 2002. They were originally housed in the Business and Technology Department because the initial A.A.S. in Equine Studies had a strong business focus. Later program additions have been more interdisciplinary in nature with a strong focus on natural science, equine skills, and sometimes business. The program has grown and diversified to the extent that a new department would benefit both the program and its students with no additional costs to the campus.**

2. Provide a one paragraph description of the proposed program. Be specific about what degree, major, minor or option is sought.

**A new department is sought.**

3. Need

a. To what specific need is the institution responding in developing the proposed program?

**There is a need for an interdisciplinary Equine Studies Department because the current equine programs and faculty do not have a close fit with any existing department, including the Business and Technology Department where they are currently housed. The number of faculty and students are comparable to those of some other current departments.**

b. How will students and any other affected constituencies be served by the proposed program?

**Students would be better served by establishing a new department since the new department would better indicate to potential students, potential employers, and graduate and professional schools the interdisciplinary nature of the equine degree programs. For example, a number of current students are interested in graduate school in the sciences or preparation for veterinary school. They are therefore sometimes reluctant to sign up for a degree program housed in the Business and Technology Department.**

c. What is the anticipated demand for the program? How was this determined?

**There were a total of 78 students enrolled in the A.A.S. in Equine Studies and the A.A.S. and B.S. in Natural Horsemanship in the fall of 2009. Additional numbers of equine students were enrolled in equine option areas within other campus degree programs. This increase has been from an initial enrollment of 7 students in the fall of 2002, the first year of the A.A.S. in Equine Studies. Student interest in the programs remains strong.**

4. Institutional and System Fit

a. What is the connection between the proposed program and existing programs at the institution?

**The current Equine Studies Program would become an interdisciplinary Equine Studies Department. As such, it would continue to incorporate much coursework in its programs from other departments in addition to general education.**

b. Will approval of the proposed program require changes to any existing programs at the institution? If so, please describe.

**No. The programs will remain the same within the new department.**

- c. Describe what differentiates this program from other, closely related programs at the institution (if appropriate).  
**This new department will contain programs that are all interdisciplinary in nature containing significant natural science, social science, business, and/or equine skills coursework.**
  - d. How does the proposed program serve to advance the strategic goals of the institution?  
**This new department would contain programs that have been a natural fit for a university in a rural setting in Montana with access to horse care and training facilities in the private sector. These programs have led to a more socially diverse student body and have improved relationships with the community.**
  - e. Describe the relationship between the proposed program and any similar programs within the Montana University System. In cases of substantial duplication, explain the need for the proposed program at an additional institution. Describe any efforts that were made to collaborate with these similar programs; and if no efforts were made, explain why. If articulation or transfer agreements have been developed for the substantially duplicated programs, please include the agreement(s) as part of the documentation.  
**Montana Western faculty have worked with the faculty of Miles Community College to ease transfer of MCC students to Montana Western after those students have completed a two-year degree at MCC.**
5. Program Details
- a. Provide a detailed description of the proposed curriculum. Where possible, present the information in the form intended to appear in the catalog or other publications. NOTE: In the case of two-year degree programs and certificates of applied science, the curriculum should include enough detail to determine if the characteristics set out in Regents' Policy 301.12 have been met.  
**There are no new curricula**
  - b. Describe the planned implementation of the proposed program, including estimates of numbers of students at each stage.  
**The new department, if approved by the BOR, would be phased in during the 2010-11 academic year. Numbers of students are expected to be stable to growing over the next several years.**
6. Resources
- a. Will additional faculty resources be required to implement this program? If yes, please describe the need and indicate the plan for meeting this need.  
**No**
  - b. Are other, additional resources required to ensure the success of the proposed program? If yes, please describe the need and indicate the plan for meeting this need.  
**The new department, as with most departments at Montana Western, would have no staff paid with state funds. As with all current department chairs at Montana Western, the chair of the new department would receive no release time or compensation for additional services. The small operating budget would come from the budget currently assigned to the Equine Programs in the Business and Technology Department. Costs to students of the program compared with similar programs across the nation have been kept low due to the generosity of private industry, primarily La Cense Montana, which has provided facilities and employee assistance to the program. Possibilities for the expansion of this support from other individuals, companies, and foundations are currently being pursued.**
7. Assessment

How will the success of the program be measured?

**The success of the new department will primarily be measured by its success at attracting and graduating students; maintaining current and developing new relationships with private industry; and attracting external funds to enhance the primary teaching mission of the university.**

8. Process Leading to Submission

Describe the process of developing and approving the proposed program. Indicate, where appropriate, involvement by faculty, students, community members, potential employers, accrediting agencies, etc.

**The Equine Faculty initially discussed this with the administration of the university and then went through Faculty Senate for its recommendation. Faculty Senate recommended to the administration that the new department be approved. Students, faculty, staff, and community members were all involved in the discussions leading to the Faculty Senate positive recommendation. This included community members with close ties to the equine industry. There was general agreement that this would be a positive move.**

**ITEM 148-1603-R0910**

**B.S. Majors in Environmental Science and Environmental Interpretation**

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**THAT**

The Environmental Sciences Department of The University of Montana Western seeks to add a new major in Environmental Science (CIP = **03.0104**) with Options in: Geology (CIP = **03.0104**); Geochemistry (CIP = **03.0104**); Wetlands Management (CIP = **03.0205**); and Sustainable Natural Resource Management (CIP = **03.0299**) to replace its current B.A. Option in Environmental Sciences with its six Related Areas (sub-options). The Department also seeks permission to add a new major in Environmental Interpretation (CIP = **03.0199**) with Options in: Geological Naturalist (CIP = **03.0199**); Biological Naturalist (CIP = **03.0199**); and Pre-Professional Conservation Officer (CIP = **03.0199**).

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**EXPLANATION**

These proposed changes would bring the program offering nomenclature within the Environmental Sciences Department in line with that of similar programs across the U.S.

An existing B.A.: Environmental Sciences Option would become a B.S. Environmental Sciences extended Major with minor alterations in core class content. Six existing Related Areas that were available for the B.A. would be simplified in the B.S. to four Options: Geology, Environmental Geochemistry, Sustainable Natural Resource Management, and Wetlands Management. Wetlands management would become a new Option; the other three already exist as Related Areas (sub-options) and have been modified slightly. Low-enrollment Related Areas in Applied Mathematical Science, Biology, and Wildlands Therapy would be dropped.

An existing BA: Environmental Interpretation Option will be converted to a B.S. Major in Environmental Interpretation with course content being slightly modified. Current Geological Naturalist, Biological Naturalist and Pre-Professional Conservation Officer Related Areas will be maintained as Options within the new degree structure.

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**ATTACHMENTS**

Level II Request Form  
Level II Request Form – Part 2  
Curriculum Proposals  
Curriculum Proposals – Part 2  
Detail

**M O N T A N A   B O A R D   O F   R E G E N T S**  
**LEVEL II REQUEST FORM**

Item Number:	<b>148-1603-R0910</b>	Date of Meeting:	<b>September 22-23, 2010</b>
Institution:	<b>The University of Montana - Western</b>	CIP Code	<b>See Below</b>
Program Title:	<b>B.S. Major in Environmental Science and B.S. Major in Environmental Interpretation</b>		

Level II proposals require approval by the Board of Regents.

**Level II action requested (check all that apply):** Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

- 1. Change names of degrees (e.g. from B.A. to B.F.A.)
- 2. Implement a new minor or certificate where there is no major or no option in a major;
- 3. Establish new degrees and add majors to existing degrees;
- 4. Expand/extend approved mission; and
- 5. Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

**The Environmental Sciences Department of The University of Montana Western seeks to add a new major in Environmental Science (CIP = 03.0104) with Options in: Geology (CIP = 03.0104); Geochemistry (CIP = 03.0104); Wetlands Management (CIP = 03.0205); and Sustainable Natural Resource Management (CIP = 03.0299) to replace its current B.A. Option in Environmental Sciences with its six Related Areas (sub-options). The Department also seeks permission to add a new major in Environmental Interpretation (CIP = 03.0199) with Options in: Geological Naturalist (CIP = 03.0199); Biological Naturalist (CIP = 03.0199); and Pre-Professional Conservation Officer (CIP = 03.0199).**



**M O N T A N A   B O A R D   O F   R E G E N T S**  
**LEVEL II REQUEST FORM**

Item Number:	<b>148-1603-R0910</b>	Date of Meeting:	<b>September 22-23, 2010</b>
Institution:	<b>The University of Montana - Western</b>	CIP Code	<b>See Below</b>
Program Title:	<b>B.S. Major in Environmental Science and B.S. Major in Environmental Interpretation (Part 2)</b>		

Level II proposals require approval by the Board of Regents.

**Level II action requested (check all that apply):** Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

- 1. Change names of degrees (e.g. from B.A. to B.F.A.)
- 2. Implement a new minor or certificate where there is no major or no option in a major;
- 3. Establish new degrees and add majors to existing degrees;
- 4. Expand/extend approved mission; and
- 5. Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

**The Environmental Sciences Department of The University of Montana Western seeks to add a new major in Environmental Science (CIP = 03.0104) with Options in: Geology (CIP = 03.0104); Geochemistry (CIP = 03.0104); Wetlands Management (CIP = 03.0205); and Sustainable Natural Resource Management (CIP = 03.0299) to replace its current B.A. Option in Environmental Sciences with its six Related Areas (sub-options). The Department also seeks permission to add a new major in Environmental Interpretation (CIP = 03.0199) with Options in: Geological Naturalist (CIP = 03.0199); Biological Naturalist (CIP = 03.0199); and Pre-Professional Conservation Officer (CIP = 03.0199).**

## LEVEL II BOARD OF REGENTS ITEMS

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### CURRICULUM PROPOSALS

1. Overview

**This proposal would change the current BA: Environmental Sciences Option with six (6) Related Areas to an BS: Environmental Science extended major with four (4) Options.**

2. Provide a one paragraph description of the proposed program. Be specific about what degree, major, minor or option is sought.

**An existing BA: Environmental Sciences Option will become a BS Environmental Sciences extended major with minor alterations in core class content. Six existing Related Areas that were available for the BA will be simplified in the BS to four Options: Geology, Environmental Geochemistry, Sustainable Natural Resource Management, and Wetlands Management. Wetlands management is a new Option; the other three already exist as Related Areas and have been modified slightly. Low-enrollment Related Areas in Applied Mathematical Science, Biology, and Wildlands Therapy will be dropped. The proposal makes no change in the number of degrees (1) and reduces the number of related areas/options (by 2).**

3. Need

a. To what specific need is the institution responding in developing the proposed program?

**Students who graduate from the Department of Environmental Sciences with the current BA: Environmental Sciences Option degree pursue careers in the natural sciences and natural resource management, either going directly to the work force or a graduate program, the expressed mission of the degree program. Students, private employers, government agencies, and graduate schools are often confused by the Bachelor of Arts degree designation for what is clearly, by course content, a focused, interdisciplinary Bachelors degree in science. Also, the Montana Western transcript does not list the Related Areas, even though the coursework and credits give the students single-discipline strengths that are important for their career advancement. The proposal retains four "tracks" (previously "Related Areas," now "Options") within the Interdisciplinary Environmental Science degree, so that students will have disciplinary strengths to fit their particular interests and career plans. The current proposal will make it possible for students to be issued a transcript and a diploma that unambiguously reflects their actual course of study.**

b. How will students and any other affected constituencies be served by the proposed program?

**The BS extended Major Core provides students with a strong interdisciplinary natural sciences/environmental sciences background that includes the academic requirements for graduate schools, government employment, and most private employers. Options allow students to select a disciplinary emphasis that fits their specific interests and career tracks. We have dropped three low-enrollment options and added one that addresses a growing career opportunity in Environmental Science. Graduates earning the existing Environmental Sciences BA Option have been quite successful obtaining employment and graduate school positions, but they frequently find it necessary to clarify exactly what their course of study was. Clarifying the real nature of the degree they receive will serve the students and prospective employers or graduate**

**schools. In addition, it will make our program more understandable to prospective students and the campus Admissions staff.**

- c. What is the anticipated demand for the program? How was this determined?

**We anticipate the continued steady rise in demand for our Environmental Sciences program and its graduates to be boosted by this important clarification of our degree. These projections are based mainly on current enrollment trends and communication with past, current, and recent program graduates and their employers or graduate schools.**

4. Institutional and System Fit

- a. What is the connection between the proposed program and existing programs at the institution?

**These changes represent a clarification and streamlining of the existing Environmental Sciences degree at Montana Western. They require no new staffing and do not negatively impact any other degree program.**

- b. Will approval of the proposed program require changes to any existing programs at the institution? If so, please describe.

**The only program directly affected by these changes is the Environmental Sciences degree. Two new classes will be added, one of which will bolster the General Education program and both will be added to other degrees. No new staffing is required.**

- c. Describe what differentiates this program from other, closely related programs at the institution (if appropriate).

**This program is unique at Montana Western.**

- d. How does the proposed program serve to advance the strategic goals of the institution?

**Clarifying the focused scientific/technical nature of the degree and decreasing the six Related Areas to four Options will simplify advising and result in higher student enrollments in our courses and degree. The changes also have the potential to increase our overall enrollments because our Admissions Department will be better able to explain our degree structure and career options to potential students. The proposed changes to our Environmental Sciences degree offerings are aligned well with the strategic goals of the University. in particular: Goal #1 Improve undergraduate education, Goal #2 Increase enrollment through enhanced affordability, access, success and retention and increase graduation rates, and Goal #5 Strategically position the University for maximum efficiency and long-range success. These changes will allow us to more efficiently use our limited resources.**

- e. Describe the relationship between the proposed program and any similar programs within the Montana University System. In cases of substantial duplication, explain the need for the proposed program at an additional institution. Describe any efforts that were made to collaborate with these similar programs; and if no efforts were made, explain why. If articulation or transfer agreements have been developed for the substantially duplicated programs, please include the agreement(s) as part of the documentation.

**The current interdisciplinary BA: Environmental Sciences Option at University of Montana Western is already acknowledged as unique in the Montana University System and has been in place for 12 years. Giving it a more correct designation as a BS: Environmental Science extended major with its four Options will continue and improve that service to higher education in Montana. The experiential nature of all our classes and the immersion learning characteristic of X1 make the program unique in the nation.**

5. Program Details

- a. Provide a detailed description of the proposed curriculum. Where possible, present the information in the form intended to appear in the catalog or other publications. NOTE: In the case

of two-year degree programs and certificates of applied science, the curriculum should include enough detail to determine if the characteristics set out in Regents' Policy 301.12 have been met.

**See attached UMW Curriculum Proposal and Catalog Course list.**

- b. Describe the planned implementation of the proposed program, including estimates of numbers of students at each stage.

**The transition will be virtually seamless. Students planning to graduate in 2010-11 will probably complete the current BA program, although some of them may be able to move to the BS if they choose, since the curricula for three of the Options is very similar. Students aiming for graduation in 2012 and beyond will be advised into the new BS degree beginning in Fall 2010, but any current students who choose to graduate with the BA degree will be able to do that, since the classes will still be offered. We expect the total number of majors in Environmental Sciences to continue to expand slowly, while the distribution of those students within the options will have to be observed and documented in the first few years of implementation.**

6. Resources

- a. Will additional faculty resources be required to implement this program? If yes, please describe the need and indicate the plan for meeting this need.

**Additional faculty resources would not be needed to offer this revised program until there is a substantial increase in enrollment, which we do anticipate, but not immediately.**

- b. Are other, additional resources required to ensure the success of the proposed program? If yes, please describe the need and indicate the plan for meeting this need.

**The new program structure would not alter our need for additional resources. We have, for years, been acquiring the equipment and supplies needed to offer our science classes experientially, using whatever resources are available on campus, supplemented with outside grants. This need and our efforts will continue (see ENV5 Experiential Learning Report for more details on those needs).**

7. Assessment

How will the success of the program be measured?

**As with all programs at UMW, a seven-year review process will be used to assess the effectiveness of the BS: Environmental Science degree. In addition, exit surveys will be used to provide the Department with useful feedback from students as they graduate with their degree. We will also monitor employment of our graduates and the frequency of admission and success of our former students in various graduate programs. These assessment plans will follow in the model of our current plan, which employs both primary (observed performance) and secondary (survey) assessment tools collected at both the benchmark and capstone levels.**

8. Process Leading to Submission

Describe the process of developing and approving the proposed program. Indicate, where appropriate, involvement by faculty, students, community members, potential employers, accrediting agencies, etc.

**This proposal was developed with input from University faculty, students (past and current), University Administration, employers of our graduates, and graduate institutions to which our students have applied and/or been accepted. It has passed through Montana Western Curriculum Committee review and will be reviewed by Faculty Senate this September.**

# LEVEL II BOARD OF REGENTS ITEMS

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## CURRICULUM PROPOSALS

### 1. Overview

This proposal would change the current B.A.: Environmental Interpretation Option with three (3) Related Areas to a BS: Environmental Interpretation extended Major with three Options: Geological Naturalist; Biological Naturalist; and Pre-Professional Conservation Officer

### 2. Description of proposed program

An existing BA: Environmental Interpretation will be renamed and course content slightly modified to a BS: Environmental Interpretation. Current Geological Naturalist, Biological Naturalist and Pre-Professional Conservation Officer Related Areas will be maintained as Options within the new degree structure.

### 3. Need

#### a. To what specific need is the institution responding in developing the proposed program?

The current BA degree is more tightly structured in terms of scientific and other course content than a traditional BA degree, and it should more properly be designated a BS. The degree offering is necessary to support the specific course content requirements and rising need for experienced guides to provide informal science education in the National Park system, Forest Service, education centers, and museums. Interpretation is a communication process that forges emotional and intellectual connections between the interests of the audience and the meanings inherent in the resource (National Association for Interpretation (2000)). The BS Environmental Interpretation degree is designed to prepare students to pursue career opportunities as environmental interpreters, naturalists, informal science educators, and conservation enforcement officers.

#### b. How will students and any other affected constituencies be served by the proposed program?

This program focuses on providing students with a Bachelor of Science degree from our 4-year accredited university and several professional certifications that will be offered (in some cases) through their interpretation classes. The University of Montana Western has an agreement with the National Outdoor Leadership School (NOLS), a recognized leader in outdoor education, which allows students to seamlessly transfer earned credits between NOLS and UMW. UMW also holds institutional membership with the National Association for Interpretation (NAI) and offers students the opportunity to take part in the Certified Interpretive Guide (CIG) curriculum and certification process. Given the stress placed on certifications within the field of interpretation, our students will have a head start to apply for jobs in the field. In addition, students wanting to obtain an MS in Interpretation will have the necessary academic coursework to apply for such programs. Finally, clarifying the real nature of the degree they receive will serve the students and prospective employers or graduate schools. In addition, it will make our program more understandable to prospective students and the campus Admissions staff.

#### c. What is the anticipated demand for the program? How was this determined?

We anticipate the steady rise in demand for the Environmental Interpretation program to continue, given the uniqueness of the program within the University of Montana system and beyond. These projections are based mainly on current enrollment trends and communication with current, exiting, and recent program graduates.

### 4. Institutional and System Fit

#### a. What is the connection between the proposed program and existing programs at the institution?

Several classes required by the Environmental Interpretation degree and options are offered by faculty in the Environmental Sciences Department and the newly created Biology Department. There is overlap between students and faculty within the science programs, creating cohesion between departments.

**b. Will approval of the proposed program require changes to any existing programs at the institution? If so describe.**

N/A

**c. Describe what differentiates this program from other, closely related programs at the institution (if appropriate).**

Through the Environmental Interpretation program students are firmly grounded in the application of scientific method and theories regarding the natural world. However, interpretation students also acquire a unique ability to help informal audiences develop a meaningful connection with a cultural or environmental resource. To accomplish this, students learn to develop and present theme-based frontline interpretive talks and become well versed in the area of interpretive site and project planning.

**d. How does the proposed program serve to advance the strategic goals of the institution?**

These changes will allow the Environmental Sciences Department to best promote the goals of Montana Western's Strategic Plan, in particular: Goal #1 Improve undergraduate education, Goal #2 Increase enrollment through enhanced affordability, access, success and retention and increase graduation rates, and Goal #5 Strategically position the university for maximum efficiency and long-range success.

**e. Describe the relationship between the proposed program and any similar programs within the Montana University System. In cases of substantial duplication, explain the need for the proposed program at an additional institutional. Describe any efforts that were made to collaborate with these similar programs; and if no efforts were made, explain why. If articulation or transfer agreements have been developed for the substantially duplicated programs, please include the agreement(s) as part of the documentation.**

This program is a unique program offering within the University of Montana system as no other BS programs in Environmental Interpretation exist. The experiential nature of all our classes and the immersion learning characteristic of X1 also make the program unique in the nation.

## 5. Program Details

**a. Provide a detailed description of the proposed curriculum. Where possible, present the information in the form intended to appear in the catalog or other publications.**

See attached UMW Curriculum Proposal and Catalog Course list.

**b. Describe the planned implementation of the proposed program, including the estimates of numbers of students at each stage.**

The transition will be virtually seamless. Students planning to graduate in 2010-11 will probably complete the current BA program, although some of them may be able to move to the BS if they choose, since the curricula for the Core and Options is very similar to the existing program. Students aiming for graduation in 2012 and beyond will be advised into the new BS degree beginning in Fall 2010, but any current students who choose to graduate with the BA degree will be able to do that, since the classes will still be offered. We expect the total number of majors in Environmental Interpretation to continue to expand slowly, while the distribution of those students within the options will have to be observed and documented in the first few years of implementation.

## 6. Resources

**a. Will additional faculty resources be required to implement this program? If yes, please describe the need and indicate the plan for meeting this need.**

Additional faculty resources would not be needed to offer this revised program until there is a substantial increase in enrollment, which we do anticipate, but not immediately.

**b. Are other, additional resources required to ensure the success of the proposed program? If yes, please describe the need and indicate the plan for meeting this need.**

The new program structure would not alter our need for additional resources. We have, for years, been acquiring the equipment and supplies needed to offer our science classes experientially, using whatever resources are available on campus, supplemented with outside grants. This need and our efforts will continue (see ENVS Experiential Learning Report for more details on those needs).

## **7. Assessment**

### **How will success of the program be measured?**

As with all programs at UMW, a seven-year review process will be used to assess the effectiveness of the BS: Environmental Interpretation degree. In addition, exit surveys will be used to provide the Department with useful feedback from students as they graduate with their degree. We will also monitor employment of our graduates and the frequency of admission and success of our former students in various graduate programs. These assessment plans will follow in the model of our current plan, which employs both primary (observed performance) and secondary (survey) assessment tools collected at both the benchmark and capstone levels.

## **8. Process Leading to Submission**

### **Describe the process of developing and approving the proposed program. Indicate, where appropriate, involvement by faculty, students, community members, potential employers, accrediting agencies, etc.**

This proposal has gone through and been approved by the extensive UMW curriculum proposal review process. This process includes review by faculty, students and administrators in a number of committees including, Curriculum Committee and Faculty Senate. Students have representation at all levels of this process.

## BS: ENVIRONMENTAL SCIENCE

### GENERAL EDUCATION REQUIREMENTS (See UMW Catalog; 32 credits)

*Students in this option should take BIO 111, GEO 103 and STAT 121.*

### CORE:

#### ENVIRONMENTAL SCIENCE (48)

BIO	214	General Botany (4)
CHMY	131	College Chemistry (4)
CHMY	132	College Chemistry (4)
ENVS	269	Map, Compass and GPS (2)
ENVS	348	Soil Science (4)
ENVS	391	Geographic Information Systems Seminar (2)
*ENVS	429	Environmental Field Studies (4)
*ENVS	441	Sustainable Natural Resource Management (4)
GEO	226	Rocks, Minerals and Resources (4)
M	171	Calculus I (4)
PHYS	233	General Physics I (4)

One of the following:

STAT	217	Intermediate Statistical Concepts (4)
STAT	233	Biostatistics (4)

\*One of the following:

ENVS	400	Environmental Science Internship (3)
ENVS	498	Environmental Science Thesis (3)
ENVS	401	Sustainable Landscaping Practicum (3)

ENVS	495	Internship/Thesis Presentation (1)
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\* **Indicates integrative capstone course**

#### OPTIONS (28) (Choose at least one of the following):

##### GEOLOGY (28)

GEO	230	Geology of the American West (4)
GEO	315	Structural Geology (4)
GEO	378	Surficial Processes (4)
GEO	409	Sedimentation and Stratigraphy (4)
GEO	421	Hydrology (4)
GEO	431	Environmental Geochemistry (4)
GEO	494	Geology Seminar (4)

##### GEOCHEMISTRY (28)

BIOE	350	Wetlands Ecology (4)
CHMY	331	Organic Chemistry (4)
CHMY	332	Organic Chemistry (4)
GEO	378	Surficial Processes (4)
GEO	409	Sedimentation and Stratigraphy (4)
GEO	421	Hydrology (4)
GEO	431	Environmental Geochemistry (4)

##### SUSTAINABLE NATURAL RESOURCE MANAGEMENT (28)

BIO	103	Introduction to Ethnobotany (4)
BIO	355	Systematic Botany (4)
ENVS	180	Applied Sustainable Landscape Horticulture (4)
ENVS	280	Environmental Interpretation I (4)
ENVS	381	Natural Resource Law (4)
GEO	378	Surficial Processes (4)
GEO	421	Hydrology (4)

##### WETLANDS MANAGEMENT (28)

BIO	355	Systematic Botany (4)
BIOE	350	Wetlands Ecology (4)
GEO	378	Surficial Processes (4)
GEO	409	Sedimentation and Stratigraphy (4)
GEO	421	Hydrology (4)
GEO	431	Environmental Geochemistry (4)

One of the following:

ENVS	180	Applied Sustainable Landscape Horticulture (4)
ENVS	381	Natural Resource Law (4)



**Free Electives (12)**

Electives (12) – Advisory note: Students seeking federal employment or graduate school in the sciences should take M 172 and PHYS 234 or 235 as electives.

**BS Environmental Interpretation**

**General Education (Choose these) 32 credits**

Bio 111 Introduction to Biology	4
Psyx 100 Introduction to Psychology	4
Stat 121 Probability	4

**Major Core:**

Anthropology 105 Introduction to Cultural Anthropology	4
Bio 103 Introduction to Ethnobotany	4
Bio 112 Biology II	4
Bio 214 General Botany	4

**Choose one of the following:**

Chmy 101 College Chemistry I	4
Chmy 141 College Chemistry I	4

Envs 260 Wildland Skills/Nightsky	2
Envs 269 Map and Compass	2
Geo 230 Geology of the American West	4
Envs 280 Environmental Interpretation I	4
Envs 441 Sustainable Natural Resource Management	4
Envs 381 Natural Resource Law	4
Envs 400/498 Internship or Thesis	3
Envs 495 Internship/Thesis Presentation	1
Envs 480 Environmental Interpretation II (Capstone)	4
Geo 103 Introduction to Environmental Geology	4

**Choose one of the following:**

Stat 217 Intermediate Statistical Concepts	4
Stat 233 Biostatistics	4

**Total 56 credits**

**Geological Naturalist**

Geo 226 Rocks, Minerals and Resources	4
Geo 315 Structural Geology	4
Envs 348 Soil Science	4
Geo 378 Surficial Processes	4

**Choose two of the following:**

Envs 429 Field Studies	8
Geo 309 Sedimentation & Stratigraphy	4
Geo 480 Hydrology	4

**Total 24 credits**

**Biological Naturalist**

Bio 3XX Ecology	4
Bio 355 Systematic Botany	4

Bio 475 Mammalogy	4
Envs 429 Environmental Field Studies	4
<b>Choose two of the following:</b>	<b>8</b>
Bio 473 Ornithology	
Bio 471 Wildlife Ecology and Management	
Bio 479 Vertebrate Zoology	
<b>Total</b>	<b>24 credits</b>
<b>Pre-professional conservation officer</b>	
Soc 320 Mediation	4
Or ISSS 202 Political Geography of the Rocky Mountain West	
Bio 355 Systematic Botany	4
Envs 372 Wildland Heritage	4
Envs 441 Sustainable Resource Management	4
<b>Choose two of the following:</b>	<b>8</b>
Bio 473 Ornithology	
Bio 475 Mammalogy	
Envs 429 Environmental Field Studies	
<b>Total Credits</b>	<b>24 credits</b>
<b>Electives</b>	<b>8</b>
<b>Total credits</b>	<b>120</b>

**ITEM 148-1604-R0910**

**B. S. Major in Biology**

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**THAT**

The University of Montana Western is requesting to add a new Bachelor of Science Major in Biology with Options in: Molecular Bioscience **CIP = 26.0204**; Wildlife Ecology **CIP = 26.0709**; and Integrative Biology **CIP = 26.0101**. Concurrently, Montana Western is proposing to eliminate the BA: Biology Option with its six associated Related Areas (sub-options)

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**EXPLANATION**

The Biology Department at the University of Montana Western (UMW) is proposing to restructure its degree offerings. It currently offers a Bachelor of Arts degree (BA) with a Biology Option and six associated Related Areas (sub-options): Biological Mathematics; Cell/Molecular Biology; Health and Human Performance; Pre-professional Health Sciences; Veterinary Science and Wildlife Biology. We are proposing to eliminate the BA: Biology Option and its six associated Related Areas and replace it with a Bachelor of Science major (BS) in Biology with three distinct Options: Molecular Bioscience, Wildlife Ecology and Integrative Biology. The new Bachelor of Science degree will allow the UMW Biology Department to more effectively meet the needs of its students as it will eliminate redundancy in the current biology program, it is a more appropriate degree for our students and it is easier to explain to prospective students.

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**ATTACHMENTS**

Level II Request Form  
Curriculum Proposals  
Detail

**M O N T A N A   B O A R D   O F   R E G E N T S**  
**LEVEL II REQUEST FORM**

Item Number:	<b>148-1604-R0910</b>	Date of Meeting:	<b>September 22-23, 2010</b>
Institution:	<b>The University of Montana - Western</b>	CIP Code	<b>See Below</b>
Program Title:	<b>B.S. Major in Biology with Options in Molecular Bioscience, Wildlife Ecology and Integrative Biology</b>		

Level II proposals require approval by the Board of Regents.

**Level II action requested (check all that apply):** Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

- 1. Change names of degrees (e.g. from B.A. to B.F.A.)
- 2. Implement a new minor or certificate where there is no major or no option in a major;
- 3. Establish new degrees and add majors to existing degrees;
- 4. Expand/extend approved mission; and
- 5. Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

The University of Montana Western is requesting to add a new Bachelor of Science Major in Biology with Options in: Molecular Bioscience **CIP = 26.0204**; Wildlife Ecology **CIP = 26.0709**; and Integrative Biology **CIP = 26.0101**. Concurrently, Montana Western is proposing to eliminate the BA: Biology Option with its six associated Related Areas (sub-options)

**LEVEL II BOARD OF REGENTS ITEMS**

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**CURRICULUM PROPOSALS****Overview and description of proposed program**

The newly formed Biology Department at the University of Montana Western (UMW) is proposing to restructure its degree offerings. We currently offer a Bachelor of Arts degree (BA) with a Biology Option and six associated Related Areas (Biological Mathematics, Cell/Molecular Biology, Health and Human Performance, Pre-professional Health Sciences, Veterinary Science and Wildlife Biology). We are proposing to eliminate the BA: Biology Option and its six associated Related Areas and replace it with a Bachelor of Science degree (BS) in Biology with three distinct Options: Molecular Bioscience, Wildlife Ecology and Integrative Biology. The new Bachelor of Science degree will allow the UMW Biology Department to more effectively meet the needs of our students as it will eliminate redundancy in the current biology program, it is a more appropriate degree for our students and it is easier to explain to prospective students.

**Need**

The current biology degree at UMW was developed at a time when the biology program was much smaller in size and scope and the biology faculty were housed within the Department of Environmental Sciences. Over time, as the number of biology students increased, new faculty were added and new related areas were created to accommodate the growing spectrum of student interests. The tremendous growth in the number of biology students eventually led to the need for a Biology Department and, in September 2009, the BOR approved a proposal to split the Department of Environmental Sciences into the Department of Biology and the Department of Earth and Environmental Sciences. Shortly thereafter, the Biology faculty reviewed the existing degree structure, keeping in mind the needs of our current students who are primarily interested in wildlife biology, biomedical careers and veterinary sciences. We found that our current program could be significantly improved in several areas. First, the current structure contains far too much redundancy in the Related Areas that are offered. Second, our current BA/Option/Related Area degree structure is confusing for both current and prospective students. Finally, the Bachelor of Arts degree does not accurately reflect the course work currently required for UMW biology students, as we require a very directed course of study that is more reflective of a Bachelor of Science degree.

Under our current degree structure, students interested in biology can pursue any of six different biological Related Areas and the level of redundancy among these Related Areas is both unnecessary and confusing. For example, five of the seven courses required for the Veterinary Science Related Area are identical to those required for the Cell/Molecular Biology Related Area, and many courses in both of these Related Areas are the same as those required for the Pre-Professional Health Sciences Related Area. There is also redundancy between departments in the Related Areas that are currently offered. For example, the Biological Mathematics Related Area offered through the Biology Department is extremely similar to the Mathematical Biology Related Area offered through the Math Department. Under the new degree structure we are proposing, students would not choose from six Related Areas but would instead take one of three Options: Molecular Bioscience, Wildlife Ecology or Integrative Biology. This new structure will eliminate the redundancy in the Related Areas of our current program and will continue to serve the needs of ALL biology students. Those students interested in molecular biology, biomedical or veterinary sciences will be well served by the Molecular Bioscience Option. The Wildlife Ecology Option will prepare students for careers or graduate programs in wildlife biology or ecology and the Integrative Biology Option will allow the students to work with their faculty advisors and customize their upper division course work to accommodate more specialized interests. For example, a student wishing to

specialize in plant genetics could take a customized set of upper division classes from the Wildlife Ecology and Molecular Bioscience Options as well as suitable classes from outside the Biology Department.

The Bachelor of Arts degree we currently offer at UMW, with its various Options and myriad of Related Areas is something that many prospective students and parents find confusing. For example, most college students identify themselves according to their major; therefore, most of our current students think that they are “biology majors”, and many prospective students want to be “biology majors”. The students are then confused when faculty or admissions staff explains that that is not technically correct and that they are actually getting a general Bachelor of Arts degree with a Biology Option. Our proposed Bachelor of Science degree will eliminate this confusion and students will actually receive a BS in Biology. The new degree will also simplify advising and will definitely help with recruiting. In addition, our proposed BS degree will more accurately reflect the education that our students are actually receiving in the Biology Department at UMW. Generally, BA degrees are awarded in non-scientific fields and students are given a broad array of classes from which to choose, whereas a BS degree represents a more focused course of study that is intended to prepare a student for a career in a scientific discipline. Although our existing biology degree is a BA, it does require course work that is more typical of a Bachelor of Science degree. Thus, not only is our proposed BS degree a more appropriate degree for our biology students, it more accurately reflects the type of courses they are already taking.

In conclusion, the new degree structure we are proposing will eliminate the redundancy in the Related Areas of our current program. It will eliminate student confusion regarding the degree they are pursuing and it will continue to provide students with all of the degree options and training that are needed to pursue careers in the field of biology. The proposed BS degree will also increase the efficiency of our faculty in terms of course offerings and advising. Due to UMW’s unique block scheduling, small class sizes, research opportunities and quality of education, enrollment in the biology program has increased every year for the last eight years and in the fall of 2009, 99 students were pursuing biology degrees at UMW. If our proposal is approved, the biology program at UMW will be more aligned with current student needs and standards in the field of biology and it will help us in our continuing efforts to attract and retain students.

### **Institutional and System Fit**

The Bachelor of Science degree we are proposing will replace our existing B.A.: Biology Option degree. We are simply proposing to restructure the type of degree (from BA to BS) and to eliminate the redundancy of our Related Areas by consolidating them into Options. These changes will not affect any other existing degrees at UMW.

The proposed changes to our Biology degree offerings are aligned well with the strategic goals of the university. First, these changes will allow us to more efficiently use our limited resources; decreasing the number of degree tracks from six Related Areas to three Options will simplify advising and result in higher student enrollments in the courses that we offer. Secondly, these changes have the potential to increase our overall enrollments due to the fact that our Admissions Department will be better able to explain our degree structure and career options to potential students.

There are no other closely related programs at UMW. This proposal is simply to reduce the redundancy among related areas in our existing biology program, and is therefore NOT A NEW PROGRAM that would be viewed by other MUS institutions as potentially detrimental to enrollments in their biology degrees. Although all four-year institutions within the MUS offer a biology degree, UMW is the only institution in the MUS that offers a Biology degree on block scheduling. Based on our recent enrollment data, this unique learning system is proving to be an attractive option for an ever-increasing subset of the MUS student clientele. We feel that the Bachelor of Science degree we are proposing is the most effective way for UMW to meet the needs of students that are interested in the block system and want to pursue careers in Biology. The proposed degree will also make it easier for UMW

to implement the MUS Transferability Initiative. All of the biology courses required in our proposed BS degree are listed in the transferability matrix, so students can easily transfer from UMW to other MUS institutions. In addition, the inherent flexibility of the Integrative Biology Option in our proposed degree would greatly benefit those students wishing to transfer to UMW from larger institutions where they may have taken more specialized biology courses.

### **Program Details**

Please see the attached curriculum for the proposed BS: Biology degree and associated Option areas. Once approved, this degree will be listed in our catalog and will replace the existing degrees. Current students will be unaffected by this transition since we will be using the same courses that are currently being used. All incoming freshman will enroll in the new degree since this will replace the current degrees.

### **Resources**

No new resources, infrastructure or faculty will be required for the changes proposed here. The BS: Biology degree and associated Options will primarily make use of existing courses taught by existing faculty and any new courses will be worked into the regular course rotation of existing faculty.

### **Assessment**

As with all programs at UMW, a seven year review process will be used to assess the effectiveness of the BS: Biology degree. In addition, exit surveys will be used to provide the Biology Department with useful feedback from students as they graduate with their Biology degree. We will also monitor employment of our graduates and the frequency of admission and success of our former students in various graduate programs.

### **Process Leading to Submission**

This proposal has gone through and been approved by the extensive UMW curriculum proposal review process. This process includes review by faculty, students and administrators in a number of committees including, Curriculum Committee and Faculty Senate. Students have representation at all levels of this process.



**Academic Year Proposal Submitted** 2010/2011

For: \_\_\_\_\_ Catalog



**Date Received** \_\_\_\_\_  
**By** \_\_\_\_\_

Level I - Campus Level Approval  
 Level II - OCHE Approval  
 Level III - BOR Approval

## Curriculum Proposal Form

Department or Program Approval  
 Date \_\_\_\_\_ Initials \_\_\_\_\_

General Education Committee (if appropriate)  
 Date \_\_\_\_\_ Initials \_\_\_\_\_

**Proposed as Gen Ed Course?** \_\_\_Yes \_\_\_X\_No

**Gen Ed Category:**

**Course Fee Attached to Any Course?**

\_\_\_X\_No \_\_\_Yes (Completed Course Fee Request Form attached)

If course Number/Name with Lab Fee is changing, previous course Number/Name:

**Curriculum Committee Use Only**

Proposal Tabled \_\_\_\_\_  
*Date Initials*

Approved \_\_\_\_\_  
*Date Initials*

Rejected \_\_\_\_\_  
*Date Initials*

Withdrawn \_\_\_\_\_  
*Date Initials*

\*\*\*\*\*

Faculty Senate Approval \_\_\_\_\_  
*Date Initials*

Provost Approval \_\_\_\_\_  
*Date Initials*

Chancellor Approval \_\_\_\_\_  
*Date Initials*

**Type of Proposal (check all that apply)**

- Program Requirement Change
- Course Number Change
- Course Title Change
- Course Credit Change
- Course Description Change
- Prerequisite Change
- Delete Course from Catalog
- New Course

**For Curriculum Committee Use Only:**

X Other (describe): Repackaging of the current BA: Biology Option degree and Related Areas in Biological Mathematics, Cell/Molecular Biology, Health and Human Performance, Pre-professional Health Sciences, Veterinary Science and Wildlife Biology. The BA Option in Biology and Related Areas will go into moratorium.

Submitted by: Morrow

Department (Program) contact person: Morrow

**Succinct Statement of Proposed Change:** (attach shell syllabus for new course(s) that includes course description, course outcomes, and assessment information/tools)

Currently, students may seek the BA: Biology Option with one of the following Related Areas, Biological Mathematics, Cell/Molecular Biology, Health and Human Performance, Pre-professional Health Sciences, Veterinary Science and Wildlife Biology.

The Biology Department proposes to repackage these degrees into a single B.S. Biology degree with three associated option areas, Wildlife Ecology Option, Molecular Bioscience Option and Integrative Biology Option.

**Provide assessment information supporting the request (rationale):**

The existing B.A. Degree with an option in Biology (and its associated related areas) is out of compliance with the standards for B.A. Degrees in the Montana University system. This proposal repackages these degrees and related areas into a MUS standards-compliant B.S. Degree with options. No new courses are needed for this change. In addition, this restructuring constitutes a simplification of the Biology Department's degree offerings. We are reducing the number of degrees by replacing six related areas (Biological Mathematics, Cell/Molecular Biology, Health and Human Performance, Pre-professional Health Sciences, Veterinary Science and Wildlife Biology) with the three options in Wildlife Ecology, Molecular Bioscience, and Integrative Biology. This simplification should make the degree offerings of the Department of Biology more transparent to students, and will be much easier for our Admissions Department to explain to prospective students.

**Attach new or revised information as it should appear in the Catalog (include course rotation(s) and/or revised degree requirements, if applicable; course descriptions should include assessment and experiential learning activities)**

The new course summary for the B.S. Biology Major and its three options in Wildlife Ecology, Molecular Bioscience and Integrative Biology is attached at the end of this document.

**Transferability Considerations (if any):**

Since there are no new courses required for the restructuring of the Biology degrees, no transferability considerations are anticipated. However, the flexibility of our Integrative Biology Option area may actually help students transferring to Montana Western complete their Biology degree more quickly.

**Effects, if any, of this proposal on any of our degree programs.**

(Review other degree programs that may be potentially affected by this proposal; affected Dept Chair aware of possible implications \_\_\_\_\_)

NONE

**Resource Implications (if applicable):****STAFFING:**

Who will teach course(s)?

**This proposal introduces NO NEW COURSES, does not reduce general education requirements and does not require any additional staffing.**

Effect on faculty member's workload?

*OTHER (Library, etc.):*

**General Education Committee Comments (if appropriate):** Date \_\_\_\_\_

**All Chairs/Provost Comments (if appropriate):** Date \_\_\_\_\_

**Curriculum Committee Comments (if appropriate):**

**Date:** \_\_\_\_\_

**BS: Biology****General Education**

BIOB 160 Principles of Living Systems	4
CHMY 141 College Chemistry I	4
STAT 121 Probability	4
Additional coursework to complete General Education Program requirements <sup>1</sup>	19-20
<b>General Education Credits</b>	<b>31-32</b>

<sup>1</sup>Refer to page ??? for General Education Program requirements

**Biology Core**

BIOB 170 Principles of Biological Diversity	4
BIOO 220 General Botany	4
BIOB 260 Cellular & Molecular Biology	4
BIOE 370 Ecology	4
BIOB 375 General Genetics	4
BIOB 420 Evolution	4
BIOB or HPP 400/498 Internship/Senior Thesis	3
BIOB 495 Internship/Senior Thesis Presentation	1
CHMY 143 College Chemistry II	4
CHMY 321 Organic Chemistry I	4
CHMY 323 Organic Chemistry II	4
PHYS 233 General Physics	4
PHYS 234 General Physics	4
M 171 Calculus I	4
STAT 217 Intermediate Statistical Concepts or STAT 233 Biostatistics	4
<b>Biology Core Credits</b>	<b>56</b>

**Option**

Select one Option <sup>2</sup>	24
Integrative Biology Option	
Molecular Bioscience Option	
Wildlife Ecology Option	
<b>Option Credits</b>	<b>24</b>

**Electives**

Select from any catalog courses	12-13
<b>Elective Credits</b>	<b>12-13</b>

**TOTAL CREDITS REQUIRED****120**

In addition to completing the Core, students pursuing the BS Biology major must choose an Option: Integrative Biology, Molecular Bioscience, or Wildlife Ecology. Refer to Option required coursework below:

### Integrative Biology Option

2 BIO elective course at the 200-400 level (only one may be 200 level)	8
4 elective courses at the 300 – 400 level <sup>1</sup>	16
<b>Total Credits</b>	<b>24</b>

<sup>1</sup> Courses taken from the following rubrics meet the elective course requirements of the Integrative Biology Option: BIO, CHMY, ENVS, EQST, GEO, HHP, MATH, PHYS, and STAT, or other course rubrics approved by a Biology advisor.

### Molecular Bioscience Option

BIOM 260 General Microbiology	4
BIOB 425 Advanced Cellular & Molecular Biology	4
CHEM 441 Biochemistry	4
<i>Select 3 from the following:</i>	12
BIOE 250 Conservation Biology (4)	
BIOO 340 Biology and Management of Fishes (4)	
BIO 371 Human Anatomy and Physiology (4)	
BIO 372 Human Anatomy and Physiology (4)	
BIOM 427 General Parasitology (4)	
BIOO 450 Vertebrate Zoology (4)	
BIO 471 Wildlife Ecology and Management (4)	
BIOB 487 Bioinformatics (4)	
M 414 Deterministic Models (4)	
STAT 335 Advanced Field Statistics (4)	
STAT 433 Stochastic Modeling (4)	
PHYS 235 General Physics III (4)	
<b>Total Credits</b>	<b>24</b>

**Wildlife Ecology Option**

BIOE 250 Conservation Biology	4
BIOO 435 Plant Systematics	4
BIO 471 Wildlife Ecology and Management	4
Select 2 from the following:	8
BIOO 470 Ornithology (4)	
BIOO 475 Mammalogy (4)	
BIOO 340 Biology and Management of Fishes (4)	
Select 1 from the following:	4
BIOO 262 Introduction to Entomology (4)	
BIOO 340 Biology and Management of Fishes (4)	
BIOE 425 Wetlands Ecology (4)	
BIOB 425 Advanced Cellular & Molecular Biology (4)	
BIOM 427 General Parasitology (4)	
BIOO 450 Vertebrate Zoology (4)	
BIOO 470 Ornithology (4)	
BIOO 475 Mammalogy (4)	
M 414 Deterministic Models (4)	
STAT 335 Advanced Field Statistics (4)	
STAT 433 Stochastic Modeling (4)	

**Total Credits****24**

ITEM 148-1605-R0910

**B.S. Major in Mathematics**

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**THAT**

The Mathematics Department of The University of Montana Western seeks permission to offer a B.S. Major in Mathematics with three options in: Mathematical Biology; Mathematical Ecology; and Mathematical Geology. Concurrently, it seeks permission to discontinuing its B.A. Option in Mathematics with its five Related Areas (sub-options).

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**EXPLANATION**

This change would bring the nomenclature of Montana Western's Mathematics offerings in line with what is typical for such offerings on other campuses across the U.S.

The Mathematics Department proposes to consolidate all of its degree offerings into a single B.S. Major in Mathematics. This single B.S. Major in Mathematics would continue to allow students the flexibility to pursue graduate study, careers in applied mathematical fields and careers in Secondary Education through options and combined majors.

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**ATTACHMENTS**

Level II Request Form  
Curriculum Proposals  
Detail

**M O N T A N A   B O A R D   O F   R E G E N T S**  
**LEVEL II REQUEST FORM**

Item Number:	<b>148-1605-R0910</b>	Date of Meeting:	<b>September 22-23, 2010</b>
Institution:	<b>The University of Montana - Western</b>	CIP Code	<b>See Below</b>
Program Title:	<b>B.S. Major in Mathematics</b>		

Level II proposals require approval by the Board of Regents.

**Level II action requested (check all that apply):** Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

- 1. Change names of degrees (e.g. from B.A. to B.F.A.)
- 2. Implement a new minor or certificate where there is no major or no option in a major;
- 3. Establish new degrees and add majors to existing degrees;
- 4. Expand/extend approved mission; and
- 5. Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

**The University of Montana Western seeks permission to offer a new B.S. Major in Mathematics, CIP = 27.0101, with options in Mathematical Biology CIP = 27.0306; Mathematical Ecology CIP = 27.0399; and Mathematical Geology CIP = 27.0399.**



## LEVEL II BOARD OF REGENTS ITEMS

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### CURRICULUM PROPOSALS

1. Overview

**Proposal to move from the current BA: Mathematics Option and 5 related areas to a standard major and options**

2. Provide a one paragraph description of the proposed program. Be specific about what degree, major, minor or option is sought.

**The Mathematics Department proposes to consolidate all of our degree offerings into a single B.S. Major in Mathematics. This single B.S. Major in Mathematics would continue to allow students the flexibility to pursue their dreams of graduate study, careers in applied mathematical fields and careers in Secondary Education through options and combined majors. This single, streamlined major may be used in three different modes. First, students may take the major by itself without any additional minors, majors or options. Students following this track are expected to complete a thesis in mathematics once they have completed the bulk of their coursework. This may be thought of as a “liberal arts” track that leaves students with plenty of room for taking electives from a broad range of disciplines. Second, students may choose to complete one of three proposed options in Mathematical Biology, Mathematical Ecology, or Mathematical Geology. Students following this track are also expected to complete a thesis. Finally, students may elect to complete a double major in Mathematics and Secondary Education. Students completing double major with Secondary Education will not be expected to complete a thesis. Instead, they will complete a semester of student teaching.**

3. Need

a. To what specific need is the institution responding in developing the proposed program?

**Currently, the bewildering array of degree offerings make it difficult for students who are interested in a career in mathematics to chart a course that gives them the flexibility they need in today’s job market. Consolidating all these separate degrees into a single focused major will give students the flexibility to pursue career in applied mathematics, mathematics education, or head to graduate school to pursue an advanced degree. In addition, because the present system of degree offerings is not well understood (B.A. Arts, Mathematics Option, etc.) a single B.S. Major in Mathematics will provide our students with the single degree they need to be maximally effective in the job market**

b. How will students and any other affected constituencies be served by the proposed program?

**In a very general sense, students who are currently enrolled in one of the existing mathematics programs at UMW will benefit from the new degree structure in that they will have the opportunity to pursue a nationally recognized degree (B.S.) that was unavailable to them at UMW before. In addition the fact that the new degree structure is streamlined (one common core for all sub-disciplines, fewer options, etc.) students can expect to benefit from a more efficient scheduling of course offerings.**

**There are also several specific ways in which students will benefit from the proposed degree. Students who are pursuing of the Environmental Science or Biology degrees offered at UMW will also benefit from the proposed Math degree and its options. The options in Mathematical Geology, Mathematical Biology, and Mathematical Ecology will inject students with a higher level of mathematical ability into many of the core courses offered by Environmental Science and Biology. This has the potential to enhance the experience of all students enrolled in those classes; mathematics students will be able to work side by side with science students in an experiential setting that emulates an interdisciplinary research group.**

Students who plan to pursue a career in mathematics education will be enrolled in the same core classes as their peers who are following the other avenues the proposed degree offers. This will benefit the mathematics education students because it will provide them with exposure to and experience with what it is like to be a practicing mathematician. The importance of this can't be stressed enough given today's demand for highly quality mathematics teachers in the secondary education system.

There is one final category of student who will benefit from the proposed degree. In the past, there was no home at UMW for the student who wanted to simply pursue a liberal arts mathematics degree and supplement it with a full array of electives of their choosing. This is now available to the student who elects to enroll in the core degree but pursue neither a double major in secondary education or one of three options in Mathematical Geology, Biology or Ecology.

- c. What is the anticipated demand for the program? How was this determined?  
**The proposed B.S. Major in Mathematics will serve all of the existing students without requiring any additional work or credit hours than what is required of them in their current degree programs. There are approximately 30 to 40 students who are currently pursuing one of the mathematically oriented degree programs we now offer. These students were identified by polling academic advisors who are responsible for mathematics students. While none of these students will be required to switch to the new structure, it is anticipated that most will want to do so.**

#### 4. Institutional and System Fit

- a. What is the connection between the proposed program and existing programs at the institution?  
**As already stated, B.A.'s in "Arts" with an option in mathematics and related areas in Geology, Physics, Biology, Ecology, or Pure Mathematics, and a B.S. Secondary Education Mathematics Major are currently offered at the University of Montana Western. The proposed B.S. Major in Mathematics is planned to replace these existing programs using the following protocols:**  
**(1) Students who are currently enrolled in the B.A. Mathematics Option with related areas in Geology, Ecology, or Biology will be able to pursue the B.S. Mathematics Major with Options in Geology, Ecology, or Biology. It will be possible for students to complete the combination of the Major and one of these Options in 120 credits.**  
**(2) Students who are currently enrolled in the B.A. Mathematics Option with related areas in Physics or Pure Mathematics may elect to take the B.S. Mathematics Major by itself and then use their elective credits to take additional credits in Physics or Pure Mathematics. In fact, such students may use their elective credits however they wish (e.g. to pursue interests outside of the mathematical sciences). This option was not available prior to the proposed B.S. Mathematics Major. It is possible for students to complete this plan in 120 credits.**  
**(3) Students who are currently enrolled in the B.S. Secondary Education Major with an Option in Mathematics will now be able to enroll in a double major using the proposed B.S. Mathematics and a standalone B.S. Secondary Education major that is offered by the Education Department at the University of Montana Western. It will still be possible for these students to finish both degrees in 128 credits.**
- b. Will approval of the proposed program require changes to any existing programs at the institution? If so, please describe.  
**These proposals have been the product of long-term collaboration and negotiation with the UMW Education Department to better serve the need of students seeking certification in Mathematics. Students under the proposed changes would double major in a content field plus Secondary Education, thus being "Highly Qualified Teachers" at graduation under NCLB rules.**
- c. Describe what differentiates this program from other, closely related programs at the institution (if appropriate).

**N/A**

- d. How does the proposed program serve to advance the strategic goals of the institution?  
**The proposed degree helps address strategic goals I and II: Increase educational attainment of Montanans and assist in the expansion and improvement of the economy. Graduates of the proposed B.S. Mathematics degree will either be well prepared for a career in 5-12 mathematics education or for advanced study and research in the mathematical sciences. It is now common knowledge that there exists a high demand for mathematics teachers both in Montana and across the US. However, in a broader sense, the demand for general purpose mathematicians is projected to grow during the next decade. A recent article in the Wall Street Journal predicts that the employment of mathematicians and statisticians is to increase by 22 percent and 13 percent (respectively) over the 2008-2018 decade. A streamlined, transparent, and flexible B.S. degree structure for Mathematics will both attract new students and better serve our existing students to meet these needs.**

- e. Describe the relationship between the proposed program and any similar programs within the Montana University System. In cases of substantial duplication, explain the need for the proposed program at an additional institution. Describe any efforts that were made to collaborate with these similar programs; and if no efforts were made, explain why. If articulation or transfer agreements have been developed for the substantially duplicated programs, please include the agreement(s) as part of the documentation.

**The University of Montana Western is the only public university that offers a mathematics degree under Experience One block scheduling. This allows us to offer our curriculum in an experiential format that allows our majors to work together in small classes and participate in focused projects that support the learning and authentic practice of mathematics. For instance, by the time our students graduate, they will have had the opportunity to participate in activities such as an undergraduate research symposium, both the review and creation of scientific journal articles in modeling classes, the evaluation of potential dam designs in calculus classes, etc.**

## 5. Program Details

- a. Provide a detailed description of the proposed curriculum. Where possible, present the information in the form intended to appear in the catalog or other publications. NOTE: In the case of two-year degree programs and certificates of applied science, the curriculum should include enough detail to determine if the characteristics set out in Regents' Policy 301.12 have been met.

**Please see the attached UMW curriculum proposal.**

- b. Describe the planned implementation of the proposed program, including estimates of numbers of students at each stage.

**It is anticipated that the implementation of the proposed major will have an immediate, beneficial effect on our existing 30 to 40 majors. Since the proposed major is a repackaging of our existing majors, no new coursework is required of new students that isn't already required of existing students. Therefore, the existing students will be able to convert to the new, more transparent major with no need to enroll in additional credits. No transitional period will be required for migrating from the old major structure to the proposed one. Again, this is because the proposed major is a simple repackaging of the existing math programs. Therefore, it is proposed that the old B.A. Option in Mathematics and its five related areas be immediately closed to further enrollment.**

## 6. Resources

- a. Will additional faculty resources be required to implement this program? If yes, please describe the need and indicate the plan for meeting this need.

**No new personnel resources will be required for the implementation of this proposal. The programs described in this proposal exist and are being replaced by the proposed degree. In fact, two programs (the related areas in physics and pure math) are being eliminated. In practice, this proposal is not creating any new classes or programs. It is simply repackaging existing programs into a more flexible B.S. structure.**

- b. Are other, additional resources required to ensure the success of the proposed program? If yes, please describe the need and indicate the plan for meeting this need.

**No new resources of any other nature will be required for the implementation of this proposal. The programs described in this proposal exist and are being replaced by the proposed degree. In fact, two programs (the related areas in physics and pure math) are being eliminated. In practice, this proposal is not creating any new classes or programs. It is simply repackaging existing programs into a more flexible B.S. structure.**

7. Assessment

How will the success of the program be measured?

**Assessment will be conducted in accordance with the current established procedures used by the Mathematics Department under the NWCCU and NCATE accreditation bodies. These procedures are compatible and appropriate both for our existing mathematics programs and the proposed one. Moreover, in 2006, during our most academic program review, our external reviewer recommended that we consolidate our existing programs into a standalone major. Therefore, the proposed change is consistent with the findings of our assessment and accreditation cycles and current long term goals.**

8. Process Leading to Submission

Describe the process of developing and approving the proposed program. Indicate, where appropriate, involvement by faculty, students, community members, potential employers, accrediting agencies, etc. **The proposed program changes were developed through direct collaboration between the between the faculty of the UMW Departments of Mathematics, Education, Environmental Sciences, and Biology. In addition, it has passed through an extensive curriculum review process on campus in which it was scrutinized by our Curriculum Committee, our General Education Committee, all of our Department Chairs, the Faculty Senate (which includes representatives from our Student Senate), and our Provost and Chancellor. Finally in 2008 the national (NCATE) and state standards for accreditation of mathematics education programs were reviewed. The mathematics program was reviewed and re-approved by the state.**

**Academic Year Proposal Submitted 2009-2010**

For: 2010-2010 Catalog



**Date Received** \_\_\_\_\_  
**By** \_\_\_\_\_

Level I - Campus Level Approval  
Level II - OCHE Approval  
Level III - BOR Approval

### Curriculum Proposal Form

Department or Program Approval  
Date \_\_\_\_\_ Initials \_\_\_\_\_

General Education Committee (if appropriate)  
Date \_\_\_\_\_ Initials \_\_\_\_\_

**Proposed as Gen Ed Course?** \_\_\_ Yes \_\_\_ No

**Gen Ed Category:**

**Course Fee Attached to Any Course?**

\_\_\_ No \_\_\_ Yes (Completed Course Fee Request Form attached)

If course Number/Name with Lab Fee is changing, previous course Number/Name:

**Curriculum Committee Use Only**

Proposal Tabled \_\_\_\_\_  
*Date Initials*

Approved \_\_\_\_\_  
*Date Initials*

Rejected \_\_\_\_\_  
*Date Initials*

Withdrawn \_\_\_\_\_  
*Date Initials*

\*\*\*\*\*

Faculty Senate Approval \_\_\_\_\_  
*Date Initials*

Provost Approval \_\_\_\_\_  
*Date Initials*

Chancellor Approval \_\_\_\_\_  
*Date Initials*

**Type of Proposal (check all that apply)**

- Program Requirement Change
- Course Number Change
- Course Title Change
- Course Credit Change
- Course Description Change
- Prerequisite Change
- Delete Course from Catalog
- New Course
- Other (describe): Repackaging of

**For Curriculum Committee Use Only:**

of Old BA Mathematics Option degrees and related areas in Mathematical Biology, Mathematical Ecology, Mathematical Geology, Mathematical Physics, and Pure Mathematics into BS: Mathematics Degree with options in Mathematical Biology, Mathematical Ecology, and Mathematical Geology. The BA Option in Mathematics and Related Areas will go into moratorium. A mechanism by which students may seek a double major in B.S. Mathematics and B.S. Secondary Education is also built into this proposal.

Submitted by: Eric S. Wright.  
Department (Program) contact person: Eric S. Wright

**Succinct Statement of Proposed Change:** Currently, students may seek the following degrees related to mathematics:

1. B.A. Mathematics Option (with related areas in Mathematical Biology, Mathematical Ecology, Mathematical Geology, Mathematical Physics, and Pure Mathematics).
2. B.S. Secondary Education Mathematics Major.

The Mathematics Department proposes to repackage these degrees into a single B.S. Mathematics degree. This degree may be used in three different modes. First, students may take the degree by itself without any additional minors, majors or options. Students following this track are expected to complete a thesis in mathematics for their capstone experience. This may be thought of as a “liberal arts” track that leaves students with room for taking electives from a broad range of disciplines. Second, students may choose to complete one of three options in Mathematical Biology, Mathematical Ecology, or Mathematical Geology. Students following this track are also expected to complete a thesis for their capstone experience. Finally, students may elect to complete a double major in Mathematics and Secondary Education. These students will not be expected to complete a thesis for their capstone experience because their required semester of student teaching will play this role.

**Provide assessment information supporting the request (rationale):**

The existing B.A. Degree with an option in Mathematics (and its associated related areas) is out of compliance with the standards for B.A. Degrees in the Montana University system. This proposal repackages these degrees and related areas into a MUS standards-compliant B.S. Degree with options. No new courses are needed for this change. In addition, this restructuring constitutes a simplification of the Math Department's degree offerings. We are reducing the number of degrees from two (B.A. Option in Mathematics and B.S. Secondary Education – Mathematics) to one (B.S. Mathematics) and we are replacing five related areas (Mathematical Biology, Mathematical Ecology, Mathematical Geology, Mathematical Physics, and Pure Mathematics) with the three options in Mathematical Biology, Mathematical Ecology, and Mathematical Geology. This simplification should make the degree offerings of the Department of Mathematics more transparent to students.

**Attach new or revised information as it should appear in the Catalog**

The new course summary for the B.S. Mathematics Major and its three options in Mathematical Biology, Mathematical Ecology, and Mathematical Geology is attached at the end of this document.

**Transferability Considerations (if any):**

Since there are no new courses required for the restructuring of the Mathematics degrees, no transferability considerations are anticipated.

**Effects, if any, of this proposal on any of our degree programs.**

This proposal is offered in collaboration with the following departments:

- *Education:* The Education department is concurrently offering a curriculum proposal that allows for a single B.S. Degree to be taken in conjunction with various content degrees (including the proposed B.S. Mathematics degree). Dr. Delena Norris-Tull has been preparing the relevant curriculum proposals for the B.S. Secondary Education degree. The double major structure will replace the existing B.S. Secondary Education Mathematics major. However, since this is accomplished via a redistribution of courses, no effect upon the Education department is expected in terms of staffing, course rotation, etc.
- *Biology and Environmental Science:* The Mathematical Biology, Mathematical Ecology, and Mathematical Geology options make use of existing courses in the rotation from Biology, Geology, Chemistry, and Environmental science. Since these options constituted a simple repackaging of existing related areas, no effect upon Biology or Environmental Sciences is anticipated in terms of staffing, course rotation, etc.

**Resource Implications (if applicable):**

**STAFFING:**

**Who will teach course(s)?**

All courses for the repackaged B.S. Mathematics major and its options are existing courses that will be taught in the same rotation by the same faculty that currently teach them.

**Effect on faculty member's workload?**

None.

*OTHER (Library, etc.):*

None.

**General Education Committee Comments (if appropriate):** Date \_\_\_\_\_

**All Chairs/Provost Comments (if appropriate):** Date \_\_\_\_\_

**Curriculum Committee Comments (if appropriate):** Date: \_\_\_\_\_

## B.S. Major in Mathematics Credit Summary: 120 Credits

<i>General Education Mathematics Courses</i>		
<i>Course #</i>	<i>Course Title</i>	<i>Credits</i>
STAT 121 / MATH 131	Probability	4
<b>General Education Credit Total</b>		<b>31-32</b>

<i>Mathematics Major Core Courses</i>		
<i>Course #</i>	<i>Course Title</i>	<i>Credits</i>
M 171 / MATH 201	Calculus I	4
M 172 / MATH 202	Calculus II	4
M 273 / MATH 203	Calculus III	4
M 210 / MATH 210	Computer Mathematics	4
<i>Select one of the following three courses</i>		4
STAT 217 / MATH 232 STAT 422 / MATH 333 STAT 233 / MATH 233	Intermediate Statistical Concepts Mathematical Statistics Biostatistics	
M 221 / MATH 260	Introduction to Linear Algebra	4
M274 / MATH 311	Introduction to Differential Equations	4
M 329 / MATH 341	Modern Geometry	4
M 343 / MATH 343	Foundations of Mathematics	4
<i>Upper Division Courses and Thesis Credits for the B.S. Major in Mathematics</i>		
<i>Select three of the following courses. At least one must be M 414 or STAT 433.</i>		12
M 414 / MATH 401 STAT 433 / MATH 433 M 472 / MATH 441 M 472 / MATH 442 M 431 / MATH 443 M 444 / MATH 444	Deterministic Modeling Stochastic Modeling Advanced Calculus I Introduction to Complex Analysis Abstract Algebra Advanced Number Theory	
M 499 / MATH 498	Senior Project/Thesis (unless taking a secondary ed double major)	0-4
<b>Core Mathematics Credits Total</b>		<b>48-52</b>

<i>Options or Electives</i>	
<p><i>In addition to completing the core mathematics courses, B.S. Mathematics Students have three paths available to them:</i></p> <ol style="list-style-type: none"> <li>3. <i>B.S. Mathematics students may choose to complete the Mathematical Biology, Mathematical Ecology, or Mathematical Geology Option. Any remaining credits may be filled with any college level catalog course.</i></li> <li>4. <i>B.S. Mathematics students may elect to double major in B.S. Secondary Education (see page XXX). Students taking this path are not required to complete a thesis. Their capstone experience is considered to be their student teaching.</i></li> <li>5. <i>B.S. Mathematics students may elect to use all remaining credits to either construct their own course of study in the mathematical sciences or to pursue other interests.</i></li> </ol>	<b>32-37</b>



## Options for the B.S. Mathematics Degree.

### *B.S. in Mathematics - Mathematical Biology Option*

<i>General Education Science Courses</i>		
<i>Course #</i>	<i>Course Title</i>	<i>Credits</i>
BIO 111	Biology I	4
CHMY 141 / CHEM 131	College Chemistry I	4
<b><i>General Education Credit Total</i></b>		<b>31-32</b>

<i>Mathematical Biology Option Courses</i>		
<i>Use these courses towards your B.S. Mathematics Major Elective credits.</i>		
<i>Course #</i>	<i>Course Title</i>	<i>Credits</i>
CHMY 143 / CHEM 131	College Chemistry II	4
CHMY 321 / CHEM 331	Organic Chemistry I	4
BIO 255	Cell Biology	4
BIO 343	Genetics	4
BIO 450	Evolution	4
<i>Select two of the following courses.</i>		8
BIO 262 BIO 425 STAT 331 / MATH-BIO 331 CHMY 323 / CHEM 332 CHEM 441	Microbiology Molecular Biology Bioinformatics Organic Chemistry II Biochemistry <sup>1</sup>	
<b><i>Credit Total</i></b>		<b>28</b>

<sup>1</sup> CHEM 441: Biochemistry requires CHEM 332 Organic Chemistry as a prerequisite. Therefore, students who choose to take CHEM 441 should also elect to take CHEM 332.

***B.S. in Mathematics - Mathematical Ecology Option***

<i>General Education Science Courses</i>		
<i>Course #</i>	<i>Course Title</i>	<i>Credits</i>
BIO 111	Biology I	4
CHMY 141 / CHEM 131	College Chemistry I	4
<b><i>General Education Credit Total</i></b>		<b>31-32</b>

<i>Mathematical Ecology Option Courses</i>		
<i>Course #</i>	<i>Course Title</i>	<i>Credits</i>
BIO 112	Biology II	4
BIO 255	Cell Biology	4
STAT 335 / MATH-BIO 332	Advanced Field Statistics for Rapid Assessment	4
BIO 343	Genetics	4
BIO 450	Evolution	4
BIO 471	Wildlife Ecology & Management	4
<i>Select one of the following courses.</i>		4
BIO 222 BIO 270 BIO 273 BIO 355 BIO 473 BIO 475 BIO 479	Invasive Species Conservation Biology Entomology Systematic Botany Orinthology Mammalogy Vertebrate Zoology	
<b><i>Credit Total</i></b>		<b>28</b>

***B.S. in Mathematics - Mathematical Geology Option***

<i>General Education Science Courses</i>		
<i>Course #</i>	<i>Course Title</i>	<i>Credits</i>
<i>Choose one of the following two courses</i>		4
GEO 101 / GEOL 101 GEO 103 / GEOL 150	Introduction to Physical Geology Introduction to Environmental Geology	
CHMY 141 / CHEM 131	College Chemistry I	4
<b><i>General Education Credit Total</i></b>		<b>31-32</b>

<i>Mathematical Ecology Option Courses</i>		
<i>Course #</i>	<i>Course Title</i>	<i>Credits</i>
CHEM 143 / CHEM 132	College Chemistry II	4
GEO 226 / GEOL 226	Rocks, Minerals, & Resources	4
GEO 315 / GEOL 330	Structural Geology	4
GEO 378 / GEOL 378	Surficial Processes	4
GEO-CHMY 431 / CHEM-GEOL 431	Environmental Geochemistry	4
GEO 309 / GEOL 432	Sedimentation and Stratigraphy	4
GEO 421 / GEOL 480	Hydrology	4
<b><i>Credit Total</i></b>		<b>28</b>

**ITEM 148-1606-R0910**

**B.A. Major in English with Minors in Creative Writing, Professional Communications, and Literature**

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**THAT**

The English Department of The University of Montana Western seeks permission to offer a B.A. Major in English with three Minors in: Creative Writing, Professional Communications, and Literature. Concurrently, it seeks permission to discontinuing its B.A. Option in Literature and Writing with its three Related Areas (sub-options)

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**EXPLANATION**

This change would bring the nomenclature of Montana Western’s English offerings in line with what is typical for such offerings on other campuses across the U.S.

The English Department proposes to consolidate all of its degree offerings into a single B.A. Major in English. This B.A. Major in English and the three “tracks” within it would better serve student needs, improve efficiency, improve compliance with NWCCU guidelines and BOR policies, and produce a program structure that is more understandable to potential students and faculty.

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**ATTACHMENTS**

Level II Request Form  
Curriculum Proposals

**M O N T A N A   B O A R D   O F   R E G E N T S**  
**LEVEL II REQUEST FORM**

Item Number:	<b>148-1606-R0910</b>	Date of Meeting:	<b>September 22-23, 2010</b>
Institution:	<b>The University of Montana - Western</b>	CIP Code	<b>23-0101</b>
Program Title:	<b>B.A. Major in English</b>		

Level II proposals require approval by the Board of Regents.

**Level II action requested (check all that apply):** Level II proposals entail substantive additions to, alterations in, or termination of programs, structures, or administrative or academic entities typically characterized by the (a) addition, reassignment, or elimination of personnel, facilities, or courses of instruction; (b) rearrangement of budgets, cost centers, funding sources; and (c) changes which by implication could impact other campuses within the Montana University System and community colleges. Board policy 303.1 indicates the curricular proposals in this category:

- 1. Change names of degrees (e.g. from B.A. to B.F.A.)
- 2. Implement a new minor or certificate where there is no major or no option in a major;
- 3. Establish new degrees and add majors to existing degrees;
- 4. Expand/extend approved mission; and
- 5. Any other changes in governance and organization as described in Board of Regents' Policy 218, such as formation, elimination or consolidation of a college, division, school, department, institute, bureau, center, station, laboratory, or similar unit.

Specify Request:

**The English Department proposes to change the title of its existing BA in Literature and Writing to a BA in English. Under the current BA structure, we have three (3) emphases under the Literature and Writing Option. Under the proposed BA structure, we will keep the emphases at three (3), placing the Western Culture Related Area on moratorium and substituting a new minor in Literature.**

## LEVEL II BOARD OF REGENTS ITEMS

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### CURRICULUM PROPOSALS

#### 1. Overview

The University of Montana Western faculty has been working to restructure and change the nomenclature of existing programs within its current B.A. degree to better serve student needs; improve efficiency; improve compliance with Northwest Commission on Colleges and University (NWCCU) guidelines and Board of Regent Policies; and produce a program structure that is more understandable to current and potential students and faculty. Montana Western is requesting that these changes be approved by the Board of Regents.

Currently all programs in the Bachelor of Arts degree are offered under a single “Arts” major with options in a number of arts and sciences disciplines. Each option area is associated with a number of Related Areas (sub-options) typically containing pre-requisites in the associated option area. There is no common core of courses in the existing single “Arts” major. This structure is a derivative of the previous Bachelor of Liberal Studies (B.L.S.) degree/major but is not typical of the structure found in most B.S. and B.A. programs. As of Fall 2009 there were a total of 264 students officially enrolled in the single B.A. Arts degree/major with its seven option areas and 43 related areas. This is approximately 25% of total enrollment at Montana Western.

Students typically refer to their programs of study as “majors” consisting of some combination of option/related area. These Montana Western programs have at least as many credits as true majors on most other campuses and graduates are at least as well prepared for the work force or graduate schools as true majors.

The Montana Western Admissions Department reports difficulty in explaining current Montana Western B.A. program offerings to potential students. Admission representatives and academic advisors by necessity need to explain how Montana Western B.A. programs are as good or better than true majors at other institutions. The rapid growth of a number of the programs indicates their substantial success at explaining this but there is still a strong belief that we need to change nomenclature to better fit degree structure.

The English Department proposes to change the title of its existing BA in Literature and Writing to a BA in English. Under the current BA structure, we have three (3) emphases under the Literature and Writing Option. Under the proposed BA structure, we will keep the emphases at three (3), placing the Western Culture Related Area on moratorium and substituting a new minor in Literature.

**EXISTING PROGRAM:**

**BA: Literature and Writing**

**Related Areas:**

- 1. Creative Writing**
- 2. Professional Communications**
- 3. Western Culture**

**PROPOSED PROGRAM:**

**BA: English**

**Minors:**

- 1. Creative Writing**
- 2. Professional Communications**
- 3. Literature**

2. Provide a one paragraph description of the proposed program. Be specific about what degree, major, minor or option is sought.  
**New degree proposal for BA in the following major area: English (to replace BA option in Literature and Writing). Also creates minors (out of two existing Related Areas) in the following emphases: Creative Writing, Professional Communications, and Literature. Also includes creation of 1 new ENG course (ENG 4XX: Technological Literacy) and the placement of the Western Culture Related Area on moratorium.**
3. Need
  - a. To what specific need is the institution responding in developing the proposed program?  
**Students enrolled in the Department of English and an English Related Area often do so with the intent of preparing for a graduate program, the expressed mission of said degree program. Graduate school applications have been confounded by the nature of the Montana Western transcript which does not list the related area as a “major” even though the coursework and credits are similar to single-discipline majors at other institutions (including UM).**
  - b. How will students and any other affected constituencies be served by the proposed program?  
**The current proposal will make it possible for students to be issued a transcript and a diploma that actually reflects their course of study. Additionally, the proposal provides for three “tracks” within the English BA program so that students can more easily tailor the programs to their interests and career plans.**
  - c. What is the anticipated demand for the program? How was this determined?  
**As of Fall 2009 there were a total of 264 students officially enrolled in the single B.A. Arts degree/major with its seven option areas and 43 related areas. This is approximately 25% of total enrollment at Montana Western.**
4. Institutional and System Fit
  - a. What is the connection between the proposed program and existing programs at the institution?  
**These changes, while possibly appearing on paper as an expansion of programs, actually represent a streamlining of the English offerings at Montana Western. Our current program offers a BA with a Core of English courses (46-52 credits) all program students take, and a list of Related Areas (24-32 credits) in which students choose to focus. There are currently three such Related Areas listed with the Literature and Writing Core in the 2009-10 Montana Western catalog (Note: although students may select any Related Area – not just those listed in connect to a Core, nearly all English students choose from the three listed).**
  - b. Will approval of the proposed program require changes to any existing programs at the institution? If so, please describe.  
**No**
  - c. Describe what differentiates this program from other, closely related programs at the institution (if appropriate).  
**N/A**
  - d. How does the proposed program serve to advance the strategic goals of the institution?  
**These changes will allow the English Department to best promote the goals of Montana Western’s Strategic Plan, in particular: Goal #1 Improve undergraduate education, Goal #2 Increase enrollment through enhanced affordability, access, success and retention and increase graduation rates, and Goal #5 Strategically position the university for maximum efficiency and long-range success.**





- LIT 277 The Declining Empire 4  
 Select 3 from the following:  
 LIT 302 Literature in Translation 4  
 LIT 335 Women and Literature 4  
 LIT 339 Literary Regions 4  
 LIT 361 Poetry and Thought 4  
 LIT 385 Mythology 4

- Select 4 from the following:  
 LIT 413 Hist, Struct, Nature of English 4  
 LIT 473 Studies in Shakespeare 4  
 LIT 494 Seminar: Literary Period 4  
 LIT 494 Seminar: Genre 4  
 LIT 494 Seminar: Major Authors 4  
 LIT 494 Seminar: Literary Theory 4

Select any minor (English or other program). Students may also opt to take no minor and take instead, additional Electives (40 total). At least 8 Elective credits must be taken at the upper level.  
 28

- Creative Writing (28)  
 Professional Communications (28)  
 Literature (28)  
 Select 1 from the following Capstone options: 4  
 ENG  
 498 Internship (4)  
 499 Senior Project/Thesis (4)

ELECTIVE REQUIREMENTS Elective Credits 0-12  
 Select from any catalog courses.  
 0-12

TOTAL CREDITS REQUIRED 120

- English  
 CREDIT SUMMARY – Minors  
 Creative Writing MINOR  
 ENG 204 Creative Writing 4  
 ENG 301 Poetry Workshop 4  
 ENG 302 Fiction Workshop 4  
 ENG 303 Nonfiction Workshop 4  
 Select 2 from the following:  
 ENG 401 Adv. Poetry Workshop 4  
 ENG 402 Adv. Fiction Workshop 4  
 ENG 403 Adv. Nonfiction Workshop 4  
 Select 1 from the following:  
 WRIT 313 Writing for Publication 4  
 ENG 314 Editorial Workshop 4  
 LIT 361 Poetry and Thought 4  
 LIT 494 Seminar: Genre 4  
 LIT 494 Seminar: Literary Theory 4

Total Credits 28

Professional Communications MINOR

ENG 303 Nonfiction Workshop 4  
WRIT 313 Writing for Publication 4  
ENG 314 Editorial Workshop 4  
WRIT 321 Advanced Technical Writing 4  
ENG 4XX Technological Literacy 4  
ENG 400 Internship 4  
ENG 403 Adv. Nonfiction Workshop 4  
Total Credits 28

Literature MINOR

Select 4 from the following:

LIT 210 American Literature I 4  
LIT 264 American Romance 4  
LIT 265 Realism, Naturalism, Modernism 4  
LIT 266 Generations and Conflicts 4  
LIT 273 The Oral Tradition 4  
LIT 274 The Manuscript Tradition 4  
LIT 276 The Print Culture 4  
LIT 277 The Declining Empire 4

Select 2 from the following:

LIT 300 Literary Criticism 4  
LIT 302 Literature in Translation 4  
LIT 335 Women and Literature 4  
LIT 339 Literary Regions 4  
LIT 361 Poetry and Thought 4  
LIT 385 Mythology 4

Select 1 from the following:

LIT 413 Hist, Struct, Nature of English 4  
LIT 473 Studies in Shakespeare 4  
LIT 494 Seminar: Literary Period 4  
LIT 494 Seminar: Genre 4  
LIT 494 Seminar: Major Authors 4  
LIT 494 Seminar: Literary Theory 4  
Total Credits 28

- b. Describe the planned implementation of the proposed program, including estimates of numbers of students at each stage.

6. Resources

- a. Will additional faculty resources be required to implement this program? If yes, please describe the need and indicate the plan for meeting this need.

**1. In developing these revised program proposals careful attention was used to eliminating those programs (option/related area combinations) that have historically contained low enrollment courses and low student interest. The total number of available programs has**

**therefore gone down as a result of this restructuring of the curriculum. The restructuring has not resulted in a net increase in the number of class sections needed or a need for additional faculty or staff.**

- b. Are other, additional resources required to ensure the success of the proposed program? If yes, please describe the need and indicate the plan for meeting this need.

**No**

7. Assessment

How will the success of the program be measured?

**Graduate Outcomes**

**Discipline-specific knowledge, skills, and abilities:**

**An understanding of the primary literary theories that have shaped and continue to shape literature.  
Acquaintance with a broad spectrum of literatures and contexts including non-Western literatures.  
Understanding of the experiences of gender, race and ethnicity reflected in literature.**

**Communication skills (especially oral and written)**

**Familiarity with and appropriate applications of current conventions in research and writing.  
Mastery of oral communication for effective interaction with colleagues and the community.**

**Problem-solving skills**

**Mastery of key concepts of literary analysis and evaluation.  
Praxis in the process of writing, from drafting through revision.**

**Assessment**

**The graduate outcomes for the English BA degree program are assessed through the graduate/exit survey, alumni survey, feedback from internship supervisors, review of collected student-generated exhibits over time, and program self-study and/or reports from external reviews. The assessment plans for the BA: English degree program is available on the web at <http://www.umwestern.edu/administration/vcaa/accreditation/accliterature/>**

8. Process Leading to Submission

Describe the process of developing and approving the proposed program. Indicate, where appropriate, involvement by faculty, students, community members, potential employers, accrediting agencies, etc.

**This proposal was developed with input from University faculty, students (past and current), University Administration, employers of our graduates, and graduate institutions to which our students have applied and/or been accepted. It has passed through Montana Western Curriculum Committee review, was recommended for approval by Faculty Senate as well as the Montana Western administration.**