

**DATE:** June 12, 2013

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

**FROM:** Neil Moisey, Interim Deputy Commissioner for Academic, Research, & Student Affairs  
John Cech, Deputy Commissioner for Two-Year & Community College Education

**RE:** Level II Submission Items

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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 **June 26, 2013**. Issues not resolved at that meeting should be submitted in writing to OCHE by noon on **June 28th (Friday following CAO call)**. That notification should be directed to Amy DeMato, Assistant to the Deputy Commissioners. If Amy does not hear from you, in writing, by noon on June 28, 2013, OCHE will assume that the proposals have your approval.

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

**Flathead Valley Community College:**

- Request for authorization to establish an Integrated Agriculture and Food Systems AAS Program  
[ITEM #160-301-R0713](#) | [Level II Request Form](#) | [Curriculum Proposal Form](#)

**Montana State University-Bozeman:**

- Request for authorization to increase total number of credits required for Bachelor of Arts-Environmental Design and Masters Degree-Architecture [ITEM #160-2005-R0713](#) | [Level II Request Form](#) | [Curriculum Proposal Form](#) | [Attachment #1](#)
- Request for authorization to establish a Financial Engineering Program with BS Degree and Minor [ITEM #160-2006-R0713](#) | [Level II Request Form](#) | [Curriculum Proposal Form](#)
- Request for authorization for Montana State University to be designated as an Honors College [ITEM#160-2007-R0713](#) | [Level II Request Form](#) | [Curriculum Proposal Form](#) | [Attachment #1](#)

**ITEM 160-301+R0713**

Integrated Agriculture and Food Systems AAS

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**THAT**

The Board of Regents of Higher Education authorizes Flathead Valley Community College to establish an Integrated Agriculture and Food Systems AAS program.

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**EXPLANATION**

The Integrated Agriculture and Food Systems program will prepare students to develop and manage their own farm business, or to pursue careers in agricultural and horticultural science, sales, or production. While enrolled in the program, individuals will learn the fundamentals of crop, soil, and livestock management, along with the business skills necessary to operate a farm enterprise. The program focuses on the integration of crop and livestock production principles to create sustainable farming and food systems. Through laboratory courses, field trips, and internships on the FVCC campus farm and in the community, the Integrated Agriculture and Food Systems program provides students with a hands-on, multidisciplinary experience in agriculture and food systems.

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**ATTACHMENTS**

Level II Request Form  
Curriculum Proposal Form

Item Number: 160-301+R0713 Meeting Date: July 15, 2013  
Institution: Flathead Valley Community College CIP Code: 1.0308  
Program Title: Integrated Agriculture and Food Systems

Level II proposals require approval by the Board of Regents.

**Level II action requested (place an X for all that apply and submit with completed Curriculum Proposals Form):**

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; and
- 4. 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:**

Flathead Valley Community College requests Board of Regents Level II approval to implement an AAS degree in Integrated Agriculture and Food Systems.

## 1. Overview

In 2012, Flathead Valley Community College (FVCC) conducted a comprehensive needs assessment to: (i) assess local demand for sustainable agriculture education, (ii) identify degree programs and subjects of interest to potential students, (iii) evaluate local, regional and national agricultural employment trends, and (iv) confirm workforce demand for sustainable agriculture graduates from local and regional employers.

As part of the needs assessment, area high school students were surveyed, regional and national employment data were analyzed, and local agriculture community members were interviewed. In addition, the College assembled an Agriculture Advisory Committee to provide direction and industry expertise. Members of the Committee included local farmers, agriculture educators, the Flathead County Extension Agent, and area industry representatives.

Results of the needs assessment indicate a strong interest for sustainable agricultural programming and a workforce demand for agriculture graduates. In response, the College has developed a two-year Associate of Applied Science degree program in Integrated Agriculture and Food Systems (IAFS). The proposed program is designed to prepare students for careers in agricultural entrepreneurship, science, sales, or production, and will focus on the principles of sustainable farming and small business management.

The IAFS program and curriculum have been vetted through the program review process and have been approved by all required FVCC committees, including the Faculty Senate, Curriculum Committee, and the Board of Trustees.

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

The two-year Associate of Applied Science (AAS) degree program in Integrated Agriculture and Food Systems will combine academics and hands-on education to prepare students to develop and manage their own agricultural business, or to pursue careers in agricultural science, sales, or production. While enrolled in the 66-70 credit program, students will learn the fundamentals of crop, soil, and animal science, sustainable production, and farm business management. Two required internships, one on the FVCC campus farm and one at an agricultural business in the community, will further prepare graduates for success in the workforce. Graduates of the program will help fill the ongoing local and national need for skilled agricultural workers, and can expect to find employment in a wide variety of agriculturally-related occupations.

## 3. Need

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

Flathead Valley Community College is responding to local and national workforce needs in developing the proposed IAFS program. The rapid growth of the 'local food' movement is creating new economic opportunities for small-scale entrepreneurial farmers regionally and nationally, and has been identified by Agriculture Secretary Tom Vilsack as one of the brightest areas within today's US agriculture sector.

While three of Montana's institutions of higher education (i.e., MSU Northern, Dawson CC, Miles CC) offer agriculturally-related AAS degrees (i.e., Agriculture Mechanics Technology, Agricultural Technology, Agribusiness Technology, Agriculture Production), none currently offer degrees related to sustainable agriculture or food systems. With growing student and consumer interest in sustainable food production, Flathead Valley Community College has the opportunity to fill an educational gap in Montana with an AAS degree program in Integrated Agriculture and Food Systems.

Employment projections for self-employed farmers are not available, but in the next five years there will be over 225 *new* openings for agricultural workers and hired farmers, ranchers, and agricultural managers in Montana alone. A recent survey of agriculturally-related businesses in the Flathead Valley indicated a need for skilled workers with general working knowledge of agriculture and business, as well as soft skills such as critical thinking, customer service, and communication. National projections for agriculture graduates are also positive, with the US Bureau of Labor estimating 2,290 Agriculture and Food Science Technician, Ag Food Scientist, and Ag Science Teacher job openings per year for the 2010-2020 period.

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

Individuals looking toward self-employment in the agriculture sector often possess a strong interest and entrepreneurial spirit but lack formal technical and business training in the field. Because the two-year IAFS program offers a variety of theoretical and applied coursework, entrepreneurs who graduate from IAFS program will be well-positioned for success in the industry. Graduates who wish to find employment at an agricultural business or institution will possess the degree qualifications for entry-level positions in research, sales, and management. The program's internship requirement, both on and off-campus, will make graduates more attractive to potential employers and local farm-based businesses will have increased access to skilled workers. Graduates that possess a knowledge and experience in agricultural entrepreneurship and science will also promote the expansion of local/regional agriculture sector.

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

Demand for agricultural programming at Flathead Valley Community College is significant. A 2012 survey of 500 Flathead and Lincoln County high school students (e.g., Flathead, Glacier, HE Robinson Vo Ag, Summit Preparatory, Bigfork High Schools) indicates that 40% would consider taking agriculture courses if they were offered. In absolute terms this represents 230 potential FVCC Agriculture students graduating from local high schools in the next 3-4 years. Strong interest was identified among Vocational Agriculture students, who will have the opportunity to pursue post-secondary agricultural education at FVCC, building on interests, skills, and knowledge acquired at the secondary education level. Demand among non-traditional students (i.e., age 21 and older, with some post-secondary education) is more difficult to accurately gage. A small group of non-traditional students was given a similar survey in 2012. Of the 68 respondents, 52% indicate that they would consider taking agriculture-related courses at FVCC.

**4. Institutional and System Fit**

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

The proposed AAS degree in Integrated Agriculture and Food Systems is unique at FVCC, but will initially be connected with FVCC's Culinary Arts program and food service enterprises. The FVCC campus farm, through a production and sales contract, will produce food for the Culinary Arts program, the FVCC cafeteria, and the College's catering service. There is tremendous potential for the IAFS program to integrate more academically with Culinary Arts, and with a number of other programs at FVCC, including Business, Engineering, Biology, Natural Resources and Conservation.

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

No. The approval of the proposed AAS degree in Integrated Agriculture and Food Systems will not require changes to any existing programs at FVCC.

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

There are currently no agricultural programs at FVCC.

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

This program aligns well with the overall Mission and Institutional Goals of FVCC, principally in the area of workforce development.

The IAFS program offers traditional and non-traditional students a diverse education in technical farming, marketing, and business management, providing graduates with the necessary skills to develop and start their own agricultural business. By energizing a movement towards diversified agri-business in the region, this unique program will allow the FVCC to play a larger role in the economic development of the Flathead Valley community and the State of Montana.

In addition to their formal classroom education, IAFS students will be required to participate in FVCC campus greenhouse and farm activities for an entire growing season. This provides students with a set of practical skills that complement concepts learned in the classroom, and will better prepare them for career evaluation and success in the workforce.

Students in the IAFS program will be required to participate in an off-campus internship at an agricultural business/organization in the Flathead Valley community. Students will be permitted to choose internship opportunities that are in-line with their career interests, providing them with additional experience that will allow them to be competitive in entering their chosen career fields. While students learn real-world workforce skills, they will fill the community need for skilled workers at existing agricultural businesses, providing opportunities for local economic development. To date, there are 28 agriculturally-related businesses in the Flathead Valley that have expressed a desire to host FVCC Agriculture student interns.

**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.**

Four of the proposed courses (PLSC 110, ANSC 100, SFBS 146, ANSC 222) in the IAFS program transfer directly to Montana State University-Bozeman (MSU-Bozeman), providing graduates of an AAS program with opportunities to further their education at another educational institution. In conjunction with the launch of the AAS in Integrated Agriculture and Food Systems program, FVCC will be offering Associate of Science transfer curricula that will prepare students to transfer to MSU-Bozeman into Agricultural Business, Plant Science, and Sustainable Food and Bioenergy Systems degree programs. Where necessary, articulation agreements with MSU-Bozeman have been created and are currently in place.

## 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 Appendix on Page 7.

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

According to the needs assessment completed in September 2012, community demand for agriculture programming at Flathead Valley Community College is strong. The program will begin in Fall 2013 with an estimated enrollment of 10-12 students. The College's Agriculture Instructor/Program Coordinator, Dr. Heather Estrada, will recruit students, develop curricula, instruct courses, and oversee the operation of the campus farm. The College is expected to hire a Campus Farm Manager by June 2013. Together, Dr. Estrada and the Campus Farm Manager will design and initiate a campus farm, scheduled to be in operation for the 2014 growing season. The College's first agriculture students will participate in an on-campus internship at the site. During the first few years of operation, faculty will evaluate the merits and success of the program and make changes as necessary.

## 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.**

With the addition of thirteen new academic courses and a campus farm, FVCC's Executive Staff Committee elected to hire one additional full-time Faculty member and one full-time Campus Farm Manager. The Faculty member, Dr. Heather Estrada, was hired in April 2013. The Campus Farm Manager, to be hired June 2013, will work to ensure the success of the farm and students enrolled in agriculture internship courses.

- 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.**

Following the formal needs assessment, a business plan was developed for the initiation and operation of a campus farm. Start-up expenses for the initiation of the campus farm and greenhouse total \$103,400. During the initiation phase (Summer 2013), Dr. Estrada and the Campus Farm Manager will work with FVCC staff to ensure adequate power and water resources, the construction of fencing, a greenhouse, and preparation of land for agricultural activities. The first year of production on the farm will be Summer 2014.

## 7. Assessment

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

The success of the IAFS program will be evaluated according to the metrics listed below. The College's Institutional Researcher and Agriculture Faculty will assist in data collection. College Administrators, Agriculture Faculty and the Agriculture Advisory Committee (comprised of local farmers, agriculture industry professionals, and educators) will review the assessment measures on an annual basis.

### **Academic Program**

- Student enrollment in individual classes and the AAS program
- Program completion rates
- Four-year college transfer rate
- Academic success of AAS students

### **Student Engagement and Satisfaction**

- Overall satisfaction with the program and components
- Satisfaction with the content and relevance of course work
- Skill development at campus farm and internship site
- Student perception of labor expectations
- Student perception of employability
- Student perception of the value of agricultural work

### **Internships**

- Skill level and knowledge of student interns
- Student intern commitment and work ethic
- Clarity of job description and job duties
- Degree and quality of skill development at the internship site
- Quality of supervision and instruction at the internship site.
- Value of internship to farm operation
- Employability of student interns

### **Workforce Alignment**

- Placement in the field
- Wages: student debt ratio
- Employer satisfaction

## Program Sustainability

- Long-term vision and goals for the program
- Program's viability as a provider of skilled agricultural workers
- Job market for agricultural workers; industry surpluses and voids

## 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.**

Over the past several years, the community has expressed an interest in agricultural programming at FVCC, and in 2010, the College pursued USDA funding to initiate the program. In 2011, FVCC was awarded a \$134,862 USDA Secondary Education, Two-Year Postsecondary Education, and Agriculture in the K-12 Classroom Challenge Grant entitled *Promoting Education of Agricultural Sustainability in Northwest Montana (PEAS)*. The objectives of the grant included developing a two-year Sustainable Agriculture Associate of Applied Science (AAS) degree program at FVCC.

Beginning in January 2013, a formal needs assessment was carried out in order to develop recommendations for agricultural programming at the College. The results of the needs assessment, including the details of the proposed Integrated Agriculture and Food Systems program and a business plan for a campus farm, were submitted to the FVCC Agriculture Advisory Committee in August 2013. After recommendation from the Advisory Committee, the needs assessment was submitted to FVCC's Executive Staff, who recommended that the Integrated Agriculture and Food Systems program be proposed through program review. Per the program review process, the Integrated Agriculture and Food Systems proposal was submitted to and has received approval from the Program Review Committee, Faculty Senate, Executive Staff, the Math and Science Division, Curriculum Committee, and the Board of Trustees. Upon approval from the Board of Regents, IAFS students will be permitted to enroll in classes for the Fall 2013 semester.

**Integrated Agriculture  
and Food Systems**  
**Associate of Applied Science Degree**

The Integrated Agriculture and Food Systems program will prepare students to develop and manage their own farm business, or to pursue careers in agricultural and horticultural science, sales, or production. While enrolled in the program, individuals will learn the fundamentals of crop, soil, and livestock management, along with the business skills necessary to operate a farm enterprise. The program focuses on the integration of crop and livestock production principles to create sustainable farming and food systems. Through laboratory courses, field trips, and internships on the FVCC campus farm and in the community, the Integrated Agriculture and Food Systems program provides students with a hands-on, multidisciplinary experience in agriculture and food systems. Upon completion of this program, students will be able to:

- Describe the components and complexities of our modern food system;
- Demonstrate knowledge of crop and livestock production methods;
- Identify, diagnose and manage pests and diseases of crop plants and livestock;
- Consider the whole-farm implications of their management decisions;
- Safely and effectively operate farm machinery and equipment;
- Describe various marketing opportunities in small and large-scale agriculture; and
- Identify the necessary steps to start and operate a new business.

**First Year**

**Fall Semester**

<u>Course #</u>	<u>Title</u>	<u>Credits</u>
___ ANSC 100	Animal Science	3
___ BIOB 110N	Plant Science	3
___ BIOB 111L	Plant Science Lab	1
___ COMX 115	Introduction to Interpersonal Communication	3
___ SFBS 146	Introduction to Sustainable Food and Bioenergy Systems	3

___ WRIT 101W*	College Writing	3
___ WRIT 122C*	Introduction to Business Writing	<u>3</u>
		16

**Spring Semester**

<u>Course #</u>	<u>Title</u>	<u>Credits</u>
___ ENSC 245NL	Soils	4
___ IAFS 110*	Principles of Crop Science	3
___ IAFS 202	Organic Crop Production: Spring	3
___ IAFS 230	Integrated Pest Management	<u>5</u>
		15

**Summer Semester**

<u>Course #</u>	<u>Title</u>	<u>Credits</u>
___ IAFS 246	Agriculture in Montana Field Course	2
___ IAFS 298	Internship: Campus Farm	<u>3-6</u>
		5-8

**Second Year**

**Fall Semester**

<u>Course #</u>	<u>Title</u>	<u>Credits</u>
___ AGMT 200	Agricultural Marketing	3
___ ANSC 222*	Livestock in Sustainable Systems	3
___ BMGT 210	Small Business Entrepreneurship	3
___ IAFS 200*	Soil Nutrient Management	3
___ IAFS 202	Organic Crop Production: Fall	<u>3</u>
		15

**Spring Semester**

<u>Course #</u>	<u>Title</u>	<u>Credits</u>
___ ACTG 122	Accounting and Business Decisions	2
___ BGEN 280*	Business Planning	3
___ IAFS 238	Farm Maintenance and Equipment	4
___ IAFS 298*	Internship: Agricultural Enterprise	3-4
___ IAFS 299*	Capstone: Integrated Agriculture and Food Systems	<u>3</u>
		15-16

**Total Credits**

**66-70**

\*Indicates prerequisite and/or corequisite needed. Check course description

**Program Information**

An internship is required for this program. Students must **Credit** for internship placements for this program the prior semester. See page 39 for more information and application deadlines.

**Additional Costs**

There are lab fees associated with some of the classes in this program. They are listed in the semester schedule.

**Opportunities after Graduation**

Graduates can expect to find employment in a variety of agricultural jobs, including as plant/soil/animal science technicians, in agricultural sales/marketing, or as farm managers. Small-scale farming is one of the fastest growing sectors in agriculture, which presents opportunities for graduates to be self-employed farmers.

For general information, contact the Admissions office: (406) 756-3846.

**ITEM 160-2005-R0713**

**Curriculum Change to Architecture Degrees (BA, MArch)**

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**THAT**

The Board of Regents of Higher Education authorizes Montana State University to increase the total number of credits required for a Bachelor of Arts in Environmental Design and a Master of Architecture degree.

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**EXPLANATION**

The School of Architecture at Montana State University-Bozeman is requesting a proposed increase in the total number of credits required for a Bachelor of Arts in Environmental Design and a Master of Architecture degree in order to conform to the minimum credit requirements for an accredited architecture program as required by the National Architectural Accrediting Board (NAAB).

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**ATTACHMENTS**

Level II Request Form  
Curriculum Proposal  
Attachment #1: Curriculum Charts

Item Number: 160-2005-R0713

Meeting Date: July 15, 2013

Institution: Montana State University

CIP Code: 04.0201

Program Title: Curriculum Change to Architecture Degrees (BA, MArch)

Level II proposals require approval by the Board of Regents.

**Level II action requested (place an X for all that apply and submit with completed Curriculum Proposals Form):**

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; and
- 4. 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 School of Architecture at Montana State University-Bozeman is requesting a proposed increase in the total number of credits required for a Bachelor of Arts in Environmental Design and a Master of Architecture degree in order to conform to the minimum credit requirements for an accredited architecture program as required by the National Architectural Accrediting Board (NAAB).

**Montana Board of Regents**  
**CURRICULUM PROPOSALS**

**1. Overview**

**Revision to the Bachelor of Arts in Environmental Design and Master of Architecture degree program**

A proposed increase in the total number of combined credits required for a Bachelor of Arts in Environmental Design and a Master of Architecture degree in order to conform to the minimum credit requirements of The National Architectural Accrediting Board (NAAB).

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

The proposed curriculum change would increase the total number of required credits in the Bachelor of Arts in Environmental Design (B.A. EnvD) degree program from the current 120 credits to 126 credits. Combined with our current 42-credit Master of Architecture (M.Arch) degree program, the total combined undergraduate/graduate credits would equal 168 credits which is the minimum number of credits required for our professional degree by our accrediting organization, the National Architectural Accrediting Board (NAAB).

**3. Need**

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

The National Architectural Accrediting Board (NAAB) is the sole agency responsible for accrediting architecture programs throughout the United States. Each architecture program in the United States must meet the NAAB 2009 Conditions for Accreditation, in order to maintain their status as an accredited architecture program. Section 2 Curricular Framework, located under part Two of the 2009 Conditions, contains the following requirement for NAAB accreditation as follows:

*“The number of credit hours for each degree is specified below. Every existing accredited program must conform to the following minimum credit hour requirements by January 1, 2015.*

- **Master of Architecture.** *Accredited degree programs awarding the M. Arch. Degree must require a minimum of 168 semester credit hours; or the quarter-hour equivalent, of which at least 30 semester credit hours; or the quarter-hour equivalent, must be at the graduate level, in academic coursework in professional studies and electives.”*

Our current curriculum requires only 162 credits—120 credits in our Bachelor of Arts in Environmental Design degree and 42 credits in our Master of Architecture degree program. In order to maintain our status as a NAAB accredited architecture program we need to add 6 credits to our required curriculum.

Maintaining our NAAB accreditation is critical to the ongoing success of our program as almost all jurisdictions in the United States require an accredited professional degree, such as our Master of

**Montana Board of Regents**  
**CURRICULUM PROPOSALS**

Architecture degree, in order to become a licensed architect. The Master of Architecture program at Montana State University is the only accredited architecture program in Montana. There are less than 160 NAAB accredited architecture programs in the United States.

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

In order for our students to become licensed architects, it is critical that they be able to receive a professional degree that is recognized by the National Architectural Accrediting Board. In order to maintain our current accreditation status, the School of Architecture underwent a rigorous curriculum review in order to develop an undergraduate and graduate curriculum that would meet NAAB's 168 credit requirement. This review process included weekly meetings by the school's curriculum committee, individual interviews of faculty in each subject area by the curriculum committee, and discussions at multiple faculty meetings each semester as well as all-school forums and online surveys to gain student feedback on the proposals developed throughout the process.

The school looked at curricular areas that would benefit most from additional credits—in particular the areas of building systems, sustainability, research and design—which were identified by students and faculty in the course of this curriculum review.

We also looked at the potential financial impact on students both in terms of time-to-graduation and tuition costs. Ultimately, it was determined that adding credits to our graduate program would increase the program of study from 11 semesters to 12 semesters resulting in increased tuition costs and time-to-graduation for all of our students. However, adding credits to the undergraduate program could be accomplished within our current 8-semester B.A. in Environmental Design degree program. Adding credits to our undergraduate degree program would not increase our students' time-to-graduation. In addition, given the flat spot for undergraduate tuition between 12-18 credits each semester, adding 6 credits to a student's program of study could be accomplished without an increase in tuition costs for students.

The ability to satisfy the NAAB accreditation requirement and add 6 additional credits—through a new undergraduate sustainability course and a new undergraduate research methods course—without increasing our students' time-to-graduation or increasing their tuition costs, became primary factors in developing this proposal to add 6 credits to our B.A. in Environmental Design program.

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

We accept up to 91 student in to our Environmental Design Program—at the start of their sophomore year. Historically, 80% of our Environmental Design undergraduate students apply for and enter into the MSU Master of Architecture program. An additional 5% of our undergraduate students apply for and enroll in other NAAB accredited Master of Architecture degree programs, which are also required to have a minimum of 168 combined undergraduate and graduate credits.

**Montana Board of Regents**  
**CURRICULUM PROPOSALS**

**4. Institutional and System Fit**

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

The proposed curriculum changes would be modifications to the existing Bachelor of Arts in Environmental Design degree program and the Master of Architecture degree program in the School of Architecture at Montana State University.

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

The proposed curriculum changes will require students to complete 126 undergraduate credits to receive the Bachelor of Arts in Environmental Design degree—an increase of 6 credits—and then complete our existing 42 credit Master of Architecture degree program. This will increase the total combined undergraduate and graduate credits required to 168.

To accomplish this, two new courses are being added to the B.A. in Environmental Design undergraduate degree program, which account for the additional 6 credits proposed in the undergraduate program. These two new courses are:

- ARCH 431 Sustainability in Architecture, 3 credits
- ARCH 452 Research Methods in Architecture , 3 credits

Two new courses are being proposed for the Master of Architecture degree program but these courses are replacing current elective courses and will not add to the total number of credits required for the Master of Architecture graduate program:

- ARCH 526 Advanced Architectural Theory, 3 credits
- ARCH 535 Advanced Building Systems Integration , 3 credits

In addition, ARCH 560 Masters Studio Project and ARCH 575 Research Paper/Project are replacing existing required graduate courses in the M.Arch curriculum.

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

The B. A. in Environmental Design degree program and the M. Arch degree program combine to make the only accredited professional architecture degree offered on the MSU campus as well as in the state of Montana. Beyond the minimum credit requirements, NAAB also requires that 34 different student performance criteria be met in our curriculum. These NAAB student performance criteria are

**Montana Board of Regents**  
**CURRICULUM PROPOSALS**

covered in the required courses of our undergraduate and graduate curriculum which is why all curricular decisions within the School are made in the context of the combined undergraduate and graduate curriculum.

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

As one of less than 160 accredited architecture programs in the United States, the B.A. in Environmental Design program combined with the Master of Architecture program supports the MSU and Board of Regents strategic goals in the following areas by providing our students with the required skills and accredited degree to allow our graduates the opportunity to become licensed architects. This supports **MUS Board of Regents Goal 2: Workforce & Economic Development:**

Assist in the expansion and improvement of the state's economy through the development of high value jobs and the diversification of the economic base.

- Increase responsiveness to workforce development needs by expanding and developing programs in high demand fields in the state.
- Increase degrees and certificates awarded in high demand occupational fields.

In addition, our accredited architecture program supports the **Montana State University Strategic Plan** through the following areas:

Learning

Given the high percentage of our undergraduate students who seek an advanced degree—80-85% pursue the M.Arch degree—our program contributes in a significant way to this objective. Although the recession impacted the architecture profession as significantly as other disciplines, the demand for architecture graduates is increasing with a shortage of architects beginning to be identified by the publication *Architectural Record*. The U.S. Department of Labor has indicated that the job growth for architects will be higher than the national average for all occupations over the next decade.

In addition, the School has received the maximum term of accreditation, 6 years, from NAAB since the early 1980's demonstrating a mastery of disciplinary learning. In addition, MSU Architecture graduates typically exceed the national passing rate on the Architectural Registration Exam—the national architectural licensing exam.

Engagement and Integration

Students in the Environmental Design undergraduate program and the Architecture graduate program contribute to the university's overall objective for increased outreach and engagement throughout the region. The School of Architecture's Community Design Center (CDC) has partnered architecture students with communities around the state of Montana for over 37 years. The CDC provides the opportunity for students to engage in service-learning activities that provide conceptual design and schematic design services to non-profit and government agencies as a means for generating projects

**Montana Board of Regents**  
**CURRICULUM PROPOSALS**

that are subsequently undertaken by private sector design and construction professionals. Recent projects have included participation in the Sydney Boys & Girls Club, Big Horn County Historical Museum, and the Lewiston Trails to Rails project.

In addition, through our graduate design studio and electives, students have participated in the development and construction of additions for a local food bank, an addition for a women's shelter, multiple community recreational pavilions in wilderness areas, facilities to support community gardens, and the Sourdough Volunteer Fire District Station schematic concept. These outreach, engagement and integration courses and activities provide interdisciplinary opportunities for our students and faculty with their counterparts in the College of Engineering, College of Business, and College of Agriculture in addition to numerous community organizations and government agencies.

- 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 Bachelor of Arts in Environmental Design and the Master of Architecture degree programs in the School of Architecture at Montana State University comprise the only accredited architecture program in the Montana University System.

**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.**

A curriculum program chart is attached that identifies the proposed changes to our undergraduate and graduate curriculum in a graphic diagram. We have also included a chart of our existing curriculum to assist all reviewers in understanding the proposed changes. Following is a narrative description of the proposed changes shown in the attached charts:

Proposed Changes to Bachelor of Arts in Environmental Design degree program

The proposed undergraduate curriculum adds two new courses plus one existing course that has not been required for a number of years. A number of courses are shifted to a different semester or year. Following is a list of the proposed changes to our existing curriculum:

**New undergraduate required courses**

- ARCH 431 Sustainability in Architecture, 3 credits      Added to Fall Semester of fourth year.
- ARCH 452 Research Methods in Architecture, 3 credits      Added to Spring Semester of fourth year

**Montana Board of Regents**  
**CURRICULUM PROPOSALS**

- The 6 credits proposed for these two new courses will increase the total credits required for the B.A. in Environmental Design degree from 120 credits to 126 credits and allow us to meet the NAAB accreditation requirements.

**Existing undergraduate course added back into required curriculum**

- ARCH 457 Architectural design V, 5 credits Added to Spring Semester of fourth year
  - This course is currently an existing course in the undergraduate catalog but has not been required for a number of years. This course will replace 5 credits of architecture electives in our current undergraduate program.

**Existing undergraduate courses shifted to a different year in the curriculum (and renumbered)**

- ARCH 254 Architectural Design II, 5 credits, moves from Fall semester of third year (previously listed as ARCH 354) to Spring semester of second year and is renumbered as ARCH 254.
- ARCH 356 Architectural Design IV, 5 credits, moves from Fall semester of fourth year (previously listed as ARCH 456) to Spring semester of third year and is renumbered as ARCH 356.
- ARCH 343 Architectural Structures I, 4 credits, and ARCH 344 Architectural Structures II, 4 credits, shift from Fall and Spring of second year (previously listed as ARCH 243 and 244) to the third year of the program and are renumbered as ARCH 343 and ARCH 344.

**Existing undergraduate course shifted to a different semester but remain in the same year**

- ARCH 253 Architectural Design I, 5 credits, moves from Spring to Fall semester of second year.
- ARCH 355 Architectural Design III, 5 credits, moves from Spring to Fall semester of third year.
- ARCH 313 Professional Practice, 3 credits, moves from Fall to Spring semester of fourth year.

Proposed Changes to Master of Architecture degree program

**New graduate required courses**

- ARCH 526 Advanced Architectural Theory, 3 credits
- ARCH 535 Advanced Building Systems Integration, 3 credits
  - These two courses replace 6 existing credits of graduate electives in our graduate program.

**New graduate required course replacing an existing required course**

- ARCH 560 Independent Project Studio, 6 credits, will replace an existing studio course, ARCH 557 Architectural Design Studio, 6 credits.
- ARCH 575 Research Paper/Project, 4 credits, will replace an existing course, ARCH 552 Architectural Research Methods, 3 credits, and replace 1 credit of existing graduate electives in our program.

The Master of Architecture degree program will remain at its existing 42-credits. The combined required undergraduate and graduate credits will total 168 in order for our program to meet the NAAB accreditation credit requirements.

**Montana Board of Regents**  
**CURRICULUM PROPOSALS**

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

The proposed increase in credits for the Bachelor of Arts in Environmental Design program will be implemented with the start of the 2014-16 Undergraduate Catalog and the 2014-16 Graduate Catalog. As such, this new curriculum will begin Fall Semester 2014. NAAB requires that the minimum 168 credit requirement be implemented in all existing accredited architecture programs by January 1, 2015.

**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 additional faculty resources will be required to add 6 credits to the B.A. in Environmental Design program. Although two new courses will be added, ARCH 431 Sustainability in Architecture and ARCH 452 Research Methods in Architecture, the changes to our graduate program will replace graduate electives—that have smaller enrollments—with two required graduate courses that have larger class enrollments. These larger classes will be ARCH 526 Advanced Architectural Theory and ARCH 535 Advanced Building Systems Integration. This will free up existing faculty resources that are currently teaching graduate electives that can be reassigned to teach the two new undergraduate courses in this proposal.

**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 additional resources will be required to ensure the success of this change to our existing undergraduate degree program. The two new courses do not require additional studio space and can be held in existing classrooms on the MSU campus.

**7. Assessment**

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

The Master of Architecture degree, along with the Bachelor of Arts in Environmental Design degree, is reviewed on a six year cycle by the National Architectural Accrediting Board. Six years is the maximum term of accreditation which NAAB will provide to any accredited programs. This review requires a self-assessment by the School of Architecture as well as a review by an outside accreditation team comprised of representatives from the four collateral organizations in the architectural profession—the American Institute of Architects (AIA), the American Institute of Architects Students (AIAS), the National Council of Architectural Registration Boards (NCARB) and the Association of Collegiate Schools of Architecture (ACSA). Our program's success will be measured by the accreditation review we receive from NAAB, the

**Montana Board of Regents**  
**CURRICULUM PROPOSALS**

placement of our graduates in the profession and the passing rate of our graduates on the Architectural Registration Exam.

**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.**

Over the last three years, the School of Architecture has undergone a rigorous curriculum review in order to develop the proposed undergraduate and graduate curriculum and meet the National Architectural Accrediting Board's 168 credit minimum requirement. This review process included weekly meetings by the school's curriculum committee with student representation, individual interviews of faculty in each subject area by the curriculum committee, and discussions at multiple faculty meetings each semester as well as all-school forums in order to gain student feedback on the various proposals developed throughout the process. In addition, the School undertook online surveys to gather student input on course offerings and course sequencing. In addition, the comments and course assessment from the 2008 NAAB accreditation visiting team report were considered and addressed in the proposed curriculum. The outcome of this rigorous review process has resulted in the attached proposed curriculum for the Bachelor of Arts in Environmental Design and the Master of Architecture.

During the course of the process, the School investigated a large number of scenarios including adding credits and courses to either the undergraduate program or the graduate program as well as adding some credits to both degree programs. In addition, the School investigated a scenario involving two tracks for our undergraduate degree program—one track requiring 120 credits for students not planning to pursue a Master of Architecture degree and one track requiring 126 credits for students who were planning to pursue a Master of Architecture degree. However, NAAB considers our undergraduate degree program to be a pre-professional program leading to our professional Master of Architecture degree program regardless of the number of credits required. Having two different pre-professional tracks—from the perspective of NAAB— would lead to confusion regarding the process for obtaining a professional degree and would necessitate additional coursework for those students who return after working for a number of years to pursue a Master of Architecture degree. The percentage of students who would be eligible for any 120 credit track is very small and there would be no difference in time-to-graduation or tuition cost between the two tracks. Having students gain additional content in the areas of sustainability and research were seen as beneficial for student learning outcomes if additional credits were added to the undergraduate program. As such, the two-track scenario was not pursued further based upon this analysis and feedback.

To evaluate the other scenarios, the school looked at curricular areas that would benefit most from providing additional credits—in particular the curricular areas of building systems, sustainability, research and design. We also looked at leveraging the current courses and credits in our graduate program to a larger degree since our current graduate program has a high proportion of open elective courses that

**Montana Board of Regents**  
**CURRICULUM PROPOSALS**

could be converted to a series of more focused required courses. All of these scenarios were considered and contributed to the pedagogical approach we explored for our expanded curriculum.

As a result of the overall review process, it was determined that adding the required 6 credits to our graduate program would increase the combined B.A. in Environmental Design/Master of Architecture program of study from 11 semesters to 12 semester—8 semesters at the undergraduate level and 4 semesters at the graduate level— resulting in increased tuition costs and time-to-graduation for all of our students. However, adding the required 6 credits to the undergraduate program could be accomplished within the current 8-semester B.A. in Environmental Design degree program and given the flat spot for undergraduate tuition, when taking 12-18 undergraduate credits, adding 6 undergraduate credits to a student’s program of study could be accomplished without an increase in tuition costs for students.

Given the emphasis on reducing time-to-graduation rates and the concerns about high levels of student loan debt, along with the pedagogical benefit of two new courses on sustainability and research, the School of Architecture decided that the additional 6 credits required by our accrediting organization should be added to our B.A. in Environmental Design undergraduate degree program. Internal changes within our existing 42-credit Master of Architecture degree program would allow for us to achieve a better ratio of required courses to elective courses. It would also allow for us to introduce additional building systems and history/theory courses to the graduate students. The proposed changes would provide a stronger research component within the graduate program through the introduction of ARCH 575 Research Paper/Project and ARCH 560 Master Studio Project. No additional credits would be added to our current 42-credit Master of Architecture degree program. This would bring the total number of undergraduate credits required for the B.A. in Environmental Design degree to 126 credits and would allow us to meet the minimum credits requirements of NAAB—168 credits total with a minimum of 30 credits taken at the graduate level.

When presented with the various scenarios, students were strongly supportive of adding the required 6 credits to our program in a manner that would not increase the number of semesters required to receive their accredited professional degree in architecture nor increase their total tuition costs for this program. The attached curriculum proposal accomplishes both goals.

This proposed increase to our increase in the total number of combined credits required for a Bachelor of Arts in Environmental Design and a Master of Architecture degree has been reviewed and approved by the Curriculum & Program Committee (CPC), Graduate Council ,Faculty Senate and Dean’s Council.

**Montana State University - School of Architecture**  
**Proposed Bachelor of Arts in Environmental Design and Master of Architecture Curriculum**

updated May 15, 2013

**Bachelor of Arts in Environmental Design - 126 Credits**  
**Master of Architecture- 42 Graduate Credits**

**First Year- Pre-Environmental Design**

<i>Fall Semester</i>		<i>Spring Semester</i>			
Arch 121IA	Intro Design	3	ARCH 152	Design Fundamentals II	4
Arch 151RA	Design Fundamentals I*	4	PHYS 205	College Physics	4
MATH 150Q	PreCalculus	4		Univ. Core (w, US, D, CS, R/IH, R/ IN, or R/ IS)	9
	Univ. Core (w, US, D, CS, R/IH, R/ IN, or R/ IS)	3			
		14			17

**Second Year- Environmental Design Program**

<i>Fall Semester</i>		<i>Spring Semester</i>			
ARCH 241	Building Construction I	3	ARCH 254	Arch Design II	5
ARCH 253	Architectural Design I	5	ARCH 262	Architectural Graphics II	3
ARCH 261	Architectural Graphics I	3	ARCH 323IA	World Architecture II	3
ARCH 322IA	World Architecture I	3		Univ. Core (w, US, D, CS, R/IH, R/ IN, or R/ IS)	3
	Univ. Core (w, US, D, CS, R/IH, R/ IN, or R/ IS)	3			
		17			14

**Third Year- Environmental Design Program**

<i>Fall Semester</i>		<i>Spring Semester</i>			
ARCH 331	Environmental Controls I	4	ARCH 332	Environmental Controls I	4
ARCH 343	Architectural Structures I	4	ARCH 340	Building Construction II	4
ARCH 355	Architectural Design III	5	ARCH 344	Architectural Structures II	4
ARCH 363	Architectural Graphics III	3	ARCH 356	Architectural Design IV	5
		16			17

**Fourth Year- Environmental Design Program**

<i>Fall or Summer Semester</i>		<i>Spring Semester</i>			
Studio Options	ARCH 450 Community Design Center	5	ARCH 457	Adv. Architectural Studio	5
	or		ARCH 313	Professional Practice	3
	ARCH 414 Arch Study Abroad and		ARCH 452	Research Methods in Architecture	3
	ARCH 428 Foreign Study History			Non-architecture Electives	6
	or				
	ARCH 458 Arch Design VI and electives				
	or				
	ARCH 498 Internship				
	and				
ARCH 431	Sustainability in Architecture	3			
	Univ. Core (w, US, D, CS, R/IH, R/ IN, or R/ IS)	3			
	Non-architecture Electives	3			
		14			17

**Bachelor of Arts in Environmental Design - 126 Credits**

**Graduate Year- Master of Architecture program**

<i>Fall Semester</i>		<i>Spring Semester</i>			
ARCH 558	Comprehensive Design Studio	6	ARCH 551	Advanced Architectural Studio	6
ARCH 535	Advanced Building Systems Integration	3	ARCH 575	Research Paper/project	4
ARCH 526	Advanced Architectural Theory	3		Graduate Electives*	5
	Graduate Elective*	3			
		15			15

*Fall Semester*

ARCH 560	Master Studio Project	6			
	Graduate Electives*	6			
		12			

**Master of Architecture- 42 Graduate Credits**

\* Students must complete 45 non-architecture credits prior to receiving their Master of Architecture degree. These credits can be completed at the undergraduate or graduate level. Students who have completed 45 non-architecture credits prior to or during. This requirement for non-architectural credits is mandated by the National Architectural Accrediting Board (NAAB).

	<b>Non-Architecture Credits</b>	<b>300 or 400 level Credits</b>	<b>Total Credits</b>
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<i>Subtotal</i>	20	0	31
<i>First year</i>	<hr/>		

<i>Subtotal</i>	6	6	31
<i>Second year</i>	<hr/>		

<i>Subtotal</i>	0	33	33
<i>Third year</i>	<hr/>		

<i>Subtotal</i>	12	19	31
<i>Fourth year</i>	<hr/>		

<b>Total</b>	<b>38</b>	<b>58</b>	<b>126</b>
<b>Undergrad</b>	<hr/>		

<i>Subtotal</i>	7		30
<i>Grad year 1</i>	<hr/>		

<i>Subtotal</i>	0		12
<i>Grad year 2</i>	<hr/>		

<b>Total Grad</b>	<b>7</b>		<b>42</b>
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<b>Total all credits</b>	<b>45 *</b>		<b>168</b>
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**Legend for shading above**

ARCH 343	Architectural Structures I	4	Gray background on <b>course number only</b> indicates that an existing required course has been moved to a different semester
ARCH 457	Adv. Architectural Studio	5	Gray background on <b>course number and course name</b> indicates that an existing course replacing another course in the required curriculum
ARCH 431	Sustainability in Architecture	3	Gray background on <b>course number, course name AND credits</b> indicates a new course and new credits added to the required curriculum

# Montana State University - School of Architecture

## Bachelor of Arts in Environmental Design and Master of Architecture Curriculum

## Existing Curriculum



Updated July 23, 2012

### Bachelor of Arts in Environmental Design - 120 Undergraduate Credits

### Master of Architecture- 42 Graduate Credits

#### First Year- Pre-Environmental Design

Fall Semester			Spring Semester		
Arch 121IA	Intro Design*	3	ARCH 152	Design Fundamentals II*	4
Arch 151RA	Design Fundamentals I*	4	PHYX 205	College Physics	4
M 151Q	Precalculus (or M171Q Calculus)	4		Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	9
	Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	3			
14			17		

Apply for admission into Second Year once  
ARCH 152 is completed

#### Second Year- Environmental Design Program

Fall Semester			Spring Semester		
ARCH 241	Bldg Construction I	3	ARCH 244	Architectural Structures II	4
ARCH 243	Architectural Structures I	4	ARCH 253	Architectural Design I	5
ARCH 261	Architectural Graphics I	3	ARCH 262	Architectural Graphics II	3
ARCH 322IA	World Architecture I	3	ARCH 323IA	World Architecture II	3
	Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	3			
16			15		

#### Third Year- Environmental Design Program

Fall Semester			Spring Semester		
ARCH 331	Environmental Controls I	4	ARCH 332	Environmental Controls II	4
ARCH 354	Arch Design II	5	ARCH 355	Architectural Design III	5
ARCH 363	Architectural Graphics III	3	ARCH 340	Bldg Construction II	4
	Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	3		Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	3
15			16		

#### Fourth Year- Environmental Design Program

Fall Semester			Spring or Summer Semester		
ARCH 313	Professional Practice	3	Studio Options	<u>Take one of the following:</u>	
ARCH 456	Architectural Design IV	5		ARCH 450 Community Design Center	5
	Non-Arch Electives	7		Electives	7
				or	
				ARCH 414 Foreign Study and	9
				ARCH 428 Foreign Study History	3
				or	
	Apply to Graduate Program once Arch 456 is completed			ARCH 458 Arch Design VI + electives	12
				or	
				ARCH 498 Internship	12
15			12		

ARCH 414/428 takes place in:  
Summer Semester: Rome Studio/Europe  
Spring Semester: Asia or South America

#### Graduate Year- Master of Architecture program

Fall Semester			Spring Semester		
ARCH 551/557	Adv. Arch Studio	6	ARCH 558	Adv. Building Studio	6
ARCH 552	Architectural Research Methods	3		Arch. Graduate Electives***	9
	Arch. Graduate Electives***	6			
15			15		

#### Graduate Year- Master of Architecture

Summer Semester		
ARCH 551/557	Adv. Arch Studio **	6
	Arch. Grad. Elec.***	6
12		

\* ARCH 121, ARCH 151RA and ARCH 152 are offered in Summer Semester for second degree students and transfer students

\*\* All students in the School of Architecture curriculum must enroll and complete at least one summer graduate design studio

\*\*\* Students must complete 45 non-architecture credits prior to receiving their Master of Architecture degree. Students who have completed this requirement in their undergraduate studies may substitute Architecture graduate electives for the Non-Architecture graduate electives

# Montana State University - School of Architecture

## Bachelor of Arts in Environmental Design and Master of Architecture Curriculum

## Existing Curriculum

Updated July 23, 2012

**Bachelor of Arts in Environmental Design - 120 Undergraduate Credits****Master of Architecture- 42 Graduate Credits****First Year- Pre-Environmental Design***Fall Semester*

Arch 121IA	Intro Design*	3
Arch 151RA	Design Fundamentals I*	4
M 151Q	Precalculus (or M171Q Calculus)	4
	Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	3
		14

*Spring Semester*

ARCH 152	Design Fundamentals II*	4
PHYX 205	College Physics	4
	Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	9
		17

**Second Year- Environmental Design Program***Fall Semester*

ARCH 241	Bldg Construction I	3
ARCH 243	Architectural Structures I	4
ARCH 261	Architectural Graphics I	3
ARCH 322IA	World Architecture I	3
	Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	3
		16

*Spring Semester*

ARCH 244	Architectural Structures II	4
ARCH 253	Architectural Design I	5
ARCH 262	Architectural Graphics II	3
ARCH 323IA	World Architecture II	3
		15

**Third Year- Environmental Design Program***Fall Semester*

ARCH 331	Environmental Controls I	4
ARCH 354	Arch Design II	5
ARCH 363	Architectural Graphics III	3
	Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	3
		15

*Spring Semester*

ARCH 332	Environmental Controls II	4
ARCH 355	Architectural Design III	5
ARCH 340	Bldg Construction II	4
	Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	3
		16

**Fourth Year- Environmental Design Program***Fall Semester*

ARCH 313	Professional Practice	3
ARCH 456	Architectural Design IV	5
	Non-Arch Electives	7
		15

*Spring or Summer Semester*

Studio Options	Take one of the following:	
	ARCH 450 Community Design Center	5
	Electives	7
	or	
	ARCH 414 Foreign Study and	9
	ARCH 428 Foreign Study History	3
	or	
	ARCH 458 Arch Design VI + electives	12
	or	
	ARCH 498 Internship	12
		12

Apply to Graduate Program once Arch 456 is completed

15

ARCH 414/428 takes place in:  
 Summer Semester: Rome Studio/Europe  
 Spring Semester: Asia or South America

**Graduate Year- Master of Architecture program***Fall Semester*

ARCH 551/557	Adv. Arch Studio	6
ARCH 552	Architectural Research Methods	3
	Arch. Graduate Electives***	6
		15

*Spring Semester*

ARCH 558	Adv. Building Studio	6
	Arch. Graduate Electives***	9
		15

**Graduate Year- Master of Architecture***Summer Semester*

ARCH 551/557	Adv. Arch Studio**	6
	Arch. Grad. Elec.***	6
		12

Shifting of design studio  
 courses to an earlier  
 semester in the new  
 curriculum proposal

April 4, 2013

Apply for admission into Second Year once  
 ARCH 152 is completed



\* ARCH 121, ARCH 151RA and ARCH 152 are offered in Summer Semester for second degree students and transfer students

\*\* All students in the School of Architecture curriculum must enroll and complete at least one summer graduate design studio

\*\*\* Students must complete 45 non-architecture credits prior to receiving their Master of Architecture degree. Students who have completed this requirement in their undergraduate studies may substitute Architecture graduate electives for the Non-Architecture graduate electives

# Montana State University - School of Architecture

## Bachelor of Arts in Environmental Design and Master of Architecture Curriculum

## Existing Curriculum

Updated July 23, 2012

**Bachelor of Arts in Environmental Design - 120 Undergraduate Credits****Master of Architecture- 42 Graduate Credits****First Year- Pre-Environmental Design***Fall Semester*

Arch 121IA	Intro Design*	3	<i>Spring Semester</i>	ARCH 152	Design Fundamentals II*	4
Arch 151RA	Design Fundamentals I*	4		PHYX 205	College Physics	4
M 151Q	Precalculus (or M171Q Calculus)	4			Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	9
	Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	3				
		14				17

**Second Year- Environmental Design Program***Fall Semester*

ARCH 241	Bldg Construction I	3	<i>Spring Semester</i>	ARCH 244	Architectural Structures II	4
ARCH 243	Architectural Structures I	4		ARCH 253	Architectural Design I	5
ARCH 261	Architectural Graphics I	3		ARCH 262	Architectural Graphics II	3
ARCH 322IA	World Architecture I	3		ARCH 323IA	World Architecture II	3
	Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	3				
		16				15

**Third Year- Environmental Design Program***Fall Semester*

ARCH 331	Environmental Controls I	4	<i>Spring Semester</i>	ARCH 332	Environmental Controls II	4
ARCH 354	Arch Design II	5		ARCH 355	Architectural Design III	5
ARCH 363	Architectural Graphics III	3		ARCH 340	Bldg Construction II	4
	Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	3			Univ. Core (W, US, D, CS, R/IH, R/ IN, or R/ IS)	3
		15				16

**Fourth Year- Environmental Design Program***Fall Semester*

ARCH 313	Professional Practice	3	→	Studio Options	<i>Spring or Summer Semester</i>	
ARCH 456	Architectural Design IV	5			Take one of the following:	
	Non-Arch Electives	7			ARCH 450 Community Design Center	5
					Electives	7
					or	
					ARCH 414 Foreign Study and	9
					ARCH 428 Foreign Study History	3
					or	
	Apply to Graduate Program once Arch 456 is completed				ARCH 458 Arch Design VI + electives	12
					or	
					ARCH 498 Internship	12
		15				12

**Graduate Year- Master of Architecture program***Fall Semester*

ARCH 551/557	Adv. Arch Studio	6	<i>Spring Semester</i>	ARCH 558	Adv. Building Studio	6
ARCH 552	Architectural Research Methods	3			Arch. Graduate Electives***	9
	Arch. Graduate Electives***	6				
		15				15

Shifting of existing  
non-studio courses  
in the new curriculum  
proposal

April 4, 2013

Apply for admission into Second Year once  
ARCH 152 is completed

ARCH 414/428 takes place in:  
Summer Semester: Rome Studio/Europe  
Spring Semester: Asia or South America

**Graduate Year- Master of Architecture***Summer Semester*

ARCH 551/557	Adv. Arch Studio**	6
	Arch. Grad. Elec.***	6
		12

\* ARCH 121, ARCH 151RA and ARCH 152 are offered in Summer Semester for second degree students and transfer students

\*\* All students in the School of Architecture curriculum must enroll and complete at least one summer graduate design studio

\*\*\* Students must complete 45 non-architecture credits prior to receiving their Master of Architecture degree. Students who have completed this requirement in their undergraduate studies may substitute Architecture graduate electives for the Non-Architecture graduate electives



July 15, 2013

**ITEM 160-2006-R0713**

**Bachelor of Science and Minor in Financial Engineering**

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**THAT**

The Board of Regents of Higher Education authorizes Montana State University-Bozeman to establish a program in Financial Engineering with a Bachelor of Science degree and a minor.

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**EXPLANATION**

Montana State University requests approval to establish a program in Financial Engineering that will offer a Bachelor of Science degree and a minor. The financial engineering program will be jointly managed by the Department of Mechanical and Industrial Engineering and the Department of Agricultural Economics and Economics. Financial engineering is a multidisciplinary field that emphasizes the engineering of new financial economic instruments as well as the combining of existing instruments to manage risk, create strategic business opportunities, lower costs, and access new markets. Financial engineers are commonly employed in banking, corporate finance, securities, insurance, manufacturing, agricultural businesses, and other industries that require sophisticated financial management skills. Due to their rigorous training, the demand for financial engineering graduates is high with a forecasted growth rate of 18 to 20% annually over the next seven years, according to the Occupational Outlook Handbook. We anticipate that the program, after start up, will attract about 95 majors. This is an opportunity for MSU to develop a highly recognizable, prestigious program that provides solid employment opportunities.

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**ATTACHMENTS**

Level II Request Form  
Curriculum Proposal

**Montana Board of Regents**  
**LEVEL II REQUEST FORM**

Item Number: 160-2006-R0713 Meeting Date: July 15, 2013  
Institution: Montana State University-Bozeman CIP Code: 52.0601  
Program Title: BS and Minor in Financial Engineering

Level II proposals require approval by the Board of Regents.

**Level II action requested (place an X for all that apply and submit with completed Curriculum Proposals Form):**

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; and
- 4. 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 requests approval to establish a program in Financial Engineering that will offer a Bachelor of Science degree and a minor. Financial engineering is a multidisciplinary field that emphasizes the engineering of new financial economic instruments as well as the combining of existing instruments to manage risk, create strategic business opportunities, lower costs, and access new markets. The financial engineering program will be jointly managed by the Department of Mechanical and Industrial Engineering and the Department of Agricultural Economics and Economics.

## 1. Overview

The Department of Mechanical and Industrial Engineering (M&IE) in the College of Engineering (COE) and the Department of Agricultural Economics and Economics (DAEE) in both the College of Agriculture (COA) and College of Letters and Science (CLS) at Montana State University (MSU), Bozeman campus, propose the creation of a new program, Financial Engineering (EFIN).

Financial Engineering is fundamentally a multidisciplinary field that emphasizes the creation of new financial economic instruments as well as the combining of existing instruments to manage risk, create strategic business opportunities, lower costs, and access new markets. The management of risk is essential in today's highly leveraged domestic markets and the global business environment. Successful market, credit, and production risk management requires complex financial economic modeling and analysis. This program provides students an excellent opportunity to enter this relatively new profession.

The program's intentions are to maintain the high quality of education provided to our students, increase responsiveness to workforce development needs by developing a new program in a high demand field, increase job placement rates, and to expand outreach to top academic achievers graduating from Montana high schools. The faculty in the departments offering the program has both academic and professional experience to assure success for students enrolled in the financial engineering program. The faculty's established contacts with industry leaders will facilitate student internships and employment. Relatively limited resources will be needed because the proposed program relies on an innovative combination of existing courses. As the program grows, we anticipate seeking one new FTE for each Department.

The goal of the EFIN program is to produce highly skilled graduates that are readily employable in sophisticated financial and credit management markets. These graduates will have rigorous training in financial economics, engineering mathematics, and actuarial methods:

- Mathematics similar to many engineering fields, further expanded to include more statistics and probability theory
- Financial economics with a solid background in classical economic theory and markets (capital, commodity, and derivative)
- Software engineering and modeling

The program will produce graduates that have the skills demanded by firms using complex financial instruments and strategies. The use of financial engineering techniques is relatively new and, until recently, was limited to financial centers. However, the use of these financial engineering techniques is now pervasive in regional firms. Regional firms require these skills to compete in the larger and more complex nationwide and international markets.

Financial engineers are commonly employed in banking, corporate finance, insurance companies, securities, mining, agricultural businesses, and other industries that require sophisticated financial management skills. Because of the increased complexity and sophistication of business risk management, and to remain competitive, regional industries as well as national and international firms will employ financial engineers. The International Association of Financial Engineers has been operating since 1992, and maintains a "core body of knowledge" for the field.

We anticipate that the program, after start up, will attract about 95 majors (cross-institutional comparisons provided in Section C). No other financial engineering programs exist in the Montana University System or in the Pacific Northwest region. Geographically, the closest undergraduate programs are in California. This is an opportunity for the MUS to develop a highly recognizable, prestigious program that provides solid employment opportunities and serves the top students in the region.

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

Montana State University seeks approval to establish a new degree, Bachelor of Science in Financial Engineering, including both a major and minor in Financial Engineering. These programs are to be offered jointly by the Department of Mechanical and Industrial Engineering and the Department of Agricultural Economics and Economics. Financial Engineering is a multidisciplinary field that emphasizes the creation of financial economic instruments to manage risk and create strategic business opportunities. The program integrates financial economics with the rigorous mathematics and analysis techniques of engineering. This program provides individuals the background for careers in industries that require the strong quantitative and analytical skills necessary for sophisticated financial and credit management. These industries include banking, corporate finance, securities, manufacturing, mining, oil and gas, agricultural business, timber, and others. Since backgrounds in both economics and engineering are required for financial engineering, the Department of Mechanical and Industrial Engineering and the Department of Agricultural Economics and Economics will jointly manage and house the program. The two departments have outlined agreements for working together that will ensure that this fundamentally interdisciplinary program offers skills in economics and engineering in an integrated manner so that students will be highly competitive for employment in this sophisticated and technical field.

**3. Need**

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

The use of secondary markets, derivatives, and other risk-management and capital obtaining techniques are necessary even for regional firms to be competitive. The financial engineering program will provide students with the skills to provide these services to local, regional, national, and international firms. This program is designed for highly-dedicated students interested in a financial engineering career. Students will need to meet the rigorous academic requirements of the College of Engineering, while obtaining a substantially deeper understanding of economics and financial markets than traditional engineering disciplines.

This program addresses specific goals and initiatives for the BORs' Strategic Plan for 2011. Specifically, this program aims to:

1. maintain the high quality of education provided to our students (Most important consideration);
2. increase responsiveness to workforce development needs by expanding and developing a program in a high-demand field in the state (Goal 2);
3. increase degrees and certificates awarded in high-demand occupational fields (Objective 2.1.2.);
4. increase job placement rates (Objective 2.1.3.);
5. expand outreach to top academic achievers graduating from MT high schools (Objective 1.4.2.).

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

Due to their rigorous training, the demand for financial engineering graduates is high with a forecasted growth rate of 18% to 20% annually over the next seven years (Occupational Outlook Handbook, 2010-11 Edition). PayScale reports that the annual salaries of financial engineers range from \$74,000 to \$115,000. Duff & Phelps reports average salaries of \$97,000 with less than one year of experience. These high salaries indicate that employers demand students with these skills and that these students will be financially rewarded for successfully pursuing this rigorous course of study.

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

#### **Overview**

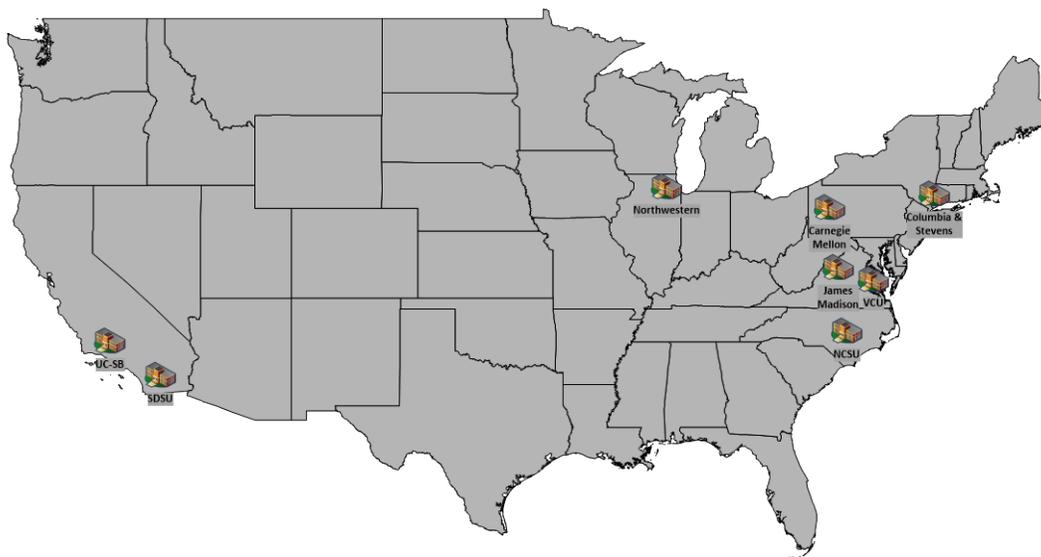
The faculty from the Departments of Mechanical and Industrial Engineering and Agricultural Economics and Economics performed benchmark analysis of other financial engineering programs around the United States and conducted interest surveys with students currently enrolled at MSU.

Information was gathered on the number of institutions with a financial engineering program, number of students per program, and the occupational outlook for financial engineers. This information was then compared to similar measures for Montana State University to develop the estimated demand for a financial engineering program at Montana State University.

#### **Number and Location of Competing Institutions**

Based on information provided by the International Association of Financial Engineers, in the United States there are approximately nine undergraduate programs and 50 graduate programs conferring financial engineering or closely related degrees such as Financial Mathematics, Quantitative or Computational Finance, etc. Figure 1 illustrates the location of programs currently conferring bachelor's degrees in financial engineering, or related fields in the United States. Outside the United States, there are approximately ten undergraduate programs and at least 70 graduate programs offering financial engineering or related degrees.

Figure 1 - Current Undergraduate Financial Engineering Programs



As illustrated in Figure 1, there are no financial engineering programs offered in the Northwest or Intermountain region. This relative lack of competition geographically combined with MSU’s strong programs in Industrial Engineering and Economics makes MSU well positioned to develop a premier undergraduate program in Financial Engineering, attracting top students and further strengthening MSU’s reputation for desirable graduates. Additionally, as shown, the competing programs are based in very large metropolitan areas, enabling MSU’s program to focus on educating the types of graduates that are needed for mid-market firms with rural applications for financial engineers.

**Benchmarking Size and Offerings of Competing Institutions**

As previously stated, the majority of programs in financial engineering tend to focus on graduate education, often for working professionals. Despite an increasing demand for employees with the skill set of financial engineers, the number of undergraduate program offerings is relatively small. The relatively small number of programs mostly reflects the newness of the field. Table 1 contains a summary of all undergraduate programs in the United States.

Table 1 - Summary of Current Undergraduate Financial Engineering Programs

Name of University	Program Size	Program College	COE Size	Graduate Degrees
Columbia University	300	Engineering	1425	MS
Northwestern University	120	Engineering	1440	MS Analytics
Stevens Institute of Technology	92	Technology	N/A	MS, PhD
Carnegie Mellon University	73	Joint - Science & Business	N/A	MS
University of California - Santa Barbara	64	Letters & Science	N/A	PhD
James Madison University	58	Business	N/A	
Virginia Commonwealth University	~40	Business	N/A	
North Carolina State University	New	Sciences	N/A	MS
San Diego State University	Unknown	Sciences	N/A	

By reviewing the programs in Table 1, we see that the four most successful programs in terms of enrollments are housed in engineering or technology schools or are joint programs, with an average program size of nearly 150 students. By comparison, programs housed in business and sciences tend to be substantially smaller, with an average program size of over 50. Based on these demographics, by proposing a joint program housed in engineering and economics MSU's financial engineering program is positioned well for successful enrollment.

It should be noted, though, that directly comparing MSU to Columbia is tenuous given the maturity of the program and their graduate education in the field of financial engineering. In the near term, MSU does not intend to offer graduate studies focused in the field, which may detract from our ability to grow a successful program. This potential risk is offset by MSU's existing graduate offerings in Economics (MS Applied Economics) and Industrial Engineering (MS Industrial and Management Engineering, PhD Engineering – Industrial Engineering Option) which could be tailored within their respective departments for the student wishing to continue education in the field of financial engineering.

Of the comparison programs, only one is a land grant university, North Carolina State University. However, this program is new and currently has only handful of students enrolled. As such, it is not a useful benchmark for the proposed program at MSU.

As discussed in section C.2, programs in financial engineering tend to focus on graduate education, often for working professionals. However, this fact should not be interpreted as a lack of demand for undergraduate students with skills to work as financial engineers. In fact, as shown by the letters of support included in Appendix A, there is substantial regional and national interest for undergraduate students with these skills.

### **Occupational Outlook**

Table 2 contains industry outlooks from the Occupational Outlook Handbook, 2010-11 Edition. Financial engineering is not listed in the manual. Therefore, the analysis is based on the closest occupation to financial engineering, financial analyst. This industry is expected to increase employment by 50,000 new jobs in the next seven years. The subgroup of financial analysts most closely associated with financial engineering are those working in securities, commodity contracts, and other financial investments and related activities. Employment in this field is expected to account for 11,000 of the new jobs in the field.

Table 2 - Financial Engineering Related Occupational Outlook

Industry Code	Industry	2008			2018			Employment Change (Percent)
		Employment (000's)	Percent of Industry	Percent of Occupation	Employment (000's)	Percent of Industry	Percent of Occupation	
13-2051	Financial Analysts							
TOT001	Total employment, all workers	250.6	.17	100	300.3	0.18	100	49.6 (19.81)
523000	Securities, commodity contract, and other financial investments and related activities	63.2	7.36	25.21	74.9	7.81	24.94	11.7 (18.51)
523900	Other financial investment activities	37.2	10.70	14.85	43.8	11.24	14.59	6.7

**Overall Demand**

As noted, there are relatively few financial engineering programs currently in the United States, and none in the Pacific Northwest. The most successful programs in terms of enrollment are housed in Schools of Engineering or are joint programs.

Although there are no direct comparisons for the proposed program at MSU, we can use this data to make inferences about the projected future size of the program. As noted above, the proposed program will share many of the same characteristics of the most successful current programs. Based on the current size of MSU's College of Engineering (approximately 2200 undergraduates) and the Industrial Engineering program (approximately 90 undergraduates), it appears reasonable to exclude the top program, Columbia University, as an outlier, and benchmark the proposed program against the next top three programs. Based on that analysis, it is reasonable to assume that the proposed program will enroll a similar number of students as these programs (95 students) upon full enrollment. This estimate is further supported through an interest survey of current students at MSU. The survey contacted students currently enrolled in Agricultural Business, Economics, Industrial Engineering, General Engineering and University Studies programs and found 55% of respondents were interested or very interested in including aspects of financial engineering in their undergraduate education. The committee believes this estimate is conservative as programs housed outside of engineering are included in the average.

The enrollment estimate also has margin of error (in both directions) due to various unknowns. First, being the only financial engineering program in the Pacific Northwest is expected to have a positive influence on enrollment due to lack of competition, however, it may also have a negative influence on program enrollment due to lack of awareness. Second, MSU's COE is larger than both Columbia and Northwestern who have substantially higher financial engineering enrollments, which points to potential for greater enrollments. However, since their Industrial Engineering programs are larger than ours, their higher enrollments may reflect other differences in student population. Third, the lack of a graduate program in financial engineering may have some adverse effect on enrollments. All of these influences are non-quantifiable using the available data.

Even with our conservative estimate of 95 students, this will place MSU's program as approximately the fourth largest program in the country at full enrollment. As indicated in later sections, using this conservative approach, the proposed program will have a positive effect on the financial success of MSU.

#### **4. Institutional and System Fit**

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

The financial engineering program is connected to the existing industrial engineering program in the College of Engineering and the economics program in the Department of Agricultural Economics and Economics. Financial engineering students are required to take a similar track of courses in analysis and mathematics to industrial engineering students in their program of study while replacing various engineering fundamentals courses with course work in economics and other areas of finance. Minor support to the program will be provided by MSU's College of Business (COB). An agreement has been reached between the committee and members of the COB finance faculty to allow financial engineering students to utilize senior level finance courses as professional electives.

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

Approval of the proposed financial engineering program will not require changes to any existing programs at MSU.

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

There are no other financial engineering programs in the MUS system. Nor are there other programs that could be deemed closely related in nature outside the core industrial engineering and economics programs described above.

Alternatives to a new undergraduate degree program were considered and evaluated. One option considered is to create a financial engineering option under one of the existing degree programs. This option is deemed infeasible because the number of credits required would exceed limits enacted by the Board of Regents. For example, a financial engineering option under BS in Industrial Engineering would require 30 credits in excess of the required 128 credits due to accreditation requirements of the BSIE degree. Another option considered is to start with a minor, see how popular it is, and then create a major degree program at some future date. However, to create the minor would still require creating at least two new courses along with an administrative structure, so the resource requirements would be comparable to that of the full degree program. In addition, a minor would not be nearly as marketable, would not likely attract new students to MSU and associated new revenues, and would not adequately meet the market needs outlined in the previous sections. We therefore conclude that the best path forward for MSU is an undergraduate major degree.

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

The proposed program will support the specific goals of MSU's recently adopted strategic plan in the following ways:

*Objective L.3: Increase job placement and further education rates* – As discussed in section 3:C4, the demand for graduates with financial engineering skills is strong and growing. Students from the proposed programs will enjoy strong job prospects, similar to other high demand majors within current College of Engineering programs. The curriculum for the program, described in section 5.A., is designed to meet all prerequisites needed to pursue graduate education at other leading institutions offering programs in this field.

*Objective E.2: MSU graduates will have global and multi-cultural understanding and experiences* – The nature of financial engineering requires students to have a strong understanding of global markets which will be emphasized throughout the curriculum. Existing faculty relationships with international organizations including the World Bank and leading financial institutions are expected to provide student internships and project placements that offer hands-on experiences in global markets.

*Objective I.1: Increase the integration of learning, discovery and engagement* – Financial engineering is an application-based discipline. As such, faculty research projects will be largely community-based and will heavily utilize partnerships with undergraduate scholars to collect data and apply the methods of financial engineering to solve community issues.

*Objective I.2 Increase work across disciplines* – Financial engineering is fundamentally interdisciplinary, drawing heavily from financial economics and engineering. In fact, the differentiating skill of financial engineers is their ability to apply analysis techniques common in engineering to solve problems in financial economics. This synergistic approach provides students with the expertise for risk and capital management that their employers require to compete in large, complex, or international markets. The collaborative effort will occur at various levels. The design of courses most central to the degree will include input from both engineers and economists. The senior project will integrate coursework, such that students will use the developed skills to address real-world problems in an interdisciplinary manner. The senior project will involve research using both financial economics and engineering approaches in an integrated manner so that students develop the capacity to apply the skills learned from multiple disciplines. While the very heart of the proposed program is an interdisciplinary collaboration between two different departments of two different colleges within MSU, it is not the extent of the interdisciplinary nature of the proposal. In addition to this core collaboration, members of MSU's College of Business have been engaged to support certain areas of the education of financial engineering students through elective courses and further partnerships are being explored with the School of Business at the University of Montana. As the program expands and faculty members focus more on the area of financial engineering, it is expected that these additional collaborations will move beyond a focus on student learning to include interdisciplinary partnerships in discovery.

*Objective A.2: Diversify the Student Body* – Approximately half of all undergraduate programs in Financial Engineering worldwide are based outside the United States. This fact, when combined with the global nature of the work of financial engineers, points to a strong demand for these skills among international students who could be attracted to MSU. In the long term, it is expected that this program could attract international partnerships, similar to other programs that currently exist within the College of Engineering.

**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.**

There are no similar programs offered in the MUS system and this program is not expected to create any duplication within the MUS. Certain topics included in the Colleges of Business at MSU and U of M will make good supporting coursework for students in the financial engineering program, as outlined in the program of study in Section 5. Members of both of these colleges have been approached for their support.

**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.**

Preliminary course catalog, student performance and retention requirements are provided in the table below.

<b><u>FINANCIAL ENGINEERING MAJOR</u></b>				<b>CORE</b>
<b>Course Name</b>	<b>Course Title</b>	<b>Fall</b>	<b>Spring</b>	
<b>Freshman Year</b>				
CHMY 141	College Chemistry I		4	IN
<i>Take one of the following:</i>				
CLS 101	Knowledge and Community	3		US
COM 110	Public Communication	3		US
CSCI 111	Programming with Java 1	4		
CSCI 132	Basic Data Structures and Algorithms		4	
EFIN 101*	Introduction to Financial Engineering		1	
IA Elec	Inquiry Arts Elective	3		IA
M 171	Calculus I	4		Q
M 172	Calculus II		4	
PHSX 220	Physics I		4	CS
WRIT 101**	College Writing I	3		W
		<b>17</b>	<b>17</b>	
<b>Sophomore Year</b>				
CSCI 232	Data Structures and Algorithms		4	
ECNS 251***	Honors Economics	4		IS
ECNS 301	Intermediate Microeconomics with Calculus		3	
ECNS 309	Managerial Economics		3	
EGEN 325	Engineering Economic Analysis	3		
EIND 364	Principles of Operations Research I	3		
EIND 373	Production Inventory Cost Analysis		3	
M 221	Introduction to Linear Algebra	3		
M 273	Multivariable Calculus	4		
M 274	Introduction to Differential Equations		4	
		<b>17</b>	<b>17</b>	

**Junior Year**

ECNS 313	Money & Banking	3		
ECNS 406	Industrial Organization		3	
EFIN 301*	Engineering & Economic Financial Management I		3	
EIND 300	Engineering Management & Ethics	3		
EIND 354	Engineering Probability and Statistics I	3		
EIND 464	Principles of Operations Research II		3	
EIND 457	Regression & Multivariate Analysis for Engineers		3	
IH Elec	Inquiry Humanities Elective	3		IH
Professional Electives		3	3	
		<b>15</b>	<b>15</b>	

**Senior Year**

D Elec	Diversity Elective		3	D
ECNS 4xx****	Econometrics I	3		
EIND 4xx****	Managerial Forecasting & Decision Analysis	3		
EFIN 401*	Engineering & Economic Financial Management II	3		
EFIN 499*	Financial Engineering Senior Project		3	R
Professional Electives		3		
Technical Electives		3	6	
		<b>15</b>	<b>12</b>	

\* New Class

\*\* Students exempt from MSU writing requirement should substitute WRIT 221.

\*\*\* May substitute ECNS 202 and ECNS 204.

\*\*\*\* New co-convened undergraduate courses, EIND 4xx with EIND 558, ECNS 4xx with ECNS 561.

Professional Electives: BFIN 420, BFIN 441, BFIN 452, BFIN 458, BFIN 466, ECNS 314, ECNS 403, ECNS 432, ECNS 345, EGEN 310, EIND 425, EIND 434, EGEN 492.

Technical Electives: CSCI 440, CSCI 446, CSCI 447, ECNS 501, ECNS 502, ECNS 562, EIND 422, EIND 458, EFIN 498\*, M441, STAT 408, STAT 436.

Note: May substitute EIND 373 and ECNS 345 as prerequisite for BFIN 352, BFIN 452, and BFIN 458.

A minimum of 125 credits is required for graduation; 42 of these credits must be in courses numbered 300 or above.

## FINANCIAL ENGINEERING MINOR

<b>Required Courses</b>		<b>Credits</b>
ECNS 251**	Honors Economics	4
CHMY 141	College Chemistry I	4
M 221	Introduction to Linear Algebra	3
M 171	Calculus I	4
M 172	Calculus II	4
PHSX 220	Physics I	4
		<b>23</b>
<b>Minor Courses</b>		
ECNS 301	Intermediate Microeconomics with Calculus	3
ECNS 313	Money and Banking	3
EGEN 325	Engineering Economic Analysis	3
EFIN 101*	Introduction to Financial Engineering	1
EFIN 301*	Engineering & Economic Financial Management I	3
EFIN 401*	Engineering & Economic Financial Management II	3
EIND 354	Engineering Probability and Statistics I	3
EIND 364	Principles of Operations Research I	3
<i>Take one of following:</i>		
ECNS 309	Managerial Economics	3
ECNS 406	Industrial Organization	3
ECNS 4xx***	Econometrics I	3
<i>Take one of following:</i>		
EIND 457	Regression & Multivariate Analysis for Engineers	3
EIND 464	Principles of Operations Research II	3
EIND 4xx***	Managerial Forecasting & Decision Analysis	3
		<b>28</b>

\* New Class

\*\* May substitute ECNS 202 and ECNS 204.

\*\*\* New co-convened undergraduate courses, EIND 4xx with EIND 558, ECNS 4xx with ECNS 561.

By benchmarking other undergraduate programs, the faculty identified four courses (10 credits total) needed to cover a few specific topics or curricular needs not addressed by existing courses. EFIN 101 is a one-credit overview course intended to introduce prospective students to the emerging field of financial engineering. EFIN 301 and EFIN 401 cover the essential elements of the Financial Engineering Body of Knowledge. Students will be expected to apply tools, techniques, and fundamental concepts from other courses to specific application areas. EFIN 499 is a capstone experience where students will integrate the concepts they have learned throughout their program to a specific, real-world application. Students will also have the opportunity to complete an internship under EFIN 498 as an elective. Combining these courses with existing courses as shown above creates a program with comparable requirements to those of the undergraduate programs benchmarked. The steering committee (see Section B2 below) will review the courses regularly and make adjustments as necessary.

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

**B.1. Enrollment Analysis**

Recent surveys of prospective students currently enrolled at MSU indicate a strong interest in the program, with 55% of respondents indicating they were interested or very interested in incorporating financial engineering into their undergraduate education. This strong interest occurred despite the fact that only 35% of respondents indicated they were familiar with financial engineering prior to receiving the information in the survey. Based on these polls and our own enrollment analysis (in section 3C), we expect the program to reach 95 students enrolled in the major within five years. The higher salaries of financial engineers will also attract students into this major. Below is a forecasted estimate of the number of majors for the first five years of the new program.

**Table 5: Number of Majors by Years**

Year	Number
1 <sup>st</sup>	30
2 <sup>nd</sup>	55
3 <sup>rd</sup>	75
4 <sup>th</sup>	90
5 <sup>th</sup>	95

**B.2. Program Administration**

A Memorandum of Understanding (MOU) outlines the broad parameters of cooperation between the two departments responsible for the proposed program (see Appendix B). A Financial Engineering Major Steering Committee (FEMSC) consisting of two Economics faculty members and two Industrial Engineering faculty members will be established to oversee and administer the program. The FEMSC will:

- Prepare new course proposals, and shepherd them through the approval process
- Market the EFIN program
- Oversee EFIN Courses, including coordination of content and teaching assignments
- Evaluate and improve the EFIN program
- Ensure catalog updates occur in a timely fashion
- Establish a process for assigning advisors and advising students
- Establish a process for degree certification, including selection of a degree certifying officer

## 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.

As outlined in the course catalog description above, the majority of courses taken by financial engineering students already exist at MSU. However, the program requires two new 3-credit financial engineering lecture-based courses, one new 1-credit freshman seminar, an internship course, and a senior capstone course. In addition, two courses currently offered in an on-demand mode (EIND 373 and 558) will move to an annual offering. Finally, approximately four added sections will be required of existing classes once the program is at a full complement of students

The FEMSC has constructed projected costs and revenues for the financial engineering program. The per student tuition revenue is based on 70% in-state and 30% out-of-state students yield an average tuition costs of \$8,868 per student. This breakdown of in-state and out-of-state tuition is based on the demographics of the most recent freshman class at MSU. The long-run projected total revenue generation for all students in the major is \$842,414 per year and from only new students is \$421,207 per year. After subtracting expected program costs, the total net revenue to MSU is expected to be \$426,174, with \$58,967 contributed from net new students. These revenue forecasts do not include any estimated value for increased tuition due to students pursuing a minor in financial engineering. The split of existing vs. net new revenue was made using an assumption of 50% net new enrollments to MSU. This assumption is supported by data collected through the student interest survey, which found slightly more than 50% of respondents indicated that they would have been likely or very likely to stay in their current major if financial engineering had been an available degree program at the time they enrolled at MSU. We anticipate net revenue in the first year of \$210,604 for all students and that net revenue will rise to the long-run projection within 6 years. See Table 6 for the costs and revenues projection.

Funding for faculty to teach the additional courses in the program will come from existing sources. In particular, the departments are moving existing faculty lines to support the teaching required in the new program:

- In the case of DAEE, it is expected that senior faculty will develop and teach the new courses.
- For Industrial Engineering, a new faculty member is currently on reduced teaching load as part of his start-up agreement. As the start-up agreement ends he will assume the teaching of the new courses, and the department will continue existing coverage of current courses.
- MSU Foundation resources are available to the College of Engineering for curriculum development and will be used to fund program start-up.
- As the program grows, the departments will seek additional resources as necessary through the university's budget allocation process.

### 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.

Existing MSU classroom facilities will be used for course delivery. The initial need for operational dollars and other expenses will be met with funds available through the MSU Foundation. Table 6 contains long run income and expense projections for the program.

**Table 6: Long-run Costs and Revenues Projection**

<u>Revenue</u>		
Number of Majors		95
Total Number of New Students		47.5
Fraction of New MSU Students		0.5
Average Per Student Tuition <sup>1</sup>	\$ 8,868	
Total Revenue (all students)		\$ 842,414
Total Revenue (new students)		\$ 421,207
 <u>Costs</u>		
Instructors		2
Total Salary	\$160,000	
Total Benefits @ 35%	\$ 56,000	
Total Faculty Compensation		\$ 216,000
Operations Costs		\$ 20,000
Subtotal		\$ 263,000
Ancillary Costs @ 48% <sup>2</sup>		\$ 126,240
Total Cost		<u>\$ 362,240</u>
<hr/>		
Projected Net Revenue Generation (All Majors)	\$ 426,174	
Projected Net Revenue Generation (New Students)	\$ 58,967	

<sup>1</sup> Average tuition is based on average tuition of in-state and out-of-state students. See table below.

<sup>2</sup> Ancillary costs include additional sections of other classes beyond those taught by new faculty and miscellaneous costs borne by other departments. These costs are due to having 47.5 more students at MSU and will be funded through the usual budgeting process

<b>General Tuition Revenue</b>		
Resident Tuition	\$ 5,076	
Non-resident Tuition	\$ 17,714	
% Nonresident		<u>30</u>
Estimated Tuition Revenue	<u>\$ 8,868</u>	

## 7. Assessment

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

The success of the program will be measured on multiple fronts. This includes measurement of the program's impact on the MUS system, the success of the program in achieving programmatic objectives, and success of the program in achieving programmatic outcomes. Specific actions for each of these measures are outlined below:

## **A. Success of the program for the MUS system**

In order to become a successful major at MSU, the program must attract and retain talented students. A key measure of this success is the number of students enrolled in the program. As outlined earlier in the document, at steady-state, the program is expected to attract 95 majors, with 50% of those students being new students to MSU. The program will be considered successful, in terms of student enrollments, if it obtains the following milestones:

- On track to reach break-even student enrollment (approximately 44 full-time students) in two years.
- At break-even student enrollment in year three.
- At 80% of expected steady state enrollment (76 students) by year five.

If these benchmarks of success are not reached, the program will be re-evaluated to determine whether changes are needed or to terminate the program. If the program is terminated, the FEMSC will develop a phase out plan. For example, EFIN 401 and 499 would continue for one year to allow upper division students to complete the major. Lower division students will be accommodated by advising them into an alternative degree program, e.g., a major Industrial Engineering with a minor in Economics, a major in Economics with a minor in mathematics, or a dual major in Industrial Engineering and Economics.

## **B. Success of the program in achieving programmatic objectives**

In order to understand how well the program is meeting objectives, the following actions will be taken:

- Program mission objectives and outcomes will be set during year 1.
- Annual review by the faculty, department, and college administrators for progress against these objectives beginning in year 2.
- Implementation of placement survey beginning in year 4 (with first graduating class).
- Implementation of alumni survey regarding success against these objectives in year 6 (or two years following a graduation class of 10 or more).
- Implementation of employer survey regarding success against these objectives in year 6 (or two years following a graduation class of 10 or more).
- Formation of an external industry advisory board in year 1. Members of the board will advise on the development of the senior capstone course and provide ongoing insight and feedback on the program through annual meetings. Several industry members have already been approached about serving on such a board and indicated their interest.

Survey data will be collected and compared to standards and benchmarks agreed to by the faculty, department, and college administrators on a bi-annual basis.

## **C. Success of the program in achieving programmatic outcomes**

In order to understand how well the program is meeting programmatic outcomes, the following actions will be taken:

- Outcomes specific course evaluations (student input) will be implemented during the first offering of each respective financial engineering course.
- Capstone project reviews (student, faculty, outside stakeholder input) will be implemented with the first capstone group (year 4).
- Senior exit interviews will be implemented in year 4.

#### **D. 5-Year program review**

After five years, the program will be reviewed to determine if it is sustainable. Sustainability will be determined by student interest in the program and employability and success of graduates. Student interest will be measured as outlined in Section 7A. Employability and success of graduates will be measured using external review board feedback as outlined in Section 7B and senior exit interviews as outlined in Section 7C. Based on this review, at the end of five years, the resources committed to the program will be re-evaluated. If the program is deemed unsuccessful, it will be closed down as outlined in Section 7A. If the program is meeting and/or exceeding expectation and if resources are deemed insufficient, the departments may seek additional resources through the investment proposal process.

#### **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 financial engineering program was first proposed by a senior faculty member in the DAEE upon receiving repeated requests from local firms for better quantitatively and analytically trained students with particular emphasis on applications in financial engineering. We investigated how many institutions and the number of current student enrolled currently in financial engineering programs. Preliminary external financial engineering program evaluation was conducting during the summer of 2010.
- After the preliminary program evaluation suggested that MSU would be at a comparative advantage to offer a financial engineering program, senior faculty discussed the proposal with community business leaders within Montana. They all indicated support for such a program. We have attached letters of support from some of these corporation's executive officers in the Appendix. Discussions occurred during Spring 2011, Summer 2011, and Fall 2011 semesters and continue currently with an expanding network.
- The DAEE approached the COE with a proposal to construct a new financial engineering major housed in the COE. A Financial Engineering Major Steering Committee (FEMSC) was formed immediately upon verbal approval from both sides. The FEMSC was charged to construct a major and minor in financial engineering with particular attention to resource requirements. The FEMSC provided enrollment and resource projects as well as a course catalog description to the DAEE's Resident Instruction Committee as well as the faculty of the COE. Preliminary discussions occurred during June 2011.
- The FEMSC meet with the U of M's College of Business Dean and MSU's College of Business finance faculty and Interim Dean to discuss the proposed major and potential courses that may benefit financial engineering majors. An agreement was reached between the FEMSC and members of MSU's finance faculty to allow financial engineering students to utilize senior level finance courses as professional electives. It is expected that U of M will be a partner in future research efforts related to Financial Engineering.
- After resolving concerns from both faculties, a revised enrollment and resource projection as well as a course catalog description were provided to the general faculty during a faculty meeting for their approval. The vote was unanimous with proceeding with the proposed major. Faculty discussions occurred in August 2011.

- The proposed program has also been discussed with many students in the DAEE and the College of Engineering. A formal student interest survey of current students in DAEE, Industrial Engineering, General Engineering and University Studies was undertaken in March 2012. This survey found six current students who would be likely or very likely to change their current major to financial engineering, 12 students who would be likely or very likely to add financial engineering as a second major, and 26 students who would be likely or very likely to add financial engineering as a minor to their current major.
- Members of the FEMSC have discussed the financial engineering major with local business leaders, members of their professional networks and members of the College of Engineering advisory board. All of these discussions have yielded enthusiastic support for the program concept. At this time, the FEMSC has received a number of letters of support for the program as well as verbal interest from a number of prospective members to serve on the External Advisory Board upon Board of Regent approval for the degree program.
- The proposal was reviewed by the Department of Agricultural Economics and Economics, and received faculty approval in March 2012.
- The proposed program was brought to the College of Engineering Curriculum Committee in April 2012 for review. Concerns were raised and addressed through revisions to the proposal. The revised proposal with requested supporting documentation was submitted to the Committee in November 2012 with a request for approval. The program was approved unanimously on December 1, and feedback from the Committee incorporated into the proposal.

July 15, 2013

**ITEM 160-2007-R0713**

**Designation of an Honors College at Montana State University**

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**THAT**

The Board of Regents of Higher Education authorizes Montana State University designate an Honors College.

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**EXPLANATION**

The University Honors Program (UHP) at Montana State University seeks designation as an Honors College. This is essence a name change, as the Honors Program at Montana State University already meets or exceeds the characteristics of a fully-fledged Honors College as outlined by the National Collegiate Honors Council. The UHP currently has 1,112 students, representing all the academic colleges at MSU. Honors students have brought great distinction to the MUS system, by gaining admittance to the nation's top graduate schools (Yale, MIT, Stanford, Notre Dame) and by winning major scholarships such as the Rhodes, Marshall, Truman and Goldwater Awards.

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**ATTACHMENTS**

Level II Request Form  
Curriculum Proposal  
Attachment #1: Appendices

**Montana Board of Regents**  
**LEVEL II REQUEST FORM**

Item Number: 160-2007-R0713 Meeting Date: July 15, 2013  
Institution: Montana State University-Bozeman CIP Code: N/A  
Program Title: Designation of an Honors College at Montana State University

Level II proposals require approval by the Board of Regents.

**Level II action requested (place an X for all that apply and submit with completed Curriculum Proposals Form):**

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; and
- 4. 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 Honors Program (UHP) at Montana State University seeks designation as an Honors College. This is essence a name change, as the Honors Program at Montana State University already meets or exceeds the characteristics of a fully-fledged Honors College as outlined by the National Collegiate Honors Council. The UHP currently has 1,112 students, representing all the academic colleges at MSU. Honors students have brought great distinction to the MUS system, by gaining admittance to the nation's top graduate schools (Yale, MIT, Stanford, Notre Dame) and by winning major scholarships such as the Rhodes, Marshall, Truman and Goldwater Awards. We have the full and enthusiastic support of Dean James McKusick from the Davidson Honors College at the University of Montana for this name change.

## 1. Overview

The University Honors Program (UHP) at Montana State University seeks designation as an Honors College. This proposal is in essence a request for a name change, as the Honors Program at Montana State University already meets the characteristics of a fully developed Honors College as outlined by the National Collegiate Honors Council in 2009. The UHP currently has 1,112 students representing all the academic colleges at MSU. Honors students have brought great distinction to the MUS system: by serving as ambassadors, tutors, organization leaders, agents of outreach and service; by gaining admittance to the nation's top graduate schools (Yale, MIT, Stanford, etc.); and by winning major scholarships such as the Rhodes, Marshall, Truman and Goldwater Awards (MSU is among the top ranked institutions in the U.S. with regard to number of Goldwater Scholars with 58 awards). We have the full and enthusiastic support of Dean James Mskusick from the Davidson Honors College at the University of Montana for this name change.

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

The Honors College at Montana State University will provide opportunities for students to study, conduct research, and exchange ideas in a challenging and supportive interdisciplinary academic environment. In addition to taking small enrollment classes with outstanding faculty members, honors students may enroll in honors seminars and courses, and engage in independent study and research opportunities. Students who complete the requirements for an Honors degree, will receive a designation as graduates of the Honors College on their academic transcripts and on the University Commencement program. Following our practice since the inception of the program in 1981, Honors graduates will also receive an additional diploma at a separate ceremony for them, their faculty mentors, and parents.

## 3. Need

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

Honors Programs nationwide are transitioning to Honors Colleges; the Honors Program at Montana State University requests to do the same. The designation of an Honors College at MSU would more accurately represent the scope and size of the program, in terms of number of students served (1,112), and the range of courses offered. The designation of an Honors College on the academic transcript of our graduates will be more indicative of the quality and rigor of their undergraduate education in an increasingly competitive market. Finally, an Honors College at MSU will increase our appeal to out-of-state students (59.5% of the out-of-state fee paying students at MSU are in the UHP), and to in-state students, to whom we offer the opportunity to experience an unsurpassed educational experience without leaving our state.

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

The University Honors Program (UHP) currently serves 7.5% of the student population at MSU. The proposed Honors College will continue to provide high potential students with the opportunity to enroll in challenging courses taught by distinguished faculty in smaller class settings. Honors Colleges at the University of Montana and Montana State University will provide Montana University System students with an education equal to that offered by private institutions. We will, as we have for the past 32 years, remain an attractive choice for high achieving Montana students. We have also recruited highly motivated out-of-state students: 49% of the students in the UHP are out-of-state students. The impact of the

program can be measured in number of prestigious awards received by Honors graduates (see appendix), and by the elevated graduation rate (UHP 6-year graduation rate, between 71-75%) and second-year retention rate (UHP 95%). By providing an educational experience of distinction, we advance student recruitment, retention and graduation rates, and thus serve the interest of students and the state.

Furthermore, faculty afforded the opportunity to teach an honors course or seminar, are routinely invigorated by the experience. Every year, tenure and non-tenure track faculty are invited to submit proposals for Honors seminars, or Great Expeditions courses. In addition, faculty may apply to teach "Texts and Critics", contingent upon the approval of their academic department head and dean. Access to Honors is by design, open to all faculty and students at MSU.

Overall, Honors advance the institution's ability to recruit, retain, and cultivate the excellence of both high potential students and faculty.

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

We expect that the demand for an Honors College will be the same, or even greater, than what it has been for the Honors Program at MSU. We have seen a dramatic increase in quality and quantity of applications to the UHP in recent years. In the fall of 2005, our freshman class numbered 140 students. F2006=167, F2007=193; F2008=186; F2009=230; F2010=306; F2011=318; F2012=317. The average ACT of the entire freshman Honors class in 2012 was 29.21. The number of applicants for the Presidential Scholarship is always a key indicator of the quality and size of the incoming class; in 2013, we received 319 applications. All indications are that the freshman class of 2013 will be extraordinary: the 148 semi-finalists had an average ACT of 32, GPA of 3.98 and 75 had ACT's above 33; 35 candidates had ACT's above 34, and 41% of the semi-finalists were in-state students. While these trends are exciting, we are confident that we will reach even more students with the designation as an Honors College at MSU.

**4. Institutional and System Fit**

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

Over the past 32 years, the University Honors Program at MSU has enjoyed tremendous faculty and administrative support, to provide highly motivated students with an excellent undergraduate education. The program works cooperatively with administration and faculty in other academic departments to deliver Honors courses under departmental rubrics, and Honors seminars under the University Honors rubric. Currently, the program director reports directly to the Office of Academic Affairs; this arrangement will continue in the Honors College.

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

No. The proposal is, in essence, a request for a name change.

**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 Honors College is in complete alignment with the strategic goals of MSU.

- **Learning:** The Honors College will prepare students for meaningful careers or for graduate school. Through our curriculum, Honors students will develop the ability to think critically and independently, and as such, will contribute to the scholarly discourse in meaningful ways by providing real solutions to the world's most pressing problems.
- **Discovery:** The Honors College will raise the prominence of MSU both nationally and internationally, through the research, creative endeavors, innovation and scholarly achievements of our students. Honors graduates are required to write an Honors or departmental thesis in their senior year, and to present their work in a public forum.
- **Engagement:** Students in the Honors College are leaders and engaged citizens, working with community partners to improve the human condition. Honors students are leaders on our campus and beyond, and have spearheaded efforts to address sustainability, social justice, economic and health disparities in Montana and beyond. Honors students serve as mentors in the public schools, and as tutors to their peers in all disciplines.
- **Integration:** By integrating learning, discovery and engagement, and by working across disciplines, the Honors community will improve the world. This is evident by our students working locally and internationally to improve the lives of others. Honors students in all majors have integrated their course work, for example: nursing students are making a pronounced difference in community health efforts, engineering students are addressing issues of water quality, sanitation, and sustainability, and music and education majors are actively engaged as mentors in the public schools.
- **Access:** The Honors College at MSU is committed to widening access to higher education and ensuring equality of opportunity for all. Students may apply to the Honors College at any point during their academic career, prior to their senior year. The written application includes an academic statement, a 500-word essay, a letter of recommendation as well as academic transcript(s) and test scores. Upon careful review, the student will gain admittance to Honors, or, will be reconsidered after one semester of college. This is truly the strength of an Honors College: students at a land-grant state university will have access to an education equal to that offered students at elite private universities.
- **Stewardship:** The Honors College at MSU will responsibly manage its human, physical, economic and environmental resources in an open and sustainable manner. We take our charge, that of providing the most valuable resource of our state - our students - with the best education possible, seriously. We have used the funding allocated to us responsibly and effectively, and have been responsible stewards of the historic buildings entrusted to us.

**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.**

We have the full and enthusiastic support of Dean James McKusick from the Davidson Honors College at the University of Montana, as well as from the Honors Programs at Montana Tech, Flathead Valley Community College, and MSU-Billings. Each Honors Program and College throughout the nation is truly unique as it reflects the ethos and focus of each individual institution, and therefore, duplication is not possible. We have routinely accepted students from the University of Montana in the Honors Program at MSU and vice versa, and the same reciprocal arrangement is in effect with Montana Tech and the Honors Program at MSU-Billings, as well as the Scholars Program at Flathead Valley Community College.

## **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.**

The proposed curriculum will remain the same as it is at present.

There are three levels of course offerings in Honors.

- Courses in academic departments restricted to Honors students. Courses include MUSI 219 IA (Honors Music and Society), CHMY 151, 153, 331, 333, CSCI 111, ECNS 251IS, EGEN 221, EELE 101, EARTH 201, HISTA 412IH, M 181, 182, 283, 284; PHSX 240, 242; PSYX 110IS, SOCI 110IS, BIOB 140R. These courses are supported by the academic departments, typically in partnership with their respective academic deans, and the Honors program.
- Courses offered in Honors: UH 201, 202, 301 (Texts and Critics), UH 204 D (Great Expeditions), UH 210 (Mentoring Gifted Students), UH 291 (Special Topics), UH 121 (Hike and Read), UH 131 (Freshman Research Symposium). These courses are funded by the UHP.
- Upper level seminars: Seminars scheduled for the 2013-14 AY include: Origins; Human Nature; Our Nuclear Age; Ethics and Etiquette in the Digital Age; The Art and Science of Medicine; Mythological Displacements in Literature, Dreams and Life; Where Science and Policy Diverge: A Global Tour of Climate Change Science and Political Deadlock; Music and the Brain; Neurolinguistics: Language and the Brain; Honors Read; Sociobiology: Evolution and Human Behavior, and Electoral Change and Political Polarization in the United States. These seminars are funded by the UHP.

In order to graduate with an Honors Degree, students need to fulfill the following requirements:

**HONORS PROGRAM DEGREE REQUIREMENTS  
(In effect since 1995)**

- UHP Baccalaureate with **HIGHEST DISTINCTION** (3.7 Cumulative GPA) *summa cum laude*
  - UH 201 & 202 "Texts and Critics" 8 credits
  - **OR UH 301 (only 4 credits)**
  - 1 Upper-Division Honors Seminar 4 credits
  - A second Upper-Division Honors Seminar (4 cr.)
  - **OR UH 450 Tutorial: Student Fellow (4-6 cr.)** 4-6 credits
  - Honors Thesis (may be in Major or in Honors) 3 credits (minimum)
  - Other UH Courses 9 credits (or 13 if using UH 301)
  - 28 credits**
  - Two semesters of one foreign language or CLEP
  
- UHP Baccalaureate with **DISTINCTION** (3.5 Cumulative GPA) *magna cum laude*
  - UH 201 & 202 "Texts and Critics" 8 credits
  - **OR UH 301 (only 4 credits)**
  - 1 Upper-Division Honors Seminar 4 credits
  - A second Upper-Division Honors Seminar (4 cr.)
  - **OR UH 450 Tutorial: Student Fellow (4-6 cr.)** 4-6 credits
  - **OR Honors Thesis (may be in Major or in Honors)** 4-6 credits
  - Other UH courses 4 credits (or 8 if using UH 301)
  - 20 credits**
  - Two semesters of one foreign language or CLEP
  
- UHP Baccalaureate with **ACADEMIC ACHIEVEMENT** (3.5 Cumulative GPA) *cum laude*
  - UH 201 & 202 "Texts and Critics" 8 credits
  - **OR UH 301 (only 4 credits)**
  - 1 Upper-Division Honors Seminar (4 cr.)
  - **OR UH 450 Tutorial: Student Fellow (4-6 cr.)**
  - **OR Honors Thesis (may be in Major or in Honors)** 4-6 credits
  - Other UH courses 4 credits (or 8 if using UH 301)
  - 16 credits**
  - Two semesters of one foreign language or CLEP

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

The Honors College at Montana State University is essentially a name change, and as such, no implementation period will be necessary. We expect a slight increase in student numbers, directly correlated to increased student enrollment at the university. As is the case with all Colleges at the University, we anticipate that demands associated with growth will be met through prevailing university resource allocation practices.

## 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.

There are no requests at present. However, over the longer term we envision a small number of FTE to be located in the College, to establish long-term continuity in UH offerings, and for flexible use, such as for internal sabbaticals. Any future requests will be managed through the prevailing university process for allocation and reallocation of faculty lines.

### 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.

Administrative resources: We plan to increase our 0.5 Administrative Associate to a full time appointment. This increase has in effect already occurred, due to the unforeseen medical leave of our full time Program Coordinator in the spring of 2013. Over the last year, we have added a student advisor, freshman seminar coordinator, and major scholarship/graduate fellowship advisor. These appointments are all part time appointments, as all these individuals have other university appointments as well. We have capitalized and leveraged the strength of our university, by drawing upon the wealth of faculty resources at our university, always in consultation with academic deans and department heads. The strong connection that Honors administrators have to their own academic departments and colleges is a strength and unique quality of our program.

The salary of the Honors Director in 2005 (not the current Director), scales with a 2% annual increase to 0.8% of the average of the current UPA average for an Honors Dean. Thus the anticipated salary of the Dean of an Honors College is comparable to the salary of a past Honors Director at MSU.

Space resources: We occupy prime university space at MSU. Our offices and classrooms are located in Quad F, in the historic Atkinson Quadrangle, designed by Frank Wilson and completed in 1935. Quad F is scheduled for extensive renovation in the summer of 2013. Twenty-two additional Honors beds will be added on the two floors directly above us. In addition, the 10<sup>th</sup> floor of South Hedges is designated as Honors, and in the fall of 2014, all the Quads will be designated as Honors housing. These measures will address the increased demand for Honors housing.

## 7. Assessment

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

As has been our practice, all Honors courses and seminars will be regularly assessed. We will also track our graduation and retention rates, as well as the success of our graduates beyond MSU, in terms of admittance to graduate schools, fellowship and scholarship recipients, and career success. We will continue to administer rigorous course evaluations and assessments, both at the mid- and end of term, as well as exit interviews and surveys upon graduation. The success of our curriculum will be measured by the number of students graduating from MSU within 6 years combined with retention statistics. The data supporting the success of the existing Honors Program is outlined in 3(B).

## **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 been reviewed and approved by the Curriculum and Planning Committee as well as the Faculty Senate. It will be presented for review and approval by the Deans' Council before submission to the Offices of the Provost and President, and the Montana University System Board of Regents.

### Appendix

1. Major Scholarship winners at MSU
2. Honors Course Offerings 2012-2013
3. Honors Course Offerings 2013-2014
4. Honors Program Degree Requirements

**MONTANA STATE UNIVERSITY**  
National Scholarship Award Winners

**Goldwater Scholarships**

2013	Alissa Bleem	Chemical Engineering	Fort Collins, CO
	Natasha Pettinger	Chemistry	Cody, WY
	Brian Redman	Electrical Engineering	Crane, MT
	Matthew Sherick	Chemical Engineering	Hudson, WI
2012	David Halat	Chemistry/Mathematics	Bozeman, MT

**Honorable Mentions**

2011	Nels Gerstner	Chemistry	Fort Collins, CO
	Brian Redman	Electrical Engineering	Crane, MT
	Bryan Vadheim	Chemical Engineering	Miles City, MT
	Daniel Barta	Paleontology	Helena, MT
	Casey Donovan	Mathematics	Kremlin, MT

**Honorable Mentions**

2010	Nathan Carroll	Paleontology	Ekalaka, MT
	David Stevens	Computer Science	Ronan, MT
	LoriBeth Everts	Mechanical Engineering	Joliet, MT
2009	Tim Brox	Physics	Fresno, CA
	Joseph Azzarelli	Chemistry	Golden, CO
	Benjamin Naab	Chemistry	Wayzata, MN
2007	Luke Oltrogge	Chemistry	Absarokee, MT
2006	Eric Morchhauser	Earth Science	Wappingers Falls, NY
	Brittney Pollard	Earth Sci/Paleontology	Boise, ID
	Christoffer Renner	Physics	Bozeman, MT
2005	Bridgid Crowley	Biochemistry	Helena, MT
2004	Angela Kimmel	Comp Sci / Comp Eng	Seeley Lake, MT
	Jay Stringer	Biochemistry	Bozeman, MT
2003	Bonnie Kirkpatrick	Computer Science	Dillon, MT
2002	Zeb Barber	Physics	Belgrade, MT
	Sara Maccagnano	Physics	Manhattan, MT
	Britney Moss	Biochemistry	Bozeman, MT
2001	Laura Jennings	Chem/Enviro Eng	Helena, MT
	Kay Kirkpatrick	Math	Dillon, MT
2000	Carl Legleiter	Earth Sci/Geohydrology	Englewood, CO
	Sara Maccagnano	Physics	Manhattan, MT
	Jeffrey Zahller	Chemical Engineering	Great Falls, MT
1999	Amanda Cundy	Civil Engineering	Bozeman, MT
	Jennifer Nyman	Chemical Engineering	Great Falls, MT
	Lindsey Nussbaum	Electrical Engineering	Great Falls, MT
1998	Jesse McClelland	Chem/Biochem	Bozeman, MT
	Eric Nichols	Applied Math	Idaho Falls, ID
	Sarah Olson	Microbiology	Bozeman, MT
	Casey Smith	Physics	Joliet, MT

### **Goldwater Scholarships - Continued**

1997	Norah Esty	Math/Computer Sci	Bozeman, MT
	Shawn Hurley	Biochemistry	Helena, MT
	Sean Sandborgh	Biochem/Physics	Bozeman, MT
1996	Valerie Wagner	Chemistry	Bozeman, MT
1995	Charles Thiel	Physics	Sidney, MT
1994	Marie Kelley	Biological Sciences	Gardiner, MT
	Kevin Scott	DIS	Ashland, MT
	Heather Thomas	Physics	Bozeman, MT
1993	Michael Frandsen	Math/Physics	Missoula, MT
	Michael Grinder	Computer Science	Lima, MT
	Chandra Roukema	Computer Science	Billings, MT
	Sierra Stoneberg	Range Science	Hinsdale, MT
1992	Andy Bayramian	Physics	Bozeman, MT
	Michelle Beauvais	Physics	Anchorage, AK
	Brett Busch	Physics/Math	Stanford, MT
	Jennifer DeVoe	DIS	Helena, MT
	Jason Holt	Math	Corvallis, MT
1991	Jefferson Kommers	Physics	Bozeman, MT
	Allene Whitney	Microbiology	Helena, MT
	Mark Wistey	Electrical Engineering	Livingston, MT
	Jan Wright	Chemical Engineering	Helena, MT
1990	Melissa Jurica	Biomedical Science	Broadus, MT
	Sonja Short	DIS	Miles City, MT
1989	Dustin Lawrence	Physics	Terry, MT

### **Rhodes Scholarship**

2013	Joseph Thiel	Chemical Engineering	Idaho Falls, ID
2010	Kathleen Hansen	Industrial Engineering	Bozeman, MT
2006	Brian Johnsrud	English	Big Sandy, MT
2000	Chelsea Elander	Chemistry/Biochem	Missoula, MT
1996	Jennifer DeVoe	DIS	Helena, MT
1974	Maurice J. Burke		
1939	Robert L. Tichenor		
1938	Charles Jelinek		
1935	John T. Hays		
1929	Matti Hugo Pakkala		

### **Gates-Cambridge Scholarships**

2012	Hilary Fabich	Chemical Engineering	Livingston, MT
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### **Marshall Scholarship**

2013	Bryan Vadheim	Chemical Engineering	Miles City, MT
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**Mitchell Scholarship**

2008	Shane Colvin	CBNS/BioChem/Music	Billings, MT
2001	Michelle Miles	Modern Languages	Bozeman, MT

**Truman Scholarships**

2003	Kathryn Conner	English	Great Falls, MT
1999	Chelsea Elander	Chemistry/Biochem	Missoula, MT
1991	Laurel Desnick	DIS	Livingston, MT
1990	Megan Ludwig	History	Billings, MT
1989	Simone Taubenberger	Philosophy	Helena, MT
1988	Dustin Craven	Earth Science/Geog	Billings, MT
1988	Kathleen Johnson	DIS	Portland, OR
1985	Heather Tallman	DIS	Whitefish, MT
1983	Sarah Warfield		Pray, MT

**Udall Scholarships**

2013	Blake H. Bjornson	Mechanical Engineering	Missoula, MT
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**Honorable Mention**

	Kellie M. Phillips	Nursing	Kaycee, WY
2000	Sarah F Morgan	Environment	
	Vanessa M. Watts	Health Care	
1999	Michelle R. Snow	Health Care	
1998	Michelle R. Snow	Health Care	

**Honorable Mention**

2006	David W. Keto	Environment	
1997	Ryan M. Archer		

**Boren Awards**

			<b><u>Host Country</u></b>
2012-13	Matt Smith	Economics	Zanzibar
	Gabe Lavin	Anthropology	Egypt
2010-11	Katy Hansen	Industrial Eng/Economics	Israel
	Lara Wabrek	Mechanical Engineering	Chile
2001-02	Kathy Laubach	Business	Germany
2000-01	Catherine Dratz	Spanish/Lit	Morocco
1999-2000	Justin Lubke	Political Science	India
1998-99	Benjamin Hursh	History	India
	Sarah Rothschilder	Ecology	Tanzania
1997-98	Stan Guthrie	Physics	Russia
1996-97	Ananda Morse		Ecuador
1995-96	Darin Oelkers		Russia

**Pearson Prize for Higher Education**

2010	Griffin Stevens	Mech. Engineering	Bozeman, MT
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**Fulbright Grantees****Host Country**

2012-13	Angela Brennan	Wildlife/Ecology	Zambia
2011-12	Dan Cornish	English Teaching	Turkey
	Sasha Dingle	English Teaching	Vietnam
	Jaime Kreitinger	Public Administration	Jordan
2010-11	Jill Roberts	English Teaching	Germany
2008-09	Brent Leavell	Geography	Indonesia
	Cathy Heidner	English Teaching	Germany
	Dawson Dunning	Doc Film	New Zealand
2007-08	Maria Frostic	Doc Film	Iceland
	Kelly Matheson	Doc Film	Congo
2005-06	Anne Devereaux	Doc Film	Kazakhstan
	Heidi Harriman	English Teaching	Germany
2004-05	Alison Spain	Art	Mexico
	Rachel Webster	English Teaching	Germany
2003-04	Chad Diehl	History	Japan
	Michelle Yearos	English Teaching	Germany
2002-03	Ryan Anderson	Economics	Norway
2000-01	Peter Roos	Physics	Australia
1999-2000	Jody Diegnan	Latin American Studies	Argentina
1997-98	David Hebb	Art	Ireland
	Sierra Stoneberg	Botany	Czech Republic

**MONTANA STATE UNIVERSITY  
2012-2013 HONORS COURSES**

Rev 9/12/2012

Fall Semester 2012		Spring Semester 2013	
<b>Honors Program Courses</b>			
UH 201US (4)	Texts and Critics: Knowledge	UH 202IH	Texts and Critics: Imagination
UH 210 (2)	Mentoring Gifted Students	UH 204D-001	Great Expeditions – Nepal
UH 301 US (4)	Texts and Critics II	UH 204D-002	Great Expeditions – Galapagos Islands
		UH 204D-002	Great Expeditions - Cuba
		UH 210	Mentoring Gifted Students
<b>Honors Upper-Division Seminars</b>			
Honors seminars are typically 4 credit hours each. Priority order for Honors seminars: final-semester Seniors, Seniors, Juniors, Sophomores			
UH 402RH-001 or UH 403RS-001	The Art and Science of Medicine	UH 494-001	Human Nature
UH 494IS/CS-001	Ethics and Etiquette in the Digital Age	UH 494-002	Honors Read
UH 494-001	Nestings – Recursive Structures in Literature, Film and Cognitive Science	UH 494 RH Or RS-001	Neurolinguistics/Language & the Brain
UH 494-002	Our Nuclear Age	UH 402RH-001 or UH 403RS-001	The Art and Science of Medicine
<b>Departmental Offerings of Honors Courses</b>			
CHMY 151 (4)	Honors College Chemistry I	CHMY 153 (4)	Honors College Chemistry II
CHMY 331 (4)	Honors Organic Chemistry I	CHMY 333 (4)	Honors Organic Chemistry II
M 181Q (4)	Honors Calculus I	M 182Q (4)	Honors Calculus II
M 283Q (4)	Honors Multivariable Calculus	M 284 (4)	Honors Intro to Differential Equations
PHSX 240 (4)	Honors General and Modern Physics I	PHSX 242 (4)	Honors General and Modern Physics II
MUSI 219IA (3)	Honors Music and Society	MUSI 219IA (3)	Honors Music and Society
EGEN 221 (3)	Honors Statics	BIOB 140R (3)	Honors Molecular Biology and Gene Regulation
ERTH 201IN (4)	Honors Earth Systems Science	BIOH 411 (4)	Advanced Human Anatomy
CSCI 111 Lab (1)	Programming with Java I	BIOH 425 (3)	Sensory Neurophysiology (1 Credit Honors Ind. Study)
HSTA 412IH (3)	American Thought and Culture	ECNS 251IS (4)	Honors Economics
PSYX 110IS (4)	Honors Intro to Psychology	SOCI 110IS (3)	Honors Sociological Inquiry

**UH 301 Texts and Critics II:** This course combines UH 201/UH 202 into one semester to allow transfer students and upperclassmen to pursue an Honors degree. Entrance into this class is at the discretion of the Honors Director. The class substitutes for the Texts and Critics sequence requirement, but only contributes 4 credit hours towards the Honors credit-hour requirements for graduation.

**UH 450 Honors Tutorial:** Student fellows of the Texts & Critics sequence enroll in this class to earn academic credit for the experience. Each enrollment is 4 to 6 credit hours, and can be repeated for up to 12 credit hours. Requires approval by the Director, Junior standing, a recommendation from a Texts and Critics faculty, and completion of UH 201/202 or UH 301.

**UH 292, UH 492 Individual Projects:** Directed research or study established by contract between the student, the instructor, and the Director of the Honors Program. (1-4 credit hours)

**UH 490 Honors Thesis:** A project conceived by an individual student that usually requires two semesters of supervised study or research for conclusion. Viewed as a capstone to the student's undergraduate education, the senior thesis is intended to allow students the opportunity to explore subjects of personal interest and demonstrate through investigation comprehensive mastery of the subject areas. Students who intend to undertake graduate studies, medical, or legal studies are especially encouraged to consider senior theses projects. May be independent of, or combined with, capstone work in the students major program of study.

**PLEASE SEE REVERSE SIDE FOR HONORS PROGRAM GRADUATION REQUIREMENTS**

Phone: (406) 994-4110 E-mail: [honors@montana.edu](mailto:honors@montana.edu)

Fax: (406) 994-6747

Internet: [www.montana.edu/honors/](http://www.montana.edu/honors/)

**MONTANA STATE UNIVERSITY  
2013-2014 HONORS COURSES**

Rev. March 18, 2013

Fall Semester 2013		Spring Semester 2014	
<b>Honors Program Courses</b>			
UH 201US (4)	Texts and Critics: Knowledge	UH 202IH	Texts and Critics: Imagination
UH 210 (2)	Mentoring Gifted Students	UH 204D-001	Great Expeditions – “Brazil: Politics at Play”
UH 301 US (4)	Texts and Critics II	UH 204D-002	Great Expeditions – “Literature, Theater and Music in England and Ireland”
		UH 210	Mentoring Gifted Students
		UH 301US	Texts and Critics II (depending on enrollment)
<b>Honors Upper-Division Seminars</b>			
<p><i>*NOTE: Registration for seminars is done on a priority basis. We consider the following criteria: 1) Class standing (seniors given priority); 2) student is on track to receive Honors Degree (i.e., number of Honors credits taken, language fulfillment status (completion of 1 or both semesters of language by the end of their sophomore year); 3) cumulative GPA (3.5+); and 4) major – seminar’s subject fits with, or is advantageous to the student’s major area of study.</i></p>			
UH 402RH-001 or UH 403RS-001	The Art and Science of Medicine	UH 402RH-001 or UH 403RS-001	The Art and Science of Medicine
UH 494IS/CS-001	Ethics and Etiquette in the Digital Age	UH 494IH-001	Human Nature
UH 494IS-002	Sociobiology: Evolution and Human Behavior	UH 494IH-002 or UH 494IN-001	Origins
UH 494CS-002	Where Science and Policy Diverge: A global tour of climate change science and political deadlock	UH 494 RH Or RS-001	Neurolinguistics/Language & the Brain
UH 494IA-001	Music and the Brain	UH 494-002	Honors Read
UH 494-001	Mythological Displacements in Literature, Dreams, and Life		
UH 494-002	Our Nuclear Age		
<b>Departmental Offerings of Honors Courses</b>			
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CHMY 331 (4)	Honors Organic Chemistry I	CHMY 333 (4)	Honors Organic Chemistry II
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PHSX 240 (4)	Honors General and Modern Physics I	PHSX 242 (4)	Honors General and Modern Physics II
MUSI 219IA (3)	Honors Music and Society	MUSI 219IA (3)	Honors Music and Society
EGEN 221 (3)	Honors Statics	BIOH 411 (4)	Advanced Human Anatomy
ERTH 201IN (4)	Honors Earth Systems Science	BIOH 425 (3)	Sensory Neurophysiology (1 Credit Honors Ind. Study)
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HSTA 412IH (3)	American Thought and Culture	PSYX 110IS (4)	Honors Intro to Psychology
		SOCI 110IS (3)	Honors Sociological Inquiry

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MONTANA STATE UNIVERSITY

HONORS PROGRAM DEGREE REQUIREMENTS  
(Effective with the class of 1995)

I. UHP Baccalaureate with **HIGHEST DISTINCTION** (3.7 Cumulative GPA) *summa cum laude*

UH 201 & 202 "Texts and Critics"	8 credits
<b>OR UH 301 (only 4 credits)</b>	
1 Upper-Division Honors Seminar	4 credits
A second Upper-Division Honors Seminar (4 cr.)	
<b>OR UH 450 Tutorial: Student Fellow (4-6 cr.)</b>	4-6 credits
Honors Thesis (may be in Major or in Honors)	3 credits (minimum)
Other UH Courses	
	<u>9 credits (or 13 if using UH 301)</u>
	<b>28 credits</b>
Two semesters of <u>one</u> foreign language or CLEP)	

II. UHP Baccalaureate with **DISTINCTION** (3.5 Cumulative GPA) *magna cum laude*

UH 201 & 202 "Texts and Critics"	8 credits
<b>OR UH 301 (only 4 credits)</b>	
1 Upper-Division Honors Seminar	4 credits
A second Upper-Division Honors Seminar (4 cr.)	
<b>OR UH 450 Tutorial: Student Fellow (4-6 cr.)</b>	
<b>OR Honors Thesis (may be in Major or in Honors)</b>	4-6 credits
Other UH courses	<u>4 credits (or 8 if using UH 301)</u>
	<b>20 credits</b>
Two semesters of <u>one</u> foreign language or CLEP)	

III. UHP Baccalaureate with **ACADEMIC ACHIEVEMENT** (3.5 Cumulative GPA) *cum laude*

UH 201 & 202 "Texts and Critics"	8 credits
<b>OR UH 301 (only 4 credits)</b>	
1 Upper-Division Honors Seminar (4 cr.)	
<b>OR UH 450 Tutorial: Student Fellow (4-6 cr.)</b>	
<b>OR Honors Thesis (may be in Major or in Honors)</b>	4-6 credits
Other UH courses	<u>4 credits (or 8 if using UH 301)</u>
	<b>16 credits</b>
Two semesters of <u>one</u> foreign language or CLEP)	

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