1:00 PM Roll Call and Review of Minutes.

ACTIONS

1:10 PM  

a. Exception to Policy 301.12, Radiologic Technology programs at four institutions. ITEM 138-103-R0308

b. Exception to Policy 301.12, Respiratory Therapy programs at two institutions. ITEM 138-104-R0308

Level II Items

a. Revision of program offerings in Department of Health and Human Development, MSU-Bozeman. ITEM 138-2004-R0108

b. Energy Research Institute, MSU-Bozeman. ITEM 136-2002-R0907

c. Associate of Applied Science degree in Construction Technology-Carpentry, MSU-Billings College of Technology. ITEM 138-2703-R0108

d. Certificate of Applied Science in Medical Coding and Insurance Billing, MSU-Billings College of Technology. ITEM 138-2704-R0108

e. Bachelor of Science degree in Geosciences, with two programs of study in Earth History, Evolution and Resources; and Water, Climate and Environment, UM-Missoula. ITEM 138-1001-R0108

f. Bachelor of Science dual degree in International Field Geosciences in collaboration with University College Cork in Ireland and Potsdam University in Germany, UM-Missoula. ITEM 138-1002-R0108

g. Bachelor of Science degree in Interdisciplinary Geosciences, UM-Missoula. ITEM 138-1003-R0108

h. Creation of a new Department of Communicative Sciences and Disorders, UM-Missoula. ITEM 138-1004-R0108

i. Conversion of the following Certificates to Certificates of Applied Science: Building Maintenance, Carpentry, Computer System Technician, Culinary Arts, Customer Relations, Heavy Equipment
Operation, Medical Reception, Pharmacy Technology, Recreational Power Equipment, Sales and Marketing, and Welding Technology, UM-Missoula College of Technology.  **ITEM 138-1005-R0108**

j. Creation of a new Electrical Engineering Department, MT Tech of UM. **ITEM 138-1501-R0108**

k. Associate of Applied Science degree in Equine Studies, Miles CC. **ITEM 138-401-R0108**

l. Associate of Applied Science degree in Power Plant Technology, MSU-Billings COT. **ITEM 136-2705-R0907**

**INFORMATION**

2:45 PM  
a. Diversity Report, Montana University System. Brad Eldredge, OCHE  
b. Update on model nursing curriculum. Roger Barber, OCHE  
c. Update on two-year and certificate programs and possible moratoriums. Roger Barber, OCHE  
d. Discussion of campus recruiting strategies. Jed Liston, UM-Missoula; and Stacy Klippenstein, MSU-Billings  
e. Grateful Nation. President Dennison, UM-Missoula  
f. Indian Education for All student projects at UM-Missoula teacher education program. Roberta Evans, UM-Missoula  
g. Proposal to award graduate degrees, retroactively, to architecture students. MSU-Bozeman  
h. NASH Access to Success update. Commissioner Stearns

**CONSENT**

4:00 PM  
a. Level I Memorandum  
b. Addition of International Baccalaureate score to Policy 301.16, Writing Proficiency  **ITEM 138-105-R0308**

4:15 PM  Public Comment  
4:30 PM  ADJOURN
Minutes of
ACADEMIC AND STUDENT AFFAIRS
Montana State University-Bozeman
Ballroom D, Strand Union Building
Wednesday, November 15, 2007
8:15 a.m. – 12 noon

Regent Lynn Hamilton, Committee Chair, called the meeting to order at 8:25 a.m.

a. Roll Call.
   All committee members were present: Chair Lynn Morrison-Hamilton, Dr. Janine Pease, Todd Buchanan, and Kerra Melvin.

b. Approval of the minutes from the September, 2007, meeting of the Committee.
   The minutes were approved, as written.

1. Action Items
   a. ITEM 137-101-R1107: Revisions to Policy 301.10, General Education Block Transfer Policy.
      Roger Barber, Deputy Commissioner for Academic and Student Affairs, told the committee members that most of the revisions to this policy were intended to clarify its purpose and provide consistency among all of the general education transfer pathways. The revisions do not change the intent or purpose of the policy, Deputy Commissioner Barber said. There was consensus to move the item forward to the full Board.

   b. ITEM 137-102-R1107: Revisions to Policy 303.3, Program Review, to eliminate the section on “underutilized” programs.
      The Board of Regents approved the current program review policy a little more than two years ago, Deputy Commissioner Barber explained. The new policy shifted the responsibility for program review to the campuses, and required that all programs, regardless of enrollment or graduation rates, must be reviewed at least once over a seven-year period, he said. That was a significant change from the previous review process, that was initiated by the Regents every five years, and focused only on so-called under-utilized programs, Deputy Commissioner Barber said. As a carry-over to that old process, however, the new policy did ask for more information, and more justification, if campuses decided to retain under-utilized programs as part of its internal review, he noted. The formula for determining those programs was complicated, Barber explained, but it was proposed because some programs typically have low graduation rates, even though they also perform an important service function on the campuses. In retrospect, Barber explained, the formula is unworkable, and the proposed revision would eliminate the policy section that attempts to identify under-performing programs. Instead, the Regents would honor the original intent of the new policy by leaving the responsibility for program review, and the results of that review, to the campuses, he said. Regent Pease asked if there is some mechanism for reviewing under-utilized programs more frequently than every seven years. Several academic officers from the campuses said that they constantly monitor enrollment and graduation numbers so resources are used as effectively as possible. Deputy Commissioner Barber also noted that the proposed revisions would require every institution to report graduation and student major numbers over the last seven-year period as part of the program review reports that come to the Board of Regents each November. There was consensus to move the item forward to the full Board.

   c. ITEM 137-104-R1107: Composition Placement, a new policy for the Montana University System.
Jan Clinard, Director of Academic Initiatives, Office of the Commissioner of Higher Education, introduced this policy. She said that she had visited with staff from all two-year and four-year campuses to survey campus preferences to get fairly consistent placement processes across the system. The proposed policy will help with transfer issues and suggests a variety of instruments, including campus placement exams. Deputy Commissioner Barber added that the Board of Regents asked for this policy so students could use the test scores they’ve already earned for placement purposes, rather than taking more tests when they arrive on the campuses. Dr. Clinard said she had discussed this proposed policy with a number of K-12 personnel, including high school teachers, MEA/MFT convention participants, MCEL, and the Montana School Administrators Association. She found that teachers, principals, and superintendents support the idea and the need for consistency across the system. Regent Pease acknowledged that the information and interaction was extensive but questioned the lack of official dialogue as a means of measuring official acceptance. Dr. Clinard replied that she had discussed this at the Board of Public Education and had no negative feedback. Regent Melvin wondered how to let high school students know about requirements. Dr. Clinard said that her office used newsletters, listserves, websites, and in-person presentations to K-12 administrators, counselors, and teachers. Regent Melvin asked Office of Public Instruction Superintendent Linda McCulloch about her ideas on how to help with this. Superintendent McCulloch said she would like to help and meet with superintendents to help get the information out. Superintendent McCulloch also distributed a handout with some questions about the policy and the next two items. That handout is attached to these minutes as Appendix 1. Chair Hamilton emphasized that the writing proficiency policy was already adopted by the Board two years ago, and does not restrict access to the Montana University System. This policy just supplements the writing policy by adding placement processes. There was no consensus to move the policy forward to the full Board for approval.

d. ITEM 137-105-R1107: Revisions to Policy 301.15, Mathematics Proficiency Admissions Standards for Four-Year Programs, to set a proficiency standard that allows for provisional admissions.

Dr. Clinard said that students with ACT math scores below 22 will be admitted, but must take a developmental course within the first three semesters, using a placement process similar to the writing proficiency policy’s provisional admissions criteria. The ten thousand copies of the 2002 Math Proficiency Manuals that were mailed to all Montana high schools showed that this policy will not change placement scores for most campuses, including tribal colleges. She emphasized that this policy creates honesty and clarity for students, and is about good advising and educational pedagogy. She stressed that the earlier the students take the math course, the less difficult it will be for students. She predicts a decrease in developmental math enrollments with the implementation of this policy because of the change in expectations at the high school level. Eric Burke, MEA/MFT Representative, expressed concern about raising the ACT score to 22. He asked what developmental courses look like and how remedial students are treated on campuses. Admission should be for all students, he said. Larry Blacksmith, representing the Montana Indian Education Association (MIEA), told the committee that the organization opposes the policy because it creates barriers for students. He was concerned that some students will not be able to enter the Montana University System, and presented a letter from MIEA setting out its official position. That letter is attached to these minutes as Appendix 2. Regent Pease said this feels like an admissions mechanism and looks like no college credits will be awarded unless the test score is a 22, so there is possibility of confusion. Regent Melvin said that, conversely, as a student, knowing where you stand is valuable. Chair Hamilton says she has heard from high
school teachers that they want to know the expectations so they know what to teach. A recommendation was made to move this revised policy to the full BOR for approval, with Regent Pease dissenting. Regent Pease went on record as dissenting the motion.

**e. ITEM 137-106-R1107: Remedial Coursework, a new policy for the Montana University System.**

Director Clinard introduced the proposed policy on developmental education by reminding the Board of Regents that it authorized work on such a policy more than a year ago. The proposed policy defines developmental coursework, sets out how that coursework will be used in a student’s degree program, and places the primary responsibility for providing developmental coursework with campuses that offer two-year degrees, Dr. Clinard said. Dr. Clinard also pointed out that the policy uses the word “developmental,” rather than remedial, since that appears to be the accepted terminology now. An extensive discussion on the proposed policy followed, and some of the highlights of that conversation are as follows:

- Regent Pease expressed significant concerns about the proposed policy because of its disproportionate impact on low-income and minority students. She said she could not support the policy because it represents another barrier to access for those students.
- Regent Melvin said that she thought students should be able to earn college credit for developmental coursework, and suggested that that part of the proposed policy should be changed. She was supported in that suggestion by Jeff Adams, Assistant Vice Provost at MSU-Bozeman, and two faculty members from Montana State University-Billings who also had children in the MUS.
- When asked if the transferability project would have an impact on developmental courses in the Montana University System, Dr. Clinard emphasized that the proposed policy is closely tied to the writing and mathematics policies, and those two policies set out a variety of alternatives for students to demonstrate their ability to do college-level coursework. All three policies also focus on student skills, which, once they are acquired, obviously follow students if they transfer to a new campus.
- In response to a question about so-called remediation rates, Dr. Clinard said that approximately 37% of all students who come to the Montana University System directly out of high school need some kind of developmental coursework. That is very similar to the experience in other states, she said.
- Dr. Arlene Parisot, Director of Workforce Development and Two-Year Education, reminded the committee that the proposed policy places most of the responsibility for developmental coursework on the two-year institutions. Those two-year campuses are well-suited to provide that service, since they are open-enrollment institutions and already have the resources and expertise to insure student success in college, Dr. Parisot said. Dr. Clinard also reminded the group that the policy will have minimal impact on the number of students who need developmental course work, since its provisions simply utilize current placement practices across the System and make them part of official Board policy. Those placement practices are also reflected in the mathematics and writing proficiency policies adopted by the Board of Regents during the last four-year time period, Dr. Clinard said.
- Dr. Clinard and Deputy Commissioner Barber assured the Committee that students will still qualify for financial aid, even though they will not get college-level credit for developmental courses in most situations.
- Chair Hamilton said she supported the proposed policy. The Board of Regents is not being asked to change any of its previous policies on mathematics and writing proficiency, she said. Instead, it is being asked to set out its expectations about
college preparation, as clearly and honestly as possible, so students and parents know what to expect when they come to the Montana University System. The Committee decided to move the proposed policy forward to the full Board for additional discussion. There was no consensus on a recommendation for the Board.

2. Level II Items

f. ITEM 136-2005-R0907: Center for Native Health Partnerships, Montana State University-Bozeman.
The University of Montana-Missoula Provost and Vice President of Academic Affairs, Dr. Royce Engstrom, said that he is very supportive of the next three items. He acknowledged that other campuses also have good things going on in these areas. Consensus to move forward to BOR.

g. ITEM 136-2006-R0907: Astrobiology and Biogeochemical Research Center, Montana State University-Bozeman.
Consensus to move forward for approval of full board.

h. ITEM 136-2002-R0907: The Energy Institute, Montana State University-Bozeman.
Deputy Commissioner Barber agreed with Provost Engstrom’s comments for Item d. Montana Tech has significant interest in this area, he said. UM may also. We discussed this with the CAOs. MSU would not oppose other such centers. Cooperation between campuses is something the Board of Regents values. Consensus to move forward to BOR. (This item was withdrawn at the full Board of Regents’ meeting.)

i. ITEM 136-2703-R0907: Certificate in Practical Nursing and Associate of Applied Science degree in Registered Nursing, Montana State University-Billings College of Technology.
Deputy Commissioner Barber told the committee members that there was an error with the name of the degree program in the meeting materials. The item should say an Associate of Applied Science degree in Practical Nursing, since the Board approved that degree designation for all practical nursing programs in the Montana University System in May 2007. The MSU-Billings College of Technology already has a practical nursing program, Barber said, and it is asking for a Registered Nursing program with this item. The State Board of Nursing approved this program request at its October 2007 meeting, he noted. The Billings program utilizes the model nursing curriculum, Barber said, and it is the fourth such nursing program in the System to use that curriculum. Chair Hamilton asked if there was any recent data on nursing workforce needs in Montana. Deputy Commissioner Barber said that the most current information that we was aware of was the annual survey of healthcare workers administered by the Montana Hospital Association (MHA). Barber said the MHA plans to conduct that survey again in 2008, and he will make every effort to share the results with the Board of Regents at its May 2008 meeting. John Cech, dean of the MSU-Billings College of Technology, said that the Montana Department of Labor predicted a shortage of 2,900 registered nurses in Montana by the year 2015.

j. ITEM 136-2705-R0907: Associate of Applied Science degree in Power Plant Technology, Montana State University-Billings.
Dr. George White, Interim Provost and Academic Vice Chancellor of Montana State University-Billings, said that this item had gone through the internal review process and had no feedback. External constituents have expressed concern, so he would like to withdraw it until January, or March, 2008, to address those concerns.

k. ITEM 136-2853-R0907: Associate of Applied Science degree in Medical Billing and Coding, Montana State University-Great Falls College of Technology.
Chair Hamilton announced that this item and the next three (k-n) would be considered together. There was consensus to move all four forward to the full board.

l. ITEM 136-2855-R0907: Certificate of Applied Science in Computer Server
Administration, Montana State University-Great Falls College of Technology
Consensus to move forward to the full board.
m. ITEM 136-1503-R0907: Undergraduate Honors Program, Montana Tech of The University of Montana.
Consensus to move forward to the full board.
Consensus to move forward to the full board.

3. INFORMATION
      Since the program review process was already discussed in some detail, under Action Item b., Deputy Commissioner Barber just reminded the committee members that the results of the program review process will be part of the Board's materials at every November meeting. He also reminded the committee that it had the right to question the campus recommendations on individual programs, and change those recommendations if it did not agree with them. The committee members accepted the program review reports for 2006 – 2007, without comment.
   b. Diversity Report, Montana University System – Brad Eldredge, OCHE
      Because of time constraints this report was moved to the March, 2008 meeting.
   c. Indian Education for All, the tribal histories project – Ellen Swaney, OCHE
      Director of American Indian/Minority Achievement, Ellen Swaney provided hand-outs of a brief report on the project, including a template the tribes developed for the report. The project itself has taken multiple formats: DVDs, children’s books, and scholarly works among them. Fort Peck chose a comprehensive history and requested a time extension until December to accomplish this. There is no permission to release anything yet. The representatives are working with the State Library System so that digitized copies will be available through that system. Formal presentations in the future are an option.
   d. Update on Practical Nursing program at Flathead Valley Community College
      Deputy Commissioner Barber reintroduced this subject by reminding the committee members that: 1) the Board of Regents had approved the practical nursing program in January 2007, with the proviso that the program be brought into compliance with the model nursing program by September 2007; 2) Flathead Valley Community College did not meet that deadline in September; and 3) to the best of his knowledge, nothing had been done to meet the Board’s deadline. Therefore, Barber said, he put the issue back on the agenda so that the Board could make its expectations clear and Flathead Valley would know exactly what it was supposed to do. Regent Melvin said that she thought Flathead Valley needed to comply with the model nursing curriculum and the other members of the committee seemed to agree. Kathy Hughes, Vice President for Instruction at Flathead Valley, said her institution would do so.

4. CONSENT
   Level I memorandum
   Deputy Commissioner Barber discussed a proposal for Great Falls to take Practical Nursing program to distance delivery in four communities. The State Board of Nursing approved this on November 13th. MSUN does not have Practical Nursing and collaborated with Great Falls on clinical settings. Chair Hamilton expressed pleasure at the cooperation and asked if there were any cost savings to students. Joe Schaffer, Director of Outreach at MSU-Great Falls COT, said that the telemedicine network is being provided free so there is a savings, in this case. Motion carried to accept the Level I memorandum.

PUBLIC COMMENT
   None.

11:54 AM ADJOURN
ITEM 138-103-R0308

Exception to Policy 301.12, Undergraduate Degree Requirements, AAS degrees in Radiologic Technology

THAT:
The Board of Regents of Higher Education approves an exception to Policy 301.12, Undergraduate Degree Requirements: Associate Degrees and Certificates of Applied Science, for the following programs:
- Associate of Applied Science degrees in Radiologic Technology at Flathead Valley Community College, Montana State University-Billings College of Technology, Montana State University-Great Falls College of Technology and The University of Montana-Missoula College of Technology.

EXPLANATION:
Policy 301.12 establishes guidelines and characteristics for two-year degree programs. The Policy also establishes an exception procedure for programs that do not comply with those guidelines. That procedure has been followed with this exception request.

The above-referenced programs in Radiologic Technology exceed the credit limit of 72 credits established in Policy 301.12. As a consequence, the programs also take more than two academic years to complete, as required by Policy 301.12. The basis for the exception is the required number of clinical hours in the program, and the methodology used to calculate those clinical hours. Other radiologic technology programs throughout the region are very similar in size and content.

The Two-Year Education Council, at a meeting on February 4, 2008, approved a recommendation to grant this exception. That recommendation is now before the Montana Board of Regents for approval, as required by Policy 301.12.
RE: EXCEPTION REQUESTS FOR AAS PROGRAMS IN RADIOLOGIC TECHNOLOGY

FROM: Kathy Hughes, CAO, Flathead Valley Community College
Lynn Stocking, CAO, UM-Missoula College of Technology
Val Martinez, CAO, MSU-Billings College of Technology
Joe Schaffer, CAO, MSU-Great Falls College of Technology

As the Chief Academic Officers of the institutions listed above, we request an exception to BOR Policy 301.12 for the AAS degree programs in Radiologic Technology. Our Radiologic Technology programs have been programs out of compliance with two provisions of the policy:

1) The 72-credit cap on credits in an AAS degree program. Although all of our institutions are able to reduce credits in our Radiologic Tech programs to 72 credits or fewer, we do not believe it is in the best interest of students to do so.

2) The four-semester + intersession/two academic years completion cap. Even when we artificially reduce the credits to meet the credit cap, we are unable to reduce the time-to-degree to anything less than five semesters, including the intersession.

We are aware that Montana Tech College of Technology has been able to design and deliver the AAS degree in Radiologic Technology in a way that complies with both provisions, but our programs are distinguished from that of Montana Tech in the following relevant ways:

1. Hospital-Supported Faculty in a Former Hospital-Based Program

All four of our programs were formerly programs delivered by the hospital unassociated with any academic institution. Although they have transitioned to academic programs, their curriculum design, particularly the number of hours in the clinical setting, continues to reflect their hospital-based roots and expectations. Because the faculty lines in all four programs were significantly under-written by the hospitals where they were formerly based during the start-up phase and continue to be significantly underwritten by the hospitals in three of the four programs currently, our institutions feel an obligation to honor the program directors’ preference to preserve clinical hours, especially since it creates no additional burden for students and expands post-graduate opportunities.

2. Justification for Additional Credits in Clinical Settings

Preparation for entry-level work in Radiologic Technology requires extensive clinical experiences not common to other health science occupational programs. Students need to perform close to 2000 radiographic examinations before graduation. Each examination takes 45 – 90 minutes, meaning that an estimated minimum of 1600 clinical hours is required to complete the program. As former hospital-based programs, our programs aspire to that level of clinical experience. It cannot be achieved within the 72-credit, five-semester provisions of BOR 301.12.

Currently, all programs, including Montana Tech’s, appear to comply with the 72-credit limit of BOR 301.12 by reducing the credit:hours ratio from the standard 1:3 to 1:4. That alteration is not in the best interest of students for students in our programs because:
• Assigning the appropriate number of credits for the hours devoted does not save students in tuition since they have already benefited from the flat spot in each semester where clinical hours are assigned.
• When students have more credits in their AAS degree, they will be able to transfer more into the B.S. articulations being developed with MSU – Billings and MSU – Northern for Bachelor of Science degrees. All four programs see that articulation opportunity as desirable for their graduates.

3. Justification for Additional Semester
A review of AAS degrees in radiologic technology in our region establishes that a large majority of these programs require the equivalent of at least five semesters of instruction. Montana Tech is able to deliver the entire Rad Tech Curriculum in four semesters in part because it requires significantly fewer clinical hours in its program. The directors of the four programs seeking an exception believe that the addition of a 4-credit course in Anatomy and Physiology to the second semester (first semester after completion of prerequisites) in the hospital-based programs creates too heavy a credit load for students in their first program-specific semester.
ITEM 138-104-R0308 Exception to Policy 301.1, Undergraduate Degree Requirements, AAS degrees in Respiratory Therapy

THAT:
The Board of Regents of Higher Education approves an exception to Policy 301.12, Undergraduate Degree Requirements: Associate Degrees and Certificates of Applied Science, for the following programs:

- the Associate of Applied Science degree in Respiratory Therapy at Montana State University-Great Falls College of Technology.
- the Associate of Applied Science degree in Respiratory Therapy at The University of Montana-Missoula College of Technology.

EXPLANATION:
Policy 301.12 establishes guidelines and characteristics for two-year degree programs. The Policy also establishes an exception procedure for programs that do not comply with those guidelines. That procedure has been followed with these exception requests.

The Respiratory Therapy program at MSU-Great Falls College of Technology exceeds the credit limit of 72 credits established in Policy 301.12 by one credit. The programs at both MSU-Great Falls College of Technology and UM-Missoula College of Technology also take more than two academic years and a summer session to complete, as required by Policy 301.12. The reasons for the exception are based primarily on requirements established by the Committee on Accreditation for Respiratory Care (COARC), as evidenced by the supporting document that accompanies this request. Both the Great Falls and Missoula programs are accredited by that entity.

The Two-Year Education Council, at a meeting on February 4, 2008, approved a recommendation to grant this exception. That recommendation is now before the Montana Board of Regents for approval, as required by Policy 301.12.
Request for Exception to BOR 301.12: AAS in Respiratory Care
MSU-Great Falls College of Technology
UM – Missoula College of Technology

Areas of Exception:

BOR 301.12 requires that an AAS degree program comprise no more than 72 credits and must be designed for completion in no more than two academic years, of which one intervening summer semester can be included.

MSU – Great Falls College of Technology was initially identified by the Academic Affairs Committee of the Two Year Education Council as being out of compliance on both requirements with respect to its AAS degree in Respiratory Care:
• The total credits in the degree totaled 83.
• The program required an additional prerequisite semester prior to the two-year sequence of course work, which includes an intervening summer session.

MSU – Great Falls College of Technology has dropped the requirement for Microbiology and changed the ratio of its credits for clinical course work from 1 credit: 3 clinical hours to 1 credit: 4 clinical hours, thereby eliminating 10 credits from the program and bring it to 73 credits. Without significant revamping of the curriculum to embed components required by COARC, the total credits cannot be further reduced. The Academic Affairs Committee of the Two-Year Education Council recommended that the request for a 1-credit exception to BOR 301.12 be granted by the Board of Regents.

In addition, the Academic Affairs Committee recommended that the additional prerequisite semester be granted as an exception to the policy for both Respiratory Care programs, the one offered by MSU – Great Falls, as well as the one offered by UM – Missoula College of Technology. The COARC requirement for a two-course sequence in Anatomy and Physiology makes it impossible for the course work to be completed in one semester.
ITEM 138-2004-R0108 Approval to Restructure the Curricula in the Department of Health and Human Development; Montana State University-Bozeman

THAT: The Board of Regents of Higher Education authorizes Montana State University-Bozeman to Restructure the Curricula in the Department of Health and Human Development

EXPLANATION: The Department of Health and Human Development at Montana State University – Bozeman is proposing a restructuring of the curricula. This proposal does not change substantially the educational opportunities available to students, but does create clarity in the naming of and presentation of those opportunities. The total number of courses offered by the department does not change under this proposal so new additional resources are not required. Because of the interrelatedness of all of these programs, it is appropriate to consider this proposal as a single item—approving some portions and not others would not allow for the elimination of the existing majors. Currently the Department of Health and Human Development offers two Bachelor of Science degrees: B.S. in Health and Human Development and a B.S. in Health Promotion. The proposed curriculum will eliminate both of these degrees (current students will be able to complete their degrees) and replace them with six Bachelor of Science degrees with additional options:

- B.S. in Community Health
- B.S. in Early Childhood Education/Child Services
- B.S. in Family and Consumer Sciences
  - Teaching Option
  - Non-teaching Option
- B.S. in Food and Nutrition
  - Dietetics Option
  - Nutrition Science Option
- B.S. in Health and Human Performance
  - Exercise Science Option
  - Kinesiology Option
- B.S. in Health Enhancement K-12
### MONTANA BOARD OF REGENTS

#### LEVEL II REQUEST FORM

<table>
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<tr>
<th>Item No.</th>
<th>138-2004-R0108</th>
<th>Date of Meeting:</th>
<th>January 10, 2008</th>
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<td>Institution:</td>
<td>Montana State University - Bozeman</td>
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<tr>
<td>Program Title:</td>
<td>New Majors in Health and Human Development</td>
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Level II proposals require approval by the Board of Regents.

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

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

**Specify Request:**

The College of Education, Health and Human Development at Montana State University – Bozeman is proposing a restructuring of the curricula in the Department of Health and Human Development. The proposal does not change substantially the educational opportunities available to students but does create clarity in the naming of and presentation of those opportunities. The total number of courses offered by the department does not change under this proposal so new additional resources are not required. Because of the interrelatedness of all of these programs, it is appropriate to consider this proposal as a single item—approving some portions and not others would not allow for the elimination of the existing majors. Currently the Department of Health and Human Development offers two Bachelor of Science degrees: B.S. in Health and Human Development and a B.S. in Health Promotion. The proposed curriculum will eliminate both of these degrees (current students will be able to complete their degrees) and replace them with six Bachelor of Science degrees with additional options:

- **B.S. in Community Health**
- **B.S. in Early Childhood Education/Child Services**
- **B.S. in Family and Consumer Sciences**
  - Teaching Option
  - Non-teaching Option
- **B.S. in Food and Nutrition**
  - Dietetics Option
  - Nutrition Science Option
- **B.S. in Health and Human Performance**
  - Exercise Science Option
  - Kinesiology Option
- **B.S. in Health Enhancement K-12**
Level II Board of Regents Curriculum Proposal
Health and Human Development (HHD) Undergraduate Revisions

1. Overview
The department of HHD is dedicated to the enrichment of human well-being through teaching, research and outreach. Faculty and administrators have worked for approximately two years to revise and restructure the HHD curriculum so that two fundamental needs can be addressed:

   a) To update name of programs and program offerings so that better alignment exists between current trends, themes and issues related to all HHD curricula leading to the enrichment of human well-being.

   b) To make the various program offerings more visible to perspective students, thereby increasing our recruitment rates.

Currently the Department of Health and Human Development offers two Bachelor of Science degrees; B.S. in Health and Human Development and a B.S. in Health Promotion.

The new curriculum proposal will eliminate both of these degrees and replace them with six Bachelor of Science degrees with six options (9 unique curricula):

- B.S. in Community Health
- B.S. in Early Childhood Education/Child Services
- B.S. in Family and Consumer Sciences
  - Teaching Option
  - Non-teaching Option
- B.S. in Food and Nutrition
  - Dietetics Option
  - Nutrition Science Option
- B.S. in Health and Human Performance
  - Exercise Science Option
  - Kinesiology Option
- B.S. in Health Enhancement K-12

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

   Two specific needs are being addressed through the proposed reconfiguration.

   1. Update the names and programmatic offerings so that better alignment exists with current trends, themes and issues related to the HHD curricula dedicated to the enrichment of human well-being.

   2. To make the various program offerings more visible to perspective students, thereby increasing our recruitment rates.

Curriculum Comparisons between 2006-2008 and Proposed Changes
### Major | 2006-2008 Option | Program Emphasis
--- | --- | ---
Health and Human Development (HHD) | Community Health Education | Pre-PT  
Exercise Science  
Kinesiology  
Family & Consumer Science | Early Childhood Education  
Consumer Sciences  
Family & Consumer Science Education/Extension  
Food and Nutrition  
Dietetics  
Nutrition Sciences  
Health Enhancement K-12
Health Promotion | 2008-2010 (proposed) Option | Program
--- | --- | ---
Community Health  
Early Childhood Education and Child Services  
Family and Consumer Sciences | Teaching  
Non-teaching  
Food and Nutrition  
Dietetics  
Nutrition Sciences  
Health and Human Performance  
Exercise Sciences  
Kinesiology  
Health Enhancement K-12

### Proposed Major Modifications | Need Addressed
--- | ---
Community Health | Only community health program offered in Montana. Represents a merger of health promotion and community health education
Early Childhood Education and Child Services | No longer directly under Family and Consumer Sciences and now includes the occupations of child education and services.
Family and Consumer Sciences | This is the only program in the state that addresses consumer science teaching option in the state. The non-teaching option represents the historical programming that was offered in the past.
Food and Nutrition | This is the only food and nutrition (R.D.) certification in the state. The sustainable food system is a new collaboration with College of Agriculture.
Health and Human Performance | This condenses and provides more focus for this major by providing two areas, exercise science (preparation for advanced degrees) and kinesiology (fitness centers and worksite programming)
Health Enhancement K-12 | This has not been changed and offers a ‘cutting edge’ preparation in teaching K-12 Health Enhancement in Montana public schools and elsewhere.

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

The proposed new majors will enable graduates of our majors to provide the following services to their target populations.

| Proposed Major Modifications | How students and constituents will be served |
--- | ---
Community Health | This major will allow graduates to promote health within communities in a variety of settings including worksites, family planning, county health departments, federal health services, schools, etc."
Early Childhood Education and Child Services
This major will prepare graduates to work in public and private early childhood educational settings, e.g. Montessori and service programs, e.g., Head Start.

Family and Consumer Sciences
This major will prepare graduates to work in an integrative fashion with individuals, families and consumers to enhance well-being at the family level. Occupations include consumer issues, county extension agents and school teachers.

Food and Nutrition
This major will prepare graduates to work with food services/distribution as well as clinical dietetic health care settings, e.g., hospitals, clinics, etc.

Health and Human Performance
This major will prepare graduates to work to promote health and human performance through physical activity in fitness centers, wellness programs, clinics, cardiac rehabilitation, etc.

Health Enhancement K-12
This major will prepare graduates to work providing the health and physical education needs of Montana children and children across the USA.

c. **What is the anticipated demand for the programming**

During the past 3 years the HHD Department has experienced steady growth especially in the areas of exercise science and health promotion/community health. This is demonstrated by the student credit hour production (SCH) in departmental rubrics and the number of majors in HHD majors and options. Since we are proposing a *restructuring* of our current curricula that allows the offerings to be more up to date and higher profile, we would anticipate the numbers increase at a moderate rate (3%-5%). The statistics provided in the following tables support this position.

<table>
<thead>
<tr>
<th>2006-2008 Options SCH by Rubric</th>
<th>FY05</th>
<th>FY06</th>
<th>FY07</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family &amp; Consumer Sciences</td>
<td>7685</td>
<td>7917</td>
<td>8017</td>
</tr>
<tr>
<td>Food and Nutrition ('04 2563 SCH)</td>
<td>3093</td>
<td>2999</td>
<td>2982</td>
</tr>
<tr>
<td>Heath Promotion/Community Health Education</td>
<td>2435</td>
<td>2487</td>
<td>2727</td>
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<tr>
<td>Exercise Science Health Enhancement K-12</td>
<td>2917</td>
<td>3082</td>
<td>3235</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16128</td>
<td>16485</td>
<td>16961</td>
</tr>
</tbody>
</table>

**Number of Students Enrolled in Each Option**

<table>
<thead>
<tr>
<th>2006-2008 Options</th>
<th>FY06</th>
<th>FY07</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family &amp; Consumer Sciences</td>
<td>175</td>
<td>135</td>
</tr>
<tr>
<td>Food and Nutrition</td>
<td>78</td>
<td>76</td>
</tr>
<tr>
<td>Heath Promotion</td>
<td>49</td>
<td>45</td>
</tr>
<tr>
<td>Community Health Education</td>
<td>51</td>
<td>58</td>
</tr>
<tr>
<td>Exercise Science Health</td>
<td>195</td>
<td>210</td>
</tr>
<tr>
<td>Enhancement K-12</td>
<td>74</td>
<td>63</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>622</td>
<td>*587</td>
</tr>
</tbody>
</table>

*Does not include all fall transfers

3. **Institutional and system fit.**

a. **Connection between the proposed programming and existing program in the institution?**

Currently, in HHD, we are offering five of the six proposed majors as options with one major of HHD. This restructuring represents a more visible and
higher profile reconfiguration of HHD options. This allows the HHD majors to be more current while remaining directly related to our past offerings.

b. **Changes to existing programming at the institution?**

The entire process will result in the addition and deletion of select classes within HHD. However, this is a process that occurs every two years within HHD. Since there is not a net gain of classes, no adverse impact will occur to faculty or students.

c. **What differentiates this programming from programs at other institutions?**

It is important to note that the majors and options proposed have existed at MSU-Bozeman for decades as educational opportunities. Therefore, the proposed restructuring will not duplicate other programs at MSU-Bozeman.

d. **How will the programming help to promote the strategic goals of the institution?**

Restructuring of the HHD curricula will allow the various majors and options to become more visible and up to date. This change will contribute to the institutions strategic goals in the following ways:

- These proposed changes will enable HHD faculty to increase their recruitment of students and contribute to the university goal of “recruiting 13,000 students.”
- Faculty in the Early Childhood area have been very successful in recruiting Native American students. By moving this focus from a program level to a departmental major we will enhance this effort and better contribute to the university goal of “generating a more diverse student body.”

e. **Are there similarities between the proposed programs and other programs offered through the Montana University System (MUS)?**

The vast majority of the majors/options are unique to MSU – Bozeman. A major in Health and Human Performance is offered at UM-Missoula. However, the focus on a human well-being orientation is unique to MSU – Bozeman. Also, the Health Enhancement K-12 is offered at other MUS campuses. However, the duplication of teacher preparation programs between MUS institutions, e.g., Bozeman and Missoula has existed for decades and is important to accommodate state needs and student demand.

4. **Program Details**

a. **Provide a detailed description of the proposed curriculum.** Please see the attached curriculum tabs and catalogue descriptions for the proposed HHD majors and options.
b. Describe the planned implementation of the proposed program, including estimates of the number of students at each stage.

Since this is a restructuring of existing programs rather than an introduction of new programs, the process does not follow the typical cycle of a new product. Our restructuring collectively represents an evolution and repackaging of our current curricula. Currently we have approximately 600 majors. With our repackaging we expect modest growth over the next 4 years at a rate of 3%-5% each year. Currently enrolled students will have the option of continuing under the structure in the current catalog or migrating to the new majors. With the increased clarity that the new structure provides, we expect most current majors to migrate.

5. Resources

a. Will additional faculty resources be required? No.

b. Will other additional resources be required? No.

6. Assessment: How will the success of the programs be measured?

Data will be collected on the number of students who are in the various HHD majors and options during the fall of each year. Additionally, the student credit hour (SCH) production within each area will be tracked by area and by each faculty member. Finally, data on employment rates, acceptance to graduate programs, mean and median salaries will be tracked for the graduates of HHD programming.

7. Describe the process leading to the submission.

The restructuring process was initiated by the faculty and EHHD administration because there was a need to update the HHD curriculum and provide additional visibility, focus, and clarity for potential students. Considerable time was spent (approximately a year) by the faculty and HHD Department Chair discussing the merits of changing program names, splitting programs into separate majors and consolidating programs. Many of the discussions were conducted with area program leaders and faculty who support the various areas. These conversations were then shared by all program leaders with the departmental curriculum coordinator who helped facilitate the major and option offerings in relation to the needs of the entire department. This effort led to the catalog descriptions and tab sheets for each major and option (this process took another 6 months). The entire effort enabled the faculty and administration to restructure the curriculum and course offerings. The final product resulted in revised majors and options, course additions and deletions but the total number of credits offered within the department remained the same between the 2006-2008 catalog and the 2008-2010 catalog. The proposal was then reviewed by the MSU Undergraduate Studies Committee.
Catalog Description—Draft of Relevant Components

Degrees and Options

The department offers six Bachelor of Science degrees. They include a B.S. in Community Health; a B.S. in Early Childhood Education/Child Services; a B.S. in Family and Consumer Sciences with Teaching or Nonteaching options; a B.S. in Food and Nutrition with options in Dietetics and Nutrition Science; a B.S. in Health Enhancement K-12 (health and physical education teaching); and a B.S. in Health and Human Performance with options in Exercise Science or Kinesiology.

The department offers a Master of Science in Health and Human Development with options in Counseling (including marriage and family counseling and mental health counseling); Family and Consumer Sciences (including early childhood education and family science); Family Financial Planning; Exercise and Nutrition Sciences; and Health Promotion and Education.

The department offers a Master of Education in School Counseling.

Degree Requirements

Bachelor of Science degrees in Community Health, Early Childhood Education and Child Services, Family and Consumer Sciences (nonteaching), Food and Nutrition, and Health and Human Performance shall be conferred upon the successful completion of specified requirements and a minimum of 120 credits. The Bachelor of Science degrees in the teaching options of Family and Consumer Sciences and Health Enhancement K-12 (health and physical education) shall be conferred upon the successful completion of specified requirements and a minimum of 128 credits. All undergraduate students must complete a minimum of 42 upper division credits.

The Master of Science in Health and Human Development shall be conferred upon completion of specified requirements and a minimum of 30 credits for the options of Family and Consumer Sciences, Exercise and Nutrition Sciences, and Health Promotion and Education. A minimum of 42 credits is required for the Family Financial Planning program. A minimum of 60 credits is required in the graduate Counseling programs. The Master of Education in School Counseling carries a minimum of 48 credits. (See the graduate catalog for further information.)

Certifications and Licensures

Certifications and licensures are dependent on the student's eligibility to sit for certification and licensing examinations and passing those examinations. Several fields of study in the Department of Health and Human Development prepare students to sit for certification and licensing examinations. Many, but not all, certifications and licensures are offered as post-baccalaureate opportunities. See your advisor for additional information. The following certifications are related to Health and Human Development disciplines:

Accredited Family Financial Counselor. The Department of Health and Human Development offers a three-course series (HDCF 338 Personal and Family Finance I, HDCF 339 Personal and Family Finance II, and HDCF 342 Family Financial Counseling) that can aid students in becoming credentialed as an Accredited Financial Counselor (AFC). The AFC credential is offered nationally through the Institute for Personal Finance. The credential requires two tests, an internship and a year of work experience in helping consumers and families with financial matters. The three courses prepare students to take the two tests. The department then helps the student find placement for an internship in helping consumers and families with finances. The AFC credential allows students to credibly indicate their expertise in personal and family finance to potential employers.

Certified in Family and Consumer Sciences. Students completing the Family and Consumer Sciences major and the restricted electives will be eligible to sit for the Certification in Family and Consumer Sciences (CFCS) exam set by the American Association of Family and Consumer Sciences. The CFCS Credential communicates to others within
and outside of the profession that the individual certified in family and consumer sciences possesses a broad professional knowledge base in the field.

Certified Family Life Educator. Students completing the Family and Consumer Sciences major and the restricted electives will be eligible to apply for the CFLE granted by the National Council on Family Relations. Interested Community Health students may also complete additional courses and apply for provisional certification. Certified Family Life Educators serve as consultants, directors, educators, and coordinators in settings such as social services, child care, health and welfare, recreation, youth programs, community action, drug/alcohol rehabilitation centers, senior citizen programs, parent education, family service agencies, extension, and retirement/convalescent care centers.

Certified Health Education Specialist. Completion of the Community Health major establishes eligibility to sit for the Certified Health Education Specialist examination (CHES). The CHES exam measures the possession, application, and interpretation of knowledge essential to the practice of community health/health education. The CHES certification is a national standard for health education practice and assists employers in identifying qualified health education practitioners.

Certified Personal Trainer/Certified Strength Coach. The National Strength and Conditioning Association provides opportunities to become a certified personal trainer or a certified strength coach.

Coaching Certification. Faculty in Health and Human Development partner with the Montana High School Association (MHSA) in the development and implementation of a coaching certification program. Although MHSA awards the certification, successful completion of the Coaching Concentration offered in the department will prepare the future coach for the profession.

Family and Consumer Sciences Teacher. The Family and Consumer Sciences Teacher Preparation program is designed for students who want to become teachers of Family and Consumer Sciences in public or private schools. Upon completion of the degree, students are eligible for licensure from the State of Montana in teaching grades 5-12.

Health Enhancement (Health and Physical Education) K-12 Teacher. The Health Enhancement K-12 Teacher Preparation program is designed for students who want to become teachers of Health Enhancement (Health Education/Physical Education) in public or private schools. Upon completion of the degree, students are eligible for licensure from the State of Montana in teaching grades K-12 with reciprocity in other states.

Health Fitness Instructor and Exercise Test Technologist. The American College of Sports Medicine, the premier organization for health/fitness professionals and clinicians, offers the Health/Fitness Instructor and Exercise Test Technologist certifications at sanctioned test locations throughout the Pacific Northwest. The certification exams include written and practical components that emphasize the application of knowledge and hands-on skills typically acquired in an undergraduate Exercise Science or Kinesiology program.

Licensed Professional Counselor or Licensed Clinical Professional Counselor. Counseling programs in the graduate program in Health and Human Development lead to the opportunity to become licensed in Montana as a Licensed Professional Counselor (LPC) or Licensed Clinical Professional Counselor (LCPC). Following completion of a master's degree, the student must complete a minimum of 1500 hours of supervised counseling practice prior to sitting for and passing the LPC examination.

Registered Dietitian. The Food and Nutrition Dietetics option gives the students an opportunity to apply to a national post-baccalaureate supervised practice/dietetic internship. Upon its completion, the student may sit for the RD examination given by the Commission on Dietetic Registration, the credentialing agency for The American Dietetic Association. The RD status enables a person to become licensed in Montana as a Licensed Nutritionist by the Board of Medical Examiners.
Academic Advisors

The Health and Human Development academic advising office, staffed with academic advisors to serve the needs of students, is located in Hosaeus PE Complex. Students are expected to meet with an advisor each semester to discuss their plan of study, select courses, and register for courses. In addition, students are encouraged to meet with an academic advisor to discuss issues and questions regarding professional programs, career opportunities, and academic concerns. Academic advisors can assist students to appropriate referrals when necessary.

To receive advising or to inquire about programs in the Department of Health and Human Development, contact the Health and Human Development Advising Center by phone at 406.994.4001 or by e-mail at hhdadvising@montana.edu.

Course Requirements and Curricula for Majors

The curriculum and specific course requirements for each major and minor within the Department of Health and Human Development are listed below.

Curricula in Health and Human Development

- Community Health Major
- Early Childhood Education and Child Services Major
- Family and Consumer Sciences Major with Teaching and Non-Teaching Options
- Food and Nutrition Major with Options in Dietetics and Nutrition Science
- Health Enhancement K-12 (Health and Physical Education Teaching) Major
- Health and Human Performance Major with Options in Exercise Science or Kinesiology
- Child Services Minor
- Coaching Minor

COMMUNITY HEALTH MAJOR

Graduates of the community health major are employed in entry-level positions conducting planning, administration, evaluation, research, and teaching in community health settings. The undergraduate program is concerned with improving health and well-being for all through the promotion of healthful lifestyles, healthy family functioning, community actions for health, and conditions that make it possible to live healthful lives. The program draws on public health, education, psychology, sociology, family science, and other social and behavioral sciences. Students are prepared to work in a variety of settings including family planning agencies, nonprofit agencies, state and federal health agencies, schools, and community health centers. This program stresses community involvement because community health emphasizes an interactive process in which target populations are active participants in their health, rather than passive recipients. Student involvement will take the form of class assignments, practicum, internships, and service. Students will be prepared to assess individual and community needs; plan, implement, and evaluate effective health programs; coordinate provision of services; act as a resource person; and communicate health needs, concerns and resources. Persons enrolling in this option should seriously consider earning a graduate degree in public health or some related area at some point in their career.

Completion of the community health major establishes eligibility to sit for the Certified Health Education Specialist (CHES) examination. The CHES exam measures the possession, application, and interpretation of knowledge essential to the practice of community health/health education. The CHES certification is a national standard for health education practice and assists employers in identifying qualified health education practitioners.
Interested students may also complete additional courses and apply for provisional certification for the Certified Family life Educator (CFLE) program accredited by the National Council on Family Relations.

### Freshman Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>COM 110US</td>
<td>Public Communication</td>
<td></td>
</tr>
<tr>
<td>ENGL 121W</td>
<td>College Writing I</td>
<td></td>
</tr>
<tr>
<td>HDFC 150IS</td>
<td>Lifespan Human Development</td>
<td></td>
</tr>
<tr>
<td>HDPE 221</td>
<td>Health Anatomy and Physiology</td>
<td></td>
</tr>
<tr>
<td>MATH 103</td>
<td>Intro to Algebra(or higher)</td>
<td></td>
</tr>
<tr>
<td>PSY 100IS</td>
<td>Introductory Psychology</td>
<td></td>
</tr>
<tr>
<td>SOC 101IS</td>
<td>Sociological Inquiry</td>
<td></td>
</tr>
</tbody>
</table>

**University Core and Electives**

<table>
<thead>
<tr>
<th>Credits</th>
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<tbody>
<tr>
<td>9</td>
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### Sophomore Year

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<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENGL 223</td>
<td>Technical Writing</td>
<td></td>
</tr>
<tr>
<td>HDFC 263</td>
<td>Relation &amp; Family System</td>
<td></td>
</tr>
<tr>
<td>HDFN 221CS</td>
<td>Human Nutrition</td>
<td></td>
</tr>
<tr>
<td>HDHL 230</td>
<td>Drugs and Society</td>
<td></td>
</tr>
<tr>
<td>HDHL 240</td>
<td>Human Sexuality</td>
<td></td>
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<tr>
<td>STAT 216Q</td>
<td>Elementary Statistics</td>
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**University Core and Electives**

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<th>Credits</th>
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<tbody>
<tr>
<td>9</td>
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</tbody>
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*Take at least one of the following*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BCHM 104RN</td>
<td>Biochem of Health NS Major</td>
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</tr>
<tr>
<td>MB 201</td>
<td>Infectious Disease</td>
<td></td>
</tr>
<tr>
<td>MBEH 210RN</td>
<td>Princ of Environ Health Science</td>
<td></td>
</tr>
<tr>
<td>POLS 206IS</td>
<td>Government of the U.S.</td>
<td></td>
</tr>
<tr>
<td>or POLS 208</td>
<td>State &amp; Local Govt &amp; Politics</td>
<td></td>
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<tr>
<td>POLS 214IS</td>
<td>Principles of Pol Sci</td>
<td></td>
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<tr>
<td>SOC 212</td>
<td>Social Problems</td>
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</table>

### Junior Year

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFC 319</td>
<td>Theories for Helping Relationships</td>
<td></td>
</tr>
<tr>
<td>HDFC 371</td>
<td>Research Methods</td>
<td></td>
</tr>
<tr>
<td>HDFC 464</td>
<td>Gen, Race, Class &amp; Fam Div</td>
<td></td>
</tr>
<tr>
<td>HDHL 410</td>
<td>Human Response to Stress</td>
<td></td>
</tr>
<tr>
<td>HDHL 452</td>
<td>Health Disparities</td>
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</tbody>
</table>

*Take at least one of the following*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFC360</td>
<td>Aging and Adult Devel</td>
<td></td>
</tr>
<tr>
<td>HDFN 451</td>
<td>Sustainable Food Systems</td>
<td></td>
</tr>
<tr>
<td>HDHL 451</td>
<td>Health and Healing</td>
<td></td>
</tr>
<tr>
<td>HDHL 455</td>
<td>The Ethic of Care in HHD</td>
<td></td>
</tr>
<tr>
<td>PHIL 338</td>
<td>Biomedical Ethics</td>
<td></td>
</tr>
<tr>
<td>PSY 415</td>
<td>Psych of Prejudice</td>
<td></td>
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<tr>
<td>SOC 304</td>
<td>Social Stratification</td>
<td></td>
</tr>
<tr>
<td>SOC 308</td>
<td>Population and Society</td>
<td></td>
</tr>
<tr>
<td>SOC 340</td>
<td>Social Movements</td>
<td></td>
</tr>
<tr>
<td>SOC 345</td>
<td>Complex Organizations</td>
<td></td>
</tr>
<tr>
<td>SOC 359</td>
<td>Soc of Work and Occupations</td>
<td></td>
</tr>
</tbody>
</table>
SOC363--Political Sociology  3
University Core and Electives  12
  30

Senior Year  Credits
HDCF 425R--Family Law and Public Policy  3
HDCF 472--Program Evaluation  3
HDHL 440--Principles of Epidemiology  3
HDHL 445--Prog Planning & Eval in Health  3
HDPE 415--Mgmt in Health Enhance & Fitness  3
HDPE 425--Health Psychology  3
HHD 476--Internship  6
University Core and Electives  6
  30

EARLY CHILDHOOD EDUCATION AND CHILD SERVICES MAJOR

The early childhood education and child services major emphasizes the dual focus of education and services within the context of families, educational and child service settings, communities, and society. The major focuses on early childhood education, child development, developmentally appropriate practices, early intervention with children with special needs, assessment and intervention, advocacy, program administration, and working directly with children and families in a variety of early childhood and service settings. The early childhood education and childhood services major provides a strong background for students seeking careers in a wide variety of settings including early childhood education, child care-related programs and businesses, early intervention with children with special needs and preschool special education settings, child services and child-focused community agencies, state or federal agencies, nonprofit settings that support children and families, and administrators of child service programs. Additionally, this program provides a distance education program to Montana Tribal Colleges and respective Head Start Programs through the Early Childhood Education Distance Partnership Program.

The early childhood education and services major provides a strong background for admission to graduate programs in early childhood education, child development, child and family studies, social work, counseling, and other related behavioral and social science disciplines.

Freshman Year  Credits
ENGL 121W--College Writing I  3
HDCF 160--Early Childhood-Adolescence  3
MATH-Any 100-level Math course or Math placement test  3
US 101US--First Year Seminar  3
Supporting Courses  9
University Core  9
  30

Sophomore Year  Credits
HDCF 250--Signing Exact English I  3
HDCF 263--Relations in Family System  3
HDCF 271--Paraprofessional  1
FAMILY AND CONSUMER SCIENCES MAJOR

The Family and Consumer Sciences (FCS) profession is dedicated to enhancing the relationships among individuals, families, communities and the environments in which they function. The family and consumer sciences profession takes leadership in improving individual, family, and community well-being; impacting the development, delivery, and evaluation of consumer goods and services; influencing the creation of policy; and shaping societal change, thereby enhancing the human condition.

Students in FCS take a common core of foundation courses in content areas based upon American Association of Family and Consumer Sciences (AAFCS) standards. In addition, students take restricted supporting courses in the program. A list of the supporting courses can be obtained from the Health and Human Development advising office in Hosaeus PE Complex or on the department website at www.montana.edu/hhd.

Both teaching and nonteaching options are available.

Both teaching and nonteaching options take the following core classes:

Credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFC 138</td>
<td>Surv of Family Finance &amp; Cons Iss</td>
<td>3</td>
</tr>
<tr>
<td>HDFC 160</td>
<td>Early Childhood-Adol Devel</td>
<td>3</td>
</tr>
<tr>
<td>HDFC 239</td>
<td>Contemp Consumer Issues</td>
<td>3</td>
</tr>
<tr>
<td>HDFC 263</td>
<td>Relationships &amp; Family Sys</td>
<td>3</td>
</tr>
<tr>
<td>HDFC 338</td>
<td>Personal and Family Finance I</td>
<td>3</td>
</tr>
</tbody>
</table>
Nonteaching Option

The family and consumer sciences nonteaching option emphasizes the family as a dynamic social unit and examines diverse families in contemporary society. The program focuses on family behavior, strengths, and challenges using family-specific theoretical frameworks (family systems, family crisis) and research methods. Social, cultural, historical, political, and economic trends that influence family functioning and well-being are addressed. Students study a wide range of family issues including development across the lifespan, changing family structures, intergenerational relations. Additionally, human response to stress and crisis, family policies and laws, family finance and economics, work and family issues, and human service delivery and decision-making are included.

The family and consumer sciences nonteaching option provides a strong background for students seeking careers in human services, family education, family policy, and financial counseling. However, graduate training will be necessary for students wishing to enter the counseling/therapy fields. The curriculum prepares students to work in a wide range of organizations and settings, state or federal agencies, nonprofit settings, and for admission to graduate programs in family science, family resource management, human development, social work, law, and other related behavioral and social science disciplines. Also, graduates of the program may be involved in family-owned business and work in occupations requiring knowledge of family finance including financial counseling.

Students completing the degree may apply for provisional certification as a Certified Family Life Educator. MSU's family and consumer sciences major is accredited by the National Council on Family Relations. Provisional certification is awarded at the completion of a baccalaureate degree and course work in the 11 family life substance areas. After two years' work experience, you may apply for full CFLE certification.

Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENGL 121W -- College Writing I</td>
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<tr>
<td>HDFC 138 -- Surv Fam Finance &amp; Cons Iss</td>
<td>3</td>
</tr>
<tr>
<td>HDFC 160 -- Early Child-Adolescent Dev</td>
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</tr>
<tr>
<td>US 101US -- First Year Seminar</td>
<td>3</td>
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<td>Univ Core (D,IA,US) and Electives</td>
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Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HDFC 239 -- Contemp Consumer Iss</td>
<td>3</td>
</tr>
<tr>
<td>HDFC 263 -- Relationships in Family Systems</td>
<td>3</td>
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</tbody>
</table>
Appendix

HDFN 221CS--Human Nutrition 3
HDHL 230--Drugs and Society 3
HDHL 240--Human Sexuality 3
STAT 216Q--Elementary Statistics 3
Univ Core (D,IA,US) and Electives 11-13 30

Note: STAT 216 must be completed with passing grades of C-or better, before taking upper division courses.

Junior Year

HDCF 338--Pers & Family Finance I 3
HDCF 360--Adult Devel & Aging 3
HDCF 371--Research Methods 3
HDCF 440--Parenting 3
HDHL 410--Human Response to Stress 3
Take one of the following:
HDCF 339--Pers & Family Finance II 3
and    HDCF 342--Fam Financial Counseling 3
or     HDCF 319--Theories Help Relations 3
Restricted Electives 9-12 30

Senior Year

HDCF 425R--Family Law and Public Policy 3
HDCF 437--Managing Work & Fam 3
HDCF 447--Family Life Education 3
HDCF 455R--Admin of Human Svc Prog 3
HDCF 464--Gend,Race Class & Div 3
HDCF 472--Program Evaluation 4
HDCF 474--Senior Seminar: Prof Issues 4
Restricted Electives 8 30

Teaching Option

Family and consumer sciences students learn to work through credit and not-for-credit education systems to empower individuals and families across the lifespan to manage the challenges of living and working in a diverse, global society. The unique focus is on families, work, and their interrelationships. The curriculum at MSU is in synch with the National Standards for Family and Consumer Sciences Teachers and the National Standards for Family and Consumer Sciences Students. Therefore, students choosing this option will be well qualified to seek employment in a variety of educational settings including secondary public and private schools, extension, and public and private agencies. Students completing the program successfully will qualify for a Montana teaching license in Family and Consumer Sciences grades 5-12. Students are encouraged to complete the Certified Family Life Educator and Accredited Financial Counselor designations as well as a teaching minor in a second field while attending MSU to further increase their professional opportunities.

Additionally, the family and consumer sciences major prepares undergraduate students to pursue graduate degrees in a variety of areas including family and consumer sciences, curriculum and instruction, school counseling, and adult education.
Note: The family and consumer sciences teaching option requires 128 credits.

### Freshman Year

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### Uni Core (US,IA,IH,IN,IS) and Electives

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### Sophomore Year

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<td>HDFC 219</td>
<td>Apparel Construction</td>
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<td>HDFC 239</td>
<td>Contemp Consumer Issues</td>
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<td>HDFC 263</td>
<td>Relationships and Family Sys</td>
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<td>HDFC 338</td>
<td>Personal &amp; Family Finance I</td>
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<td>HDFN 221CS</td>
<td>Human Nutrition</td>
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<td>HDFN 226</td>
<td>Culinary Fundamentals</td>
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<td>EDCI 360</td>
<td>Foundations of Assessment</td>
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<td>EDSD 301</td>
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<td>EDSD 459</td>
<td>Methods of Teaching FCS</td>
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<td>HDFC 335</td>
<td>Program Planning in FCS</td>
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<td>HDFC 356</td>
<td>Exceptional Children 0-21</td>
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<td>HDFC 360</td>
<td>Adult Devel and Aging</td>
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<td>HDFC 437</td>
<td>Managing Work &amp; Family</td>
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<td>HDFC 440</td>
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<td><strong>Take one of the following:</strong></td>
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<tr>
<td>HDFC 339</td>
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<tr>
<td><strong>and</strong> HDFC 342</td>
<td>FamFinancial Counseling</td>
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<td><strong>or</strong> HDFC 319</td>
<td>Theories Help Relations</td>
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### Senior Year

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<td>EDSD 413</td>
<td>Professional Issues</td>
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</table>
**FOOD AND NUTRITION MAJOR**

The Department of Health and Human Development offers a major in the study of food and nutrition. Students who choose the nutrition science option intend to pursue a health profession or research-related career, for example, medicine, dentistry, industry, academia, etc. The sustainable food systems option can be designed in consultation with their advisor to prepare students for careers in food enterprise, policy, community nutrition, and/or public health.

**Dietetics Option**

The dietetics option at Montana State University-Bozeman is accredited as a Didactic Program in Dietetics by the Commission on Accreditation for Dietetics Education (CADE) of the American Dietetic Association (ADA), a specialized accrediting body recognized by the Council on Higher Education Accreditation and the United States Department of Education, 120 Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, (312) 899-0040, x. 5400. A graduate will attain a verification statement upon completing the CADE-approved dietetics program curriculum in addition to a minimum of a “C-” or better in each required program course at graduation. A graduate is then
eligible to apply for an CADE-accredited supervised practice/dietetic internship or other post-baccalaureate experience. Upon completion of the post-graduate dietetic internship, students are eligible to take the national registration exam for dietitians. Once the individual has passed the exam, the individual is then a "registered dietitian." The dietetics option has a strong foundation in food and nutrition, food service management, and science components. Registered dietitians may find employment in health care facilities; industrial, school, and university food services; community nutrition services; private practice; sales for food service or health products; and other related fields.

**Nutrition Science Option**

The nutrition science option is designed to prepare a student for admission to medical (allopathic or osteopathic), dental, or graduate school with an emphasis on nutrition and biochemistry. A student can receive a verification statement if additional didactic program in dietetics course requirements are met. Although the nutrition science option provides a strong background for most professional schools, students must contact individual schools for specific post-baccalaureate entrance requirements. Information about degree requirements can be obtained from the Health and Human Development advising office, Hosaeus PE Complex.

**Standards of Work**

Any student receiving a grade below a "C-" (2.0) in any upper division required course will need to repeat the course. Students must attain a "C-" or better in any required prerequisite course to register for upper division food and nutrition courses.

**Dietetics Option**

**Freshman Year**

<table>
<thead>
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<th>Course</th>
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<tbody>
<tr>
<td>CHEM 131--General Chemistry I</td>
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<tr>
<td>CHEM 132--General Chemistry II</td>
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<tr>
<td>COM 110US--Public Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 121W--College Writing I</td>
<td>3</td>
</tr>
<tr>
<td><strong>Take one of the following:</strong></td>
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<tr>
<td>HDFC 138--Surv Family Finance &amp; Cons Iss</td>
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<tr>
<td>HDFC 239--Contemporary Consumer Issues</td>
<td>3</td>
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<td><strong>Take one of the following:</strong></td>
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<tr>
<td>MATH 103--Intro to Algebra (or higher)</td>
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<tr>
<td>MATH 150Q--Liberal Arts Mathematics</td>
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<td><strong>Take one of the following:</strong></td>
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<td>HDFC 150IS--Lifespan Human Development</td>
<td>3</td>
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<tr>
<td>PSY 100IS--Introductory Psychology</td>
<td>3</td>
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<tr>
<td><strong>Take one of the following:</strong></td>
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<tr>
<td>ANTH 101D--Intro to Anthropology</td>
<td>3</td>
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<tr>
<td>SOC 101IS--Sociological Inquiry</td>
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<td><strong>Total</strong></td>
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**Sophomore Year**

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<tr>
<th>Course</th>
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<tr>
<td>BIOL 102--Molecular &amp;Cellular Biology</td>
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<tr>
<td>CHEM 215--Elements of Organic Chemistry</td>
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<tr>
<td>HDFC 338--Personal and Family Finance I</td>
<td>3</td>
</tr>
<tr>
<td>HDFN 221CS--Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>HDFN 226--Food Science I</td>
<td>3</td>
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</tbody>
</table>
### Appendix

**HDFN 227**--Food Science I Lab  
Univ Core and Electives  
*Take one of the following:*

- **MB 101IN**--Microbiology in Today's World  
- **MB 201**--Infectious Diseases  
*Take one of the following:*

- **STAT 216Q**--Elementary Statistics  
- **PSPP 318**--Biometry  

30

**Junior Year**

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<tr>
<td><strong>BIOL 208</strong>--Anatomy &amp; Physiology II</td>
<td>4</td>
</tr>
<tr>
<td><strong>HDCF 319</strong>--Theories &amp; Skills for Help Relations</td>
<td>3</td>
</tr>
<tr>
<td><strong>HDCF 371</strong>--Research Methods</td>
<td>3</td>
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<td><strong>HDFN 321</strong>--Life Cycle Nutrition</td>
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<td><strong>HDFN 322</strong>--Culinary Skills &amp; Mgmt</td>
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<td><strong>HDFN 323</strong>--Culinary Mgmt Practicum</td>
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<td><strong>HDFN 351</strong>--Nutrition and Society</td>
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<td><strong>HDFN 401</strong>--Nutrition Assmt &amp; Counseling</td>
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**Senior Year**

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<td><strong>HDFN 400</strong>--Seminar</td>
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<td><strong>HDFN 421</strong>--Macronutrient Metabolism</td>
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<tr>
<td><strong>HDFN 422</strong>--Micronutrient Metabolism</td>
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<tr>
<td><strong>HDFN 425</strong>--Medical Nutritional Therapy I</td>
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<tr>
<td><strong>HDFN 426</strong>--Medical Nutritional Therapy II</td>
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</tr>
<tr>
<td><strong>HDFN 451R</strong>--Sustainable Food Sys</td>
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<td>Univ Core and Electives</td>
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See the Food and Nutrition major website at [www.montana.edu/hhd](http://www.montana.edu/hhd) for a suggested list of electives and additional courses specifically needed to attain the CADE-approved verification statement.

**Nutrition Science Option**

<table>
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<tr>
<th>Freshman Year</th>
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<td><strong>BIOL 102</strong>--Molecular and Cellular Biology</td>
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<td><strong>CHEM 131</strong>--General Chemistry I</td>
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<td><strong>CHEM 132</strong>--General Chemistry II</td>
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<td><strong>COM 110US</strong>--Public Communication</td>
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<td><strong>ENGL 121W</strong>--College Writing I</td>
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<td><strong>MATH 170Q</strong>--Survey of Calculus</td>
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<td><strong>STAT 216Q</strong>--Elem Statistics</td>
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29

<table>
<thead>
<tr>
<th>Sophomore Year</th>
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<tbody>
<tr>
<td><strong>BIOL 207</strong>--Human Anatomy &amp; Phys I</td>
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</tr>
<tr>
<td><strong>CHEM 311</strong>--Organic Chem I</td>
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HEALTH AND HUMAN PERFORMANCE MAJOR

The undergraduate major in Health and Human Performance (HHP) at Montana State University is a general pre-health professional curriculum that prepares students for health-related graduate programs (e.g., physical therapy, occupational therapy, medical school, etc.), exercise science graduate programs (e.g., exercise physiology, health promotion, biomechanics), as well as entry-level occupations within the health and wellness industry. HHP majors can choose to focus their course work within one of the following curriculum options: exercise science or kinesiology. Students within the exercise science option intend to pursue a health-related graduate degree to meet their career aspirations, whereas students within the kinesiology option will pursue careers within the health and wellness industry that do not require a graduate degree.

Exercise Science Option

The exercise science option within the Health and Human Performance (HHP) major focuses on both clinical and performance-based understandings of human movement. The exercise science option emphasizes a cross-disciplinary understanding of human movement through non-departmental courses in biology, anatomy and physiology, chemistry, physics, math, and statistics. These courses then serve as the foundation for mechanical (e.g., biomechanics) and nutritional perspectives within the departmental courses. The exercise science option specifically allows students to customize their junior and senior year course work as needed for later application to
health-related graduate programs in physical therapy, occupational therapy, medical physician assistant, sports medicine, exercise science graduate programs (exercise physiology, health promotion, biomechanics), as well as medical school. Additional careers for exercise science students can include those within the health and fitness industry (e.g., those requiring ACSM Health-Fitness Instructors and/or Exercise Test Technologist certifications), corporate wellness programs, exercise rehabilitation programs (cardiac rehabilitation, gait laboratories, sport medicine facilities, older adult programs, etc.), as well as careers in the sport and rehabilitative medicine equipment industries. Regardless of a student's career goals, each student's course work will culminate in one of the following "capstone experience" courses: HDPE 465, Exercise Testing and Prescription; HDPE 489/490, Undergraduate Research; or a preapproved internship (HDPE 475/HHD476). Students must receive a grade of "C" or better in all upper division department core courses for graduation.

Freshman Year

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<td>CHEM 132</td>
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<td>MATH 170Q</td>
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Sophomore Year

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<td>HDPE 222</td>
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<td>PHYS 205--College Physics I</td>
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<td>PHYS 206--College Physics II</td>
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<td>(or) PHYS 211--General &amp; Mod Physics I</td>
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<td>PHYS 212--General &amp; Mod Physics II</td>
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<td>PSY 100IS</td>
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Junior Year

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</table>

Take one of the following:
**Kinesiology Option**

The kinesiology option within the Health and Human Performance (HHP) major prepares graduate for careers requiring leadership in organizing, directing, and managing fitness and wellness programs in corporate and commercial settings. The overall goal of the kinesiology option is to develop basic knowledge, comprehension, and appreciation of a) historical and cultural perspectives of human movement, b) social and psychological influences of human movement, and c) physiological and biomechanical correlates of human performance. From this broad knowledge base, the program’s inherent flexibility allows students to pursue a variety of areas related to physical activity and sport. This option also prepares students for professional certifications in fitness and conditioning through professional organizations such as the American College of Sports Medicine (ACSM) and the National Strength and Conditioning Association (NSCA). Finally, each student’s course work will culminate in one of the following “capstone experience” courses: HDPE 465, Exercise Testing and Prescription; HDPE 489/490, Undergraduate Research; or a preapproved internship (HDPE 475/HHD476). Students must receive a grade of “C” or better in all upper division department core courses for graduation.

**Freshman Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 102 -- Molecular &amp; Cell Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 131 -- General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 160Q -- Precalculus</td>
<td>4</td>
</tr>
<tr>
<td><strong>Take one of the following:</strong></td>
<td></td>
</tr>
<tr>
<td>BIOL 207 -- Anatomy &amp; Physiology</td>
<td>5</td>
</tr>
<tr>
<td>HDPE 221 -- Health Anatomy &amp; Physiology</td>
<td>3</td>
</tr>
<tr>
<td><strong>Univ Core and Electives</strong></td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>30</td>
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</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFN 221CS -- Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>HDHL 221 -- First Emergency Response</td>
<td>1</td>
</tr>
<tr>
<td>HDHL 222 -- First Emergency Response Lab</td>
<td>1</td>
</tr>
<tr>
<td>HDPE 210 -- Exercise Prog for Older Adults</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 222 -- Found of Exercise Science</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 267 -- Intro to Coaching</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 205 -- College Physics I</td>
<td>3</td>
</tr>
<tr>
<td>PSY 100IS -- Introductory Psychology</td>
<td>3</td>
</tr>
<tr>
<td>STAT 216Q -- Elementary Statistics</td>
<td>3</td>
</tr>
<tr>
<td><strong>Univ Core and Electives</strong></td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>28</td>
</tr>
</tbody>
</table>

**Junior Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFC 371 -- Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 320 -- Anatomical Kinesiology</td>
<td>4</td>
</tr>
<tr>
<td>HDPE 322 -- Exercise Physiology</td>
<td>4</td>
</tr>
<tr>
<td>HDPE 323R -- Biomechanics</td>
<td>4</td>
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<tr>
<td><strong>Univ Core and Approved Electives</strong></td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>30</td>
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</table>

**Senior Year**

*Take two of the following:*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFN 411 -- Nutr for Sport &amp; Exercise</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 425 -- Health Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>
HEALTH ENHANCEMENT: HEALTH AND PHYSICAL EDUCATION TEACHING K-12 BROADFIELD MAJOR

The Health Enhancement Teacher Preparation program is designed for students who want to become teachers of Health Enhancement (Health and Physical Education) in public schools. Upon completion of the degree, students are eligible for certification in teaching K-12 Health Enhancement, Physical Education, and/or Health Education in Montana and other states.

Health Enhancement is a comprehensive approach to combining the traditional areas of Health Education and Physical Education. It is a contemporary curriculum where healthy lifestyles and concepts are achieved through skillful movement with an emphasis on physical fitness, healthy lifestyle management skills, and understanding of the total self (physical, intellectual, emotional, and social). In addition to the traditional approach to teaching fundamental movement, skills, games, and dance, this curriculum emphasizes the overall health of the individual as a value in life and enhances critical thinking, decision-making and problem-solving skills of future teachers and their students. Courses within this curriculum represent a combination of content knowledge (health enhancement, health education, and physical education) along with a strong background in pedagogical content knowledge (teaching methods and curriculum). Students majoring in Health Enhancement develop a professional development portfolio based on national beginning teacher standards. The final semester consists of student teaching in two public school placements.

Criteria for selection and retention:

Admission to the Teacher Education Program. Any student who wishes to enter the Teacher Education Program must complete an "Application for the Teacher Education Program." These forms are available at www.montana.edu/ehhd/fpcert/index.html. The plan must be signed by the advisor and the forms turned into the Education Advising Center, 132 Reid Hall. Students should apply to the Teacher Education Program during the semester prior to the semester they will take their first methods class (EDEL 335).

The requirements for admission are 1) cumulative grade point average of at least 2.5; 2) A 2.5 grade point average in the teaching major, minor, and professional area with no grade below a "C" in any of these areas; 3) a 2.5 grade point average in the communication and quantitative areas of the University Core course requirements (9 credits minimum) with no grade lower than a "C" (courses designated core U, W, and Q); 4) approval of the advisor; and 5) no record of immoral conduct related to the teaching profession nor been judged guilty of a criminal offense as outlined by Section 20-4 110 of the Montana Code Annotated.

Application and approval for student teaching. Certain requirements must be met by all students desiring to student teach. These are 1) maintenance of the same standards required for admission into the program including satisfactory clearance on a federal criminal background check; 2) completion of all required courses; 3) certification of first aid and CPR; and 4) approval of advisor.
Student teaching is limited to seniors. Application must be made to the Director of Field Placement and Certification no later than the following times:

- Fall student teaching: by the end of the first week in December of the year prior to student teaching.
- Spring student teaching: by the end of the second week of April of the year prior to student teaching.

The Praxis II exam in the area of physical education must be successfully passed one semester prior to student teaching.

Recommendation and approval for licensure. The requirements for recommendation by Montana State University for licensure include completion of courses in the Teacher Education Program as outlined in the individual’s approved plan; maintenance of the same standards as required for student teaching; and approval of the advisor and the Director of Field Placement and Certification.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM 110US--Intro to Public Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 121W--College Writing I</td>
<td>3</td>
</tr>
<tr>
<td>HDFC 150IS--Lifespan Human Development</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 102--Paraprofessional Experience I</td>
<td>1</td>
</tr>
<tr>
<td>HDPE 222--Found of Ex Science</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 224--Meth Tech Mov Exp</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 251--Teaching Fitness/Act</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 267--Introduction to Coaching</td>
<td>3</td>
</tr>
<tr>
<td>MATH 150Q--Finite Math</td>
<td>3</td>
</tr>
<tr>
<td>Univ Core and Electives</td>
<td>8</td>
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<td><strong>Total</strong></td>
<td><strong>33</strong></td>
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<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 209--Ed Psych and Adolescent Devel</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 240D--Multicultural Education</td>
<td>3</td>
</tr>
<tr>
<td>HDFN 221CS--Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>HDHL 230--Drugs and Society</td>
<td>3</td>
</tr>
<tr>
<td>HDHL 240--Human Sexuality</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 202--Paraprofessional Experience II</td>
<td>1</td>
</tr>
<tr>
<td>HDPE 221--Health Anat &amp; Phys</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 252--Teach Seq Skill Dev</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 253--Teach Game Conc</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 304--Tech Apps in Health Enhance</td>
<td>3</td>
</tr>
<tr>
<td>STAT 216Q--Elementary Statistics</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 360--Foundations of Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDEL 335--Teaching Elem Hlth Enhanc</td>
<td>3</td>
</tr>
<tr>
<td>EDSD 465--Mid &amp; Sec Hlth Enhanc Methods</td>
<td>3</td>
</tr>
<tr>
<td>HDFC 357--Exceptional Children Lab</td>
<td>3</td>
</tr>
<tr>
<td>HDFC 371--Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 302--Paraprofessional Experience III</td>
<td>1</td>
</tr>
<tr>
<td>HDPE 314--Hlth Enhance for Atypical Populations</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 320--Anatomical Kinesiology</td>
<td>4</td>
</tr>
</tbody>
</table>
### Senior Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDEL 410</td>
<td>--Student Teaching</td>
<td>6</td>
</tr>
<tr>
<td>ESDS 410</td>
<td>--Student Teaching</td>
<td>6</td>
</tr>
<tr>
<td>ESDS 413</td>
<td>--Professional Issues</td>
<td>2</td>
</tr>
<tr>
<td>HDHL 455</td>
<td>--The Ethic of Care</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 322</td>
<td>--Exercise Physiology</td>
<td>4</td>
</tr>
<tr>
<td>HDPE 430R</td>
<td>--Instruct Design &amp; Admin of HE Curr</td>
<td>3</td>
</tr>
</tbody>
</table>

*Take one of the following:*

- HDPE 425 --Health Psychology 3
- HDPE 445R --Applied Sport Psychology 3

### University Core and Electives

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
</tr>
</tbody>
</table>

### Electives (select 9 credits from the following courses):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFN 411</td>
<td>--Nutr for Sports &amp; Exer</td>
<td>3</td>
</tr>
<tr>
<td>HDHL 221</td>
<td>--First Emergency Response</td>
<td>1</td>
</tr>
<tr>
<td>HDHL 222</td>
<td>--First Emergency Response</td>
<td>1</td>
</tr>
<tr>
<td>HDPE 316</td>
<td>--Football Coaching Theory</td>
<td>2</td>
</tr>
<tr>
<td>HDPE 317</td>
<td>--Basketball Coaching Theory</td>
<td>2</td>
</tr>
<tr>
<td>HDPE 318</td>
<td>--Soccer Coach Theory</td>
<td>2</td>
</tr>
<tr>
<td>HDPE 319</td>
<td>--Volleyball Coaching Theory</td>
<td>2</td>
</tr>
<tr>
<td>HDPE 362</td>
<td>--Track &amp; Field Theory</td>
<td>2</td>
</tr>
<tr>
<td>HDPE 367</td>
<td>--Coaching Application</td>
<td>1-3</td>
</tr>
<tr>
<td>HDPE 436</td>
<td>--Principles of Strength and Conditioning</td>
<td>3</td>
</tr>
<tr>
<td>HDPE 467</td>
<td>--Advanced Concepts in Coaching</td>
<td>3</td>
</tr>
</tbody>
</table>

Free electives

A minimum of 128 credits is required for graduation; 42 of these credits must be in courses numbered 300 and above.
ITEM 136-2002-R0907: Authorization to Establish The Montana State University-Bozeman Energy Research Institute

THAT: The Board of Regents of Higher Education authorizes the establishment of The Montana State University-Bozeman Energy Research Institute.

EXPLANATION AND RATIONALE: The Montana State University-Bozeman Energy Research Institute will be the umbrella institute for an array of energy research and education programs at Montana State University-Bozeman. Over the past several years, MSU-Bozeman has developed numerous programs focused on energy research, education, and development, and is now playing a significant role in international and national energy research and development.

MSU-Bozeman currently has highly relevant research and education programs in carbon sequestration, fuel cell technology, biofuels, and wind energy. These programs focus on the identification of clean coal technologies and alternative energy resources that are crucial to the state’s and the nation’s future economic development. Montana is fortunate to have vast quantities of fossil fuels, including coal, oil, and gas. Over 50% of the electricity produced in the United States is derived from coal, and Montana has an estimated 250 year supply of coal for future energy production. Montana’s coal is estimated to account for one-fourth of the nation’s known coal reserves. However, growing concern about greenhouse gas emissions, particularly CO₂, may limit the state’s ability to utilize these reserves in a manner that promotes a vibrant economy and a healthy environment. Montana has the potential to be the supplier of coal-based energy to new markets in the United States at a premium price; however, carbon capture and storage/sequestration will almost certainly be a requirement for approval of additional coal-fired power plants as well as continued operation of existing plants. Montana, with its vast energy resources and potentially favorable sequestration opportunities, can lead the country in clean-energy development. Focused applied research is the first step along this path. Emerging technologies that indicate the economic and environmental feasibility of capturing and sequestering CO₂ within a variety of geological sinks provides Montana with a unique opportunity to capitalize on its energy resources while reducing greenhouse gas emissions.

In addition to the carbon storage/sequestration and fuel cell research, Montana’s agricultural producers have the capability to supply crops necessary for the production of biofuels. Renewable energy sources including hydropower, wind power and solar power complete the list of Montana’s vast energy portfolio.
At the present time, MSU-Bozeman annually directs approximately $15 million of energy related research. The vast majority of this research is federally funded, is conducted in Montana, and involves more than 110 faculty, staff and students who work on these programs. In addition to the research and education programs based at MSU-Bozeman, we have also established a number of productive partnerships and interactions with Department of Energy (DoE) national laboratories, other US institutions as well as several international collaborations that focus on energy research and development. Summarized below is a list of the MSU-Bozeman energy programs, including research programs and partnerships with DoE national laboratories and international collaboration.

**MSU-Bozeman Energy Programs:**

**Research Programs**

- **Zero Emission Research and Technology Center (ZERT)**
  This center conducts research on carbon sequestration with a basic science and engineering focus. DoE looks at this center as a primary developer of critical knowledge and technology to support the national sequestration effort. ZERT is: improving fluid flow models to predict the underground behavior of stored CO2; measuring reaction rates of CO2 with underground minerals under appropriate conditions; developing and testing the detection limits of new and existing CO2 detection technologies; measuring properties of CO2 / brine / rock systems to use in computational models; and investigating mitigation strategies for CO2 seepage. This underpinning science will help develop understanding of best practices for storage and development of critical technology for storage verification and security.

- **Big Sky Carbon Sequestration Regional Partnership (BSCSP)**
  BSCSP is one of seven DoE funded regional partnerships focusing on mitigating greenhouse gases, particularly carbon dioxide, a natural product of burning fossil fuels for energy, via storage in underground geological traps. The BSCSP has also investigated and identified large regional sources of terrestrial storage of CO2 in soil and plants by change of land use. This program is focused on demonstration of carbon sequestration. The partnership includes the private sector, universities, DoE national laboratories and state government agencies in the region.

- **High Temperature Electrochemistry Center (HiTEC)**
  HiTEC is the primary fuel cell effort at MSU-Bozeman and focuses on Solid Oxide Fuel Cell (SOFC) technology. A major focus of this research effort is identifying materials that can operate at high temperatures; are less susceptible to “poisoning” by minute amounts of sulfur; have greater fuel flexibility; and do not require expensive, precious metal catalysts. SOFCs are being targeted to
run on coal gas and may be the advanced power generation system used in FutureGen. A second major component of HiTEC is power control and power electronics including innovative work in adaptive – predictive control schemes to mitigate impact of power transients on fuel cells; investigation of efficient and inexpensive modular control systems to allow scale-up to high powers by using modular fuel cells; and multi-source power systems.

- **Montana Wind Energy Consortium**
  This effort has cataloged wind resources within Montana that could assist in identifying sites for new wind projects. In addition, there is an ongoing, collaborative research effort with General Electric on the development of better quality composite wind turbine blades.

- **Coal Bed Methane Water Project**
  This project investigates crops that can grow successfully in brackish waters which are produced in the process of extracting coal bed methane (CBM) thereby potentially mitigating the agricultural impact of CBM development.

- **Biofuels Project**
  This project is investigating development of biofuels from oilseed crops that can be grown in Montana. There are two major approaches being pursued in this effort. One is identifying and testing technologies that allow operation of diesel engines on plant oils (not biodiesel), in a way that does not cause premature degradation of diesel engines. Diesel generators will be sited and tested in remote locations in Yellowstone National Park and may even run on waste cooking oil from MSU-Bozeman food services. The second part of this project uses plant genetic techniques to improve oil quality from crops so that refining to bio-diesel or reforming to fuels appropriate for fuel cells is more efficacious.

- **Water, Pipeline Issues**
  In Coal Bed Methane development, coal mining, coal utilization for power generation, and coal-to-liquid fuel generation, there are issues of impact and utilization of water resources. The Center for Biofilm Engineering (CBE) at MSU-Bozeman has expertise in water quality and pipeline issues (both water and other materials).
Educational Programs

Global Scientists
This National Science Foundation (NSF) program annually supports four MSU-Bozeman undergraduates to perform research in Norway on carbon sequestration and global climate change projects that are in collaboration with MSU-Bozeman.

Research Experience in Carbon Sequestration (RECS)
This program brings 20-25 students at the graduate level and a few advanced undergraduates to MSU-Bozeman for a two week short course which involves field experience with carbon sequestration. Funded by DoE, this program is meant to expose top students in a variety of relevant fields to the carbon management issue. The RECS program is run by EnTech, but is hosted by MSU-Bozeman with internationally known faculty involvement.

Partnerships with DOE and DOE National Labs
MSU-Bozeman has funded partnerships with DoE’s Fossil Energy Headquarters, and with the following DoE national laboratories:
- Pacific Northwest National Laboratory (PNNL)
- National Energy Technology Laboratory (NETL)
- Los Alamos National Laboratory (LANL)
- Lawrence Berkeley National Laboratory (LBNL)
- Lawrence Livermore National Laboratory (LLNL)
- Idaho National Laboratory (INL)
- National Renewable Energy Laboratory (NREL)

Partnerships with Other Universities
- Princeton University - Carbon Center
- Columbia University - Energy Center
- Stanford University - Carbon Center

International Efforts

- Carbon Sequestration Leadership Forum
The Carbon Sequestration Leadership Forum (CSFL) is an international group that endorses international carbon sequestration projects and leverages knowledge and capabilities in the developed world to provide knowledge, access, and education to the developing world in the sequestration field. As part of CSFL, the MSU-Bozeman ZERT program is playing a role in risk assessment. Additionally, MSU-Bozeman is heavily involved in planning and delivering an educational workshop involving decision makers from the developing world with the goal of understanding
the basics of carbon capture and storage as well as developing an idea of how to initiate a demonstration project.

- **IEA GHG Monitoring Network**
  MSU-Bozeman is involved with the International Energy Agency GreenHouse Gas (IEA GHG) network and provides periodic updates on energy related research at IEAGHG international conferences.

- **International Universities**
  University of Bergen, Stuttgart University, Utrecht University, University of Nottingham are partnering, collaborating, and/or sharing data with ZERT.

**SUMMARY:**
Because of MSU-Bozeman’s involvement in the programs outlined above as well as other programs like the Collaborative Research Center (CO₂CRC) and the Solid-state Energy Conversion Alliance (SECA), we have access to a powerful network of national and international scientists and engineers from other universities, DoE national laboratories and the private sector.

At the present time, these programs are operating fairly independently. Although MSU-Bozeman has been very successful in building viable, productive, and well funded energy programs, we feel that organizing these programs under the umbrella of the MSU-Bozeman Energy Research Institute will result in a cohesive unit with even greater productivity, enhanced national and international recognition, and increased funding opportunities. The result will be an MSU-Bozeman Energy Research Institute with significantly improved capacity to address the state’s and the nation’s energy needs leading to enhanced economic development for Montana.
MONTANA BOARD OF REGENTS
LEVEL II REQUEST FORM

Item No.: 136-2002-R0907  Date of Meeting: September 19-21, 2007
Institution: Montana State University-Bozeman
Program Title: The Energy Research Institute

Level II proposals require approval by the Board of Regents.

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

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

Specify Request:

The Energy Research Institute will be the umbrella institute for an array of energy research and education programs at Montana State University. Over the past several years, Montana State University has developed numerous programs focused on energy research, education, and development, and is now playing a significant role in international and national energy research and development.

Because of MSU’s involvement in programs like the Collaborative Research Center (CO2CRC) and the Solid-state Energy Conversion Alliance (SECA), we have access to a powerful network of national and international scientists and engineers from other universities, DoE national laboratories and the private sector.

At the present time, these programs are operating fairly independently. Although MSU has been very successful in building viable, productive, and well funded energy programs, we feel that organizing these programs under the umbrella of the MSU Energy Research Institute will result in a cohesive unit with even greater productivity, enhanced national and international recognition, and increased funding opportunities. The result will be an MSU Energy Research Institute with significantly improved capacity to address the state’s and the nation’s energy needs leading to enhanced economic development for Montana.
ITEM 138-2703-R0108

Approval to Add a New Associate of Applied Science Degree in Construction Carpentry; Montana State University-Billings, College of Technology

THAT:
In accordance with The Montana University System Policy, The Board of Regents of Higher Education authorizes Montana State University Billings, College of Technology approval to create an Associate of Applied Science Degree in Construction Technology-Carpentry.

EXPLANATION:
The Construction-Carpentry program will provide graduates with skills required of a carpenter in a variety of building construction settings common in both rural and metropolitan areas. Students will earn a national certification after each level and the Associate of Applied Science degree. Upon successful completion of this program, students will be eligible for certification with the National Center for Construction Education and Research (NCCER) National Registry.

ATTACHMENT:
Program Proposal
Level II proposals require approval by the Board of Regents.

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

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

**Specify Request:**

Montana State University Billings College of Technology seeks Level II approval from the Montana Board of Regents to offer an Associate of Applied Science in Construction-Carpentry. The AAS in Construction-Carpentry was granted temporary Level I approval status by the Board of Regents in November 2005.
Montana State University-Billings College of Technology
Associate of Applied Science Construction-Carpentry

Curriculum Proposal

1. Overview
The field of construction-carpentry offers high-wage and interesting careers within the architecture and construction career pathway. Construction-carpentry has been identified as an area of critical need of entry-level employees. Construction-carpenters are identified locally, statewide, and nationally as being in short supply now and with increasing demand anticipated.

Construction-carpentry has been one of Montana's fastest growing industries, consistently outpacing the state’s overall employment growth. The development of a construction technology-carpentry program will provide significant opportunities for MSU Billings COT to meet critical local and regional workforce training needs.

Montana State University Billings College of Technology (MSU-B COT) Construction Technology-Carpentry program will add a technical, two-year degree to its existing programs in response to the need to develop educational pathways for Montana’s high-demand careers in architecture and construction. This program will provide the opportunity for individuals with no training or for incumbent workers to obtain highly technical education and skills training. Upon successful completion of this program, students will have earned an Associate of Applied Science degree in Construction Technology-Carpentry.

The degree program and plan of study were developed by members of the College of Technology Construction Technology-Carpentry Program Development Committee, through research of current successful programs, standards established by the National Center for Construction Education and Research (NCCER), and by obtaining, local and regional industry input from residential, commercial, and local and regional construction organizations such as the Montana Contractor's Association and the Billings Homebuilder's Association.

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

MSU-B COT intends to provide a public, two-year associate of applied science degree in Construction Technology-Carpentry to meet the existing and growing education needs of this industry segment. Due to the large, and increasing, number of residential and commercial building projects in our city, this program is expected to prepare entry-level construction carpenters for Billings, the region and the state. Creation of this program was first considered in response to a request from members of the Billings residential and commercial construction industry to study the feasibility and need for this program.

Montana continues to face a significant workforce shortage crisis. Between 2001 and 2005, construction was the third fastest growing industry in Yellowstone County with a growth of over 1,045 new construction jobs (Swanson, 2007). Between 2000 and 2007, the labor force in Yellowstone County grew by 8,399 increasing demand for new home and commercial construction in the region (Swanson, 2007).

The Construction Technology-Carpentry Program will provide students with an opportunity to engage in both classroom work as well as application-based, hands-on learning. The program will be developed in accordance with the National Center for Construction and Education Research (NCCER) nationally accredited standards. This effort was coordinated with the Montana Contractor's Association, Billings Homebuilder's Association, and local and regional industry. In addition, the MSU-Billings COT worked with the UM-Missoula COT and MSU-Northern to develop a standardized NCCER-based Construction-carpentry program that is accredited by NCCER and is fully articulated.
The Associate of Applied Science Degree in Construction Technology-Carpentry will provide accessible, affordable, efficient, and practical learning opportunities for individuals in Billings and Montana. Given the current economic climate, this program has potential for improving the wage-earning potential of the industry’s future workers, the local economy, and personal/professional growth in an educationally sound manner.

The Construction Technology-Carpentry Program AAS degree will support the significant workforce training needs of Montana which comprises 6.3% of the entire labor workforce (Montana Bureau of Labor and Statistics, "Montana Economy at a Glance," 2005). Most of the skilled, blue-collar workers important to the construction industry fall in the category of "precision production, craft, and repair occupations" in the Census Bureau's occupational classification system. According to the "Montana Economy at a Glance" report, 12 percent of Montana's civilian labor force had an occupation in this category, compared with 11 percent nationally. Local industry concern has been expressed about an impending shortage of these skilled workers.


In a presentation to the Montana Workforce Conference held in Great Falls, Montana, on June 22, 2005, Bryon Roberts, Executive Director of the Montana Building Industry in Helena, Montana noted that "the construction industry in Montana is larger than mining, larger than timber and larger than the entire manufacturing center," with an increase of 2,800 net jobs in 2004. Jessica Counts in Montana Economy at a Glance (2007) reports Montana’s economy is changing with over 1,100 new private businesses added in the State between 2005 and 2006. Counts reports specialty trade contracts as the second fastest expanding sector of Montana’s economy and construction of buildings as the third fastest expanding sector (http://www.ourfactsyourfuture.org/admin/uploadedPublications/2033_July07_EAG_Article.pdf).

On June 22, 2005, there were approximately 400 job openings in the construction trades in Montana which represents 12% of the 3,400 open jobs posted on the www.jobs.mt.gov website. A well-trained workforce is critical for Montana business and industries to meet their production schedules. In particular, the Montana construction industry has felt the impact of the lack of trained workers in the construction industry and particularly in carpentry. Residential and commercial projects fall behind schedule resulting in a negative economic impact.

According to a report developed by Dr. Paul Pozin of the Bureau of Business and Economic Research at the University of Montana and presented to the Montana Board of Regents on September 22, 2005, 21.6% of all businesses surveyed in Montana stated they had a shortage with construction and healthcare topping the list. The construction industry in Montana represents 5.8% of Montana’s Gross State Product and the industry’s contribution to the economy exceeded 1.48 billion dollars in 2003. In Yellowstone County alone, there were over 1,029 permits for single-family, multi-family and modular housing units issued in 2004.

The U.S. Department of Labor reports 3,680 Montana employees in the construction field, not counting those that are self-employed. Based on the median income of this population this represents over $123 million in local wages. Pairing this with non-employers in the construction field (self-employed) which included an additional 1,274 workers, and an
additional $63 million in wages, there is an industry total of close to 5,000 workers generating $186 million in wages in the local Yellowstone County area.

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

Graduates from the Construction Technology-Carpentry program are eligible for certification with the National Center for Construction Education and Research (NCCER). Graduates will fill a growing need in construction technology-carpentry, now and in the future.

The Job

Carpenters are involved in many different kinds of construction activity, from the building of highways and bridges, to the installation of kitchen cabinets. Carpenters construct, erect, install, and repair structures and fixtures made from wood and other materials. Depending on the type of work and the employer, carpenters may specialize in one or two activities or may be required to know how to perform many different tasks. Small home builders and remodeling companies may require carpenters to learn about all aspects of building a house—framing walls and partitions, putting in doors and windows, building stairs, installing cabinets and molding, and many other tasks. Large construction contractors or specialty contractors, however, may require their carpenters to perform only a few regular tasks, such as framing walls, constructing wooden forms for pouring concrete, or erecting scaffolding. Carpenters also build tunnel bracing, or brattices, in underground passageways and mines to control the circulation of air through the passageways and to worksites.

According to Larry Swanson, economist from the O’Conner Center for the Rocky Mountain West, Yellowstone County is expected to see significant decrease in the number of individuals between the ages of 18-49 over the next decade. This will lead to increased pressure on an already tight labor market which demonstrated unemployment rates below 2% in August, 2007 (Swanson, 2007).

In May 2004, median hourly earnings of carpenters were $16.78. The middle 50 percent earned between $12.91 and $22.62. The lowest 10 percent earned less than $10.36, and the highest 10 percent earned more than $28.65.


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

The shortage of qualified construction carpenters creates a regional need to offer this program. The Montana Bureau of Labor and Statistics reports an average of 507 carpentry job openings per year through 2014. We fully anticipate full enrollment beginning with the first year of course offerings.

2006-2007: 18 Students enrolled
2007-2008: 27 Students enrolled
2008-2009: 32 Students projected
2009-2010: 40 Students projected
2010-2011 40 Students projected

With 20-25 graduates per year.

** It is important to note that many additional students will be trained via partnerships with local construction companies who may wish to enroll and pay for employees to enroll in the
construction core classes. Those students will be encouraged to enroll for credit so they can be advised to pursue the AAS degree upon completion of the construction training.

3. Institutional and System Fit
   a. What is the connection between the proposed program and existing programs at the institution?

   This program fits the MSU-B COT’s mission very well, as it has been developed to enable the College to be responsive to a significant workforce need. In addition, the new program is highly complementary to the existing programs of Drafting/Design; Heating, Ventilation, Air Conditioning and Refrigeration; and Welding. Complementary courses have been developed for each of these degrees with the intent of capitalizing on common student learning outcomes and naturally occurring cross-disciplinary content.

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

   Approval of this program will not require changes or adaptations to any existing programs at MSU Billings COT.

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

   Carpenters learn their trade through formal and informal training programs. To become a skilled carpenter usually takes between 3 and 4 years of both classroom and on-the-job training. While there are a number of different ways to obtain this training, in general, the more formalized the process, the more skilled students will become, and the more in demand by employers. Using the approach most commonly found in industry, this program is built upon a foundation of construction-carpentry theory and then applied with sufficient repetition to reinforce concepts in practical settings. The program incorporates the application of theory to the application of skill through 2 building projects: 1st-year students build a modular house; 2nd-year students build a site-based home sponsored by the Billings Homebuilders Association.

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

   **Goal #1: Student Success, Achievement, and Retention** - In order to ensure that each student attending MSU-B COT has the opportunity to succeed and reach their educational goal, the University puts the planning and resources in place to maximize student success as measured by the student. Careful planning and forethought was devoted to the development of the program proposal for Construction Technology-carpentry.

   **Goal #2: Academic Excellence and Integrity** – MSU-B COT maintains an atmosphere of excellence and completes all projects with integrity and as careful stewards of public resources. The six colleges at MSU-Billings participate in a self-evaluation and external review process in an effort to ensure the highest standards of academic excellence and integrity.

   **Goal #3 Planning and Innovation** – MSU-B COT strives to remain on the cutting edge of new ideas, continually planning for its future. MSU-B purposefully plans its activities and continually uses innovation to further its mission and objectives. Studying the feasibility of the new Construction Technology-carpentry program began in 2005 at the request of local and regional residential and commercial builders.
Goal #4: Technology - Technology will be designed and used to further objectives of the University, community, economic development, and research to enhance the learning, business, and production environments of students, faculty, staff, and research personnel.

Development of the Construction Technology-carpentry program included plans to develop and deploy courses which study the latest building technologies and materials. To that end, MSU-B COT was successful in a bid to obtain a Community Based Job Training Grant, implemented by the U. S. Department of Labor’s Employment and Training Administration. Monies awarded through this successful grant application support the development of curriculum and has provided funding to hire instructors.

Goal #5: Competitive Change – MSU-B COT responded to market changes with appropriate strategies that meet or exceed those of the competition with the development of this Construction Technology-carpentry program.

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.

After Montana BoR adoption of the current Montana University System (MUS) initiatives, MSU-B COT has taken up the charge, through careful planning and industry partnership, to assist and address the specific initiative of Workforce Training & Equipment for High Demand Fields in Montana.

To meet the state’s two-year educational initiatives, the proposed MSU-B COT Associate of Applied Science Construction Technology-Carpentry adds a specific and targeted professional-technical program to the existing complement of associate and certificates of applied science degrees in the Montana.

The U.S. Department of Labor Employment Training Administration awarded the Montana State University-Billings College of Technology with a US-DOL CBJT grant to create more training opportunities to meet the high demand for highly skilled construction workers across Montana. The National Center for Construction Education and Research (NCCER) curriculum has been adopted by all programs: Montana State University-Billings College of Technology; University of Montana; Montana Tech College of Technology (Butte); MSU-Northern (Havre); University of Montana-Missoula College of Technology as well as affiliate partners across the state. Since the inception of the project, four additional partners have become involved in Montana BILT: Miles Community College in Miles City, Flathead Valley Community College in Kalispell, and University of Montana-Helena College of Technology, Dawson Community College.

Although it may be perceived that programmatic duplication exists among these programs, factors that support the existence of all include: Increasing demand for skilled construction carpenters has exceeded the number of available graduates in all programs; and local residential and commercial construction needs are met when these programs are permitted to tailor program student learning outcomes to specific local and regional practices.

4. Program Details
   a. Provide a detailed description of the proposed curriculum. Where possible, present the information in the form intended to appear in the catalog or other publications.
      NOTE: In the case of two-year degree programs and certificates of applied science, the
Montana State University Billings College of Technology
Associate of Applied Science: Construction Technology-Carpentry

This degree in will provide students with a foundation necessary to obtain employment in the construction industry with skills in residential and commercial construction. Students will learn skills in blueprint reading, computer aided drafting and design, construction layout, safety, residential construction, basic commercial and industrial construction, estimating, concrete and basic construction management. Students will apply these skills by performing a variety of hands-on building construction projects and field projects. They will also earn NCCER (National Center for Construction Education Research) Certification.

Upon successful completion of this program a student will be able to:

- Read blueprints
- Use computer technology for drafting and design
- Demonstrate use of construction safety
- Estimate materials and buildings costs for basic commercial, industrial and residential construction projects
- Lay out a building from a site plan
- Read plans and elevations
- Build concrete forms
- Frame a small building from the ground up
- Install doors and windows
- Install and finish simple drywall projects
- Frame with metal studs
- Describe the installation of electrical receptacles and light fixtures
- Install cabinetry
- Build simple stair systems
- Earn NCCER (National Center for Construction Education Research) Certification.

<table>
<thead>
<tr>
<th>Required Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARP 120 Carpentry Basics and Rough-in Framing</td>
<td>5</td>
</tr>
<tr>
<td>CARP 130 Exterior Finishing, Stair Construction,</td>
<td></td>
</tr>
<tr>
<td>and Metal Stud Framing</td>
<td></td>
</tr>
<tr>
<td>CARP 140 Introduction to Site Layout</td>
<td>3</td>
</tr>
<tr>
<td>CARP 150 Beginning Carpentry Practicum</td>
<td>3</td>
</tr>
<tr>
<td>CARP 152 Intermediate Carpentry Practicum</td>
<td>3</td>
</tr>
<tr>
<td>CARP 220 Interior Finishing</td>
<td>4</td>
</tr>
<tr>
<td>CARP 230 Advanced Roof, Floor, Wall, and Stair Systems</td>
<td>4</td>
</tr>
<tr>
<td>CARP 250 Advanced Carpentry Practicum</td>
<td>4</td>
</tr>
<tr>
<td>CARP 252 Capstone Carpentry Practicum</td>
<td>4</td>
</tr>
<tr>
<td>CMP 105 Introduction to Computers and Applications</td>
<td>3</td>
</tr>
<tr>
<td>COMT 109 Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>CTBU 166 Principles of Applied Supervision</td>
<td>3</td>
</tr>
<tr>
<td>DRFT 108 Introduction to CAD</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 145 Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>MATH 122 College Mathematics for Technology</td>
<td>3</td>
</tr>
<tr>
<td>TRID 110 Fundamentals of Construction Technology</td>
<td>2</td>
</tr>
<tr>
<td>TRID 112 Blueprint Reading for Construction</td>
<td>2</td>
</tr>
<tr>
<td>TRID 115 Using a Construction Calculator</td>
<td>1</td>
</tr>
<tr>
<td>TRID 120 Introduction to Concrete</td>
<td>2</td>
</tr>
<tr>
<td>TRID 130 Basic Rigging</td>
<td>1</td>
</tr>
<tr>
<td>TRID 131 Metal Building Construction</td>
<td>1</td>
</tr>
</tbody>
</table>
Suggested Plan of Study

First Semester  Credits
CARP 120 .................... 5
CARP 150 .................. 3
MATH 122 .................. 3
TRID 110 .................... 2
TRID 112 .................... 2
TRID 115 .................... 1
TRID 150 .................... 2
Total .......................... 18

Second Semester
CMP 105 .................... 3
COMT 109 .................... 3
CARP 130 .................... 4
CARP 140 .................... 3
CARP 152 .................... 3
TRID 120 .................... 2
Total .......................... 18

Third Semester
TRID 130 .................... 1
TRID 131 .................... 1
TRID 151 .................... 2
CTBU 166 .................... 3
DRFT 108 .................... 3
CARP 230 .................... 4
CARP 250 .................... 4
Total .......................... 18

Fourth Semester
ENGL 145 .................... 3
TRID 220 .................... 3
CARP 220 .................... 4
CARP 252 .................... 4
Restricted Elective ........... 3
Total .......................... 17

Total for degree............ 71

Restricted Electives
CTBU 171 Introduction to Business ......................... 3
HVAC 110 Introduction to HVAC .............................. 4
TRID 125 Introduction to Flooring Installation .............. 4
TRID 190 Introduction to Residential Wiring .................. 3

Course Descriptions

CARP 120 Carpentry Basics and Rough-in Framing
5 cr. (2 lec/6 lab/wk) Corequisite: TRID 110 or instructor's approval.
Introduces the carpentry trade, including history, career opportunities, and requirements. This course covers a variety of building materials, fasteners, and adhesives. It also covers installation procedures for windows and exterior doors. Skills required for framing a simple structure are studied and practiced.

**CARP 130 Exterior Finishing, Stair Construction, and Metal Stud Framing**  
4 cr. (2 lec/4 lab/wk) Prerequisite: CARP 120 or instructor’s approval.  
Introduces students to materials and methods for sheathing, exterior siding, stairs, and roofing. Students will lay out and build a simple stair system as well as a metal stud wall with door and window openings.

**CARP 140 Introduction to Site Layout**  
3 cr. (1 lec/4 lab/wk) Prerequisite: TRID 110 or instructor’s approval.  
Introduces the process of distance measurement as well as differential and trigonometric leveling for site layout. It covers the principles, equipment, and methods used to perform the site layout tasks that require making angular measurements. This course is designed to let students apply the blueprint reading skills learned so far to a practical exercise.

**CARP 150 Beginning Carpentry Practicum**  
3 cr. (9 lab/wk) Prerequisites: CARP 120, TRID 112, and TRID 115 or instructor’s approval.  
Corequisite: CARP 130.  
Provides hands-on experience in which the student applies, with minimal supervision, the basic skills and knowledge presented thus far in the NCCER Carpentry Program. This course is designed as a practical task-oriented application utilizing the skills covered in prerequisites as well as in parts of CARP 130.

**CARP 152 Intermediate Carpentry Practicum**  
3 cr. (9 lab/wk) Prerequisites: CARP 120, CARP 150, TRID 110, TRID 112. Corequisite: CARP 130.  
Provides hands-on experience in which the student applies with supervision the basic skills and knowledge presented thus far in the NCCER Carpentry Program. The course is designed as a practical task-oriented application utilizing the basic skills learned in CARP 120, TRID 110, TRID 112, and CARP 130. The course will emphasize basic application in the areas of exterior finishing and interior finishing.

**CARP 220 Interior Finishing**  
4 cr. (2 lec/4 lab/wk) Prerequisites: CARP 120 and TRID 112 or instructor’s approval.  
Covers interior building materials. This course covers materials and installation techniques for interior trim, countertop, base cabinet, and wall cabinet. It also covers suspended ceiling materials, layout, and installation as well as wood and metal door installation.

**CARP 230 Advanced Roof, Floor, Wall, and Stair Systems**  
4 cr. (2 lec/4 lab/wk) Prerequisites: CARP 130 and CARP 150 or instructor’s approval.  
Covers the installation methods and materials for various roofing systems. It covers a variety of flooring applications as well as interior wall construction for residential and commercial structures. It also covers advanced staircase construction.

**CARP 250 Advanced Carpentry Practicum**  
4 cr. (12 lab/wk) Prerequisites: CARP 130, CARP 140, CARP 150, and CARP 220 or instructor’s approval. Corequisite: CARP 230.  
Provides students the opportunity to practice skills they have acquired in the entire carpentry program. It includes task-oriented projects in which students can apply many of the skills and knowledge that have been presented throughout the NCCER Carpentry Program. This course is designed as a practical task-oriented exercise utilizing a variety of skills covered in all the NCCER carpentry courses required for the AAS degree.

**CARP 252 Capstone Carpentry Practicum**  
4 cr. (12 lab/wk) Prerequisites: CARP 120, CARP 130, CARP 140, CARP 150, CARP 152, CARP 230, and CARP 250, TRID 110, TRID 115. Corequisite: CARP 220.  
Provides hands-on experience in which the student applies with MINIMAL supervision the skills and knowledge presented thus far in the NCCER Carpentry program. The course is designed as a practical task-oriented application utilizing the ADVANCED skills learned in CARP 220 and CARP 230. The course will
emphasize advanced application in the areas of exterior finishing and interior finishing.

COMT 109 Human Relations
3 cr. (3 lec/wk)
Offers a theoretical and practical understanding of communication processes in the working environment, self-awareness in that environment, and the individual’s participation in these relationships. The course aims to develop the student’s perception and expression skill to communicate successfully in a variety of work contexts.

CTBU 166 Principles of Applied Supervision
3cr. (3 lec/wk) Prerequisite: CMP 105 or consent of instructor.
Introduces students to supervision functions, principles, and contemporary issues in the modern workplace. Emphasis will be placed on practical applications and insights regarding supervisory applications, individual and group performance, workplace dynamics and change, and team-oriented environments. Students will explore key skills needed for effective supervision, supervisory challenges of the 21st century, and how supervisors operate in real situations.

CTBU 171 Introduction to Business
3 cr. (3 lec/wk)
Provides an overall picture of business operations. Specialized fields within business organizations are presented and analyzed. The role of business in today’s society is examined and career opportunities in business are explored.

ENGL 145 Technical Communication
3 cr. (3 lec/wk) Prerequisite: ENGL 100, ENGL 102, or qualifying score on placement exam and CMP 105.
Introduces the student to the creation and evaluation of several kinds of written and oral technical communication.

MATH 122 College Mathematics for Technology
3 cr. (3 lec/wk) Prerequisite: MATH 103 or MATH 105 or appropriate placement score.
Applies math to problems drawn from diverse occupational fields. Provides college level study of measurement, algebra, geometry, and trigonometry as needed to solve mathematical applications in a trade or technical work environment.

TRID 110 Fundamentals of Construction Technology
2 cr. (1 lec/2 lab/wk)
Introduces basic concepts in using construction-related safety apparatus. It also covers proper safety procedures in the operation of hand and power tools. It reviews and applies construction-related math.

TRID 112 Blueprint Reading for Construction
2 cr. (2 lec/wk)
Concentrates on concepts associated with blueprint reading, sketching, and interpreting light commercial and residential drawings. It includes instruction in the recognition of construction materials, procedures, specifications, and methods of estimating construction costs from blueprints. This course also covers trade-specific symbols found on construction drawings.

TRID 115 Using a Construction Calculator
1 cr. (1 lec/wk)
Explains uses and needs for quality construction calculators. This course is designed to help students become proficient in solving common construction problems using the Construction Master Pro calculator.

TRID 120 Introduction to Concrete
2 cr. (1 lec/2 lab/wk) Prerequisite: TRID 110 or instructor’s approval.
Provides students with basic skills and knowledge in the area of concrete and reinforcing materials. The course will also provide a limited opportunity for students to be involved in hands-on experience in the
forming, reinforcing, handling, and placing of concrete.

**TRID 130 Basic Rigging**  
1 cr. (1 lec/wk)  
Explains how ropes, chains, hoists, loaders, and cranes are used to move material and equipment from one location to another on a job site. It describes inspection techniques and load-handling safety practices as well as reviews American National Standards Institute (ANSI) hand signals.

**TRID 131 Metal Building Construction**  
1 cr. (1 lec/wk)  
Introduces the basic structural components, fastening methods, and assembly techniques for metal buildings. It provides an overview of the materials and procedures used in application of roofs, wall panels, windows, doors, and flashings relating to metal buildings.

**TRID 150 Environmental and Shop Practices**  
2 cr. (1 lec/2 lab/wk)  
Informs students on safety, hazardous materials and toxic waste. Students are given a working knowledge of tool use, measuring devices, fasteners, use of shop manuals, and hazardous waste precautions and handling procedures.

**TRID 151 Welding**  
2 cr. (1 lec/2 lab/wk)  
A theory and practical course designed to give students experience in oxyacetylene welding, cutting, and arc welding processes used in the trade and industrial field applications. Various types of welders and electrodes are used for practice on weld coupons.

**TRID 190 Introduction to Residential Wiring**  
3 cr. (2 lec/2 lab/wk)  
Introduces wiring methods and materials used in single- and two-family dwellings. It covers basic installation and replacement techniques for residential electrical components.

**TRID 220 Advanced Concrete Working**  
3 cr. (1 lec/4 lab/wk) Prerequisite: TRID 120.  
Provides basic knowledge of concrete materials and tools and provides hands-on experience in which the student applies with supervision those basic skills and knowledge presented in the area of concrete. The course is designed as a practical task-oriented application utilizing the basic skills learned in TRID 121 and TRID 220. The course will emphasize the advanced application in the area of concrete foundations, flatwork, forms, reinforcing, handling, and placing concrete.
Describe the planned implementation of the proposed program, including estimates of numbers of students at each stage.

MSU-Billings College of Technology
Associate of Applied Science Construction Technology-Carpentry

<table>
<thead>
<tr>
<th>Implementation</th>
<th>Summer 2005</th>
<th>Fall 2006</th>
<th>Spring 2007</th>
<th>Fall 2007</th>
<th>Spring 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertise new program</td>
<td>Admit 1st student cohort</td>
<td>Admit 2nd student cohort; returning second year students from 2007</td>
<td>Graduate 1st student cohort</td>
<td></td>
<td></td>
</tr>
<tr>
<td># New Students</td>
<td>18</td>
<td>18</td>
<td>27</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

The one-year enrollment and matriculation patterns seen here reflect a commonly occurring phenomenon in high-demand, two-year professional-technical programs. After completing the first year of instruction, students are immediately employable in basic, entry-level carpentry-assistant positions. This program’s first-year students were employed. Another phenomenon that occurs is after working in the field for some length of time, students return to their two-year program to complete their degree in order to move along the career pathway and obtain employment in positions with greater responsibility and higher pay scales.

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

   Yes.

   MSU-B COT has allocated a permanent faculty line in the budget for one tenure-track position. A second non-tenure track position was secured through the use of grant funding. At the conclusion of the grant, the 2nd faculty position will be moved to a permanent College personnel budget line.

   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.

   Start up costs associated with the implementation of this program were funded through a $50,000 grant from the Montana Contractor’s Association and Celebrate Billings. A federal grant from the US-Department of Labor Community Based Job Training was received and is currently being administered by the MSU-Billings College of Technology ($1.98 million) and a State OCHE grant for 2 year new program development have been added to the financial resources garnered to support this program. Additional funding was received from external support from local and regional construction industries. Two local construction companies have pledges $100,000 over five years to support student scholarships. Students in the program will building two homes. The first year students will construct a modular home and the second year students will construct a fully completed 3,000 square foot home on a 10,000 square foot lot near the College. Profits generated from home sales will be reinvested into the program and construction of future homes. For example, the class of
2007 generated a net profit from the sale of the modular home of $17,000. Continuing costs will be funded through permanent budgets using revenue from tuition and student FTE reimbursement.

**Facilities/Supplies**

MSU Billings’ and COT executive administrators provide financial and facility resources sufficient to support continuity and consistency in the educational program. Costs will be funded through tuition, fees and the State allocation as in previous years. Classroom instruction is held on the College of Technology campus. Laboratory instruction for first year students will take place on the property of the School District No. 2 Career Center located adjacent to the COT where students will construct a modular home. During the spring of 2007, students from the 2007 Construction-Carpentry cohort constructed a modular home (materials paid for by the US-DOL grant) and sold the home to the highest bidder as per state guidelines. The proceeds from the sale of the Modular home ($17,000) will be reinvested into the construction of the 2008 modular. The second year students in the Construction-Carpentry program will construct a full scale home near the COT in partnership with the Billings Homebuilder’s Association who is financing the construction of the home. All other instruction and lab work will take place on the MSU-Billings COT campus.

**Equipment**

The lab component of the curriculum is taught at the COT, the modular home location at the Career Center, and on-site at the off-campus home construction site provided by the Billings Homebuilder’s Association. All laboratory equipment includes a wide variety of equipment usage including: table saws, jointers, portable power tools, and other stationary power equipment used in the field. Start up costs associated with the implementation of this program were funded through a $50,000 grant from the Montana Contractor’s Association and Celebrate Billings, a US-Department of Labor CBJT grant and a State OCHE grant for 2 year new program development.

6. **Assessment.**

How will the success of the program be measured?

The success and effectiveness of the program will be measured based on the following factors: student enrollment, retention, national exam pass rates, employer satisfaction and through data gather from annual reports and the program review process.
Program Review:
MSUB is a student centered campus that focuses on excellence in teaching and student learning. During the last several years MSUB has re-examined, strengthened, and coordinated its assessment process. While institutional evaluation and assessment is by its nature continuously evolving, the University has made progress toward an institutional assessment lattice integrated into the University’s strategic plans. In fall 2004 the university initiated its second strategic initiatives document for the period 2005-2010. The document was collaboratively developed with faculty and staff and implemented in fall 2005 as the University instituted a Continuous Quality Improvement concept in all its practices. The CQI process is continual and cyclical, allowing for annual progress checks and data informed decision making. The Continuous Quality Improvement Steering Committee oversees implementation of the CQI concept in all University processes. The Committee maintains a website and publishes a monthly Newsletter CQI-FYI.

Each division of the university (Academic Affairs, Administrative Affairs, Athletic Affairs, Facility Services, Graduate Studies, Grants and Sponsored Programs, Information Technology, Institutional Research, Library, Public Service Units (KEMC/YPR and the Montana Center on Disabilities) and Student Affairs) developed goals aligned with the university strategic initiatives. Both quantitative and qualitative measures are required to assess performance and outcomes.

Annual program reports are completed in each division, each college, and each department within each college and administrative divisions with sub-units to review and assess compliance with the University's overall mission. The CQI process is an ongoing evaluation of the University's mission and role and a continual attempt to match our offerings to constituent needs. Coordination of assessment is overseen by the CQI Steering Committee and the Academic Senate. The committee meets on a regular basis to discuss, review, and provide feedback to the various areas of the university. The outcomes are used in planning and implementing changes for improvement. The Co-Chairs of the Committee make a monthly presentation of the committee's activities and progress on assessment to the Chancellor and his Cabinet during regularly scheduled cabinet meeting. It involves administration, faculty, students, the Construction Technology-Carpentry Program Advisory Board (PAB), graduates and employers. A model was developed to identify the evaluative components, input sources, process, timeline, and outcomes criteria.

- Does the program or function assessed move the University closer to its mission?

  **MSU-Billings provides a university experience characterized by:**
  Excellent Teaching
  Support for Individual Learning
  Engagement in Civic Responsibility
  Intellectual, Cultural, Social & Economic Community Enhancement

- Does the program or function assessed move the University closer to its standard of Access and Excellence?

- Does the program or function assessed contribute to fulfillment of the University’s Strategic Initiatives?

  **Programs**—Create and maintain distinctive, vital academic programs and services for 21st Century learners
  **Faculty Excellence**—Cultivate excellence in & outside the classroom, in scholarly endeavors & exemplary service through faculty & staff development, support for scholarship, continuing assessment, & recognition of professional service
  **Needs of Learners**—Identify the needs of all learners & provide access to a university experience that fulfills both individual goals & societal needs
  **Social Equity**—Model social equity and consciousness by assuring that all members of our campus community grow because of their University experience
**Research Initiatives**—Increase the stature, professionalism & research initiatives of all academic programs & student services

**Economic Access**—Augment local, state & regional economic development through the strength of the University's financial base & our learners' contributions to their communities

**Global Engagement**—Increase staff, faculty & student awareness, understanding, & involvement in the international community

**University Infrastructure**—Ensure an administrative, operational and physical infrastructure that fully supports excellence

- Does the program or function assessed help the University attain its Vision?

  *Montana State University-Billings will be recognized as a regional leader for:*
  
  - Teaching & Learning
  - Translating Knowledge into Practice
  - Researching for the Future
  - Accepting Leadership for Intellectual, Cultural, Social & Economic Development Beyond University Boundaries

### Assessment Data—Indicators of Student Success

**Annual Reports:** provide evidence of progress toward division/unit goals, data to support this progress and other information as appropriate for the area.

**Periodic Program Review:** MSU-B COT complies with the Montana Board of Regents Policy 300.3 under Academic Affairs Program Review. MSU-B COT will review all of its programs at least once every seven (7) years. A campus schedule of review for our programs has been filed with the Office of the Commissioner of Higher Education. Pending Level II BoR approval of the Construction Technology-carpentry Program, that schedule will be updated. The results of our internal Construction Technology-carpentry program review will be prepared for submission to the Montana Board of Regents at the appropriate November BoR meeting. This report focuses especially on the decisions associated with the future of each program, following its review.

**Student Ratings of Instruction:** In general, evaluation of faculty is governed by the Collective Bargaining Agreement between the Montana Board of Regents of Higher Education and Vocational-Technical Educators of Montana. Faculty member evaluation procedures are recognized to be a cooperative effort between the faculty member and his/her supervisor with the purpose of achieving excellence in the area of effective and purposeful instruction and job performance.

**Student Exam Pass Rate:** Successful completion of the Construction-Carpentry program provides graduates with skills required of a carpenter in a variety of building construction settings common in both rural and metropolitan areas. Upon successful completion of this program, students will be eligible for certification with the National Center for Construction Education and Research (NCCER) National Registry. Successful completion of all NCCER instructional outcomes and the Associate of Applied Science degree lead to a student's NCCER national certification.

**Surveys:** Graduate and Employer satisfaction surveys will be administered on an annual basis. Results of these surveys will be considered by the Dean, Associate Dean, Department Chair, members of the Program Advisory Committee. Recommendations from the Committee for needed revisions to course content or presentations are to be discussed with and adopted by teaching faculty each fall semester.

The timeline for evaluation affords ample time for program revision based on the evaluative data, changing trends in medical coding and billing industry standards. Components of the evaluation model include the organization and administration of the program, curriculum, resources, and student/graduates.

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

**Spring of 2004**

MSU-Billings College of Technology was contacted by residential and commercial construction companies in the Billings area with a request to provide Construction Technology-Carpentry educational opportunities.

A College of Technology Construction Technology-carpentry Program Development Committee made up of construction executives and College of Technology faculty and administrators was formed to investigate the viability of this proposal.

The Dean of the College of Technology brought the proposal to Celebrate Billings, a community based committee to support educational opportunities within the city. Celebrate Billings funded a startup costs of developing a proposed new program.

The College of Technology committee formed a subcommittee to create a proposed plan of study, a business plan, and a formal proposal which was submitted to the Provost.

Approval was given by the Provost to move forward to create curriculum and a full program proposal.

**Spring Semester 2006**

The curriculum was proposed and routed through the University curriculum approval process. Proposals for new curriculum begin at the faculty level (internal) and involve input from advisory committees (external) and/or accreditation agencies (external). In instances such as this where permanent faculty are not in place at the time of the proposal to create required documentation, the curriculum is developed by existing faculty, staff, advisory committee members and industry to create the initial submission.

Documentation was then submitted to the appropriate Program Curriculum Committee for final review.

The proposal was reviewed by the appropriate Department Chair, College Curriculum Committee, Dean of the College, MSU-Billings Undergraduate Curriculum Committee, Faculty Academic Senate, Provost and finally the Chancellor

Board of Regents request for approval of a Level I program proposal was submitted.

**Spring 2006**

Notification of BoR Level I program approval was received.

Student recruitment and program marketing began.

**Fall 2006**

Admitted 1st cohort of Construction Technology-Carpentry students.
ITEM 138-2704-R0108  Approval to Add a New Certificate of Applied Science Degree in Medical Coding and Insurance Billing; Montana State University-Billings, College of Technology

THAT: In accordance with The Montana University System Policy, The Board of Regents of Higher Education authorizes Montana State University Billings, College of Technology approval to create an Certificate of Applied Science Degree in Medical Coding and Insurance Billing.

EXPLANATION: The Certificate of Applied Science in Medical Coding and Insurance Billing is designed to provide a recommended curriculum through which students may earn a two-semester certificate. Offered both in traditional classroom and on-line options, this certificate will educate students in the areas of medical procedure and diagnosis coding. After completing the certificate students will be prepared for immediate employment in either inpatient or outpatient medical setting as an integral part of the healthcare team in a medical office, dental office, hospital, clinic, insurance company or independent billing company.

ATTACHMENT: Program Proposal
Level II proposals require approval by the Board of Regents.

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

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

**Specify Request:**

Montana State University Billings College of Technology seeks Level II approval from the Montana Board of Regents to offer a Certificate of Applied Science in Medical Coding and Insurance Billing.
Montana State University-Billings College of Technology
Certificate of Applied Science Medical Coding and Insurance Billing

Curriculum Proposal

1. Overview
The field of medical coding and insurance billing offers high-wage and interesting careers within the healthcare career pathway. Health care has been identified as an area of critical need. Medical Coding and Insurance Billers are identified locally, statewide, and nationally as being in short supply now and with increasing demand anticipated. MSU-B COT was approached by members of the Billings medical community to develop and offer this program. Responsiveness and service to the community are central to the mission of the College of Technology.

Montana State University Billings College of Technology (MSU-B COT) Medical Coding and Insurance Billing program will add a technical, two-semester certificate of applied science degree to existing programs in response to the need to develop educational pathways for Montana’s high-demand careers in healthcare sciences. This program will provide the opportunity for individuals with no training or for incumbent workers to obtain highly technical education and skills training. Upon successful completion of this program, a student will have earned a Certificate of Applied Science degree in Medical Coding and Insurance Billing.

The certificate program and plan of study were developed by members of the College of Technology Medical Coding and Insurance Billing Program Development Committee, through research of current successful two-semester programs, by examining American Academy of Professional Coders (AAPC) or American Health Information Management Association (AHIMA) National Coding standards, and by obtaining, local and regional industry input.

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

MSU-B COT intends to provide a public, two-semester certificate of applied science degree in Medical Coding and Insurance Billing to meet the existing and growing education needs of this industry segment. Due to the large, and increasing, number of medical facilities and related offices, this program is expected to prepare entry-level medical coders and insurance billers for Billings, the region and the state. Creation of this program was first considered in response to a request from members of the Billings medical community to study the feasibility and need for this program.

In the spring of 2004, MSU-Billings College of Technology was contacted by healthcare providers in the Billings area with a request to provide Medical Coding and Insurance Billing educational opportunities. A College of Technology Medical Coding and Insurance Billing Program Development Committee made up of healthcare administrators and College of Technology faculty and administrators was formed to investigate the viability of this proposal. The Dean of the College of Technology brought the proposal to Celebrate Billings, a community based committee to support educational opportunities within the city. Celebrate Billings funded a survey of health care providers to get input as to the programmatic direction the proposal should take.

The Certificate of Applied Science Medical Coding and Insurance Billing will provide accessible, affordable, efficient, and practical learning opportunities for individuals in Billings and Montana. Given the current economic climate, this program has potential for improving health care, the local economy, and personal/professional growth in an educationally sound manner.

Due to the rapid growth in the number of medical tests, treatments, and procedures that will be increasingly scrutinized by third-party payers, regulators, courts, and consumers, the US
Department of Labor, Bureau of Labor Statistics reported that employment of medical records and health information technicians is expected to grow much faster than the average through 2014. Expected overall percentage of growth was reported at 28.9%. (U.S. Department of Labor. Bureau of Labor Statistics Website, extracted on September 5, 2007 from http://www.bls.gov/emp/emptabapp.htm)

Job prospects should be very good. Also, technicians will be needed to enter patient information into computer databases to comply with Federal legislation mandating the use of electronic patient records.

Although employment growth in hospitals will not keep pace with growth in other health care industries, many new jobs will, nevertheless, be created. The majority of new jobs creation is expected in offices of physicians as a result of increasing demand for detailed records, especially in large group practices. Rapid growth also is expected in home health care services, outpatient care centers, and nursing and residential care facilities. Additional job openings will result from the need to replace technicians who retire or leave the occupation permanently.

Technicians with a strong background in medical coding will be in particularly high demand. Changing government regulations and the growth of managed care have increased the amount of paperwork involved in filing insurance claims. Additionally, health care facilities are having difficulty attracting qualified workers, primarily because of the lack of both formal training programs and sufficient resources to provide on-the-job training for coders. Job opportunities may be especially good for coders employed through temporary help agencies or by professional services firms. (U.S. Department of Labor. Bureau of Labor Statistics Website. http://www.bls.gov/oco/ocos103.htm Extracted September, 5, 2007).

Montana Department of Labor and Industry Labor Market Information statistics report there will be steady and continued growth of the medical coding and billing occupation in Yellowstone County. Between 2004 and 2014, at 41.4% increase in new positions will occur with a reported overall growth rate of 3.5%. (Montana Department of Labor and Industry Website, extracted on September 5, 2007 from http://www.ourfactsyourfuture.org/cgi/databrowsing/localAreaProfileQSResults.asp?selectedarea=YELLOWSTONE+COUNTY&selectedindex=60&menuChoice=localAreaPro&state=true&geogArea=3004000111&countyName=.)

According to employment projections from the America's Career Info Net, medical records and health information technicians are one of the ten fastest growing occupations in Montana. This program will respond to the shortage of qualified medical coders in the region and in Montana.

This program also offers the opportunity for other trained health information management professionals to easily re-train for medical coding and insurance billing. After successful implementation as a traditional program, this plan of study will also be offered online for rural and place-bound students.

In addition, the College of Technology has other healthcare programs in place which students may want to pursue after they receive their certificate in Medical Coding and Insurance Billing. This approach to curriculum development and planning creates a healthcare sciences career pathway.

b. How will students and any other affected constituencies be served by the proposed program?
The Medical Coding and Insurance Billing program is designed to provide a recommended curriculum through which students may earn a two semester certificate. This new certificate will educate students in the areas of medical procedure and diagnosis coding, record auditing, and computerized medical billing and to prepare the student for employment in either the inpatient or outpatient medical setting as an integral part of the healthcare team in a medical office, dental office, hospital clinic, independent billing company or insurance company.

Graduates from the Medical Coding and Insurance Billing Certificate program are qualified to sit for the American Academy of Professional Coders (AAPC) or American Health Information Management Association(AHIMA) National Coding exams to receive professional certifications. Graduates will fill a growing need in healthcare, now and in the future.

Because some medical coders and insurance billers are self-employed and work from the home, the online program delivery option will be offered now that the implementation of the traditional certificate is complete. Online degree completion provides an opportunity for rural and place-bound individuals to earn a certificate in medical coding and insurance billing.

The Job

Medical coding is the transformation of handwritten or verbal descriptions of diseases, injuries and medical procedures into a numbered procedure code and/or numbered diagnosis code. Entry-level employees have the knowledge and skill to analyze health records and assign the appropriate code to each diagnosis and procedure according to national and international guidelines. Workers perform research and rely on their knowledge of medical terminology, anatomy and disease processes to determine the correct codes and sequences.

Workers prepare various health claims forms required by the insurance industry using medical billing software. Development of these skills involves practicing accurate interpretation of medical records, correctly documenting and coding information, and submission of forms to the insurance company for reimbursement. The emphasis is on the high level of responsibility required, and the attention to detail and accuracy needed to be a competent medical biller. Both theory and practice are required to meet the competencies identified as necessary for entry-level employment.

Salaries for medical coding and insurance billing positions range between $20,000 and $35,000 per year. This certificate of applied science offers incumbent healthcare workers the option of enhancing and upgrading their skills to enter a career pathway to higher paying positions.

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

The shortage of qualified medical coders creates a regional need to offer this program. The Montana Department of Labor & Industry estimates that there were approximately 564 positions for Medical Records and Health Information Technicians in Montana in 2002 and by 2012 projects a 45.6% increase to 821 positions. This certificate of applied science program will help fill the need for highly educated, skilled employees in this area of growth.

3. Institutional and System Fit
   a. What is the connection between the proposed program and existing programs at the institution?
The curriculum for this plan of study is a combination of the COT Health Occupations prerequisite semester, existing courses and four new program-specific courses (12 credits). This certificate will give MSU Billings COT students an option to continue their education in the Associate of Applied Science Degree in Medical Assistant or the Associate of Applied Science Degree in Medical Office Assistant. In addition, the students can further expand their educational and career pathways by earning an online Bachelor of Applied Science Degree in Healthcare Administration, articulated with MSU Billings’ College of Allied Health Professions. This approach to curriculum development and planning creates a clearly delineated pathway to thematic concentration and other careers in healthcare sciences.

Students who first complete a Certificate of Applied Science in Medical Coding and Insurance Billing can receive an Associate of Applied Science Degree in Medical Assisting after completing an additional two semesters of study at the College of Technology. Conversely, students who complete an Associate of Applied Science Degree in Medical Assisting can take six (6) additional credits and earn a Certificate of Applied Science in Medical Coding and Insurance Billing. The Program Director of the Associate of Applied Science Degree in Medical Assisting has been consulted and is in full support of offering this certificate.

Synergy also exists between the Certificate of Applied Science in Medical Coding and Insurance Billing and the Associate of Applied Science Degree in Medical Administrative Assistant. As the COT Business Department revises their curriculum, members of the faculty have indicated they will incorporate Medical Coding courses into the Associate of Applied Science Degree in Medical Administrative Assistant.

As mentioned previously, by earning an Associate of Applied Science (AAS) degree from the COT; Satisfying the Academic Foundations requirements of Montana State University Billings; earning a minimum of 30 credits at Montana State University Billings, of which 21 credits must be upper division credits; and completing a thematic concentration of 30 credits including at least 15 credits from one discipline, students can earn a Bachelor of Applied Science Degree prepared in collaboration with a faculty advisor and approved by the Academic Dean responsible for the majority of the courses in the Thematic Concentration.

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

Approval of this program will not require changes or adaptations to any existing programs at MSU Billings COT.

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

Students successfully completing the Medical Coding and Insurance Billing program will have technical knowledge and skills to analyze health records and assign the appropriate code to each diagnosis and procedure according to national and international guidelines. They perform research and rely on their knowledge of medical terminology, anatomy, and disease processes to determine the correct codes and sequences.

The Medical Coding and Insurance Billing program differentiation exists between the COT’s Medical Administrative Assistant and the Medical Assistant programs in specific ways. Medical coders and billers are required to analyze health records and assign the appropriate code to each diagnosis and procedure according to national and international guidelines. They perform research and rely on their knowledge of medical terminology, anatomy, and disease processes to determine the correct codes and sequences. Medical coders and
billers focus their work on specific aspects of medical office support—coding medical procedures and tests for billing—versus the general office support functions provided by medical administrative assistants. The focused and specific work of medical coders and billers is also differentiated from that of medical assistants due to the fact that coders and billers to not perform clinical duties like those of medical assistants.

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

**Student Success, Achievement, and Retention** - In order to ensure that each student attending MSU-B COT has the opportunity to succeed and reach their educational goal, the University puts the planning and resources in place to maximize student success as measured by the student. Careful planning and forethought was devoted to the development of the program proposal for Medical Coding and Insurance Billing.

**Academic Excellence and Integrity** – MSU-B COT maintains an atmosphere of excellence and completes all projects with integrity and as careful stewards of public resources. The five colleges at MSU-Billings will participate in a self-evaluation and external review process in an effort to ensure the highest standards of academic excellence and integrity.

**Planning and Innovation** – MSU-B COT strives to remain on the cutting edge of new ideas, continually planning for its future. MSU-B purposefully plans its activities and continually uses innovation to further its mission and objectives. Studying the feasibility of the new Medical Coding and Billing program began in 2004 at the request of local and regional medical and healthcare providers.

**Technology** - Technology will be designed and used to further objectives of the University, community, economic development, and research to enhance the learning, business, and production environments of students, faculty, staff, and research personnel.

Development of the Medical Coding and Billing Program includes plans to develop and deploy courses in online formats. To that end, MSU-B COT was successful in a bid to obtain Congressional appropriations which supported the development of curriculum and hired instructors.

**Competitive Change** – MSU-B COT responded to market changes with appropriate strategies that meet or exceed those of the competition with the development of this medical coding and insurance billing program.

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.

After Montana BoR adoption of the current Montana University System (MUS) initiatives, MSU-B COT has taken up the charge, through careful planning and industry partnership, to assist and address the specific initiative of **Workforce Training & Equipment for High Demand Fields in Montana**.

To meet the state’s two-year educational initiatives, the proposed MSU-B COT Certificate of Applied Science in Medical Coding and Insurance Billing program adds a specific and targeted professional-technical program to the existing complement of the associate and certificates of applied science degrees in the Montana.
Collaborating to meet the goals and objectives of Montana’s new face of Tech Prep; Jobs for Montana’s Graduates; and postsecondary career clusters development through Health Sciences, MSU-B COT developed the new Medical Coding and Insurance Billing program proposal. Specifically, this two-semester certificate program was designed to increase educational pathways which match Montana’s need for education and training for high demand healthcare science career fields.

MSU-B COT joins the Certificate of Applied Science in Medical Coding at Flathead Valley Community and MSU GF COT’s Certificate of Applied Science in Medical Billing Specialist.

Although it may be perceived that programmatic duplication exists among these programs, factors that support the existence of all include: Increasing demand for skilled medical coders and billers has exceeded the number of available graduates in all three programs and local healthcare industry needs are met when these programs are permitted to tailor program student learning outcomes to specific local and regional practices. In addition, the program will serve place bound students desiring to increase their employability.

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

   **Montana State University Billings College of Technology**
   **Certificate of Applied Science: Medical Coding and Insurance Billing**

   **MISSION STATEMENT**
   The Nursing, Health, and Safety Occupations Medical Coding and Insurance Billing program provides excellence in academic programs and access to qualified students. The Medical Coding and Insurance Billing program provides instruction in the knowledge and skills needed to deliver entry level medical coding skills. The knowledge and skills acquired will enable success and achievement for students competing in an ever changing, technologically diverse environment and will provide preparation for regional, national, and global markets. We strive, by example, to instill in each student our philosophy, civic leadership skills, an interest in life-long learning, and a commitment to service. Serving a unique blend of urban and rural health educational needs in the Southeastern Yellowstone region of Montana, we will work with the community to promote intellectual and educational excellence.

   **VISION STATEMENT**
   The Nursing, Health, and Safety Occupations Medical Coding and Insurance Billing program envisions creating an inviting environment that serves students by being responsive, adaptive, and innovative through a proactive approach to present and future needs. The program foresees increased enrollment, expanded programs, use of advanced technology, and expanded alliance with our various customer bases as a bridge to becoming a leader in post-secondary two-year education.

   The Medical Coding and Insurance Billing program is designed to provide a recommended curriculum through which students may earn a two semester Certificate of Applied Science. This Certificate will educate students in the areas of medical procedure and diagnosis coding. In addition, the Certificate will prepare the student for employment in either the inpatient or outpatient medical setting to work as an integral part of the healthcare team in a medical office, dental office, hospital, clinic, or independent billing company.

   Medical coding is the transformation of handwritten or verbal descriptions of diseases, injuries and medical procedures into a numbered procedure code and/or numbered diagnosis code. The Medical Coding and Insurance Billing program prepares entry-level employees with the skills to analyze health records and assign the appropriate code to each diagnosis and procedure according to national and international
guidelines. They perform research and rely on their knowledge of medical terminology, anatomy and disease processes to determine the correct codes and sequences.

The program consists of class lecture, practical application of codes, auditing of records and experience with computerized medical and insurance billing software. Students will learn to prepare various health claim forms required by the insurance industry using medical billing software. This involves practicing accurate interpretation of medical records, correctly documenting and coding information, and submission of forms to the insurance company for reimbursement. The emphasis is on the high level of responsibility required and the attention to detail and accuracy needed to be a competent medical biller. Instruction will include theory and practice to meet the competencies identified as necessary for entry-level employment.

Upon completion of the program the students will be able to sit for the American Academy of Professional Coders (AAPC) or American Health Information Management Association (AHIMA) coding exam. Graduates will fill a growing need in healthcare, now and in the future.

**Upon successful completion of this program will be able to:**

- Transform handwritten or verbal descriptions of diseases, injuries, and symptoms into a numerical diagnosis code.
- Transform medical procedures into a numerical code.
- Calculate medical practice fees using the Medicare Relative Value System.
- Using medical billing software, prepare a variety of health claim forms required by the insurance industry. This would include Medicare and Medicaid.
- Practice a high degree of independent judgment and responsibility to insure accuracy of medical coding and billing.
- Prepare to sit for the AAPC or AHIMA coding exams.

**Required courses**

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<th>Course</th>
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<tr>
<td>CMP 105 Introduction to Computers and Applications</td>
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<td>CODE 110 CPT-4 Procedure Coding</td>
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<td>CODE 120 ICD-9 Diagnosis Coding</td>
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<td>CODE 140 Computerized Medical Billing</td>
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<td>CODE 150 Advanced Coding and Auditing</td>
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<td>COMT 109 Human Relations</td>
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<td>ENGL 140 Business Writing</td>
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<tr>
<td>HLTH 101 Essentials of Anatomy and Physiology</td>
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<td>HLTH 150 Health Occupations Terminology I</td>
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<td>HLTH 255 Medical Law and Ethics</td>
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<td>MATH 105 Algebra for College Students</td>
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*Students should check the course descriptions for required prerequisites. Math and English requirements are usually determined by performance on placement tests or transfer credits.*

**Suggested Plan of Study**

**Fall Semester**

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<td>CODE 110</td>
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**Spring Semester**

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</thead>
<tbody>
<tr>
<td>CODE 140</td>
<td>3</td>
</tr>
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</table>
Course Descriptions
Medical Coding/Insurance Billing

CMP 105 Introduction to Computers and Applications
3 cr. (3 lec/wk)
Instructs students in fundamental computing skills. Concepts include the creation and manipulation of files, use of a common Operating System, a basic understanding of computer hardware, and a functional knowledge of common business applications such as: word processing, spreadsheets, Internet and email, and presentation software. The course is performed in a lab setting with access to computers and necessary software.

CODE 110 CPT-4 Procedure Coding
3 cr. (3 lec/wk) Prerequisite: Health Care Core prerequisites.
Develops the knowledge, skills, and abilities necessary for students to correlate a numerical code to a handwritten or typed procedure description generated by clinical staff in the health care setting for insurance purposes utilizing the principles of Current Procedural Terminology 4th edition (CPT-4). This course is required for the Medical Coding and Insurance Billing Certificate.

CODE 120 ICD-9 Diagnosis Coding
3 cr. (3 lec/wk) Prerequisite: Health Care Core prerequisites.
Develops the knowledge, skills, and abilities necessary for a student to correlate a numerical code to a handwritten or typed diagnosis description generated by clinical staff in the health care setting for insurance purposes utilizing published International Classification of Diseases, 9th Revision (ICD-9). Also emphasizes the standards for accuracy in medical coding. This course is required for the Medical Coding and Insurance Billing Certificate.

CODE 140 Computerized Medical Billing
3 cr. (3 lec/wk) Prerequisite: Health Care Core prerequisites.
Develops the knowledge, skills, and abilities necessary for a student to understand the theory and application of computerized medical and insurance billing software specifically designed for the medical practice. This course is required for the Medical Coding and Insurance Billing Certificate.

CODE 150 Advanced Coding and Auditing
3 cr. (3 lec/wk) Prerequisite: Health Care Core prerequisites.
Develops the knowledge, skills, and abilities necessary for students to correlate a numerical code to a handwritten or typed procedure description generated by clinical staff in the health care setting for insurance purposes utilizing the principles of CPT-4, ICD-CM, and HCPCS Coding. This course is required for the Medical Coding and Insurance Billing Certificate.

COMT 109 Human Relations
3 cr. (3 lec/wk)
Offers a theoretical and practical understanding of communication processes in the working environment, self-awareness in that environment, and the individual's participation in these relationships. The course aims to develop the student's perception and expression skill to communicate successfully in a variety of work contexts.

∇ ENGL 140 Business Writing
3 cr. (3 lec/wk) Prerequisite: Satisfactory completion of ENGL 100, 102, or qualifying score on the placement exam.
Provides instruction in the preparation of business memos, letters, reports, oral presentations, and computer assisted writing in business contexts.

**HLTH 101 Essentials of Anatomy and Physiology**
3 cr. (3 lec/wk)
Provides students with a basic understanding of human anatomy and physiology. Concepts of the body plan and homeostasis will be introduced. Students will also learn the basic structure, function, and interaction of the integumentary, skeletal, muscular, nervous, endocrine, blood, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems.

**HLTH 150 Health Occupations Terminology I**
3 cr. (3 lec/wk)
Introduces the student to the specialized language of the medical profession and builds a background vocabulary in this area using a word-building system which provides a solid foundation for understanding medical terms. Basic word-building concepts are taught with emphasis on spelling, pronunciation, and definitions.

**HLTH 255 Medical Law and Ethics**
3 cr. (3 lec/wk)
Addresses legal and ethical issues relevant to the healthcare field. Students will learn the importance of a professional code of ethics and the consequences of illegal or unethical behavior in health care. The course will also help the student distinguish among law, ethics, bioethics, etiquette, and protocol.

**MATH 105 Algebra for College Students**
4 cr. (4 lec/wk) Prerequisite: MATH 101 or equivalent.
Reviews elementary algebraic concepts and covers more advanced factoring, operations on rational expressions and radical expressions, quadratic equations, the rectangular coordinate system, and exponential and logarithmic functions. Credits apply toward graduation requirements but do not fulfill Academic Foundations requirements.
Describe the planned implementation of the proposed program, including estimates of numbers of students at each stage.

### MSU-Billings College of Technology
**Certificate of Applied Science Medical Coding and Insurance Billing Implementation**

<table>
<thead>
<tr>
<th>Implementation Step</th>
<th>Summer 2006</th>
<th>Fall 2006</th>
<th>Spring 2007</th>
<th>Fall 2007</th>
<th>Spring 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertise new program</td>
<td>Admit 1st student cohort</td>
<td>Graduate 1st student cohort</td>
<td>Admit 2nd student cohort</td>
<td>Graduate 2nd student cohort</td>
<td></td>
</tr>
<tr>
<td># New Students</td>
<td>40</td>
<td>22</td>
<td>28</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

   Yes.

   MSU-B COT has allocated a permanent faculty line in the budget. This resource was used to hire a program faculty member/ coordinator who will teach courses, advise students, coordinate necessary programmatic laboratories and maintain equipment. In addition, our faculty member works with industry to refine the curriculum and develop partnerships with industry and secondary schools.

   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.

   **Facilities/Supplies**

   MSU Billings' and COT executive administrators provide financial and facility resources sufficient to support continuity and consistency in the educational program. Costs will be funded through tuition, fees and the State allocation as in previous years.

   A new Health Science Center is under construction and targeted for completion in early 2008. With this new construction, the Medical Coding and Insurance Billing program will have new classrooms and faculty offices.

   **Equipment**

   Equipment used in the Medical Coding and Insurance Billing program is limited to computer workstations, and coding and billing software. The office of Information Technology at MSU Billings has created a three-year computer upgrade rotation plan and this program has been placed in the upgrade rotation schedule.

6. **Assessment.**
   
   How will the success of the program be measured?

   The success and effectiveness of the program will be measured based on the following factors: student enrollment, retention, national exam pass rates, employer satisfaction and through data gather from annual reports and the program review process.
**Program Review:**
MSUB is a student centered campus that focuses on excellence in teaching and student learning. During the last several years MSUB has re-examined, strengthened, and coordinated its assessment process. While institutional evaluation and assessment is by its nature continuously evolving, the University has made progress toward an institutional assessment lattice integrated into the university’s strategic plans. In fall 2004 the university initiated its second strategic initiatives document for the period 2005-2010. The document was collaboratively developed with faculty and staff and implemented in fall 2005 as the University instituted a Continuous Quality Improvement concept in all its practices. The CQI process is continual and cyclical, allowing for annual progress checks and data informed decision making. The Continuous Quality Improvement Steering Committee oversees implementation of the CQI concept in all University processes. The Committee maintains a website and publishes a monthly Newsletter CQI-FYI.

Each division of the university (Academic Affairs, Administrative Affairs, Athletic Affairs, Facility Services, Graduate Studies, Grants and Sponsored Programs, Information Technology, Institutional Research, Library, Public Service Units (KEMC/YPR and the Montana Center on Disabilities) and Student Affairs) developed goals aligned with the university strategic initiatives Both quantitative and qualitative measures are required to assess performance and outcomes.

Annual program reviews are conducted in each division, each college, and each department within each college and administrative divisions with sub-units to review and assess compliance with the University’s overall mission. The CQI process is an ongoing evaluation of the University’s mission and role and a continual attempt to match our offerings to constituent needs. Coordination of assessment is overseen by the CQI Steering Committee and the Academic Senate. The committee meets on a regular basis to discuss, review and provide feedback to the various areas of the university. The outcomes are used in planning and implementing changes for improvement. The Co-Chairs of the Committee make a monthly presentation of the committee’s activities and progress on assessment to the Chancellor and his Cabinet during regularly scheduled cabinet meeting. It involves administration, faculty, students, the Medical Coding and Insurance Billing Program Advisory Board (PAB), graduates and employers. A model was developed to identify the evaluative components, input sources, process, timeline, and outcomes criteria.

In Academic Affairs, assessment involves multiple instruments and methodologies. In contrast, Administrative Services and other areas use fewer tools to measure their more discrete area of operation. Each of the areas, however, employs varying appropriate quantitative and qualitative tools to assess their areas in relation to the same overriding criteria:

- Does the program or function assessed move the University closer to its mission?
  
  MSU-Billings provides a university experience characterized by:
  Excellent Teaching
  Support for Individual Learning
  Engagement in Civic Responsibility
  Intellectual, Cultural, Social & Economic Community Enhancement

- Does the program or function assessed move the University closer to its standard of Access and Excellence?

- Does the program or function assessed contribute to fulfillment of the University’s Strategic Initiatives?
  
  Programs—Create and maintain distinctive, vital academic programs and services for 21st Century learners
  Faculty Excellence—Cultivate excellence in & outside the classroom, in scholarly endeavors & exemplary service through faculty & staff development, support for scholarship, continuing assessment, & recognition of professional service
Needs of Learners—Identify the needs of all learners & provide access to a university experience that fulfills both individual goals & societal needs

Social Equity—Model social equity and consciousness by assuring that all members of our campus community grow because of their University experience

Research Initiatives—Increase the stature, professionalism & research initiatives of all academic programs & student services

Economic Access—Augment local, state & regional economic development through the strength of the University’s financial base & our learners’ contributions to their communities

Global Engagement—Increase staff, faculty & student awareness, understanding, & involvement in the international community

University Infrastructure—Ensure an administrative, operational and physical infrastructure that fully supports excellence

- Does the program or function assessed help the University attain its Vision?

  Montana State University-Billings will be recognized as a regional leader for:

  Teaching & Learning
  Translating Knowledge into Practice
  Researching for the Future
  Accepting Leadership for Intellectual, Cultural, Social & Economic Development Beyond University Boundaries

Assessment Data

Annual Reports: provide evidence of progress toward division/unit goals, data to support this progress and other information as appropriate for the area.

Periodic Program Review: MSU-B COT complies with the Montana Board of Regents Policy 300.3 under Academic Affairs Program Review. MSU-B COT will review all of its programs at least once every seven (7) years. A campus schedule of review for our programs has been filed with the Office of the Commissioner of Higher Education. Pending Level II BoR approval of the Medical Coding and Insurance Billing Program, that schedule will be updated. The results of our internal Medical Coding and Insurance Billing Program review will be prepared to submission to the Montana Board of Regents at the appropriate November BoR meeting. This report focuses especially on the decisions associated with the future of each program, following its review.

Student Ratings of Instruction: In general, evaluation of faculty is governed by the Collective Bargaining Agreement between the Montana Board of Regents of Higher Education and Vocational-Technical Educators of Montana. Faculty member evaluation procedures are recognized to be a cooperative effort between the faculty member and his/her supervisor with the purpose of achieving excellence in the area of effective and purposeful instruction and job performance.

Student Exam Pass Rate: Graduates from the Medical Coding and Insurance Billing Certificate program are qualified to sit for the American Academy of Professional Coders (AAPC) or American Health Information Management Association (AHIMA) National Coding exams to receive professional certifications. Successful pass rates of one of these two (or both) of these exams will used an indicator of student success in meeting the student learning outcomes of this program.

Surveys: Graduate and Employer satisfaction surveys will be administered on an annual basis. Results of these surveys will be considered by the Dean, Associate Dean, Department Chair, members of the Program Advisory Committee. Recommendations from the Committee for needed revisions to course content or presentations are to be discussed with and adopted by teaching faculty each fall semester.

The timeline for evaluation affords ample time for program revision based on the evaluative data, changing trends in medical coding and billing industry standards. Components of the evaluation...
model include the organization and administration of the program, curriculum, resources, and student/graduates. Graduate and graduate employer surveys will be administered annually.

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

Spring of 2004
MSU-Billings College of Technology was contacted by healthcare providers in the Billings area with a request to provide Medical Coding and Insurance Billing educational opportunities. A College of Technology Medical Coding and Insurance Billing Program Development Committee made up of healthcare administrators and College of Technology faculty and administrators was formed to investigate the viability of this proposal.

The Dean of the College of Technology brought the proposal to Celebrate Billings, a community based committee to support educational opportunities within the city. Celebrate Billings funded a survey of health care providers to get input as to the direction the educational proposal should go. The College of Technology committee formed a subcommittee to create a proposed plan of study, a business plan, and a formal proposal which was submitted to the Provost.

Approval was given by the Provost to move forward to create curriculum and a full program proposal.

Spring Semester 2005 and Fall Semester 2005
The curriculum was proposed and routed through the University curriculum approval process. Proposals for new curriculum begin at the faculty level (internal) and involve input from advisory committees (external) and/or accreditation agencies (external). In instances such as this where permanent faculty is not in place at the time of the proposal to create required documentation, the curriculum is developed by existing faculty, staff, advisory committee members and industry to create the initial submission.

Documentation was then submitted to the appropriate Program Curriculum Committee for final review.

The proposal was reviewed by the appropriate Department Chair, College Curriculum Committee, Dean of the College, MSU-Billings Undergraduate Curriculum Committee, Faculty Senate, Provost and finally the Chancellor

Board of Regents approval of a Level I program proposal was submitted.

Spring 2006
Notification of BoR Level I program approval was received.
Student recruitment and program marketing began.

Fall 2006
Admitted 1st cohort of Medical Coding and Billing Insurance students.
ITEM 138-1001-R0108

Approval to establish a B.S. degree in Geosciences with suggested courses of study in 1) Earth History, Evolution, and Resources and 2) Water, Climate, and Environment

THAT:

In accordance with Montana University System Policy, the Board of Regents of Higher Education authorizes The University of Montana – Missoula to establish a B.S. Degree in Geoscience with suggested courses of study in 1) Earth History, Evolution, and Resources and 2) Water, Climate, and Environment

EXPLANATION:

The Department of Geosciences at The University of Montana-Missoula currently offers Bachelor of Science degrees in Geology, Environmental Geology, and General Geology. These degree options no longer adequately reflect the breadth of faculty expertise within the department; nor do they adequately represent the subject material that is taught across the Geosciences undergraduate curriculum. In response to a major diversification in faculty expertise resulting from five new tenure-track hires within the last five years, the Department of Geosciences not only has changed its name from the Department of Geology, but it has expanded its research and curricular offerings to include programs in glaciology and snow science, fluvial geomorphology, geodynamics, crustal metamorphism, and landscape evolution. In the last five years, The Center for Riverine Science and Stream Renaturalization also was established within the Geosciences Department, reflecting the significant expansion in the department’s research and teaching mission. As a result of its new curricular offerings and faculty-led research programs, the Department of Geosciences seeks permission to replace our current B.S. degrees with a B.S. degree in Interdisciplinary Geosciences, designed to be as flexible as possible, and a B.S. degree in Geosciences. The latter degree - which is the focus of this level II request - involves a more specific set of Geoscience and cognate science requirements and has two different courses of study: 1) Earth History, Evolution, and Resources; and 2) Water, Climate, and Environment.
Level II proposals require approval by the Board of Regents.

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

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

**Specify Request:**

The University of Montana – Missoula requests permission to establish a Bachelor’s degree in Geosciences with suggested courses of study in 1) Earth History, Evolution, and Resources and 2) Water, Climate, and Environment. Currently offered B.S. options in Geology, Environmental Geology, and General Geology will be eliminated.
Overview: The Department of Geosciences at The University of Montana-Missoula has enjoyed a major diversification of its research and curricular offerings over the past five years, as a result of five new tenure-track hires and shifts in the research focus of some tenured faculty. Since its establishment in the late nineteenth century, the department has focused on research and curricular offerings in the field of traditional geology, including the nature of earth materials, evolution and fossils, Earth history over geologic timeframes, and the identification and assessment of economically important geologic resources. More recently, we have expanded our mission to include a major emphasis on water, climate change, and environmental issues associated with anthropogenic activities. To reflect these research and curricular changes, in 2005 we changed our name from the Department of Geology to the Department of Geosciences. In this request, we seek permission to establish a B.S. degree in Geosciences that will more accurately reflect the broadening of the department’s mission while providing students with a curriculum designed to provide a solid foundation in two different courses of study: 1) Earth History, Evolution, and Resources; and 2) Water, Climate, and Environment.

Need: Geoscience is the analysis of phenomena that shape the Earth at different time and length scales. Relevant topics include geologic processes associated with evolution of the continents, ocean basins, atmosphere and biosphere; surficial processes that shape landscapes; the search for economic geologic deposits; the analysis of global and local climate change; and the study of pollutants and their interaction with the environment. Inherent in the field of Geoscience is analysis of the Earth’s systems. That is, the solid Earth (the geosphere) and its evolution through time is inextricably linked to the evolution of the atmosphere, hydrosphere (oceans, surface and groundwater systems), and biosphere. The recognition that direct interactions and complex feedbacks exist among these different components of Earth’s systems and that these interactions exert primary controls on Earth’s evolution at different time and length scales has resulted in a more interdisciplinary approach within the Geosciences. Not only are geoscientists charged with exploring for geologic resources (oil, gas, water) and investigating the history of the Earth and its life forms through geologic time, but geoscientists also now are heavily involved with the analysis of landscape change over historic timeframes (years to centuries), the analysis and mitigation of anthropogenic pollutants, and the study of recent and ongoing climate change. In short, the traditional geological sciences have undergone a significant expansion in scope over the past decade or so.

The Department of Geosciences at The University of Montana-Missoula has adapted itself to keep pace with this expansion of the Geosciences by hiring five new tenure-track faculty with areas of expertise that include foci both in the more traditional ‘deep time’ areas of the Geosciences in addition to newer areas of focus on landscape evolution and climate change over short time-frames, river science, and water resources. To best position our undergraduate students for eventual employment in the Geoscience workforce, it is appropriate that we revise our undergraduate degree program accordingly. To that end, we propose the requested changes in our undergraduate degree titles and modifications in required coursework.

Institutional and System Fit: As reflected by the official adoption in 1865 of Montana’s state seal and motto (‘oro y plata’, trans. ‘gold and silver’) the state has maintained an exceptionally close tie to the land and its resources. This close tie to the study of the Earth has been a central part of the university system since the awarding of its very first degree – a M.S. degree in Geology to Earle Douglass, discoverer of the famous Dinosaur National Monument locality. Since its founding in 1893, The University of Montana-Missoula has maintained a strong Geology/Geoscience program that has been at the forefront of understanding the Earth and its history – both ancient and recent, identifying economic geologic resources (petroleum, gas, coal, water), and analyzing the relatively recent effects of anthropogenic change on the environment. Importantly, as the geological sciences have evolved, the Department of
Geology/Geosciences has adapted to maintain its strong position as an active research department with a strong undergraduate and graduate program.

The proposed B.S. degree in Geosciences serves to advance directly several of the strategic goals of the institution. As articulated in the Core Values Statement for The University of Montana, the University seeks to engage in "Basic and applied research that contributes to knowledge and meets the needs of the State, region, nation, and world" and "involve all upper division undergraduates in research and creative activities by 2011." The proposed undergraduate degree changes in the Geosciences will serve these goals by engaging students and faculty in research and classroom activities that focus on environmentally important issues, including the study of climate change, landscape evolution, riverine sciences, water resources, and analysis of anthropogenic pollutants and their mitigation, while at the same time maintaining a grounding in the fundamentals of the Geosciences field. Each of these topics now constitutes a significant portion of the undergraduate curriculum in the Department of Geosciences and the proposed degree changes will directly reflect the importance of these new areas of programmatic focus.

**Degree Requirements:**

**BS in Geosciences**

**Required core courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS 100</td>
<td>2 cr.</td>
<td>General Geology</td>
</tr>
<tr>
<td>GEOS 101</td>
<td>1 cr.</td>
<td>General Geology Laboratory</td>
</tr>
<tr>
<td>GEOS 200</td>
<td>3 cr.</td>
<td>Earth History &amp; Evolution</td>
</tr>
<tr>
<td>GEOS 226</td>
<td>4 cr.</td>
<td>Earth Materials</td>
</tr>
<tr>
<td>GEOS 230</td>
<td>4 cr.</td>
<td>Field Methods &amp; Interpretation</td>
</tr>
</tbody>
</table>

Also required are six additional 3 or 4 credit Geoscience courses, relevant to the student's interests, at the 300 or 400 level. The tables below suggest some courses to choose among depending student career interests. Courses may be combined from the two advising tracks, or chosen from other electives, but students should be aware of all prerequisites as listed in this catalog.

**Course of study #1: Earth History, Evolution, and Resources**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS 306</td>
<td>4 cr.</td>
<td>Igneous &amp; Metamorphic Petrology</td>
</tr>
<tr>
<td>GEOS 310</td>
<td>3 cr.</td>
<td>Invertebrate Paleontology</td>
</tr>
<tr>
<td>GEOS 311</td>
<td>3 cr.</td>
<td>Paleobiology</td>
</tr>
<tr>
<td>GEOS 327</td>
<td>4 cr.</td>
<td>Geochemistry</td>
</tr>
<tr>
<td>GEOS 330</td>
<td>3 cr.</td>
<td>Structural Geology</td>
</tr>
<tr>
<td>GEOS 429</td>
<td>6 cr.</td>
<td>Field Geology</td>
</tr>
<tr>
<td>GEOS 430</td>
<td>3 cr.</td>
<td>Global Tectonics</td>
</tr>
<tr>
<td>GEOS 432</td>
<td>4 cr.</td>
<td>Architecture of Sedimentary Deposits</td>
</tr>
<tr>
<td>GEOS 433</td>
<td>4 cr.</td>
<td>Sedimentary Petrology</td>
</tr>
<tr>
<td>GEOS 437</td>
<td>4 cr.</td>
<td>Seismology and Magnetics</td>
</tr>
<tr>
<td>GEOS 438</td>
<td>4 cr.</td>
<td>Gravity and Electromagnetics</td>
</tr>
<tr>
<td>GEOS 460</td>
<td>4 cr.</td>
<td>Process Geomorphology</td>
</tr>
</tbody>
</table>
Course of study #2: Water, Climate, and Environment

GEOS 320  3 cr.  Global Water
GEOS 327  4 cr.  Geochemistry
GEOS 330  3 cr.  Structural Geology
GEOS 382  3 cr.  Global Change
GEOS 395  3 cr.  Glacial and Alpine Processes
GEOS 432  4 cr.  Architecture of Sedimentary Deposits
GEOS 433  4 cr.  Sedimentary Petrology
GEOS 437  4 cr.  Seismology & Magnetics
GEOS 438  4 cr.  Gravity and Electromagnetics
GEOS 460  4 cr.  Process Geomorphology
GEOS 480  4 cr.  Hydrogeology

Thus, there are at least 32 credits required from Geosciences courses, 18-24 of those are upper division (numbered 300 or 400) credits.

Cognate sciences  (at least 30 credits are required)
Required cognate science courses:
Physics 121 and 122 or 221 and 222 (10 credits)
Chemistry 151 and 152/154 or 161 and 162 (8 or 10 credits, respectively)
Math 150 and 158 or 152 and 153  (7 or 8 credits, respectively)
Three credits in Computer Science (modeling or programming), or GIS, or Statistics.

Additional cognate science courses must be completed such that the sum is a minimum of 30 credits. These may include additional courses in Chemistry, Computer Science, Math, and Physics above the listed minimum levels specified above. Biology 100 or above is also appropriate, but substitutions of other science courses must be approved by the student’s Geoscience Department advisor.

Assessment: We propose to use a variety of means of assessing our undergraduate degree program from both formative and summative standpoints. Formative and summative assessments used to shape the program as it evolves include 1) direct tracking of scholastic records of degree-seeking students; student persistence in the degree program from year-to-year; and student degree completion rates; 2) Use of scaled survey and free-response questionnaires given to students at the completion of each Geoscience course. These surveys will be geared towards assessing student perceptions of the degree impact on their Geoscience skills, in addition to gaining feedback regarding the success of teaching effectiveness, laboratory design, pertinence and impact of assigned reading, etc.; and 3) and faculty interviews with students following course completion to gage effectiveness of instruction.

Summative evaluation of the entire degree program will take place every seven years in conjunction with mandatory departmental review and will include at a minimum: 1) incorporation of all student-based formative evaluation data described above; 2) interviews with faculty and senior undergraduate students to gauge curricular effectiveness; and 3) deployment of a scaled survey for degree graduates to be issued upon degree completion and one year following degree completion. The main objective of these follow-up surveys will be to assess the actual professional benefits of each degree program.
**Process leading to submission:** The proposed undergraduate B.S. degrees described in this application were initially discussed by the Geoscience faculty during the 2005-06 academic year and beginning of the 2006-07 academic year as part of our internal review process. On November 16, 2006, the UM-M faculty voted unanimously to support the replacement of existing degrees with those proposed herein.

<table>
<thead>
<tr>
<th>Department Name: Geosciences</th>
<th>Date: Fall 2006</th>
</tr>
</thead>
</table>

In addition the deans of the following Schools/Colleges reviewed and approved the proposal:

<table>
<thead>
<tr>
<th>Dean of: Arts &amp; Sciences</th>
<th>Date: October 1, 2007</th>
</tr>
</thead>
</table>

The proposal was reviewed and approved by the Faculty Senate at the University of Montana Date: December 2007

[No outside consultants were employed for the development of this proposal.]
ITEM NO. 138-1002-R0108  

**Approval to establish a dual B.S. degree in International Field Geosciences with University College Cork (Ireland) and Potsdam University (Germany)**

**THAT:**

In accordance with Montana University System Policy, the Board of Regents of Higher Education authorizes The University of Montana – Missoula to establish a dual B.S. degree program in International Field Geosciences with University College Cork (Ireland) and Potsdam University (Germany).

**EXPLANATION:**

The University of Montana currently offers a Bachelor of Science degree in Geosciences with options in Geology, Environmental Geology, and General Geology. In two separate approval requests, we seek permission to change these degree options to a B.S. in Interdisciplinary Geosciences, designed to be as flexible as possible, and a B.S. in Geosciences with tracks in 1) Earth History, Evolution, and Resources and 2) Water, Climate and Environment. In this proposal request, we seek permission to add a third degree in International Field Geosciences, to be established as a dual degree with University College Cork in Ireland and Potsdam University in Germany. In addition to meeting the requirements of the proposed B.S. degree in Geosciences, the dual B.S. degree in International Field Geosciences will require a year abroad experience with time spent at both European partners and will focus specifically on field-based learning opportunities. Approximately $1M in extramural funding for the establishment of this degree has been awarded by the Transatlantic Joint Degree Consortium Project. This amount includes $408,000 to The University of Montana and €204,000 to each of the two European partner institutions for student and faculty mobilization overseas.
Level II proposals require approval by the Board of Regents.

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

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

**Specify Request:**

The University of Montana – Missoula requests permission to establish a dual degree program in International Field Geosciences with University College Cork (Ireland) and Potsdam University (Germany) using an award from the Transatlantic Degree Consortia Project.
Overview: The University of Montana – Missoula seeks permission to establish a dual B.S. degree program in International Field Geosciences with University College Cork (Ireland) and Potsdam University (Germany). Undergraduate students who complete the dual degree requirements will receive their degree jointly from each of the three partner institutions. In addition to meeting the requirements for the non-dual degree in Geosciences from The University of Montana-Missoula, the dual degree will require a year abroad experience and will focus specifically on field-based learning. Approximately $1M in extramural funding has been recommended by the Transatlantic Joint Degree Consortium Project to establish this new degree. This amount includes $408,000 to The University of Montana and €204,000 to each of the two European partner institutions for student and faculty mobilization overseas.

Need: Geoscience is the analysis of phenomena that shape the Earth at different time and length scales. Relevant topics include geologic processes associated with evolution of the continents, ocean basins, atmosphere and biosphere; surficial processes that shape landscapes; the search for economic geologic deposits; the analysis of global and local climate change; and the study of pollutants and their interaction with the environment. For Geoscience students seeking to optimize skill sets required for these analyses, field-based learning is an extremely powerful tool. Substantial time in the field places students into direct contact with their study subject (Earth), while providing a very efficient and effective means to cultivate marketable Geoscience skills.

Most phenomena that Geoscientists study either are inherently global in scope (e.g. plate tectonics) or involve analyses and results that can be applied at more than one locality around the Earth (e.g., the study of heavy metals in groundwater). Because of this close connection to the Earth as a planet, professional Geoscientists are likely to be more successful if their formal education provides a venue for understanding the subtleties of other cultures and peoples from different backgrounds. With exposure to cultural differences and a broader understanding of global socio-political issues, Geoscience students are better able to contribute to decisions involving the environment and its evolution at governmental, industry, and scientific levels. Those students whose formal undergraduate curriculum involves a significant international component and emphasis on field-based study, combined with rigorous training in mathematics, physics, chemistry and computational skills, are likely to be more successful in terms of academic performance, scientific development, and societal leadership. They are also likely to be better equipped to operate well at a professional level in the increasingly globalizing socio-economic and scientific frameworks of the modern world.

We seek permission to utilize the superb natural field Geoscience laboratories available in the western United States and in Europe as the basis for a dual Bachelor of Science undergraduate degree that focuses on the documentation, interpretation, and synthesis of critical Geoscience issues in a field-based setting.

This degree requires one year of international study, with exchange students completing formal study at each of the other two partner institutions. Funding from the Transatlantic Degree Consortium Project will support a total of 48 mobilized students over the four-year duration of the grant period. In addition to these 48 students, others may engage in the exchange activities and seek to fulfill the degree requirements but will do so without financial support from the
Transatlantic Degree Consortium Project. We expect the demand for this degree program to grow as it becomes established, as returning students relate their international experiences to their peers, and as we work to leverage the program with existing resources. We intend to continue the program following the end of the four-year grant period.

**Institutional and System Fit:** The Department of Geosciences at The University of Montana-Missoula currently offers B.S. Degrees in Geology, Environmental Geology, and General Geology. In separate requests, we seek permission to change these degree options to a B.S. in Interdisciplinary Geosciences and a B.S. in Geosciences with one track in Earth History, Evolution, and Resources and a second track in Water, Climate and Environment. The proposed dual B.S. degree in International Field Geosciences for which we seek permission in this application will have identical requirements to the non-dual B.S. degree in Geosciences but with the important addition that students must spend one year abroad, with time spent in residence at each of the two partner institutions (Potsdam and Cork), and with the addition of a cultural and linguistic component that is not explicitly required in the non-dual Geosciences degree. A key requirement of the proposed dual degree B.S. in International Field Geosciences is that students must complete two formal field-based courses at their home institution and at least one field-based course during their year abroad.

In addition to the different set of curricular requirements, students seeking the B.S. degree in International Field Geosciences will be subject to a rigorous series of assessment procedures, described in detail below, prior to and following their international exchange experience.

The proposed B.S. degree in International Field Geosciences serves to advance directly several of the strategic goals of the institution. As described in the Mission Statement for The University of Montana, the University seeks “to accomplish its educational mission, in part, by providing unique educational experiences through the integration of the liberal arts, graduate study, and professional training with international and interdisciplinary emphases.” A specific, formally articulated goal of the University is “to pursue aggressively the availability of opportunities for faculty, staff, and students to participate in international development projects, programs, and exchanges.” The proposed degree will accomplish these goals by combining rigorous training in Geosciences and allied sciences (math, physics, chemistry, computer science) with a linguistic and cultural component and in particular through the required year abroad experience. Through these requirements, the proposed degree will bring into sharper focus issues of global awareness for students seeking the degree. In addition, the regular presence of exchange students from University College Cork and Potsdam University will contribute to the establishment of a more globally aware student and faculty body within the Department of Geosciences at The University of Montana. An important additional layer of global awareness within each institution will be provided by exchange of up to 24 individual Geoscience faculty among The University of Montana, University College Cork, and Potsdam University that will be supported by funding from the Transatlantic Degree Consortium Project.

Along with its benefits for global awareness among student and faculty, the proposed B.S. degree in International Field Geosciences will contribute directly to two other important institutional-level strategic goals set forth by The University of Montana: 1) the expansion and diversification of study abroad opportunities and involvement of at least one-fourth of the undergraduate students in study abroad by 2009; and 2) increasing international student enrollments to 750 by the year 2009.
Because of its overseas exchange requirements, its specific cultural and linguistic requirements, and the fact that it will be jointly awarded by three accredited institutions of higher learning, the proposed dual B.S. degree in International Field Geosciences is substantially different than the proposed non-dual degree in Geoscience offered solely through The University of Montana-Missoula.

**Degree Requirements:** Following is a year-by-year break down of the requirements for UM-M students earning the dual B.S. degree in International Field Geosciences.

**Required Core Coursework, Year #1 (UM-M):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS 100</td>
<td>2 cr</td>
<td>General Geology</td>
</tr>
<tr>
<td>GEOS 101</td>
<td>1 cr</td>
<td>General Geology Laboratory</td>
</tr>
<tr>
<td>CHEM 151</td>
<td>3 cr</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>CHEM 152</td>
<td>3 cr</td>
<td>General Chemistry II</td>
</tr>
<tr>
<td>COMP 172</td>
<td>3 cr</td>
<td>Introduction to Computers</td>
</tr>
<tr>
<td>GERM 101</td>
<td>4 cr</td>
<td>German I</td>
</tr>
<tr>
<td>GERM 102</td>
<td>4 cr</td>
<td>German II</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>22 cr</td>
<td></td>
</tr>
</tbody>
</table>

**Required Core Coursework, Year #2 (UM-M):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOS 200</td>
<td>3 cr</td>
<td>Earth History &amp; Evolution</td>
</tr>
<tr>
<td>GEOS 226</td>
<td>4 cr</td>
<td>Earth Materials</td>
</tr>
<tr>
<td>GEOS 230</td>
<td>4 cr</td>
<td>Field Methods &amp; Interpretation</td>
</tr>
<tr>
<td>MATH 152</td>
<td>4 cr</td>
<td>Calculus I</td>
</tr>
<tr>
<td>or MATH 158</td>
<td>4 cr</td>
<td>Applied Calculus</td>
</tr>
<tr>
<td>MATH 153</td>
<td>4 cr</td>
<td>Calculus II</td>
</tr>
<tr>
<td>or MATH 158</td>
<td>4 cr</td>
<td>Differential Equations</td>
</tr>
<tr>
<td>HIST 249</td>
<td>3 cr</td>
<td>Irish &amp; Irish Americans</td>
</tr>
<tr>
<td>ENLT 322</td>
<td>3 cr</td>
<td>Irish Literature</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>29 cr</td>
<td></td>
</tr>
</tbody>
</table>

**Required Core Coursework, Year #3 (overseas):**

**Option #1: Majority of time at Potsdam, minority of time at Cork**

**Required Coursework while in residence at Potsdam:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BW01</td>
<td>3 cr</td>
<td>Field course A - Norway</td>
</tr>
<tr>
<td>and BW02</td>
<td>3 cr</td>
<td>Field course B - Alps</td>
</tr>
<tr>
<td>or BP15</td>
<td>6 cr</td>
<td>Field course C – France</td>
</tr>
<tr>
<td>GERM</td>
<td>6 cr</td>
<td>German language and culture</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>29 cr</td>
<td></td>
</tr>
</tbody>
</table>

Plus any three of the following required courses, in consultation with UM advisor:

1 Fulfills language-symbolic systems portion of UM-M general education requirements.

2 Fulfills mathematics portion of UM-M general education requirements.

3 Fulfills historical and cultural perspective of UM-M general education requirements.

4 Fulfills literary and artistic perspective of UM-M general education requirements.
BW04 (3 cr) Regional Geology
BW05 (3 cr) Paleoclimate & Quaternary Geology

BW06 (3 cr) Analysis of Geologic maps
BW07 (3 cr) Analytic Geochemistry
BW16 (3 cr) Natural Hazards
BW15 (3 cr) Tectonophysics & Rheology
BW11 (3 cr) Seismology
BW12 (3 cr) Seismics
BW13 (3 cr) Geoelectrics
BWP05 (3 cr) Sedimentary systems & stratigraphy
BWP06 (3 cr) Geomorphology
BWP16 (3 cr) Tectonics and geodynamics (6)

Optional courses:
BWP07 (3 cr) Basics in GIS (6)
or BWP08 (3 cr) Basics in Remote Sensing (6)
or BWP09 (3 cr) Numerical Methods (6)

**Required Coursework while in residence at Cork:**
GL2016 (2.5 cr) Easter Field Course – Scotland
or GL3019 (2.5 cr) Easter Field Course – Greece
or GL4008 (2.5 cr) Easter Field Course – Canary Islands

Plus any one of the following required courses, in consultation with UM advisor:
GL2011 (2.5 cr) Sedimentologic processes and petrology
GL2012 (2.5 cr) Igneous and Metamorphic Petrology
GL2015 (2.5 cr) Invertebrate Paleontology & Evol.
GL2018 (2.5 cr) Plate Tectonics & Global Geophys.
GL3010 (2.5 cr) Igneous petrogenesis & Geochem.
GL3011 (2.5 cr) Metamorphism & Geochronology
GL3012 (2.5 cr) Advanced Structural Geology
GL3013 (2.5 cr) Sedimentary Environments
GL3014 (2.5 cr) Stratigraphy & Geologic Maps
GL3017 (2.5 cr) Environmental Geology
GL3024 (2.5 cr) Terrestrial Ecosystems through time
GL4001 (2.5 cr) Micropaleontology & Palynology
GL4002 (2.5 cr) Petroleum Geology & Basin Analys.
GL4003 (2.5 cr) Appl. Geophys. & Computer Apps.
GL4004 (2.5 cr) Advanced Igneous Petrology
GL4005 (2.5 cr) Hydrogeology (5)

*Total required, Option #1: 26 cr.*
Required Core Coursework, Year #3 (overseas):

Option #2: Majority of time at Cork; minority of time at Potsdam:

Required Coursework while in residence at Cork:
GL2016 (2.5 cr) Easter Field Course – Scotland
or GL3019 (2.5 cr) Easter Field Course – Greece
or GL4008 (2.5 cr) Easter Field Course – Canary Islands
GAEL (5 cr) Gaelic language and culture

Plus any four of the required UC-Cork courses listed above under option #1:

Required Coursework while in residence at Potsdam:
BW01 (3 cr) Field course A - Norway
BW02 (3 cr) Field course B - Alps
or BP15 (6 cr) Field course C – France

Plus any one of the required University of Potsdam courses listed above under option #1:

Total Required, option #2: 26.5 cr.

Required Core Coursework, Year #4 (UM-M):
GEOS 429 (6 cr) Field Geology
PHYS 121 (5 cr) Physics I
or PHYS 221 (5 cr) Physics I, calculus-based
PHYS 122 (5 cr) Physics II
or PHYS 222 (5 cr) Physics II, calculus-based

Plus any two of the following, in consultation with advisor:
GEOS 330 (3 cr) Structural Geology
GEOS 305 (3 cr) Science and Society
GEOS 306 (3 cr) Igneous and Metamorphic Petrology
GEOS 310 (3 cr) Invertebrate Paleontology
GEOS 432 (4 cr) Architecture of Sedimentary Deposits
GEOS 433 (4 cr) Sedimentary Petrology
GEOS 460 (3 cr) Process Geomorphology
GEOS 430 (3 cr) Global Tectonics
GEOS 480 (4 cr) Hydrogeology
GEOS 320 (3 cr) Global Water
GEOS 311 (3 cr) Paleobiology
GEOS 327 (3 cr) Geochemistry
GEOS 437 (4 cr) Seismology and Magnetics
GEOS 438 (4 cr) Gravity and Electromagnetics
GEOS 495 (3 cr) Glacial and Alpine Processes
GEOS 382 (3 cr) Global Change

Total Required 22-24 cr.

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5 Fulfills ethical and human values perspective of UM-M general education requirements.
**Additional Resources:** No additional faculty or other resources are needed to establish and implement this degree. Student and faculty mobilization overseas for the first four years of the program will be supported by a $1M grant from the Transatlantic Degree Consortium Project. This amount includes $408,000 to The University of Montana and €204,000 to each of the two European partner institutions for student and faculty mobilization overseas.

**Assessment:** We propose to use a variety of means of assessing our program from both formative and summative standpoints. Both assessment types will involve the hiring of independent assessment specialists, one from the U.S. and the other from the E.U, and both of whom will be with the program from start to finish. Formative assessments used to shape the program as it evolves include 1) direct tracking of the dual degree objectives listed above (numbers of mobilized students; numbers of peer-reviewed publications; scholastic records of degree-seeking students; student persistence in the degree program from year-to-year; and student degree completion rates); 2) Use of scaled survey and free-response questionnaires to mobilized students, given both prior to departure and upon return to their home country. These surveys will be geared towards assessing student perceptions of the degree impact on their Geoscience skills and their language and cultural training, in addition to gaining feedback regarding the success of the degree administrative and management services; 3) Use of pre-mobilization and post-mobilization standardized exams, to be constructed jointly by the PIs and appropriate colleagues, and designed to test student proficiency in Geosciences, language training, and cultural competency; 4) principal investigator interviews with students both prior to and after mobilization; and 5) evaluator interviews with focus groups consisting of each class of mobilized students.

Upon return from the two EU host countries, UM will arrange for ACTFL Oral Proficiency Interviews (ACTFL ORI) to be utilized in order to test the level of proficiency achieved by UM mobilized students in the German language. The ACFTL OPI scores will be compared with those of non-mobilized UM and national results. The proficiency of mobilized students in Gaelic, for which ACFTL OPI as yet do not exist, will be determined through individual interviews conducted by faculty in the UCC Irish Modern Language Program prior to their return to the U.S.

Summative evaluation will be directed by the outside evaluators for the US and EU on each side and will include at a minimum: 1) incorporation of all student-based formative evaluation data described above; 2) interviews with principal investigators and other faculty participants; and 3) deployment of a scaled survey for degree graduates to be issued upon degree completion and one year following degree completion. The main objective of these follow-up surveys will be to assess the actual professional benefits of the degree.

**Process leading to submission:** The proposed dual BS degree in International Field Geosciences was initially discussed formally by the UM-M Geoscience faculty on November 16, 2006. In early May 2007, the UM-M faculty voted unanimously to support the creation of this degree, contingent upon funding from the Transatlantic Degree Consortium Project. Along with colleagues from University College Cork and Potsdam University, a proposal from the UM Department of Geosciences was submitted on May 26, 2007 to the U.S. Department of Education Fund for the Improvement of Secondary Education (FIPSE). Simultaneously, an
identical proposal was submitted by Irish and German Geoscience colleagues to the European Union education officials in Brussels. On July 16 2007, notification was received from the program director at FIPSE that the jointly-submitted grant proposal had been recommended for funding on both the US and EU sides. Actual funding grant paperwork was mailed from Washington on September 19. Student mobility utilizing support from the Transatlantic Degree Consortium Project cannot begin until the degree is approved and accredited.

This proposal was reviewed and approved by the affected departments as follows:

Department Name: _Geosciences__ Date: ___November 16, 2006___

The deans of the following Schools/Colleges reviewed & approved the proposal:

Dean of: __Arts & Sciences_______________ Date: ___November 2007____

The proposal was reviewed and approved by the Faculty Senate at the University of Montana Date: ____December 2007______________________________

[No outside consultants were employed for the development of this proposal.]
ITEM 138-1003-R0108 Approval to establish a B.S. degree in Interdisciplinary Geosciences

THAT: In accordance with Montana University System Policy, the Board of Regents of Higher Education authorizes The University of Montana – Missoula to establish a B.S. Degree in Interdisciplinary Geosciences

EXPLANATION: The Department of Geosciences at The University of Montana-Missoula currently offers Bachelor of Science degrees in Geology, Environmental Geology, and General Geology. These degree options no longer adequately reflect the breadth of faculty expertise within the department; nor do they adequately represent the subject material that is taught across the Geosciences undergraduate curriculum. In response to a major diversification in faculty expertise resulting from five new tenure-track hires within the last five years, the Department of Geosciences not only has changed its name from the Department of Geology, but it has expanded its research and curricular offerings to include programs in glaciology and snow science, fluvial geomorphology, geodynamics, crustal metamorphism, and landscape evolution. In the last five years, The Center for Riverine Science and Stream Renaturalization also was established within the Geosciences Department, reflecting the significant expansion in the department’s research and teaching mission. As a result of its new curricular offerings and faculty-led research programs, the Department of Geosciences seeks permission to change its B.S. degrees and degree requirements to accurately reflect this increased departmental breadth. Specifically, we propose to replace our current B.S. degrees with a B.S. degree in Interdisciplinary Geosciences, designed to be as flexible as possible, and a B.S. degree in Geosciences with suggested courses of study in 1) Earth History, Evolution, and Resources; and 2) Water, Climate and Environment. This level II request focuses on the Interdisciplinary Geosciences B.S. degree.
Level II proposals require approval by the Board of Regents.

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

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

**Specify Request:**

The University of Montana – Missoula requests permission to establish a Bachelor’s degree in Interdisciplinary Geosciences and eliminate currently offered B.S. options in Geology, Environmental Geology, and General Geology.
Overview: The Department of Geosciences at The University of Montana-Missoula has enjoyed a major diversification of its research and curricular offerings over the past five years as a result of five new tenure-track hires and shifts in the research focus of some tenured faculty. Since its establishment in the late nineteenth century, the department has focused on research and curricular offerings in the field of traditional geology, including the nature of earth materials, evolution and fossils, Earth history over geologic timeframes, and the identification and assessment of economically important geologic resources. More recently, we have expanded our mission to include a major emphasis on water, climate change, and environmental issues associated with anthropogenic activities. To reflect these research and curricular changes, in 2005 we changed our name from the Department of Geology to the Department of Geosciences. In this request, we seek permission to establish a B.S. degree in Interdisciplinary Geosciences that will more accurately reflect the broadening of the department’s mission while affording the student considerable flexibility with respect to specific coursework.

Need: Geoscience is the analysis of phenomena that shape the Earth at different time and length scales. Relevant topics include geologic processes associated with evolution of the continents, ocean basins, atmosphere and biosphere; surficial processes that shape landscapes; the search for economic geological deposits; the analysis of global and local climate change; and the study of pollutants and their interaction with the environment. Inherent in the field of Geoscience is analysis of the Earth’s systems. That is, the solid Earth (the geosphere) and its evolution through time is inextricably linked to the evolution of the atmosphere, hydrosphere (oceans, surface and groundwater systems), and biosphere. The recognition that direct interactions and complex feedbacks exist among these different components of Earth’s systems and that these interactions exert primary controls on Earth’s evolution at different time and length scales has resulted in a more interdisciplinary approach within the Geosciences. Not only are geoscientists charged with exploring for geologic resources (oil, gas, water) and investigating the history of the Earth and its life forms through geologic time, but also geoscientists now are heavily involved with the analysis of landscape change over historic timeframes (years to centuries), the analysis and mitigation of anthropogenic pollutants, and the study of recent and ongoing climate change. In short, the traditional geological sciences have undergone a significant expansion in scope over the past decade or so.

The Department of Geosciences at The University of Montana-Missoula has adapted itself to keep pace with this expansion of the Geosciences by hiring five new tenure-track faculty with areas of expertise that include foci both in the more traditional ‘deep time’ areas of the Geosciences in addition to newer areas of focus on landscape evolution and climate change over short time-frames, river science, and water resources. To best position our undergraduate students for eventual employment in the Geoscience workforce, it is appropriate that we revise our undergraduate degree program accordingly. To that end, we propose the requested changes in our undergraduate degree titles and modifications in required coursework.

Institutional and System Fit: As reflected by the official adoption in 1865 of Montana’s state seal and motto (‘oro y plata’, trans. ‘gold and silver’) the state has maintained an exceptionally close tie to the land and its resources. This close tie to the study of the Earth has been a central part of the university system since the awarding of its very first degree – a M.S. degree in Geology to Earle Douglass, discoverer of the famous Dinosaur National Monument locality. Since its founding in 1893, The University of Montana-Missoula has maintained a strong Geology/Geoscience program that has been at the forefront of understanding the Earth and its ancient and recent history, identifying economic geologic resources (petroleum, gas, coal, water), and analyzing the relatively recent effects of anthropogenic change on the environment.
Importantly, as the geological sciences have evolved, the Department of Geology/Geosciences has adapted to maintain its strong position as an active research department with a strong undergraduate and graduate program.

The proposed B.S. degree in Interdisciplinary Geosciences serves to advance directly several of the strategic goals of the institution. As articulated in the Core Values Statement for The University of Montana, the University seeks to engage in "Basic and applied research that contributes to knowledge and meets the needs of the State, region, nation, and world" and "involve all upper division undergraduates in research and creative activities by 2011." The proposed undergraduate degree changes in the Geosciences will serve these goals by engaging students and faculty in research and classroom activities that focus on environmentally important issues, including the study of climate change, landscape evolution, riverine sciences, water resources, and analysis of anthropogenic pollutants and their mitigation, while at the same time maintaining a grounding in the fundamentals of the Geosciences field. Each of these topics now constitutes a significant portion of the undergraduate curriculum in the Department of Geosciences and the proposed degree changes will directly reflect the importance of these new areas of programmatic focus.

**Degree Requirements:**

**BS in Interdisciplinary Geosciences**

**Required core courses:**

<table>
<thead>
<tr>
<th>Course</th>
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<th>Description</th>
</tr>
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<tbody>
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<td>GEOS 230</td>
<td>4 cr.</td>
<td>Field Methods &amp; Interpretation</td>
</tr>
</tbody>
</table>

Thirteen additional credits of Geoscience courses must be taken, relevant to student interests, at the 200, 300, or 400 level. Thus, a minimum of 27 credits from the Geosciences curriculum is required to earn this degree.

**Required cognate classes, a total of 27 credits are required:**

- Chemistry 151 (3 credits)
- Math 121 (4 credits)
- Three credits in Computer Science (modeling or programming), or GIS, or Statistics.

Additional cognate science courses must be completed from the list below such that the sum is a minimum of 27 credits. Student curricular planning should include awareness of prerequisites as listed in this catalog.

- MATH above 121
- CS 131 or above
- CHEM above 151
- PHYSICS 121 or above
- BIOL 100 or above
- FOR 210N Introductory Soils
- FOR 360 Range Management
- FOR 380S Environmental Conservation

At the discretion of the academic advisor, certain courses in physical geography may also be acceptable.
Substitutions of other cognate courses must be approved by student’s Geoscience Department advisor.

**Assessment:** We propose to use a variety of means of assessing our undergraduate degree program from both formative and summative standpoints. Formative and summative assessments used to shape the program as it evolves include 1) direct tracking of scholastic records of degree-seeking students; student persistence in the degree program from year-to-year; and student degree completion rates; 2) Use of scaled survey and free-response questionnaires given to students at the completion of each Geoscience course. These surveys will be geared towards assessing student perceptions of the degree’s impact on their Geoscience skills, in addition to gaining feedback regarding the success of teaching effectiveness, laboratory design, pertinence and impact of assigned reading, etc.; and 3) faculty interviews with students following course completion to gage effectiveness of instruction.

Summative evaluation of the entire degree program will take place every seven years in conjunction with mandatory departmental review and will include at a minimum: 1) incorporation of all student-based formative evaluation data described above; 2) interviews with faculty and senior undergraduate students to gage curricular effectiveness; and 3) deployment of a scaled survey for degree graduates to be issued upon degree completion and one year following degree completion. The main objective of these follow-up surveys will be to assess the actual professional benefits of each degree program.

**Process leading to submission:** The proposed undergraduate B.S. degrees described in this application were initially discussed by the Geoscience faculty during the 2005-06 academic year and beginning of the 2006-07 academic year as part of our internal review process. On November 16, 2006, the UM-M faculty voted unanimously to support the replacement of existing degrees with those proposed herein.

| Department Name: Geosciences | Date: November 16, 2006 |

In addition the deans of the following Schools/Colleges reviewed and approved the proposal:

| Dean of: Arts & Sciences | Date: November 2007 |

The proposal was reviewed and approved by the Faculty Senate at the University of Montana Date: December 2007

[No outside consultants were employed for the development of this proposal.]
ITEM NO. 138-1004-R0108  Approval to Establish a Department of Communicative Sciences and Disorders

THAT:  
In accordance with Montana University System Policy, the Board of Regents of Higher Education authorizes The University of Montana – Missoula to establish a Department of Communicative Sciences and Disorders.

EXPLANATION:  
The University of Montana – Missoula requested and received approval of a Bachelor of Arts degree in Communicative Disorders and a Master of Science degree in Speech-Language Pathology during FY 07. Authorization to establish a Department of Communicative Sciences and Disorders to house the new B.A. and M.S. is requested in order to complete the establishment of these new degrees.
MONTANA BOARD OF REGENTS
LEVEL II REQUEST FORM

Item No.: 138-1004-R0108  Date of Meeting: January 10-11, 2008
Institution: The University of Montana - Missoula
Program Title: Request to Establish a Department of Communicative Sciences and Disorders

Level II proposals require approval by the Board of Regents.

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

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

Specify Request:

The University of Montana – Missoula requested and received approval of a Bachelor of Arts degree in Communicative Disorders and a Master of Science degree in Speech-Language Pathology during FY 07. Implicit in those two requests was a request to establish a Department of Communicative Sciences and Disorders, however, we inadvertently neglected to check #5 on the submitted Level II form, in addition to #3. The first seven pages of the undergraduate and graduate program narratives are attached, with direct references to the establishment of a department highlighted.
Table of Contents

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    The Proposed Degrees 2
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    Bachelor's Degree Professional Program Curriculum 4
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    Timeline for Implementation 7
The University of Montana – Missoula
Proposal for the Establishment
of a
Department of Communicative Sciences and Disorders
Submitted: October 31, 2007

Description of Program

Overview

This document provides the narrative for two coupled level II requests: the Master of Science in Speech-Language Pathology and the Bachelor of Arts in Communicative Disorders. The ultimate goal is to provide the first professional degree (Master of Science in Speech-Language Pathology) as a means of abating the extreme shortage of certified professionals in this discipline in Montana. It is essential to respond to this shortage by establishing both a bachelor’s degree and a master’s degree, because one needs the latter in order to become a licensed practitioner of speech pathology services. A qualified pool of master’s degree students will depend, in large part, upon an undergraduate degree, and their coupling will further ensure the program is cost-effective.

The Proposed Degrees

This proposal includes requests for permission to develop a bachelor’s degree in Communicative Disorders and a master’s degree in Speech-Language Pathology (SLP), both planned to be housed in a new Department of Communicative Sciences and Disorders in the School of Education. The bachelor’s degree prepares graduates for advanced study in speech-language pathology and/or audiology, or to enter the profession as a clinical aide or assistant in one or both of those professions. The intent is for the master’s degree program to be accredited by the American Speech-Language-Hearing Association (ASHA) and for graduates to be eligible for the Certificate of Clinical Competence in Speech-Language Pathology (CCC-SLP). Thus, they would be eligible for licensure in most states, including Montana.

In 2005, the School of Education invited Dr. James Blair from Utah State University to serve as a consultant to investigate the feasibility of offering: 1) a doctor of audiology (AuD), 2) a master’s in Speech-Language Pathology that would include pre-requisite courses without an SLP undergraduate degree, and 3) a combination of both a master’s degree in SLP and an AuD. Dr. Blair, Chair of the Department of Communicative Studies and Deaf Education at Utah State, had previously served as a consultant to Idaho State University as they developed their AuD program. His final report at UM indicated that both the baccalaureate-level and master’s-level SLP degrees were feasible.

Bachelor’s Degree

Students desiring to complete the baccalaureate degree in Communicative Disorders will follow a pattern similar to that followed by candidates in teacher education insofar as they will be

1 http://www.asha.org/about/membership-certification/
2 http://mt.gov/dli/bsd/license/bsd_boards/slp_board/licenses/slp/lic_summary.asp
required to become admitted to the professional program in order to complete the curriculum necessary for the bachelor’s degree. Thus, they will spend their first two years of study completing general education and program core requirements in order to demonstrate competence at the level requisite for admission into the professional program in Communication Disorders.

As is the case for students in most programs, lower-division core requirements for the major will be met in several departments across campus. It is anticipated that the Communicative Disorders program could enroll as many as 50-60 students annually, with approximately 30-35 lower division students dispersed among courses in the following areas: general psychology, analysis of behavior, human anatomy, human physiology, interpersonal communication, and sign language. Courses currently taught at The University of Montana that would fulfill these expectations would include the following (Syllabi available in Appendix A):

- COMM 110S Introduction to Interpersonal Communication
- COMM 131 American Sign Language I
- COMM 132 American Sign Language II
- SCI 201N Anatomy and Physiology I (at COT)
- SCI 202N Anatomy and Physiology II (at COT)
- PSYC 100S Introduction to Psychology (at COT)

The above list does not include an analysis of behavior course. This expectation could be met with PSYC 260S, Fundamentals of Learning; however, if that course is not available, two other options for a new course in this subject exist, as faculty expertise is present both within the School of Education and at the College of Technology. (Letters of support from Communication Studies and the College of Technology can be found in Appendix B.) The impact on enrollments in general education courses will depend on the degree to which the Communicative Disorders program attracts new undergraduate students to the University.

Admission to junior level classes will require a cumulative GPA of 3.0 or higher, as well as successful completion of required prerequisite courses. To continue in the program, admitted students must maintain a cumulative GPA of 3.0 or better and meet minimum grade expectations in Communicative Disorders classes each semester. The highly-technical information associated with a program of this nature, in addition to the master’s degree requirement for licensure and the aforementioned GPA standards, is likely to result in lower enrollment in upper-division courses. Present estimates there range from 20-25 students. A careful review of similar programs available in this region (most notably the University of Wyoming, Idaho State University, and Portland State University) suggests an established program at UM should ultimately produce 15 bachelor’s degree graduates per year.

Upper-division Communicative Disorders professional requirements would include courses that fulfill the preparation expected for admission to an accredited graduate program, as developed in detail by the new faculty we seek to hire who would bring this specialization to our campus. Blair’s report, coupled with the standards of the American Speech-Language-Hearing Association (ASHA), examinations of other university programs, and a comprehensive review by licensed professionals in the field have all indicated the primary sources of knowledge will emerge from the study of biological sciences, physical sciences, social/behavioral sciences, mathematics, human communication processes, communication disorders, and both written and oral language. The bachelor’s degree curriculum and included courses will be evaluated by ASCRC and the Faculty Senate prior to implementation.
The following is a typical list of course requirements for an undergraduate program in Communicative Disorders:

<table>
<thead>
<tr>
<th>Bachelor's Degree Professional Program Curriculum</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation and Observation of Clinical Practice</td>
<td>1</td>
</tr>
<tr>
<td>Language, Speech, and Hearing Development</td>
<td>3</td>
</tr>
<tr>
<td>Fundamentals of Anatomy for Speech and Language</td>
<td>3</td>
</tr>
<tr>
<td>Disorders of Articulation</td>
<td>3</td>
</tr>
<tr>
<td>Acoustics and Anatomy and Physiology of the Ear</td>
<td>3</td>
</tr>
<tr>
<td>Phonetics/Developmental Phonology</td>
<td>3</td>
</tr>
<tr>
<td>Clinical Processes and Behavior</td>
<td>2</td>
</tr>
<tr>
<td>Basic Audiology and Acoustic Immittance</td>
<td>3</td>
</tr>
<tr>
<td>Speech Science</td>
<td>3</td>
</tr>
<tr>
<td>Language Science</td>
<td>3</td>
</tr>
<tr>
<td>Neural Bases of Speech and Language</td>
<td>2</td>
</tr>
<tr>
<td>Language Assessment and Intervention for Preschool Children with Disabilities</td>
<td>4</td>
</tr>
<tr>
<td>Aural Rehabilitation (Children)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36 credits</strong></td>
</tr>
</tbody>
</table>

All of the aforementioned courses in the program are new and will need to be evaluated by ASCRC and Faculty Senate before implementation. Syllabi examples are provided in Appendix C for the following selected courses on the list: Orientation and Observation in Communicative Disorders and Deaf Education; Language, Speech, and Hearing Development; Disorders of Articulation; Acoustics and Anatomy of the Ear; and Speech Science. Additionally, sample undergraduate programs of study at Idaho State University, East Carolina University, the University of South Dakota, Utah State University, Eastern Washington University, Portland State University and the University of Rhode Island are provided in Appendix D.

Natural content linkages would emerge among these proposed SLP courses and two program areas that currently exist in the Department of Curriculum and Instruction: Special Education and Literacy Studies. Designing the aforementioned courses to address all three areas—especially with regard to language assessment and intervention, clinical practice, and behavior analysis and modification—would allow the School of Education to expand options for students by building on the strengths of existing programs and faculty. Moreover, it would enable the two departments to provide great depth simultaneously via specialization and collaborative synergy.

The Bachelor's Degree Professional Program Curriculum shown above is foundational to several professional endeavors. Traditionally, it would serve students intending to pursue graduate degrees in either speech-language pathology or audiology (not planned for UM at this time). Two clinical instructors (described under Resources, page 12) would share primary responsibility for these courses.

The proposed baccalaureate degree program in Communicative Disorders is necessary and primarily designed to provide both the prerequisite curriculum and the candidate pool for the M.S. in SLP, which carries the professional license. That said, offering a stand-alone baccalaureate degree program is not a reasonable alternative, because that would not prepare licensed professionals for the state and region. Competition for the graduate program will be available to students from other campuses, as well; consequently, it is likely that some of the
bachelor’s degree students may, either not be successful in being among the 15 or 20 admitted to the M.S. each year or choose other related degree pursuits along their academic journeys. Therefore, it is important to envision smooth transitions for career options for Communicative Disorders students who find themselves in that situation; the School of Education is well-poised to do so.

With a program designed to educate the next generation of teachers who oversee learning for children world-wide, the School of Education offers the perfect applied human science focus as an academic home to this program. Best of all, the School of Education mission is consistent with program goals for the Speech-Language Pathology program, thereby providing context for some additional options for Communicative Disorders graduates who are not successful in being admitted to a graduate program. One possibility for the Communicative Disorders undergraduate program would be to construct a pre-professional curriculum that matches closely with the pre-education curriculum currently completed by prospective elementary teachers. Assuming that students who have chosen Communicative Disorders are also interested in working with young children, a shift to elementary education would appear a viable option whereby they might find similar professional satisfaction. Beyond that, students in the SLP program would also likely have gained knowledge well-suited to the special education endorsement, an area in which there is also great demand in the state, region, and nation. Through advising, students could be directed toward general education courses that would fill elementary education requirements. Additionally, some of their SLP upper-division, professional-level coursework could substitute for special education’s clinical experiences and be applied to future endeavors in exceptionalities and behavior management required of elementary teacher candidates.

Beyond elementary education and special education, there are other academic options for transitioning SLP students. Another possible advising approach would be to encourage Communicative Disorders undergraduates to complete the minor in Human and Family Development, which offers several focal areas including Early Intervention, Early Childhood, and School Age developmental levels. At the other end of life’s spectrum, gerontology is also a focus area in Human and Family Development that could provide an interdisciplinary link for Communicative Disorders students. With greater longevity, the shift of the baby boom to retirement age, and medical technology that increases survival rates for stroke victims, there is an anticipated increased demand for services in helping stroke victims regain their speech. Finally, these students might also do well to complete a Social Work minor. Students with a Communicative Disorders degree and a Human and Family Development minor or Social Work minor would appear to be well-prepared candidates for the Master of Social Work (MSW) program in addition to being qualified for professional employment in a variety of service settings or agencies providing assistance to individuals and families across the life span.

**Master’s Degree**

Given the proposed number of faculty, admitting 15-20 students per year into the master’s program should be appropriate. Admissions to master’s degree programs in Speech-Language Pathology are extremely competitive. ASHA tracks application, admission, and acceptance rates for member institutions, and the table below reflects the 2002-2003 data for master’s degree programs in Speech-Language Pathology among four institutions in this region. On average, these institutions had a 36 percent admission rate, and a 92 percent acceptance rate.
Two years of graduate study are generally required for master’s degree completion for students whose undergraduate major was in Communicative Disorders. Some institutions allow admitted students without the foundation at the baccalaureate program to complete prerequisites concurrent with their graduate degrees, and in this case, three years of study are generally required for degree completion. Numerous institutions offer prerequisite courses for non-matriculated students, an option particularly advantageous in Montana where teachers or others who already possess an undergraduate degree in another discipline could facilitate their transition into a graduate-level Speech-Language Pathology program. Offering some or all of these prerequisite courses online, as some institutions do, might further enable the new department to make the program accessible to students across the state.

The program of study for the master’s degree in Speech-Language Pathology requires both coursework and practicum opportunities. Initially, these tend to be overseen on campus under direct supervision, then shifted to various off-campus settings with continued closely-maintained supervision by faculty, and finally held in more distant sites where students could be supervised by others in the profession (specifically, by ASHA-certified practitioners).

The following classes constitute a typical master’s degree program:

**Master’s Degree Speech-Language Program Curriculum**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Education and Psychological Research</td>
<td>3</td>
</tr>
<tr>
<td>Language Assessment and Intervention for School Aged</td>
<td>3</td>
</tr>
<tr>
<td>Children and Adolescents</td>
<td>3</td>
</tr>
<tr>
<td>Adult Disorders of Motor Speech</td>
<td>3</td>
</tr>
<tr>
<td>Disorders of Fluency—Stuttering</td>
<td>3</td>
</tr>
<tr>
<td>Communicative Disorders Related to Orofacial Anomalies</td>
<td>3</td>
</tr>
<tr>
<td>Disphagia</td>
<td>3</td>
</tr>
<tr>
<td>Neuropathologies of Speech and Language</td>
<td>3</td>
</tr>
<tr>
<td>Disorders of Phonation</td>
<td>3</td>
</tr>
<tr>
<td>Augmentative and Alternative Communication*</td>
<td>3</td>
</tr>
<tr>
<td>Bilingual/Bicultural Services</td>
<td>2</td>
</tr>
<tr>
<td>Professional Practice in Speech-Language Pathology</td>
<td>2</td>
</tr>
<tr>
<td>Advanced Clinical Practicum in Speech-Language Pathology I</td>
<td>1-3</td>
</tr>
<tr>
<td>Advanced Clinical Practicum in Speech-Language Pathology II</td>
<td>1-3</td>
</tr>
</tbody>
</table>
Internship in Public Schools in Speech-Language Pathology I 1-4
Internship in Public Schools in Speech-Language Pathology II 1-4
Externship in Speech-Language Pathology 1-6
Thesis 1-7
Total (Minimum-Maximum) 41-58 credits

*This course could be taught by a member of the Department of Curriculum Instruction’s Special Education faculty.

All but two courses are new (exceptions are Thesis and Introduction to Education, and Psychological Research) and will be delineated in detail by the expert faculty we seek to hire. Subsequently, each course will be evaluated by the Graduate Council and Faculty Senate before implementation. Sample syllabi from Utah State University are provided in Appendix E for the following courses: Disorders of Fluency – Stuttering; Language Assessment and Intervention; and Disorders of Phonation. Further, sample master’s curricula in Speech-Language Pathology for Idaho State University, the University of South Dakota, Utah State University, Eastern Washington University, Portland State University, Northern Arizona University, and the University of Rhode Island are provided in Appendix F. As is the case with all accredited curricula, the new program would follow established outcomes (and corresponding student benchmarks) recommended by the American Speech-Language-Hearing Association for certification of Speech-Language Pathology, whose knowledge and skills outcomes appear in Appendix G.

### Timeline for Implementation

<table>
<thead>
<tr>
<th>FY 07</th>
<th><strong>Hire Department Chair</strong> and Administrative Assistant to begin Summer, 2007.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 07</td>
<td>Formal application to ASHA for candidacy status evaluation.</td>
</tr>
<tr>
<td></td>
<td>• Current ASHA Council on Academic Accreditation standards state this must be done 18 months in advance of when students are expected to enroll; however, the Council is conducting a comprehensive review of the Candidacy program at this time in an effort to streamline the content and number of its reporting steps. Conversations with Council personnel suggest the group has been flexible regarding this deadline with other institutions, and that they are considering reducing this timeline to 12 months in advance of enrollment application.</td>
</tr>
<tr>
<td></td>
<td>• The Candidacy application requires both campus and state authorization to offer the graduate degree for which Candidacy is sought.</td>
</tr>
<tr>
<td></td>
<td>• Develop detailed curricular proposals (bachelor’s and master’s) for institutional governance review; timing to coincide with campus deadlines in late September.</td>
</tr>
<tr>
<td>FY 08</td>
<td>Department Chair will work with campus structure and personnel to:</td>
</tr>
<tr>
<td></td>
<td>• Recruit and hire additional faculty;</td>
</tr>
<tr>
<td></td>
<td>• Oversee remodeling of clinical facility, purchase equipment, and expand library holdings;</td>
</tr>
<tr>
<td></td>
<td>• Recruit and selection entering master’s degree students;</td>
</tr>
</tbody>
</table>
- Recruit undergraduate majors;
- Establish clinical experiences/sites; and
- Prepare and submit ASHA Candidacy application and progress reports.

**Fall 08**  First bachelor’s (estimated 15 year one; 50-60 at full capacity) and master's students (15-20) enroll.

**Fall 10**  First master’s degree students graduate.*

- Completed application for ASHA accreditation due (no later than 24 months after the enrollment of the first cohort of graduate students).

**Spring 12**  First class of bachelor’s degree students graduates.

*Assumes students possess an undergraduate SLP degree when admitted.
ITEM NO. 138-1005-R0108 Approval to Change Names of Certificates at The UM-Missoula College of Technology to Certificates of Applied Science

THAT: In accordance with Montana University System Policy, the Board of Regents of Higher Education authorizes The University of Montana – Missoula College of Technology to change said Certificates into Certificates of Applied Science.

EXPLANATION: The University of Montana – Missoula College of Technology, in compliance with the Montana Board of Regents policy and after the approval of both curriculum committees and the Faculty Senate of The University of Montana, seeks to change the following certificate programs into certificates of Applied Science in the programs of Applied Computing and Electronics Department, the Business Technology Department, and the Industrial Technology Department.

- Building Maintenance
- Carpentry
- Computer System Technician
- Culinary Arts
- Customer Relations
- Heavy Equipment Operation
- Medical Reception
- Pharmacy Technology
- Recreational Power Equipment
- Sales and Marketing
- Welding Technology
Level II proposals require approval by the Board of Regents.

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

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

**Specify Request:**

The University of Montana College of Technology requests the certificate programs identified in the following list be changed to Certificates of Applied Science programs. These programs of the Applied Computing and Electronics Department, the Business Technology Department, and the Industrial Technology Department. These requests have been approved by the appropriate curriculum committees and Faculty Senate at The University of Montana. This also represents compliance with Montana Board of Regents policy.

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Carpentry - Certificate</td>
<td>Carpentry - Certificate of Applied Science</td>
</tr>
<tr>
<td>Program</td>
<td>Updated Program</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>Culinary Arts - Certificate</td>
<td>Culinary Arts - Certificate of Applied Science</td>
</tr>
<tr>
<td>Medical Reception-Certificate</td>
<td>Medical Reception-Certificate of Applied Science</td>
</tr>
</tbody>
</table>
STATE OF MONTANA

PROPOSAL

TO INITIATE A NEW, EXPANDED, COOPERATIVE, OR OFF-CAMPUS INSTRUCTIONAL PROGRAM

Submitted by:

THE UNIVERSITY OF MONTANA, MISSOULA

College of Technology
Name of College, School, or Division

Departments with Certificate Programs
Name of Department(s) or Area

A NEW, EXPANDED, COOPERATIVE, OR OFF-CAMPUS INSTRUCTIONAL PROGRAM LEADING TO:

Certificates of Applied Science

Applied Computing and Electronics, Business Technology, Industrial Technology

Certificate, Associate, Bachelor's, Master's, or Doctoral Degree
Academic Specialty or Area
(give complete name of degree)

Proposed Starting Date

THE DEVELOPMENT OF THIS PROPOSAL HAS BEEN APPROVED BY:

Department Chair/Division Head             Date

Dean of College or School                 Date

Graduate Dean                            Date

VP Administration and Finance            Date

Provost/VP Academic Affairs              Date

President                                Date
ITEM NO. 138-1501-R0108  Approval to establish an Electrical Engineering Department at Montana Tech of The University of Montana

THAT: The Board of Regents of Higher Education authorizes Montana Tech of The University of Montana to establish an Electrical Engineering Department.

EXPLANATION: At the June 2006 meeting, the Board of Regents authorized Montana Tech of The University of Montana to offer Bachelor of Science and Master of Science degrees in Electrical Engineering (ITEM No. 130-1503-R0306). Formation of an Electrical Engineering Department would provide the structure to grow the programs to healthy and sustainable levels. Housing the Electrical Engineering programs within their own department would also be consistent with Montana Tech’s current program-management structure.
Level II proposals require approval by the Board of Regents.

**Level II action requested (check all that apply):**

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

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

**Specify Request:**

Montana Tech of The University of Montana requests permission to create an Electrical Engineering Department. This department will provide oversight and support to the faculty and students of the recently approved Electrical Engineering Degrees (Bachelor & Masters) at Montana Tech.
1. Overview

At their June 2006 meeting, the Board of Regents (BOR) authorized Montana Tech of The University of Montana to offer a Bachelor of Science degree (BS) and a Master of Science degree (MS) in Electrical Engineering (ITEM 130-1503-R0306). Since then, Montana Tech has initiated these two programs. Currently, the programs are housed in the General Engineering Department. Montana Tech requests permission to create an Electrical Engineering Department to house the programs.

2. Need

The Electrical Engineering program is currently housed in the General Engineering Department. Formation of an Electrical Engineering Department will provide a management structure consistent with Montana Tech’s campus-wide program-management structure and enable a sustainable environment for the programs.

Since the BS in Electrical Engineering (BSEE) and MS in Electrical Engineering (MSEE) programs were approved by the BOR, the two programs have witnessed healthy enrollments. The BSEE program currently has 43 students, including 19 freshmen. The MSEE graduate program has 6 students. Also, the Electrical Engineering faculty has very healthy funded research programs (four externally-funded current projects at over $2 million with more proposals pending).

Formation of an Electrical Engineering Department would provide the structure to grow the programs to healthy and sustainable levels. The Electrical Engineering faculty and department head could make curriculum, fiscal, recruiting, foundation, and management decisions that focus upon the benefits of the Electrical Engineering program/students. Currently, Electrical Engineering management decisions must fit within the General Engineering Department priorities. These priorities are not always consistent with the Electrical Engineering’s priorities.

3. Institutional and System Fit

All engineering programs in the School of Mines and Engineering at Montana Tech are housed within a discipline-dedicated department except for Electrical Engineering. Housing the Electrical Engineering programs within their own department would be consistent with Montana Tech’s current program-management structure.

4. Program Details

The faculty of the proposed Electrical Engineering department are:
Dr. Dan Trudnowski (Department Head);
Dr. John Morrison;
Dr. Dale Harrell;
Ms. Debbie Harvey.

The Electrical Engineering Department will be housed in the School of Mines and Engineering.
5. Resources

The only additional resource required is a department-head stipend. Remaining resources will be reallocated from the current General Engineering Department budget.

6. Assessment

The four faculty of the proposed Electrical Engineering Department assessed and discussed the creation of the department over the course of the past year. The faculty are all supportive of the creation of the department and feel it is best for the Electrical Engineering programs. This management structure (stand alone Electrical Engineering Department) also is in-line with current practices required by Montana Tech’s regional accrediting body (Northwest Commission on Colleges and Universities) as well as the discipline-specific accrediting bodies within the Engineering Accreditation Commission of ABET.

The Engineering Accreditation Commission of ABET sent an evaluation team to Montana Tech in September 2007 for an initial evaluation of the new Electrical Engineering programs. The visit went very well with no concerns identified by the visitation team. Montana Tech has yet to receive the official evaluation report from ABET, but we anticipate that the Electrical Engineering program will be accredited for the three year period prior to the next scheduled full-visit by ABET in 2010.

7. Process Leading to Submission

The four faculty of the proposed Electrical Engineering Department submitted a request to the Dean of The School of Mines and Engineering to create the department. The proposal was presented to the faculty of the General Engineering Department in August, 2007. The proposal was then presented to and approved by the faculty of The School of Mines and Engineering in September, 2007. The proposal will be submitted to the entire faculty at the next scheduled faculty meeting in December, 2007.
ITEM 138-401-R0108 Approval to Offer an Associate of Applied Science Degree in Equine Studies; Miles Community College

THAT: Miles Community College requests to offer an Associate of Applied Science Degree in Equine Studies.

EXPLANATION: The College is working with UM – Western to offer a 2 + 2 Associate of Science program to articulate into Western’s BS in Natural Horsemanship. Currently UM – Western has a waiting list for their program, but by the third year there are seats available. Miles Community College would help fill their seats during the third and fourth years of their program.

During the development of the AS transfer curriculum, the local advisory committee for Equine Studies determined a stand-alone AAS degree also needed to be offered for students who did not want to pursue a four-year degree. In addition, it would assure that there were enough students between both programs to warrant a full-time instructor. The AAS would provide students with employable skills to use in a variety of jobs in the equine industry including but not limited to horse trainer, farrier, stable manager, producer, or feed salesperson.
MONTANA BOARD OF REGENTS
LEVEL II REQUEST FORM

Item No.: 138-401-R0108
Date of Meeting: January 10 & 11, 2008
Institution: Miles Community College
Program Title: Associate of Applied Science in Equine Studies

Level II proposals require approval by the Board of Regents.

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

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

Specify Request:

Miles Community College (MCC) seeks approval to award the Associate of Applied Science degree in Equine Studies.

Miles Community College is working in collaboration with UM-Western to provide a 2 + 2 transfer degree into their BS of Natural Horsemanship. In partnership with this 2 + 2 AS degree, Miles Community College would also like to offer a two year Associate of Applied Science degree as well. This degree will allow students to complete a variety of courses in equine management that will prepare them for employment in the equine industry. Employment opportunities include: a horse trainer, farrier, stable manager, rancher or a plethora of careers that are developing in the equine field. The AAS degree varies from the AS transfer degree in that it provides students with hands-on experience that recognizes the needs of area ranches, guiding services and hoof care businesses. The addition of the AAS in partnership with the AS degree will ensure strong enrollment in the equine transfer courses.
Institution: Miles Community College

Program Title: Associate of Applied Science in Equine Studies

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

The proposed Associate of Applied Science degree in Equine Studies will provide students with the knowledge and hands-on experience necessary to become highly employable in the equine industry. Equine students will be qualified to work as a trainer, farrier, stable manager, producer, or feed salesperson. Students will learn all aspects of horsemanship, ranch activities, non-evasive training techniques, hoof trim and care, as well as equine science.

2. **Need:**

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

      The equine industry is a very large and important part of our national, state and local economies. Specifically in our region horses are raised for use in agriculture, sport, entertainment and recreation. In an economic study completed by Deloitte Consulting LLP for the American Horse Council Foundation in 2005, they summarized that the equine industry is highly-diverse and provides significant economic impact at the impact rate of $102 billion.

      Highlights of the study stated that there are 9.2 million horses in the United States, with 4.6 million Americans involved as horse owners or service providers. The horse industry employs 453,612 full-time equivalent jobs.

      Duane Johnson, superintendent at the Montana Agricultural Northwestern Research Center has found a 6.5% annual growth rate in the Pacific Northwest equine industry. There are over 130,000 registered horses in the state of Montana alone with thousands of horses not registered with a breed association.

      This program supports the growth of the equine industry, by providing a well-trained employee base to fill the jobs that serve this industry.

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

      Students interested in becoming a part of the equine industry will have an opportunity to complete a program that prepares them to work with and train ranch horses, as well as serve in other auxiliary functions to the industry. This program is unique in the state and designed specifically for our region as students will train horses to complete common ranch tasks such as roping and cow handling. They will also learn complete horse care, nutrition, equine science and basic farrier skills. Those with a strong interest in horseshoeing may complete additional electives that will certify them as a farrier.

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

      A program will be considered full with 12 – 15 students per instructor. We anticipate the
program to be full upon approval by the Board of Regents when marketing can take place.

Community members approached the college with the concept of an equine program. From this suggestion, two courses were instituted during the 2006 – 2007 academic term. During the fall semester 12 students enrolled in a “Western Horsemanship” class as an elective course. That spring, a “Starting the Young Horse” class was instituted with 13 students enrolled. It was during this spring semester, that Miles Community College approached UM Western with the concept of a 2 + 2 program with their institution.

The Miles Community College Endowment Board voted to fund a position for one year to hire a person to develop the Equine Studies program and work with the advisory committee and the UM – Western on articulated coursework. Without any advertising, the program has six potential students based solely on word of mouth discussions by advisory committee members. These students are currently completing an Introduction to Equine Studies course. Should this program be approved by the Montana Board of Regents, Miles Community College is sure all spots in the program would be filled by the 2008-2009 academic year.

3. Institutional and System Fit:
   a. What is the connection between the proposed program and existing programs at the institution?

Currently Miles Community College has an Agriculture certificate as well as an AS in Agribusiness that is a 2 + 2 program with Montana State University. The Equine Studies degree would enhance the agriculture related offerings we have on this campus. It will also allow for the sharing of faculty resources between the two programs.

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

The approval of the AAS in Equine Studies will not require changes to any existing programs.

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

The agriculture certificate and Agribusiness degree at Miles Community College have components of animal science, soil resources, plant science and natural resource conservation as well as business courses. The Equine Studies degree will focus solely on animal science and nutrition, with an emphasis on working specifically with horses. While our Agriculture degrees are broader, the Equine Studies degree will be very specific.

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

The mission of Miles Community College is to promote student success and lifelong learning through accessible, quality programs and community partnerships. The seven strategic initiatives include:
   1. Foster quality leadership.
   2. Provide a quality student experience.
   3. Provide quality academic programs.
   4. Cultivate quality community relationships.
   5. Recruit and retain students.
   6. Nurture a healthy College environment.
7. Actively seek sustainable funding.

This program has the rigor to provide a quality academic program, while at the same time the hands-on curriculum provides relevance to the students and insures their quality student experience. As this program was proposed by our community and highly supported by our advisory group of 15 individuals who work in the industry, we have enhanced our community partnerships and relationships.

As with all colleges in Montana, we must meet the needs of our region as well as find programs that will foster interest from students outside of our state for recruitment and retention. This program has shown it has a strong local interest, but will also serve students from other states that are looking for this type of educational experience.

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.

As mentioned, we are working with the UM – Western to establish a 2 + 2 articulation into their BS in Natural Horsemanship. The AAS degree proposed here would not be the transfer degree. Rather, this will be a stand-alone program that provides employable skills for students after two years. Those students planning to complete a four-year degree will enter into the AS in Equine Studies which is the transfer program that will be articulated with UM – Western.

The AAS in Equine Studies proposed by Miles Community College differentiates from other AAS degrees in Montana because it adds the working ranch horse component as well as skills that would allow students to become farriers or work for guiding services. No other AAS degrees in the state have this focus.

4. Program Details:

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

Following is the proposed Equine Studies degree program as suggested by the Advisory Committee. The math required is satisfied by BU110 (Business Math), written communications are satisfied with CA105 (Technical Writing), and the human relations component is embedded in the Horse Conformation and Equine Sales and Marketing classes.
## EQUINE STUDIES AAS DEGREE
Total credits 60

<table>
<thead>
<tr>
<th>Freshman Fall Semester</th>
<th>Freshman Spring Semester</th>
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<tbody>
<tr>
<td><strong>EQ155L</strong> Intro to Basic Horsemanship</td>
<td><strong>EQ102</strong> EQ102L Horse Conformation (embedded oral communications)</td>
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<tr>
<td>3</td>
<td>2</td>
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<tr>
<td><strong>SC101</strong> Principles of Biology</td>
<td><strong>EQ130</strong> EQ130L Hoof Care Science Hoof Care Science Lab</td>
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<tr>
<td><strong>SC101L</strong> Introduction to Equine Studies</td>
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<tr>
<td><strong>EQ101</strong> Horse Conformation</td>
<td><strong>EQ252L</strong> Horsemanship 1: Building a Relationship</td>
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<td>4</td>
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<tr>
<td><strong>BU110</strong> Business Mathematics</td>
<td><strong>EQ165L</strong> Livestock Handling &amp; Ranch Roping</td>
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<tr>
<td><strong>CA105</strong> Technical Writing</td>
<td><strong>BU108</strong> Vocational Bookkeeping</td>
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<th>Sophomore Fall Semester</th>
<th>Sophomore Spring Semester</th>
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<tr>
<td><strong>EQ254L</strong> Horsemanship 2: Harmony with Your Horse</td>
<td><strong>EQ203</strong> Equine Science II</td>
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<td>3</td>
<td>4</td>
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<tr>
<td><strong>EQ202</strong> Equine Science I</td>
<td><strong>EQ255L</strong> Horsemanship 3</td>
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<tr>
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<tr>
<td><strong>EQ201</strong> Basic Horse Care &amp; Nutrition</td>
<td><strong>EQ256L</strong> Starting the Young Horse</td>
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<tr>
<td><strong>EQ253L</strong> Intro to Colt Starting</td>
<td><strong>EQ232</strong> Elective</td>
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**ELECTIVES**

| EQ150L Driving the Harness or Work Horse | 1 credit |
| EQ151L Packing the Horse or Mule | 1 credit |
| EQ241P Equine Internship | 3 credits |
| EQ 205 Hoof Care – Trimming and Shoeing Your Horse (Pre-req. EQ 130 & 130L) | 1 credit |
| EQ 205L Professional Hoof Care for Farrier Certificate (Pre-req. EQ 205 & 205L) | 2 credits |

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

The program will enroll 15 students in the 2008 – 2009 academic year, and an additional 15 students in the second year for a total of 30 students in the program. The College will allow no more than 20 students per instructor for safety purposes. Therefore, if interest in the program surpasses our current facilities, the College will have to determine the cost effectiveness of two instructors, as well as the addition of physical space.

5. **Resources:**

a. **Will additional faculty resources be required to implement this program? If yes, please describe the need and indicate the plan for meeting this need.**
One additional faculty position will be required for this program. Miles Community College will absorb the costs of this person in their general budget.

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 the need.

Currently the College is using the rodeo arena for these classes. There is also an enclosed arena that a member of the community is allowing the college to use free of charge. The College will be looking at a campaign fund to build an indoor arena facility to be used by the Equine Studies and Agriculture programs as well as the Rodeo team for practices.

6. Assessment: How will the success of the program be measured?

The success of this program will be measured by the number of students that complete the program, as well as their placement in the equine industry. Qualitative studies on the employer’s satisfaction with these students will also be considered.

All coursework will be required to meet the rigor set forth by the Academic Standards committee as well as through the general education assessment tools instituted by the College.

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

Community members and the Ag Advisory Committee discussed the need for an Equine Studies program at Miles Community College. The Agriculture instructor, Jack Larson, located an adjunct faculty person who would be willing to teach one class per semester at the college to test the interest of this type of program with our students. The classes were instituted in the fall of 2006. Enrollment in these courses was sufficient enough that the College started looking into a complete program.

It was in the spring of 2007 that Miles Community College visited with UM – Western about the possibility of a 2 + 2 program into their BS in Natural Horsemanship. Western was interested, and representatives from Miles Community College came back and started putting together a transfer program.

The Equine Advisory committee was instituted to look at the proposed curriculum. It was through these discussions with the committee and the students who had previously been enrolled in our equine test courses, that it was determined the College also needed a complimentary AAS degree. Individual course proposals for the program started going through the Academic Standards Committee at Miles Community College in May of 2007. The development of the AAS degree and each course proposed within the degree has continued to be discussed and approved through the Academic Standards committee.

The Miles Community College Endowment Board gave money to the college to hire a faculty member in the Equine Studies area for the 2007 – 2008 academic year. Josh Bilbrey has been charged to continue the development of the classes and the program through the input of students and the advisory committee. Mr. Bilbrey also works closely with the Dean of Academic Affairs to assure quality programming.
ITEM 136-2705-R0907 Approval to Add a New Associate of Applied Science Degree in Power Plant Technology; Montana State University Billings, College of Technology

THAT: In accordance with the Montana University System Policy, the Board of Regents of Higher Education authorizes Montana State University Billings, College of Technology approval to create an Associate of Applied Science Degree in Power Plant Technology.

EXPLANATION: Montana has several power generating facilities but no specific post-secondary training programs in Power Plant Technology. Thousands of people are employed nationwide in this occupation, but there are a limited number of training programs available nationally. Most training is provided on-site by the employer.

The College of Technology intends to provide a public and cost-effective service to the power generation industry by offering two-year education and training at the College of Technology. This program was first considered at the request of PPL Montana, since power plants must hire trained professionals from out-of-state or provide their own costly and time-consuming training. Due to the large number of power plants and related industries nationwide and the small number of educational program providers outside of the industry, this program will serve, at a minimum, the entry-level employment needs of Billings, the region and the state.
Level II proposals require approval by the Board of Regents.

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

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

**Specify Request:**

Montana State University-Billings College of Technology seeks permission to offer a two-year Associate of Applied Science Power Plant Technology Program.
1. Overview

The field of power plant technology offers high-wage and interesting careers for technicians. Job demand is strong in the power plant technology field. Employers often hire graduates for work in other operations besides power plants, taking advantage of their theoretical and practical training in mechanical and electrical technology. Besides power plants, job settings include research and development facilities, industrial process operations, or the sales and service fields.

Montana State University Billings College of Technology (MSU-B COT) Power Plant Technology program will add a technical, two-year associate of applied science degree to existing programs in response to the need to develop educational pathways for Montana’s high-demand careers in energy. This program will provide the opportunity for individuals with no training or for incumbent workers to obtain highly technical education and skills training. Upon successful completion of this program, a student will have earned an Associate of Applied Science degree in Power Plant Technology.

2. Need

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

Thousands of people are employed nationwide in this occupation; however, there are a limited number of training programs available nationally. PPL-Montana is projecting nearly 48% of their technical employees retiring within the next seven years. This will result in 280 retirements from PPL alone. In addition, a new company has moved into Billings, TIMEC which will seek to employ 300 new new mechanics, INT Tech,Millrights, and process technicians which will make the competition for a new workforce even keener. Another factor contributing to the shortage involves the addition of a new Power Plant was recently implemented in Hardin with a second planned for Great Falls. (Source: Larry MCGinley, Director of Human Resources, PPL Montana).

Montana has several power generating facilities but no specific post-secondary training programs in Power Plant Technology. A survey of post-secondary Power Plant Technology programs revealed the nearest accredited program is in Bismarck, North Dakota with other accredited programs available nationally in Alabama, California, Georgia, Kentucky, and Texas. Most education and training for Montana’s power plant technology needs is obtained out-of-state, via online distance delivery or is provided on-site by the employer.

Creation of this program was first considered at the request of PPL Montana, since power plants must hire trained professionals from out-of-state or provide their own costly and time-consuming training.

MSU-B COT intends to provide a public, two-year associate of applied science degree in Power Plant Technology to meet the existing and growing education needs of this industry segment. Due to the large number of power plants and related industries nationwide and the
small number of educational program providers outside of the industry, this program is expected to prepare entry-level power plant technicians for Billings, the region and the state.

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

This program is designed to prepare students for entry-level employment in the operation of modern fossil fuel power plants, gas turbine facilities, water treatment facilities, or other facilities where steam and/or electricity are generated. Graduates will learn the technical and safety aspects of plant operations, the responsibilities of plant operators, and the mechanical and chemical technology needed for working in related industrial operations.

Electrical power forms one of the core sectors of any economy and is a key energy source for commercial ventures, industry and home use. The industry demands qualified professionals at various levels with a complete understanding of electrical power generation and distribution systems. The electrical power generating industry is comprised of several different types of electricity-producing power plants including coal, nuclear, hydro, petroleum, geothermal, solar and wind units.

The Job
Students learn all phases of the industry including how to operate, repair, and maintain all types of power plant equipment. These include steam plants, pressure vessels and other equipment.

Students successfully completing the Power Plant Technology program will have technical knowledge that prepares them for advanced training and qualification at nuclear, fossil fuel and other types of power generating facilities. Within any power plant, there are several different entry-level opportunities, including Operations, Mechanical Maintenance, Electrical Maintenance, and Instrumentation & Control technicians.

- The plant operator monitors plant equipment parameters, operates all plant equipment, and continually checks components for proper operation. Operators hang all clearance orders to isolate systems and equipment for maintenance.
- Mechanical maintenance job tasks include trouble-shooting, repair, preventive maintenance and installation of plant equipment.
- Electrical maintenance tasks include trouble-shooting, wiring and repair of electrical components and systems.
- Instrumentation & Control technicians repair, install and maintain the instrumentation and control systems that tell the condition and status of the plant and allow operators to control various systems.

All of these positions require knowledge of power plant systems and components. Technicians must be able to obtain and use proper tools for work packages, use test equipment, and follow procedures. They must also have the ability to read mechanical and electrical prints and provide documentation.

Operating technicians can work both independently and in teams. Power Plant employees perform tasks both indoors and outdoors. Attention to detail, self-checking, and procedure adherence are requirements. Safety of the employee, co-workers, the public and the plant equipment is the number one priority of the Power Plant Technician.
c. What is the anticipated demand for the program? How was this determined?

It’s an energy crisis of a new kind: The energy industry is bracing for a wave of retirements in the next ten years. As the technical workers in the energy industry get set to retire, the power industry is urging schools across the nation to begin appropriate programs to train a new generation of workers.

To meet demand for manpower, educational institutions are being asked to start up new power plant programs – the latest being Montana State University Billings College of Technology. MSU-B COT Power Plant Technology program was created in response to industry demand for qualified power plant operators--to start new workers in the energy industry’s pipeline. In an industry-initiated Developing a Curriculum (DACUM) process conducted in December 2006, Montana State University Billings College of Technology was told by PPL Montana and other utilities: “We’ll take every graduate you can send us.”

Anyone and everyone with a power plant in the United States – municipalities, states, private-sector utilities, federal power agencies and manufacturers, as well as institutions from schools to hospitals – has a common challenge. The power industry workforce – the technicians, engineers, linemen and maintenance crews that fuel the industry – will be retiring in unprecedented numbers over the next ten years.

The energy industry is one of the first to feel the effect of Baby Boomer retirements. This is partly due to massive hiring freezes and downsizing when the industry deregulated and focused on cost-cutting measures in the 1980s and 90s.

Job demand is strong in the power plant technology field. The demand for technical workers at energy utilities and power producers is expected to soon hit a historic peak. Experts from across the nation attribute the workforce crisis within the energy industry to current and historic factors, including

- Aging of the Baby Boomers
- Energy industry deregulation in the 1980s
- Consolidation within the industry
- Rising energy demand
- Increased environmental protocols associated with the industry

A recent study by Krishnan & Associates on the aging workforce trends at U.S. coal-fired power plants, the cornerstone of the nation’s power supply, found that the average age of the workforce at these power plants is 48. In its nationwide survey from 2005, K&A concluded that an average coal-fired plant will likely lose half its current plant staff in the next decade due to retirement and attrition. The study concludes that the specialized labor to replace this talent pool will likely be in short supply and difficult to recruit.

Ravi Krishnan, principal consultant at Krishnan & Associates, an executive and technical recruiting firm focused on the power-generation industry, conducted a 2005 survey of the power-generation industry which confirmed the looming shortage of power-plant workers. Krishnan said it’s critical for utilities to create a workforce
environment that recognizes the needs of the next generation and recognizes that market forces now and in the future favor the job candidate (rather than the employer) in the power-generation industry.

He said, “The utilities have to put together more competitive pay packages to retain their talent and recruit. They have a lot of competition because workers can go to other firms, like original equipment manufacturers. The situation is only going to get more attractive for the average worker in the industry. I can even see that perks like signing bonuses and help in locating housing, prevalent among senior management, could become more common down the line of workers.”

The Krishnan & Associates survey is echoed by a recent study from the American Public Power Association (APPA) titled “Work Force Planning for the Public Power Utilities: Ensuring Resources to Meet Projected Needs.” The report states that the loss of critical knowledge and the inability to find replacements with utility-specific skills are the two biggest challenges facing the industry. As a result, the utility industry will be hit very hard, very quickly by the shortage of skilled workers. That's because, according to this report, the average age of utility workers is almost 50, several years older than the national average, and 45 percent of the workforce in electric and natural gas utilities are expected to reach retirement in the next several years.

Employers often hire graduates for work in other operations besides power plants, taking advantage of their theoretical and practical training in mechanical and electrical technology. Besides power plants, job settings include research and development facilities, industrial process operations, or the sales and service fields.

3. Institutional and System Fit

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

The mission of the MSU-B COT is to be the College of first choice, dedicated to the development of workforce capacity by providing top quality learning opportunities and services to meet a variety of career choices and customer needs by being responsive, flexible and market-driven. The College of Technology provides individuals with training (or re-training) to obtain excellent "in demand" positions available at many area employers.

Creation of this new program fits hand-in-glove with the College’s mission and vision. The MSU-B COT Power Plant Technology Program proposal has been developed to add to existing programs which are also designed to prepare highly skilled, entry-level employees for Montana’s energy industries.

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Using the first two semesters of the existing, standards-based program curriculum for Process Plant Technology as the common core, Power Plant Technology program semesters five and six have been developed to meet the student learning outcomes specific to Power Plant Technology.

In collaboration and in conjunction with faculty and industry content experts within the MSU-B COT Process Plant Technology program, determinations were made to utilize existing courses common to the institution’s other trade and industry classes: Welding, Environmental/Shop Practices and Hazardous Materials Technician General Training.

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

Approval of the proposed Power Plant Technology program has required changes to the exiting MSU-B COT Process Plant Technology program. Research conducted as part of the program feasibility study indicated a need to align the existing Process Plant Technology program and the proposed Power Plant Technology program with industry standards-based curriculum created through the coordination of the Center for the Advancement of Process Technology (CAPT).  

Further feasibility study in preparation of the Power Plant Technology program curriculum revealed the practicality of creating a two-semester common core of courses and student learning outcomes for both Process and Power Plant Technology. Establishing a second year, focused specialty for Process and Power Plant Technology was made possible as a result of these changes. Substantive changes to the Process Plant Technology program have been submitted and approved through the College’s curriculum change and approval process.

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

Power Plant Technology program differentiation exists between Process and Power Plant Technology in specific ways. Power Plant Operators are required to learn and utilize the technical, mechanical and safety systems utilized in power generating plants versus the operations and systems in a process/refining plant.

Power Plant Operators are required to understand the equipment specific and necessary for the operation of a power plant. In the Power Plant Technology program, students learn all phases of the power plant industry including how to operate, repair, and maintain all types of power plant equipment. These include steam plants, pressure vessels and other equipment.

Students successfully completing the Power Plant Technology program will have technical knowledge that prepares them for advanced training and qualification at nuclear, fossil fuel and other types of power generating facilities. Within any power plant, there are several

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different entry-level opportunities, including Operations, Mechanical Maintenance, Electrical Maintenance, and Instrumentation & Control technicians.

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

**Student Success, Achievement, and Retention** - In order to ensure that each student attending MSU-B COT has the opportunity to succeed and reach their educational goal, the University puts the planning and resources in place to maximize student success as measured by the student. Careful planning and forethought was devoted to the development of the new program proposal for Power Plant Technology.

**Academic Excellence and Integrity** – MSU-B COT maintains an atmosphere of excellence and completes all projects with integrity and as careful stewards of public resources. The five colleges at MSU-Billings will participate in a self-evaluation and external review process in an effort to ensure the highest standards of academic excellence and integrity.

**Planning and Innovation** – MSU-B COT strives to remain on the cutting edge of new ideas, continually planning for its future. MSU-B purposefully plans its activities and continually uses innovation to further its mission and objectives. Studying the feasibility of the new Power Plant Program began in 2005 at the request of PPL Montana.

**Technology** - Technology will be designed and used to further objectives of the University, community, economic development, and research to enhance the learning, business, and production environments of students, faculty, staff, and research personnel.

Development of the Power Plant Program includes plans to develop and deploy courses in online formats. To that end, MSU-B COT was successful in a bid to obtain Congressional appropriations and a National Science Foundation Grant which will support the development of curriculum, hire instructors and purchase new equipment if needed.

PPL of Montana-donated power plant simulators have been installed in our Process Plant classroom. This simulation equipment will support the new power plant program and will be available for students to operate remotely as part of their online learning experience.

**Competitive Change** – MSU-B COT responded to market changes with appropriate strategies that meet or exceed those of the competition with the development of this power plant program.

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.

After Montana BoR adoption of the current Montana University System (MUS) initiatives, MSU-B COT has taken up the charge, through careful planning and industry partnership, to
assist and address the **Workforce Training & Equipment for High Demand Fields in Montana.**

To meet the state’s two-year educational initiatives, the proposed MSU-B COT Power Plant Technology program adds a specific and targeted professional-technical program to the existing complement of the two-year, associate of applied science degrees in the Montana.

Collaborating to meet the goals and objectives of Montana’s new face of Tech Prep; Jobs for Montana’s Graduates; and postsecondary career clusters development through BILT, WIRED, Health Sciences and Apprenticeships, MSU-B COT developed the new Power Plant Technology Program proposal. Specifically, this two-year degree program was designed to increase educational pathways which match Montana’s need for education and training for high demand career fields.

MSU-B COT joins the University of Montana-Missoula College of Technology’s new Associate of Applied Science Degree in Energy Technology program which was designed to introduce students to the full suite of energy technologies. Graduates of the UM-Missoula COT program are best described as general practitioners. Graduates of the MSU-B COT Power Plant Technology program are best described as specialists, technicians and operators.
4. Program Details
   a. Provide a detailed description of the proposed curriculum. Where possible, present the information in the form intended to appear in the catalog or other publications. NOTE: In the case of two-year degree programs and certificates of applied science, the curriculum should include enough detail to determine if the characteristics set out in Regents' Policy 301.12 have been met.

Montana State University Billings College of Technology
Associate of Applied Science Degree: Power Plant Technology

Upon successful completion of this program a student will be able to:

- Describe Occupational Safety and Health Administration (OSHA) industrial safety precautions related to material handling, electrical and machine safety, first response to fire and medical emergencies, safety signs and color codes, recognition of safety and health hazard accident prevention and management.
- Using power plant measuring devices and equipment, demonstrate administrative controls for precision measurement with emphasis on proper use, accurate reading, and calculations.
- Demonstrate knowledge of basic electrical laws, power sources, and circuits.
- Demonstrate maintenance procedures including defense in depth, conduct of verifications, and work control processes while applying the standards and documentation requirements to meet power plant safety and management expectations.
- Describe manufacturing properties of materials, the behavior of materials under load, stress, strain, torsion, and strength.
- Examine hand and power tools used in the power plant including safe usage, purpose, and maintenance.
- Discuss information distribution including methods and avenues of communication, material and design, procedural deficiencies of motors and equipment, operation of sensitive equipment, plant vulnerabilities, and personnel errors.
- Explain basic systems and components involving reactor coolant, volume control, safety injection, mainstream, turbine, feedwater, steam, and heater drain systems within the power plant.
- Demonstrate microcomputer software applications for the personal computer to include word processing, development of an electronic spreadsheet, and keyboarding in a desktop environment.
- Explain advanced systems and components involving water, electrical, cooling, waste drain, fuel handling and storage, fuel pool cooling and cleanup, radioactive waste management, air and gas systems, and ventilation and fire protection systems within the power plant.
- Demonstrate knowledge of renewable energy sources.
- Read blueprints and plant drawings including flow diagrams, symbols, dimension, tolerance, clearance, and amendments following proper procedures.
- Apply mathematical concepts of algebra, geometry, and trigonometry to industrial projects.
<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<td>TRID185</td>
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<td>Intro to Public Speaking</td>
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<td>PPT120</td>
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<td>Instrumentation and Control Systems</td>
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<td>Process Plant Safety II</td>
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<td>PPT175</td>
<td>Process Plant Sciences</td>
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<td>COMT109</td>
<td>Human Relations</td>
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<td>Power Plant Equipment</td>
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<td>Energy Sources and Conversion</td>
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<td>Boilers, Accessories &amp; Basic Operation</td>
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<td>PWRP216</td>
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<td>PWRP218</td>
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<td>PWRP296</td>
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</table>
First Semester

**CMP105 Intro Computer Tech 3 credits (Academic Foundations)**

**Learning Objectives**

**Specific Tasks Accomplished:**

**Textbook and Supplies Requirement:** TBA

**PPT101 Fund Process Technology 5 credits**

(4 lecture + 2 lab)

**Description:** The purpose of this program is to provide an overview or introduction into the field of Process Operations within the Process Industry. Within this program, the student will be introduced to the roles and responsibilities of Process Technicians, the environment in which they work, and the equipment and systems in which they operate.

**Learning Objectives:** Upon completion of this course the student should have the ability to relate to an overview of a typical process plant; identify process equipment; state the purpose of equipment; describe safety, health, and environmental components; and describe the roles, responsibilities, and work environment.

**Specific Tasks Accomplished:** Upon completion of this course, the student will be able to:
  1. Give overview of a typical process plant.
  2. Identify process equipment.
  3. State purpose of equipment.
  4. Describe roles, responsibilities, and work environment.
  5. Describe the History of the Process Industry
  6. Explain a Career as a Process Technician
  7. Respond to questions about Working on Teams
  8. Identify Piping and Valves used in industry.
  9. Respond to questions about Tanks, Drums, Pumps and Vessels

**Textbook and Supplies Requirement:** PTEC Safety Health and Environmental CAPT

**MATH122 College Math Tech 3 credits (Academic Foundations)**

**Learning Objectives**

**Specific Tasks Accomplished:**

**Textbook and Supplies Requirement:** TBA

**PPT130 BP Reading for Proc Tech 2 credits**

**Description:** This course will provide the student with an introduction in the use of Process and Instrument Drawings.

**Learning Objectives:** Upon completion of this course, the student will be familiar with using P&ID drawings in the course of their work as a Process Technician. In addition, the student will obtain the skills necessary to produce Process Flow diagrams.

**Specific Tasks Accomplished:**
  1. Demonstrate proficiency in interpreting P&ID drawings
  2. Demonstrate proficiency in Process Flow Sketching by drawing one major refinery or power plant operating unit.

**Textbook and Supplies Requirement:** Compass, protractor, process templates, graph paper, drawing pencils, eraser and eraser shield.
PPT151 Process Plant Safety I  2 credits

Description: This course will provide the student with an overview and introduction into the fields of Safety and Health within the Process Industry. In this course, the student will be introduced to various types of plant hazards, safety and health systems/equipment, and regulations under which plants are governed. Process Plant Safety is one of the eight core classes recommended by the Center for the Advancement of Process Technology (CAPT).

Learning Objectives: List components of a typical plant safety program; describe the role of a process technician in relation to safety/health; and identify and describe safety/health equipment uses.

Specific Tasks Accomplished:
Upon completion of this course, the student will be able to:
1. List components of a typical plant safety program.
2. Describe role of process technician related to safety/health.
3. Identify and describe safety/health equipment uses.
4. Describe working in the chemical processing industry
5. Describe the basic principles of safety
6. List key elements of Process Safety Management
7. List key elements of Hazard Communication
8. List key elements of Respiratory Protection
9. List key elements of Personal Protective Equipment
10. List key elements of Permit System
11. List key elements of Fire Protection, Prevention and Control
12. List key elements of Hazwoper

Textbook and Supplies Requirement: PTEC Safety Health and Environmental CAPT

TRID185 Introduction to Electrical System  3 credits

Description: This course introduces the student to the fundamental principles of voltage, current, resistance and magnetism. Also, these principles will be applied to series circuits, parallel circuits, and electrical meters.

Learning Objectives: This course will provide the student with a theoretical and practical background in electricity and electrical circuits to form a foundation for further study in areas of Process Plant electrical control circuits.

Specific Tasks Accomplished: Upon successful completion of this course, the student should be able to:
1. Demonstrate an understanding of voltage, current, and resistance as they apply to Ohm's law and power formulas.
2. Demonstrate an understanding of the fundamental principles of magnetism.
3. Demonstrate an understanding of color code resistors.
4. Demonstrate an understanding of electrical symbols and their use in schematic diagrams.
5. Demonstrate an understanding of series circuits, parallel circuits, and series - parallel circuits.
6. Demonstrate an understanding of electrical meters and their use.
7. Demonstrate an understanding of electrical conduction in liquid and gases.
8. Demonstrate an understanding of batteries and other electrical sources.
9. Demonstrate an understanding of magnetic induction.
10. Demonstrate an understanding of alternating current.
11. Demonstrate an understanding of inductance in alternating current circuits.
12. Demonstrate an understanding of alternating current resistive-inductive as they apply to series and parallel circuits. Demonstrate an understanding of capacitors wire in series and parallel A/C circuit.
13. Demonstrate an understanding of three phase electrical circuits.

Textbook and Supplies Requirement:
COMT130 Intro to Public Speaking 3 credits (Academic Foundations)

PPT120 Environmental Awareness 2 credits

**Description:** This course provides the student with the history behind certain environmental policies, the function of OSHA, EPA, DOT, State DEQ and the interrelationships which exist between these agencies. In addition, the student will examine the basic toxicology of hazardous materials and their effect upon ecological processes. The program provides learning in treatment processes, wastewater units, vapor recovery systems, cleanup, pollution prevention and an overview of the specialty equipment necessary for an ecologically sound process operation.

**Learning Objectives:** This course is designed to provide the student with the background relevant to the creation, operation and purpose of the various agencies whose role it is to protect the environment. Particular attention will be given to examination of the current environmental policies governing industry today. The course will take a look at Federal and State regulations as they relate to the process/refining industry. The student will become aware of the various types of ecological issues in which industry must remain within compliance. The program is designed to give the student an appreciation for the monumental environmental compliance tasks which must be a part of industry’s basic plan of operation. Environmental management systems will be identified and the operation of each discussed.

**Specific Tasks Accomplished:**
1. To equip the student with the environmental training skills necessary to approach an entry level job in a refinery/process plant with key knowledge of environmental issues.
2. Have general knowledge concerning the creation and purpose of the various State and Federal Agencies.
3. Understand and describe environmental management equipment/systems and their operation.
4. Become familiar with hazardous waste disposal methods.
5. Become familiar with basic pollution prevention techniques.
6. Develop an awareness of the environmental issues which directly affect industry and the operator’s role in maintaining environmental compliance.

**Textbook and Supplies Requirement:** *PTEC Safety Health and Environmental CAPT*

PPT135 Instrument Control System 5 credits (3 lecture + 4 lab)

**Description:** The course familiarizes the student with the vocabulary surrounding the instrument and control field, as well as examining the function of each instrument. The topics of process measurements, analytical instrumentation, process controls, and instrument systems are also discussed in this course. Lab time is utilized to acquaint the student with the various systems.

**Learning Objectives:** The program will give the student an overall definition of process and process variables. The course is designed to allow the student to identify and describe the function of the main elements of process variables, along with the role each plays in the refining distillation processes. Students will learn about maintaining steady state operations, controlling process disturbances, and reading process variable signals. The individual will become familiar with pressure, temperature, level, and flow measuring instruments. General knowledge will be gained during the discussion of analytical instrumentation and the operation of transmitters, transducers, recorders, indicators, controllers and control stations. Extensive lab time will allow the student hands on experience and observation in the above process variables. Written lab reports will be required of each student.

**Specific Tasks Accomplished:**
1. The student will be able to define and have a working knowledge of process, process variable, and controlled variable.
2. Describe what pressure, temperature, level, and flow measuring and indicating instruments are and how they work with/against each other.
3. The student will describe the purpose and role of instrument systems and instrument loops.
4. Explain and describe the purpose of control systems, as well as the various control system types.

**Textbook and Supplies Requirement:** *PTEC Instrumentation* CAPT

**PPT161 Process Plant Safety II**  
**2 credits**

**Description:** This course will provide the student with detailed instruction in the field of Safety and Health within the Process Industry. In this course, the student will complete an in depth study in the use of gas detection equipment, the use of the permitting system including lock out/tag out, the use of OSHA logs, the use of advanced safety equipment and study the importance of Industrial Hygiene in an industrial setting.

**Learning Objectives:** List and be familiar with the advanced components of a plant safety program.

**Specific Tasks Accomplished:** Upon completion of this course, the student will be able to:

1. Demonstrate proficiency in the use of gas testing equipment
2. Demonstrate proficiency in the use of industrial permitting systems.
3. Demonstrate the use of advanced personal protective equipment
   a. Examples: Respirators, fall protection equipment, eye protective devices, self contained breathing apparatus (SCBA) etc.
4. Explain the function of Industrial Hygiene in an industrial setting.
5. Demonstrate a knowledge of IH testing and procedures
6. Demonstrate the use of Material Safety Data Sheets

**Textbook and Supplies Requirement:** *PTEC Safety Health and Environmental* CAPT

**PPT175 Process Plant Sciences**  
**5 credits**

**Description:** The Process Plant Sciences course provides the fundamentals necessary for the student to take a deeper look into the chemical processing. This course examines the concepts of chemical composition/reaction, fluid flow and pressure drop, as well as vapor-liquid equilibrium, simple machines, basic electric circuits, furnaces, adsorption, leaching, and refrigeration. This will give the student a better understanding of the processes taking place in the chemical industry.

**Learning Objectives:** The program is designed to give the student an understanding concerning some of the basic scientific principles and their applications in a process facility. The student will become familiar with the fundamental units of measurement for length, time, and mass as they related to pressure, temperature, flow, and level. This course will teach the student the relationship between force, motion, and energy, as well as the properties of matter associated with solids, liquids, gases, and flowing fluids. The student will gain a basic knowledge of equilibrium in distillation systems. Included in this will be the effects of temperature and pressure and their effects on separation.

**Specific Tasks Accomplished:**

1. The student will understand basic physical/chemical scientific principles and natural laws and as they apply to process systems operation.
2. Define units of measurement and natural laws that relate to force, motion, mechanics, and fluid dynamics.
3. Explain specific heat, sensible heat, and latent heat
4. The student will have knowledge and an understanding of the properties of matter associated with solids, liquids, and gases.
5. The student should be able to explain the distillation process as it relates to vapor pressure of the components being separated.

**Textbook and Supplies Requirement:**


**Semester Two 17 credits**
Third Semester

**PWRP201 Power Plant Equipment  3 credits**

**Description:** Students will be given an introduction to the major systems and components that make up a modern power plant. Students learn how electric power is produced and distributed; how boilers, turbines, and condensers operate; and what the general responsibilities of plant operators are during all phases of plant operation. Specific attention is given to the flow of water and steam through the steam cycle, how combustion occurs, types of boilers and turbines, operation of steam cycle support systems, bearings and lubrication, turbine control, pollution control, and plant safety. This course covers the various types of equipment used in the production of electricity, including pumps, valves, air compressors, coal pulverizers, fans, cooling towers, condensers and heat exchangers.

**Learning Objectives:** The student will become familiar with all major equipment associated with the generation and distribution of electrical power.

**Specific Tasks Accomplished:** Upon completion of this course the student will be able to:

1. Explain the purpose of all major power plant equipment.
2. Explain the interrelationships of all major power plant equipment.
3. Explain power distribution systems from point of generation to final use by the consumer.
4. Explain surveillance and routine job tasks associated with major power plant equipment.
5. Explain the scientific basis for electrical generation.

**Textbook and Supplies Requirement:** TBA

**PWRP203 Energy Sources and Conversion  3 credits**

**Description:** Students will study the various forms of energy and the processes used to convert chemical and potential energy into thermal, mechanical and in some instances electrical energy. Energy sources that will be studied include fossil fuels (coal, oil and natural gas), hydro, wind, fuel cells, solar, derived fuel, geothermal and nuclear. Combustion and reaction will be discussed in detail for those energy sources that require combustion to covert from one energy form to another.

**Learning Objectives:** The student will become familiar with the different types of fuels used in the production of electrical power.

**Specific Tasks Accomplished:** Upon completion of this course the student will be able to:

1. Describe all fuel sources used in power plants for the production of electricity.
2. Explain the advantages and disadvantages of each type of fuel used in a power plant for the production of electricity.
3. Explain the types of equipment required for each type of fuel used in a power plant for the production of electricity.
4. Explain the basics of fuel combustion.
5. Demonstrate an understanding of fuel optimization and various control techniques.

**Textbook and Supplies Requirement:** TBA

**PPT207 Boilers, Accessories Basic Operation 3 credits**

**Description:** This course offers an introduction to boiler equipment, controls, and systems. Instruction includes the function and operation of all major components and control devices, common troubleshooting problems and common maintenance concerns.

**Learning Objectives:** The student should learn about basic design, components and operation of steam generation systems.

**Specific Tasks Accomplished:**

1. The student will understand the operation of steam systems within an industrial complex.
2. The student will learn condensate recovery systems, steam trap systems and boiler feed water preparation.
3. The student will understand the operation of equipment associated with a plant’s steam system such as steam turbines, heat tracing and various other processing equipment.

Textbook and Supplies Requirement: TBA

TRID160 HazMaterials Techn Gen Trng 3 credits

Learning Objectives:
Specific Tasks Accomplished:
Textbook and Supplies Requirement: TBA

Semester Three 18 credits

Fourth Semester

ENGL140 Business Writing 3 credits

Learning Objectives:
Specific Tasks Accomplished:
Textbook and Supplies Requirement: TBA

PWRP210 Turbines, Acc & Bas Op 3 credits

Description: Students will study all the elements that make up gas and steam turbines, a combined cycle unit and associated auxiliary systems. This course also covers the safe and efficient operation of gas turbines and heat recovery steam generators and their different applications as used in combine cycle and cogeneration configurations. Students will learn how thermal energy is converted to mechanical energy as the steam passes through a typical industry steam turbine. Steam turbine start-up and shut-down procedures will also be studied.

Learning Objectives: The student will learn the safe and efficient operation of turbines and associated auxiliary systems.

Specific Tasks Accomplished: Upon completion of this course the student will be able to:
1. Explain the safety aspects of turbine operation.
2. Demonstrate knowledge of turbine design and associated systems.
3. Explain the basis for steam to energy conversion.
4. Explain turbine optimization.
5. Explain the interrelationship between turbines and their associated equipment.
6. Explain turbine operating procedures and theory.

Textbook and Supplies Requirement: TBA

PWRP214 Power Generation 4 credits

Description: Introduces the basic elements of generator design, protection, and operation. Students are introduced to the theoretical aspects of reactive power in power systems by analyzing the inductive and capacitive components of the system, with an emphasis on megavar loading as it is affected by the excitation system. The generator’s auxiliary systems, including hydrogen cooling systems, stator cooling systems, seal oil systems, and generator degassing procedures, are also introduced, and the function and types of exciters commonly found in power plants are examined.

Learning Objectives: The student will learn the theory and basis of power generation through detailed study of electrical generators and associated equipment. Emphasis will be placed upon examining electrical generation equipment and the scientific laws and principles supporting their operation.

Specific Tasks Accomplished: Upon completion of this course the student will be able to:
1. Explain the generation of electricity through the use of electromagnetism.
2. Demonstrate a knowledge of electrical generator design and associated systems.
3. Explain the scientific basis for electrical power generation using various scientific laws and principles.

Textbook and Supplies Requirement:

PWRP216 Electrical System Components and Protection 3 credits
Description: Introduces typical devices used to protect personnel and prevent damage to plant equipment. Also covered are generator, bus, and line differential protection, as well as high- and low-pressure protection. The material presented includes trip and alarm logic for chemical protection, turbine protection, boiler protection, and generator protection. Devices covered include fuses over current relays, and over- and under-voltage relays. The course covers practices for electrical protection of plant equipment and personnel.
Learning Objectives: The student will learn the function and application of various personnel and equipment devices associated with electrical power generation.
Specific Tasks Accomplished: Upon completion of this course the student will be able to:
1. Demonstrate knowledge of power generation equipment alarms and shutdown systems.
2. Demonstrate knowledge of power generation equipment protective devices.
3. Demonstrate knowledge of power distribution protective devices.
4. Demonstrate knowledge of power distribution monitoring devices.

PWRP218 Advanced Plant Operations and Troubleshooting 3 credits
Description: Students will gain the knowledge necessary to comprehend overall power plant operations and respond to abnormal operating conditions. Students will also participate in root cause analysis exercises while troubleshooting different operating scenarios.
Learning Objectives: The student will learn various techniques to identify operating problems within a power generation facility and the steps necessary to perform corrective action measures.
Specific Tasks Accomplished: Upon completion of this course the student will be able to:
1. Demonstrate the ability to determine the cause(s) a variety of power generation operating problems.
2. Demonstrate knowledge of corrective action techniques used in a power generation facility to correct system problems and upsets.

Textbook and Supplies Requirement:

PWRP296 Cooperative Ed/Internship 2 credits
Description: Provides students with the opportunity to supplement coursework with practical work experience related to their educational program. Students work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.
Learning Objectives:
1. The student will gain on-the-job experience in the power generation industry with practical application.
2. The student will apply classroom knowledge in an actual power generation facility.
3. The student will gain an appreciation for power generation system and it’s techniques.
Specific Tasks Accomplished: The student will observe and learn the tasks commonly associated with power plant operator duties. Throughout the internship, the student and his/her direct supervisor will provide updates to the PWRP program director. Upon completion of the program, the student will provide a detailed report to a dissertation committee comprised of a representative from the internship site, one subject matter expert and the PWRP program director. Student progress will be documented by written reports from the student.

Semester Four 16 credits

Total Program Credits: 70
b. Describe the planned implementation of the proposed program, including estimates of numbers of students at each stage.

**MSU-Billings College of Technology**  
**Associate of Applied Science Power Plant Program Implementation**

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<th>Fall 2008</th>
<th>Spring 2009</th>
<th>Fall 2009</th>
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<td>Admit 1st program cohort</td>
<td>Admit 2nd student cohort</td>
<td>Graduate 1st student cohort</td>
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5. Resources
   a. Will additional faculty resources be required to implement this program? If yes, please describe the need and indicate the plan for meeting this need.

Yes.

MSU-B COT has allocated a permanent faculty line in the budget. This resource will be used to hire a program faculty member/ coordinator who will teach courses, advise students, coordinate necessary programmatic laboratories and maintain equipment. In addition, our new faculty member will work with industry to refine the curriculum and develop partnerships with industry and secondary schools.

Montana State University-Billings College of Technology received $745,000 in Congressionally-directed grant funding from the US Department of Education to develop program curriculum, submit program approval proposals and acquire and install program-specific equipment.

Additionally, Montana State University-Billings College of Technology received $546,000 from the National Science Foundation to purchase and install Plant Simulation software than can be operated via the Internet. Create online laboratory exercises to accompany the software and process simulator. Prepare Power Plant operating and procedural guides for other institutions to use and implement.

Both sources of external funding are being used to develop the curriculum and hire consultants to assist with completion of the grants’ outcomes.
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.

Facilities/Supplies
MSU Billings’ and COT executive administrators provide financial and facility resources sufficient to support continuity and consistency in the educational program. Costs will be funded through tuition, fees and the State allocation as in previous years.

The Power Plant Program will be offered in MSU-B COT facility space co-existent with the Process Plant Program. A new Health Science Center is under construction and targeted for completion in early 2008. With this new construction, vacated spaces in the existing COT building will be remodeled to provide for program growth and expansion.

Equipment
In 2005, Montana legislators approved appropriations to support 2-year education’s equipment and program needs. Over $71,000 was allocated and spent in anticipation of instructional equipment needed for the proposed ASN program.

Operating cost budgets have been established to maintain this new equipment and purchase the supplies needed for the proposed ASN program.

6. Assessment.
How will the success of the program be measured?

Program Review:
MSUB is a student centered campus that focuses on excellence in teaching and student learning. During the last several years MSUB has re-examined, strengthened, and coordinated its assessment process. While institutional evaluation and assessment is by its nature continuously evolving, the University has made progress toward an institutional assessment lattice integrated into the university’s strategic plans. In fall 2004 the university initiated its second strategic initiatives document for the period 2005-2010. The document was collaboratively developed with faculty and staff and implemented in fall 2005 as the University instituted a Continuous Quality Improvement concept in all its practices. The CQI process is continual and cyclical, allowing for annual progress checks and data informed decision making. The Continuous Quality Improvement Steering Committee oversees implementation of the CQI concept in all University processes. The Committee maintains a website and publishes a monthly Newsletter CQI-FYI.

Each division of the university (Academic Affairs, Administrative Affairs, Athletic Affairs, Facility Services, Graduate Studies, Grants and Sponsored Programs, Information Technology, Institutional Research, Library, Public Service Units (KEMC/YPR and the Montana Center on Disabilities) and Student Affairs) developed goals aligned with the university strategic initiatives Both quantitative and qualitative measures are required to assess performance and outcomes.
Annual program reviews are conducted in each division, each college, and each department within each college and administrative divisions with sub-units to review and assess compliance with the University's overall mission. The CQI process is an ongoing evaluation of the University's mission and role and a continual attempt to match our offerings to constituent needs. Coordination of assessment is overseen by the CQI Steering Committee and the Academic Senate. The committee meets on a regular basis to discuss, review and provide feedback to the various areas of the university. The outcomes are used in planning and implementing changes for improvement. The Co-Chairs of the Committee make a monthly presentation of the committee’s activities and progress on assessment to the Chancellor and his Cabinet during regularly scheduled cabinet meeting. It involves administration, faculty, students, the Power Plant Program Advisory Board (PAB), graduates and employers. A model was developed to identify the evaluative components, input sources, process, timeline, and outcomes criteria.

In Academic Affairs, assessment involves multiple instruments and methodologies. In contrast, Administrative Services and other areas use fewer tools to measure their more discrete area of operation. Each of the areas, however, employs varying appropriate quantitative and qualitative tools to assess their areas in relation to the same overriding criteria:

- Does the program or function assessed move the University closer to its mission?
  
  MSU-Billings provides a university experience characterized by:
  
  Excellent Teaching
  Support for Individual Learning
  Engagement in Civic Responsibility
  Intellectual, Cultural, Social & Economic Community Enhancement

- Does the program or function assessed move the University closer to its standard of Access and Excellence?

- Does the program or function assessed contribute to fulfillment of the University’s Strategic Initiatives?
  
  Programs—Create and maintain distinctive, vital academic programs and services for 21st Century learners
  
  Faculty Excellence—Cultivate excellence in & outside the classroom, in scholarly endeavors & exemplary service through faculty & staff development, support for scholarship, continuing assessment, & recognition of professional service
  
  Needs of Learners—Identify the needs of all learners & provide access to a university experience that fulfills both individual goals & societal needs
  
  Social Equity—Model social equity and consciousness by assuring that all members of our campus community grow because of their University experience
  
  Research Initiatives—Increase the stature, professionalism & research initiatives of all academic programs & student services
  
  Economic Access—Augment local, state & regional economic development through the strength of the University’s financial base & our learners’ contributions to their communities
Global Engagement—Increase staff, faculty & student awareness, understanding, & involvement in the international community
University Infrastructure—Ensure an administrative, operational and physical infrastructure that fully supports excellence

- Does the program or function assessed help the University attain its Vision?
  Montana State University-Billings will be recognized as a regional leader for:
  Teaching & Learning
  Translating Knowledge into Practice
  Researching for the Future
  Accepting Leadership for Intellectual, Cultural, Social & Economic Development
  Beyond University Boundaries

Assessment Data

Annual Reports: provide evidence of progress toward division/unit goals, data to support this progress and other information as appropriate for the area.

Periodic Program Review: MSU-B COT complies with the Montana Board of Regents Policy 300.3 under Academic Affairs Program Review. MSU-B COT will review all of its programs at least once every seven (7) years. A campus schedule of review for our programs has been filed with the Office of the Commissioner of Higher Education. Upon approval of the Power Plant Technology Program, that schedule will be updated. The results of our internal Power Plant Program review will be prepared to submission to the Montana Board of Regents at the November meeting. This report focuses especially on the decisions associated with the future of each program, following its review.

Student Ratings of Instruction: In general, evaluation of faculty is governed by the Collective Bargaining Agreement between the Montana Board of Regents of Higher Education and Vocational-Technical Educators of Montana. Faculty member evaluation procedures are recognized to be a cooperative effort between the faculty member and his/her supervisor with the purpose of achieving excellence in the area of effective and purposeful instruction and job performance.

Surveys: Graduate and Employer satisfaction surveys will be administered on an annual basis. Results of these surveys will be considered by the Dean, Associate Dean, Department Chair, members of the Program Advisory Committee. Recommendations from the Committee for needed revisions to course content or presentations are to be discussed with and adopted by teaching faculty each fall semester.

The timeline for evaluation affords ample time for program revision based on the evaluative data, changing trends in power plant industry standards. Components of the evaluation model include the organization and administration of the program, curriculum, resources, and student/graduates. Graduate and graduate employer surveys will be administered annually.

7. Process Leading to Submission
Describe the process of developing and approving the proposed program. Indicate, where appropriate, involvement by faculty, students, community members, potential employers, accrediting agencies, etc.
<table>
<thead>
<tr>
<th>Process</th>
<th>Approval/Consideration</th>
<th>Status/Date</th>
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<tbody>
<tr>
<td>Power Plant Developing a Curriculum (DACUM)</td>
<td>2-day, facilitated curriculum development with 5-member panel of industry experts: Power Plant Operators</td>
<td>December 2006</td>
</tr>
<tr>
<td>Process</td>
<td></td>
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<tr>
<td>New Power Plant Program Proposal</td>
<td>MSU-B COT Curriculum Committee</td>
<td>Approved, April 25, 2007</td>
</tr>
<tr>
<td>New Power Plant Program Proposal</td>
<td>MSU-B Undergraduate Curriculum Committee</td>
<td>Fall 2007 review</td>
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<td>New Power Plant Program Proposal</td>
<td>MSU-B Academic Senate</td>
<td>Fall 2007 review</td>
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<tr>
<td>New Power Plant Program Proposal</td>
<td>Montana BoR Level II New Program Proposal</td>
<td>Submitted for September 2007 meeting</td>
</tr>
</tbody>
</table>
The model nursing curriculum, developed in response to the Legislative performance audit on transfer practices in the Montana University System, has been a topic of continuing discussion with the Board of Regents for several years. That model was initially approved by the Board in May 2005, modified in May 2006, and "tweaked" one more time in May 2007. Although this report probably could have been delayed until May 2008, the information is important enough that the Board should know about it as soon as possible.

Important background information on the model nursing curriculum can be found at the following website:

http://mus.edu/asa/Nursing.asp

Members of the Board of Regents, and colleagues in the Montana University System, may want to read that material first, before continuing with this memorandum.

Nursing programs in the Montana University System are required to report to two regulatory boards: the Montana Board of Regents and the Montana State Board of Nursing. Representatives from the State Board of Nursing participated in every discussion concerning the model nursing curriculum, but based on their interpretation of that Board's regulatory authority, they were reluctant to give an early opinion on the model until it was brought to them by an actual nursing program.

That has happened. The State Board of Nursing has approved the model nursing curriculum for Practical Nursing programs at MSU-Great Falls College of Technology and Flathead Valley Community College, and Practical Nursing/Registered Nursing programs at Montana Tech of The University of Montana and MSU-Billings College of Technology. The latter programs, with both PN and RN nursing preparation, were difficult for the State Board of Nursing, however, and some of its unease and uncertainty were also reflected in recent reviews of PN/RN programs at the UM-Helena College of Technology and the UM-Missoula College of Technology.
In an effort to clear the air, the State Board of Nursing hosted a meeting in early January 2008, and invited all of the nursing directors from throughout the State to discuss the model nursing curriculum. At that meeting, representatives of the Board and the executive director of the Board, Barb Swehla, explained that one State Board rule, in particular, causes some concern. That rule requires practical nursing students to be trained, all through their nursing coursework, in the scope and practice of practical nurses. When it looks at the model nursing curriculum, with its integrated, 2 + 1 curriculum for PN and RN nurses, the State Board of Nursing is not certain that the nursing coursework, in the third and fourth semesters, satisfies that requirement. If that curriculum is taught at the RN level, and students who choose to step out of the program to take the PN licensure exam are only required to take a “scope of practice” course to prepare for licensure, then the model curriculum does not satisfy the nursing board’s expectations.

After extensive discussions, the nursing directors and the State Board of Nursing representatives agreed that there are two solutions to the problem, and those solutions are common enough throughout the United States that they even have a name:

1) the model nursing curriculum could be offered as part of a **Bi-Level Nursing program**. Under that model,
   - the program would have one application process, for admission to the nursing curriculum in semester 3;
   - the nursing coursework in semesters 3 and 4 would be taught at both the PN and RN “scope of practice” level;
   - the nursing coursework in semesters 5 and 6 would be taught at the RN “scope of practice” level only;
   - students would have the right to “opt out” of the program at the end of semester 4 and sit for licensure as a PN nurse, or they could simply continue on for another year and sit for licensure as an RN nurse.

2) the model nursing curriculum could be offered as part of a **2 + 1 Nursing program**. Under that model,
   - the program would have two application processes; the first one would occur at the beginning of semester 3;
   - the nursing coursework in semesters 3 and 4 would be taught at the PN “scope of practice” level only;
   - students would be required to sit for licensure for the PN nursing;
   - the second application process would occur at the beginning of semester 5, and only licensed PN nurses would be eligible to apply;
   - the nursing coursework in semesters 5 and 6 would be taught at the RN “scope of practice” level.

The 2 + 1 Nursing program is particularly attractive for some of the nursing programs throughout the State, primarily because they would like to provide PN nurses for their service area. In fact, they have promised their healthcare providers that that is one of the
goals of the nursing program. Because it has two application periods and two applicant pools, the 2 + 1 model also opens the RN portion of the program up to licensed practical nurses who are already working, but who would like to upgrade their training and become registered nurses. The Bi-Level nursing program does not provide that window of entry to PN nurses, since all of the students in the nursing cohort have the right to stay in the program and complete the last two semesters of RN coursework.

Because of the January discussion, the nursing programs throughout the Montana University System now have some direction from the State Board of Nursing concerning the model nursing curriculum. That “interpretation” will have to be endorsed by the entire State Board of Nursing, and that hasn’t happened yet. But once it does, MUS nursing programs will have to decide how they want to offer the curriculum to satisfy both 1) the expectations of transferability held by the Board of Regents; and 2) the expectations of appropriate “scope of practice” preparation held by the State Board of Nursing.

At this writing,

- the nursing program at Montana Tech of The University of Montana intends to eliminate its practical nursing program and focus on registered nursing, using the model curriculum.
- the nursing program at Montana State University-Northern has decided to adopt the model nursing curriculum for its registered nursing program, and that decision is before the Board of Regents at this meeting, as part of the Level I memorandum.
- the nursing program at Montana State University-Billings College of Technology is leaning toward a 2 + 1 nursing model. That program is already using the model nursing curriculum.
- the nursing program at The University of Montana-Helena College of Technology is leaning toward a 2 + 1 nursing model. It will almost certainly make the conversion in January 2009.
- the nursing program at The University of Montana-Missoula College of Technology is undecided, although its initial plans were based on a 2 + 1 model since it had promised Missoula healthcare providers that it would continue to train PN nurses and provide career advancement for licenses PN nurses.
- the nursing program at Miles Community College has no immediate plans to adopt the model nursing curriculum until it has more evidence, in the form of licensure pass rates, to evaluate its effectiveness.

Everyone at the January 2008 discussion agreed that assessment of the model nursing curriculum was essential. The model is so new, and its implementation is so recent, that assessment data is sketchy at this point. Only one program, Flathead Valley Community College, has generated a cohort of students from the model who have sat for PN licensure. The pass rate was 100 percent.
TO: Montana Board of Regents

FROM: Roger Barber
   Deputy Commissioner for Academic & Student Affairs

RE: Policy 301.12 and Out-of-Compliance Programs

DATE: March 5 – 7, 2008

In September 2007, the Montana Board of Regents received a list of Associate of Applied Science and Certificate of Applied Science degree programs that did not conform to the guidelines set out in Policy 301.12, Undergraduate Degree Requirements: Associate Degrees and Certificates of Applied Science. The Board of Regents approved an action item, at its September 2007 meeting, that required all programs on that list to either 1) conform to the policy expectations by the March 2008 meeting; or 2) be placed on moratorium, at the May 2008 meeting, until they are brought into compliance.

That September 2007 program list is attached to this memorandum as a reference for your review at this meeting. The following information will help you read through that memorandum:

- if a program has a line drawn through it, that program has been revised and is now in compliance with Policy 301.12.
- if a program has an asterisk ** behind it, that program has been terminated or is in the process of being terminated.
- if a program has a question mark ? behind it, the institution that offers that program has asked for an exception to Policy 301.12, and those exception requests are before the Board of Regents at this meeting for action.

All other programs are still out-of-compliance with Policy 301.12, as of this meeting, and may well be placed on moratorium at the May 2008 meeting of the Board.
TO: Montana Board of Regents
FROM: Roger Barber
   Deputy Commissioner for Academic & Student Affairs
RE: Policy 301.12 and Out-of-Compliance Programs
DATE: August 22, 2007

Board of Regents’ Policy 301.12, Section I.C.4.(a), states that an Associate of Applied Science degree should be “a program of study (60 – 72 credits) requiring at least four semesters to complete, but no more than two academic years, including a summer session between the academic years if necessary.”

The following Associate of Applied Science degrees have too many credits:

1) Respiratory Care, MSU-Great Falls College of Technology.
2) Automotive Technology, Miles Community College.

The following Associate of Applied Science degrees cannot be completed in two years and a summer session:

1) Radiologic Technology, MSU-Billings College of Technology.
2) Radiologic Technology, Flathead Valley Community College.
3) Radiologic Technology, MSU-Great Falls College of Technology.
4) Respiratory Care, MSU-Great Falls College of Technology.
5) Radiologic Technology, UM-Missoula College of Technology.

Board of Regents’ Policy 301.12, Section I.C.4.(b), states that an Associate of Applied Science degree should have “an occupational emphasis, achieved through a minimum of 2/3rds of the total credits in the degree devoted to technical course work in the discipline specific to the occupational goal.”

The following Associate of Applied Science degrees do not have that occupational emphasis:

1) Medical Information Technology, UM-Missoula College of Technology.
2) Paralegal Studies, UM-Missoula College of Technology.
3) Computer Information Systems, MSU-Northern.
4) Design Drafting, MSU-Northern.
5) Graphic Design, MSU-Northern.
6) Electrical Technology, MSU-Northern.
7) Equine Studies, Psychology option, UM-Western.
8) Equine Studies, Equine Science option, UM-Western.
9) Natural Horsemanship, Psychology option, UM-Western.
10) Natural Horsemanship, Natural Horsemanship Science option, UM-Western.

Board of Regents’ Policy 301.12, Section I.C.2.(a) says that a Certificate of Applied Science shall be “a short program of study (30 – 45 total credits) with the expectation that the certificate can be completed in, at most, one calendar year.”

The following Certificates of Applied Science do not satisfy that criteria:

1) Farm and Ranch Business Management, Dawson Community College.
2) Diesel Technology, UM-Helena College of Technology. **
3) Pharmacy Technology, UM-Missoula College of Technology.
4) Automotive Technology, MSU-Northern.

Board of Regents’ Policy 301.12, Section I.C.2.(b) states that a Certificate of Applied Science shall include “general education coursework that meets accreditation requirements and comprises no more than 1/3 of the total credits in the certificate program.”

The following Certificates of Applied Science do not meet that requirement:

1) Correctional Officer, Dawson Community College.
2) Medical Billing Specialist, MSU-Great Falls College of Technology.
3) Agribusiness, Miles Community College.
4) Automotive Technology, Miles Community College.
5) Building Technology, Miles Community College.
6) Heavy Equipment Operator, Miles Community College.
7) Health Information Technology, Coding option, Miles Community College.
8) Health Information Technology, Medical Transcription option, Miles Community College.
9) Office Information Technology, Miles Community College. **
10) Drafting, Montana Tech of The University of Montana.
11) Automotive Technology, MSU-Northern.
12) Building Maintenance Engineering, UM-Missoula College of Technology.
13) Culinary Arts, UM-Missoula College of Technology.
14) Customer Relations, UM-Missoula College of Technology.
15) Heavy Equipment Operator, UM-Missoula College of Technology.
16) Pharmacy Technology, UM-Missoula College of Technology.
17) Sales and Marketing, UM-Missoula College of Technology.
Montana State University-Bozeman will grant Master of Architecture degrees to all graduates of the School of Architecture who have met the requirements for the Master of Architecture degree through the award of the Bachelor of Architecture degree prior to 2002.

**History**

In June 1997, the Board of Regents authorized the School of Architecture to offer a four year Bachelor of Arts in Environmental Design and a one-year Master of Architecture (M.Arch) degree in place of its five-year Bachelor of Architecture (B.Arch) degree. The transition from the B.Arch degree program to the M.Arch degree program was completed December 2001. No curricular changes were made in the transition from the Bachelor of Architecture to the Master of Architecture degree program. The only change was in the degree nomenclature—from a B.Arch to an M.Arch.

In July 1997, the National Architectural Accrediting Board (NAAB) granted accreditation for the Master of Architecture degree based upon the curricular materials and student work presented during the Spring 1997 NAAB site visit. All of the student work and curricular materials shown were based upon the five-year Bachelor of Architecture program.

Because no curricular changes were made during the change from a B.Arch to an M.Arch degree, students that graduated in Fall Semester 1997 received a Bachelor of Architecture degree while those students graduating in Spring Semester 1998 received a Master of Architecture degree for the same program of study and credit requirement.

**Internal and NAAB Review**

The School of Architecture Administration and faculty voted unanimously in support of awarding the retroactive Master of Architecture degree to its Bachelor of Architecture graduates. In addition it has the endorsement of the Dean of the College of Arts and Architecture and the President and Provost have also endorsed this proposal.

Both the Master of Architecture and the Bachelor of Architecture degrees are first professional degrees in the architectural profession and are seen as equivalent when graduates undertake the Architectural Registration Examination administered by the National Council for Architectural Registration Board (NCARB).

The National Architectural Accreditation Board has been consulted on this process and informed us that the award of degrees is determined by the granting institution and system. Many other Schools of Architecture have undertaken the granting of retroactive Master of Architecture degrees including but not limited to Tulane University,
Norwich Academy, Yale University, Harvard University, Columbia University and Princeton University.

**Process**
Bachelor of Architecture graduates wishing to receive the retro-active Master of Architecture degree would be required to successfully complete a one-credit graduate elective during the semester in which the M.Arch degree would be granted. This one-credit course would be offered each semester beginning Summer 2008.

This Master of Architecture degree would not replace any previous degrees. As such, graduates with a Bachelor of Architecture degree would receive the Master of Architecture degree as well.

The granting of a retro-active Master of Architecture degree will not alter the professional registration status or eligibility of any past B.Arch graduates of the MSU School of Architecture.
MEMORANDUM

DATE: March 5 – 7, 2008

TO: Montana Board of Regents

FROM: Roger Barber, Deputy Commissioner for Academic & Student Affairs

RE: Level I Approvals and Announcements

This memorandum is intended to inform you of the Level I changes in academic programs that have been approved in the Office of the Commissioner of Higher Education since the November 2007 meeting of the Board of Regents. It also includes announcements that may be of interest to the Board. If you have any questions, I would be happy to answer them with the help of my colleagues in academic affairs.

The University of Montana-Missoula:

- The University of Montana asked for permission to change the name of its option in the Ph.D. program in Anthropology from Cultural Heritage Studies and Historical Anthropology to Cultural Heritage Studies and Applied Anthropology. ITEM 138-1001+R0308

- The University of Montana requested authority to change the name of the Department of Chemistry to the Department of Chemistry and Biochemistry. ITEM 138-1002+R0308

- The University of Montana-Missoula filed a Notice of Intent to terminate its Bachelor of Science degree in Geology, with options in Environmental Geology, General Geology and Geology. The degrees have been reworked and will be replaced by Bachelor of Science degrees in Geosciences. ITEM 138-1003+R0308

Montana Tech of The University of Montana:

- Montana Tech of The University of Montana asked for authority to change the name of its option in Business Information Systems, in the Bachelor of Science degree in Business & Information Technology, to Accounting. ITEM 138-1501+R0308
• Montana Tech of The University of Montana requested permission to offer a minor in Health Care Informatics.  *ITEM 138-1502+R0308*

**The University of Montana-Helena College of Technology:**

• The University of Montana-Helena College of Technology filed a Notice of Intent to terminate its Certificate in General Diesel Technology at the September 2007 Board of Regents’ meeting. All of the steps in the termination process have been completed, and the certificate is, therefore, eliminated.  *ITEM 136-1902+R0907*

**Montana State University-Bozeman:**

• Montana State University-Bozeman filed a Notice of Intent to terminate its Bachelor of Science degree in Health Promotion. As part of the curriculum reorganization in the Department of Health and Human Development, the Health Promotion major will be incorporated into the Community Health major.  *ITEM 138-2010+R0308*

• Montana State University-Bozeman asked for authority to change the name of the Option in Political Science, in the Bachelor of Arts degree in Political Science, to Policy and Analysis.  *ITEM 138-2011+R0308*

• Montana State University-Bozeman requested permission to change the name of three (3) options in its Modern Language and Literatures program. The requested changes are as follows: change the French option to French and Francophone Studies; change the German option to German Studies; and change the Spanish option to Hispanic Studies.  *ITEM 138-2012+R0308*

• Montana State University-Bozeman asked for permission to revise the Bachelor of Science degree in Bioengineering, which was originally developed as a dual-degree program in partnership with Istanbul Technical University, so the program could also be available to Montana State University-Bozeman students.  *ITEM 138-2013+R0308*

• Montana State University-Bozeman requested authority to change the name of its Master of Science degree in Applied Psychology to a Master of Science degree in Psychological Science.  *ITEM 138-2014+R0308*

• Montana State University-Bozeman asked for permission to create two options in its existing Bachelor of Science degree program in Computer Science. I.E., a Professional option and an Interdisciplinary option.  *ITEM 138-2015+R0308*
Montana State University-Bozeman filed a Notice of Intent to terminate its Bachelor of Science degree program in Health & Human Development, with its six (6) options in Community Health Education, Exercise Science, Family & Consumer Sciences, Food & Nutrition, Health Enhancement K-12, and Pre-Physical Therapy. All of the program offerings have been extensively reworked, and those changes are on the action agenda for the Board of Regents as ITEM 138-2016+R0308.

Montana State University-Northern:

- Montana State University-Northern requested permission to revise its course work for the Associate of Science degree in Nursing so it follows the model nursing curriculum approved by the Montana Board of Regents in May 2005. The State Board of Nursing has already approved the curriculum changes for MSU-Northern. ITEM 138-2801+R0308

- Montana State University-Northern asked for authority to deliver its Bachelor of Science degree in Business Technology to Medicine Hat College in Canada. ITEM 138-2802+R0308

- Montana State University-Northern asked for permission to change the name of its Bachelor of Science degree in Business Technology to a Bachelor of Science degree in Business Administration. ITEM 138-2803+R0308

Montana State University-Great Falls College of Technology:

- Montana State University-Great Falls College of Technology requested authority to also offer its Certificate of Applied Science in Welding Technology in Great Falls. The certificate program was originally requested as a program offering in Bozeman. ITEM 138-2851+R0308

- Montana State University-Great Falls College of Technology requested permission to offer its Associate of Applied Science degree in Design Drafting in Bozeman. ITEM 138-2852+R0308

- Montana State University-Great Falls College of Technology asked for authority to change the name of its Associate of Applied Science degree in Accounting and Business Technology, with an Option in Accounting, to an Associate of Applied Science degree in Accounting. ITEM 138-2853+R0308

- Montana State University-Great Falls College of Technology asked for permission to change its Associate of Applied Science degree in Office Technology, with an option in Medical Transcription, to an Associate of Applied Science degree in Medical Transcription. ITEM 138-2854+R0308
Miles Community College:

- Miles Community College filed a Notice of Intent to terminate its Certificate of Applied Science credential and Associate of Applied Science degree in Office Information Technology.  *ITEM 138-402+R0308*

Flathead Valley Community College:

- Flathead Valley Community College asked for permission to offer its Certificate of Applied Science in Medical Transcription as an online program.  *ITEM 138-301+R0308*

Announcements:

Moratoriums:

Montana State University-Northern notified the Office of the Commissioner of Higher Education that it has placed three academic programs on moratorium. Those programs are: the Associate of Applied Science degree in Water Quality Technology – Environmental Health; the Associate of Applied Science degree in Engineering Technology with an Option in Electronics Technology; and the Bachelor of Applied Science degree.

Montana State University-Great Falls College of Technology notified the Office of the Commissioner of Higher Education that it has put its Certificate of Applied Science in Creative Arts Enterprises in moratorium.

Flathead Valley Community College asked the Office of the Commissioner of Higher Education to remove the moratorium on the Associate of Applied Science degree in Substance Abuse Counseling. The program was placed in moratorium in January 2007.

Out-of-State Institutions:

Adams State College in Alamosa, Colorado, notified the Office of the Commissioner of Higher Education about its plans to offer a one-semester graduate course in reading instruction, via distance technology, in Montana. Adams State College is accredited by The Higher Learning Commission of the North Central Association of Colleges and Schools.
Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner’s designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

**A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- [x] 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- [ ] 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- [ ] 3. Adding new minors or certificates where there is a major;
- [ ] 4. Adding new minors or certificates where there is an option in a major;
- [ ] 5. Departmental mergers and name changes;
- [ ] 6. Program revisions; and
- [ ] 7. Distance delivery of previously authorized degree programs.

**B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- [ ] 1. Options within an existing major or degree;
- [ ] 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools with the exception of the five Colleges of Technology where changes require Board action;
- [ ] 3. Consolidating existing programs and/or degrees.

**C. Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs
under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

**Specify Request:**

The University of Montana-Missoula seeks permission to change the name of the Ph.D. in Anthropology from “Cultural Heritage Studies and Historical Anthropology” to “Cultural Heritage Studies and Applied Anthropology” to better reflect the strengths and specialties of the department and further improve the success of the program.
Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner’s designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

A. **Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- Adding new minors or certificates where there is a major;
- Adding new minors or certificates where there is an option in a major;
- Departmental mergers and name changes;
- Program revisions; and
- Distance delivery of previously authorized degree programs.

B. **Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- Options within an existing major or degree;
- Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools with the exception of the five Colleges of Technology where changes require Board action;
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C. **Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of
a program beyond the two years will require the normal program approval process as Level II Proposals.

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

**Specify Request:**

The University of Montana-Missoula requests permission to change the name of the Department of Chemistry to the Department of Chemistry and Biochemistry. The new name better represents the composition of faculty in the department and the nature of the department's research and scholarship. At least half of the faculty are currently engaged in the study of substances that are biochemical in nature. Furthermore, the future of chemistry will increasingly be characterized by integration with other disciplines, particularly biology.
Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner’s designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☑️ A. **Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- ☑️ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- ☑️ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- ☐️ 3. Adding new minors or certificates where there is a major;
- ☐️ 4. Adding new minors or certificates where there is an option in a major;
- ☐️ 5. Departmental mergers and name changes;
- ☐️ 6. Program revisions; and
- ☐️ 7. Distance delivery of previously authorized degree programs.

☐️ B. **Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- ☐️ 1. Options within an existing major or degree;
- ☐️ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools with the exception of the five Colleges of Technology where changes require Board action;
- ☐️ 3. Consolidating existing programs and/or degrees.

☐️ C. **Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of
a program beyond the two years will require the normal program approval process as Level II Proposals.

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:

The University of Montana-Missoula requests permission to eliminate the B.S. option in Geology, Environmental Geology, and General Geology. Replacing these degree options is a new B.S. program in Geosciences that includes three separate B.S. degrees: 1) a B.S. degree in Geosciences; 2) a B.S. degree in Interdisciplinary Geosciences; and 3) a dual B.S. degree in International Field Geosciences. Separate Level II applications for each of the new proposed B.S. degrees has been submitted.
Montana Board of Regents

Level I Request Form

Item No.: 138-1501+R0308  Date of Meeting: March 5-7, 2008

Institution: Montana Tech of The University of Montana

Program Title: Change name of Business Information Systems option to Accounting

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner’s designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

A. Level I action requested (check all that apply): Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- 3. Adding new minors or certificates where there is a major;
- 4. Adding new minors or certificates where there is an option in a major;
- 5. Departmental mergers and name changes;
- 6. Program revisions; and
- 7. Distance delivery of previously authorized degree programs.

B. Level I with Level II documentation: With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- 1. Options within an existing major or degree;
- 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools with the exception of the five Colleges of Technology where changes require Board action;
- 3. Consolidating existing programs and/or degrees.

C. Temporary Certificate or A.A.S. degree programs: Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.
All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:
Montana Tech’s Department of Business and Information Technology (BIT) requests permission to change the name of its Business Information Systems (BIS) option to “Accounting.”

Montana Tech’s BIT Department offers a Bachelor of Science Degree in Business and Information Technology (BIT). There are currently three options within the BIT Degree: Management, Entrepreneurship, and Business Information Systems. The BIS option is an accounting-based option that offers students enough coursework to properly prepare for the Uniform Certified Public Accounting (CPA) exam. Historically, Montana Tech has two or three students that sit for the CPA exam. The option has the following concentration requirements:

<table>
<thead>
<tr>
<th>Required Courses: (18 total credits)</th>
<th>Elective Courses (students must complete five of the following courses/15 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2146 Principles of Accounting I</td>
<td>4016 Tax Accounting I</td>
</tr>
<tr>
<td>2156 Principles of Accounting II</td>
<td>4026 Tax Accounting II</td>
</tr>
<tr>
<td>3036 Cost Accounting I</td>
<td>4146 Auditing I</td>
</tr>
<tr>
<td>3046 Cost Accounting II</td>
<td>4156 Auditing II</td>
</tr>
<tr>
<td>3146 Intermediate Accounting I</td>
<td>4216 Advanced Accounting</td>
</tr>
<tr>
<td>3156 Intermediate Accounting II</td>
<td>4226 Fund Accounting</td>
</tr>
<tr>
<td>3206 Accounting Information Syst.</td>
<td>4286 CPA Review</td>
</tr>
</tbody>
</table>

This issue was addressed at a Fall 2007 meeting of Montana Tech’s Business Department Industrial Advisory Board meeting. The board members unanimously supported this proposal. All of the members expressed a belief that it would be beneficial for students to have an option titled “Accounting” rather than “Business Information Systems” as they were seeking employment. Additionally, one board member who graduated with the Business Information System option stated that she was denied the opportunity to apply for certain scholarships that were available for accounting students since she was not in an “accounting program.”

Additionally, two members of the Montana Tech Business Department met and discussed this issue with Dr. Mike Harrington, the Associate Dean of the University of Montana School of Business and Dr. Terry Heron, the Chair of the Department of Accounting and Finance at the University of Montana. Both of these individuals offered their individual support for the proposal and neither of these individuals expressed any reservation with the proposed name change to “Accounting.”
MONTANA BOARD OF REGENTS

LEVEL I REQUEST FORM

<table>
<thead>
<tr>
<th>Item No.:</th>
<th>138-1502+R0308</th>
<th>Date of Meeting:</th>
<th>March 5-7, 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution:</td>
<td>Montana Tech of The University of Montana</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Title:</td>
<td>Healthcare Informatics Minor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner’s designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

**A. Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- [ ] 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- [ ] 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- [x] 3. Adding new minors or certificates where there is a major;
- [ ] 4. Adding new minors or certificates where there is an option in a major;
- [ ] 5. Departmental mergers and name changes;
- [ ] 6. Program revisions; and
- [ ] 7. Distance delivery of previously authorized degree programs.

**B. Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- [ ] 1. Options within an existing major or degree;
- [ ] 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools *with the exception of the five Colleges of Technology where changes require Board action*;
- [x] 3. Consolidating existing programs and/or degrees.

**C. Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of
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All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

Specify Request:

Montana Tech of The University of Montana requests permission to offer a Minor in Health Care Informatics to other degree programs at Montana Tech. The Health Care Informatics department was first authorized to grant Associate and Baccalaureate degrees in 2002. The department’s mission is to “give our students an educational experience that provides them with the knowledge, skills and tools needed to be effective members and/or leaders in multidisciplinary groups responsible for the design and development, implementation, evaluation and management of healthcare information systems.” The healthcare field is one of the fastest growing fields and is already experiencing shortages of qualified individuals in all areas of healthcare management. These include healthcare delivery, healthcare finance, healthcare information systems, the pharmaceutical industry, health services research, government, and education. A Health Care Informatics Minor would allow students in other degree programs to expand the areas of potential employment.

The minor would be awarded after the completion of the student’s Baccalaureate degree in their chosen field and with the completion of a minimum of 18 credits of Health Care Informatics courses. The coursework for the minor would consist of the following courses:

<table>
<thead>
<tr>
<th>HCI Core Classes (students must complete all courses)</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCI 1016 Introduction to Health Care Informatics</td>
<td>3</td>
</tr>
<tr>
<td>HCI 1206 Medical Data and Terminologies</td>
<td>3</td>
</tr>
<tr>
<td>HCI 3106 Health Care Delivery in the US I</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HCI Elective Classes (students must complete nine credits)</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCI 2106 Health Care Ethics and Regulations</td>
<td>3</td>
</tr>
<tr>
<td>HCI 2256 Data, Information, and Knowledge</td>
<td>2</td>
</tr>
<tr>
<td>HCI 3126 Health Care Delivery in the US II</td>
<td>3</td>
</tr>
<tr>
<td>HCI 3206 Information Systems Security</td>
<td>3</td>
</tr>
<tr>
<td>HCI 3406 Electronic Health Record in Medical Practice</td>
<td>3</td>
</tr>
<tr>
<td>HCI 4106 Projects and Systems Management</td>
<td>4</td>
</tr>
<tr>
<td>HCI 4206 Public Health Informatics (currently Issues in Health Care Informatics)</td>
<td>3</td>
</tr>
<tr>
<td>HCI 4946 Health Care Seminar</td>
<td>2</td>
</tr>
</tbody>
</table>
MONTANA BOARD OF REGENTS
LEVEL I REQUEST FORM

Item No.: 138-2010+R0308  Date of Meeting: March 5-7, 2008
Institution: Montana State University-Bozeman
Program Title: Termination Of Health Promotion Major

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner’s designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

A. Level I action requested (check all that apply): Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

☐ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
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☐ 5. Departmental mergers and name changes;
☐ 6. Program revisions; and
☐ 7. Distance delivery of previously authorized degree programs.

B. Level I with Level II documentation: With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

☐ 1. Options within an existing major or degree;
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C. Temporary Certificate or A.A.S. degree programs: Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.
Specify Request:

The Department of Health and Human Development has restructured its entire undergraduate curriculum to make its offerings more up-to-date and visible to current and prospective students. To this end, the department will eliminate its major in Health Promotion beginning fall 2008. In the 2008-10 catalog, this major will be incorporated into the Community Health major.
Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner’s designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

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All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.
Specify Request:

Montana State University-Bozeman requests approval to change the name of the Political Science option to Policy and Analysis within the BA in Political Science. The Political Science major currently has two options with different curricular requirements: 1) Political Science Option; and 2) International Relations Option. The proposal is to change the name of the first to “Policy and Analysis” to be more descriptive and clearly differentiate it from the IR option.

We are requesting the change to more accurately reflect the two tracks within the curriculum that reflect student demand, faculty strengths, and research emphasis. Students will continue to choose to emphasize their interest in American institutions and policy study (Policy and Analysis option) or to place emphasis on international theory and institutions (International Relations Option); that interest will be more accurately reflected in the option indicated on their transcripts. The change does not represent a significant change of course offerings.
Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner’s designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

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 Specify Request:

Montana State University-Bozeman requests the following changes to the option names in the BA in Modern Languages and Literatures. This request represents a move toward greater specificity in the curricular names, which reflect foci that extend well beyond language acquisition in all three programs. These changes reflect the department’s active participation in national and international shifts away from a language-based model, with a primary focus on literature, to an area studies paradigm. While foreign-language acquisition and intercultural competency will continue to form the basis of the undergraduate experience, the acquisition of knowledge of history, art history, linguistics, new media, and economic relations will be increasingly incorporated into the study of literature as fundamental to the discipline. This new paradigm will also enable the faculty to participate more fully in Film Studies, Women’s Studies, and other interdisciplinary programs at MSU. Finally, the change in name will help maximize faculty resources within Modern Languages and in cross-disciplinary endeavors. The name changes better reflect the current curricula, which have evolved slowly over several decades. The new names do not reflect major changes in the current structure of those curricula.

<table>
<thead>
<tr>
<th>Current Option</th>
<th>Proposed Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>French</td>
<td>French and Francophone Studies</td>
</tr>
<tr>
<td>German</td>
<td>German Studies</td>
</tr>
<tr>
<td>Spanish</td>
<td>Hispanic Studies</td>
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## MONTANA BOARD OF REGENTS

### LEVEL I REQUEST FORM

<table>
<thead>
<tr>
<th>Item No.</th>
<th>138-2013+R0308</th>
<th>Date of Meeting</th>
<th>March 5-7, 2008</th>
</tr>
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<tbody>
<tr>
<td>Institution:</td>
<td>Montana State University-Bozeman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Title:</td>
<td>Increased Access Of Bioengineering Major--Notification</td>
<td></td>
<td></td>
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Specify Request:

At its November 2006 meeting, the Montana Board of Regents approved MSU’s proposal to offer a BS in Bioengineering. Authorization to offer this major was requested in support of efforts to develop a dual degree program in partnership with Istanbul Technical University (ITU). Part of the discussion at that meeting was about plans for MSU to eventually make this major available to its regular student body. In response to student interest in this major, the Department of Chemical and Biological Engineering and the College of Engineering are pleased to announce that, beginning with the 2008-2010 MSU catalog, the BS in Bioengineering will be made available to all interested MSU students. The curriculum has been modified to align with MSU’s standard structure; elements particular to the needs of ITU students (which are taught at ITU) have been removed. This is the result of gradual changes in faculty and modest resource reallocations; it requires no additional infusion of resources.
Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner’s designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

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All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.
Specify Request:

Montana State University-Bozeman requests a change in the name of the graduate program in Psychology from MS in Applied Psychology to MS in Psychological Science.

This change will bring the name of our program in line with the content and goals of our program and will eliminate confusion among potential applicants. Historically, our graduate program in psychology had an applied focus, specifically in industrial/organizational psychology. However, there has been a shift in the expertise of new faculty hires, and as of 2003 all new hires have research-based—not applied—areas of expertise.

In addition, the name “Applied Psychology,” is somewhat misleading, as it suggests that our program offers clinical training, which we do not. Instead, the program is research-based: Our primary goal is to train students in psychological science, including research methodology and analysis. Most of our graduates are accepted into top-tier, research-based Ph.D. programs. Changing the name of the program to M.S. in Psychological Science more accurately reflects the content and goals of our graduate program. Please note that we are not making any additional changes to the curriculum or training of our graduate students. This name change simply better describes our program. As such, we are not asking for any additional resources or funding to accompany this name change.
MONTANA BOARD OF REGENTS

LEVEL I REQUEST FORM

Item No.: 138-2015+R0308  Date of Meeting: March 5-7, 2008

Institution: Montana State University-Bozeman

Program Title: New Options In Computer Science Major

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner's designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☐ A. **Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

☐ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);

☐ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;

☐ 3. Adding new minors or certificates where there is a major;

☐ 4. Adding new minors or certificates where there is an option in a major;

☐ 5. Departmental mergers and name changes;

☐ 6. Program revisions; and

☐ 7. Distance delivery of previously authorized degree programs.

☒ B. **Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

☒ 1. Options within an existing major or degree;

☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools with the exception of the five Colleges of Technology where changes require Board action;

☐ 3. Consolidating existing programs and/or degrees.

☐ C. **Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.
Specify Request:

Montana State University-Bozeman requests the creation of two new options within the existing Bachelor of Science in Computer Science: the Professional Option and the Interdisciplinary Option. Students selecting the CS major would choose between these two options. The Professional Option represents a modification of the existing CS major whereas the Interdisciplinary option allows students to pursue an interest area outside the department and link it to their CS training through their capstone experience.
1. Overview. Provide a one paragraph description of the proposed program. Be specific about what degree, major, minor or option is sought.

The Computer Science Department at Montana State University – Bozeman is seeking to offer two options for a bachelor’s degree in place of the current one-size-fits-all bachelor’s degree. The two options are the professional option and the interdisciplinary option. Both options give students more choices than the current single major does. The professional option is intended for students who wish to delve more deeply into computer science and technical electives. Of the two options, it is the one that is more similar to the currently offered CS major; it represents only a slightly modified curriculum. The interdisciplinary option is intended for students who wish to complement their computer science knowledge with a second area outside the realm of computer science.

2. Need

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

This purpose of this proposal is to improve upon the existing computer science major to help make students more marketable and to be better prepared for graduate school. A study by IBM indicates that between 2010 and 2020 there will be a worldwide shortage of 32 million technically specialized professionals in the U.S., Europe, Japan, China and India. Our existing curricular requirements were largely put together in the early 1990s – since that time the use of computers has permeated society in new and unexpected ways. The new degree options will still provide students with the fundamentals of computer science, but the two options cater to the simple fact that there is no longer a one-size-fits-all path through a computer science curriculum. Additionally, we hope that the added flexibility will make the degree more appealing to women and Native Americans, two groups that are underrepresented in our current program.

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

Computer Science majors will be well-served by this program because they will have a greater ability to tailor a computer science degree to their career goals. For example, a student who wants to pursue a computer related career in the area of biology could pursue the interdisciplinary option with a concentration in biology classes. As another example, a student who wants to pursue a computer related career in the area of systems programming could pursue the professional option with a concentration of technical electives in the area of systems programming.

c. What is the anticipated demand for the program? How was this determined?
Any student who currently pursues a computer science degree will likely pursue one of these two computer science options. Furthermore, due to the added flexibility, it is likely that a few additional students might be attracted to pursue a major in computer science. Please see the response to 4b for more detailed information.

3. Institutional and System Fit

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

The professional and interdisciplinary options for a computer science major will replace the one-size-fits-all existing computer science major.

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

No.

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

Not applicable.

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

The Montana State University Five Year Vision Document states that academic offerings should be increasingly interdisciplinary. The interdisciplinary option aligns well with this vision as it requires students to complement their studies with an outside minor. The minor area must be related back to computer science through a senior capstone experience.

By giving students more flexibility, both the professional option and the interdisciplinary option should help to make a computer science degree more appealing and more relevant in today’s world. In particular, we hope that the added flexibility will make the degree more appealing to women and Native Americans, two groups that are underrepresented in our current program.

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.

Not applicable.
4. Program Details

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

The 2008–2010 curriculum tabs for computer science is attached. A second document, entitled 2008-2010 Computer Science Degree Detailed Requirements provides even more detailed information.

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

All students who commence the computer science program in Fall 2008 or later will be required to select either the professional option or interdisciplinary option. Students who entered the program before that time, will be able to change to one of these options, if they so desire. They will also have the option, as always, of completing the curriculum in the catalog under which they entered the institution. Based on Fall 2007 numbers as of September 2, 2007, the top enrollments we have in a freshman, sophomore, junior and senior level class are 133 students for CS 160, 40 students for CS 215, 37 students for CS 324, and 33 students for CS 436.

5. Resources

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

No.

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

No.

6. Assessment. How will the success of the program be measured?

- Exit Interviews. Dr. Carolyn Plumb, Director of Educational Innovation and Strategic Projects within the College of Engineering, will help design and conduct exit interviews with graduating seniors in the College of Engineering. We hope to see an increase in satisfaction with the degree requirements.
- ABET visit. In the Fall of 2009, our program will be evaluated by ABET.
- Numbers of students, including gender and ethnicity, majoring in computer science. We hope that the new options will produce higher numbers of computer science majors. (However, there are many other factors that can also influence this number such as economic cycles, etc.)
7. Process Leading to Submission. Describe the process of developing and approving the proposed program. Indicate, where appropriate, involvement by faculty, students, community members, potential employers, accrediting agencies, etc.

- Faculty. The CS faculty members recognize that our current degree requirements are somewhat awkward and overly prescriptive. Since July 2007, we have been working on the requirements for the two new options. First, discussions were held and an initial draft was circulated. Working together, the faculty members have discussed the new requirements in person, by e-mail, at the annual faculty retreat in August, and at faculty meetings. The CS faculty is unanimous in its support of this proposal.

- Potential Employers. The new curricular structure has been shown to individuals at Microsoft, Intel, Hewlett-Packard and RightNow Technologies. All of these individuals thought that the new options will produce more marketable graduates.

- Students. Current students in our curriculum were e-mailed a synopsis of the new set of requirements and asked for feedback. Three days later, 16 students had responded. 2 of these students stated that if given the choice, they would select the existing degree requirements. 4 of these students stated that they would select the new professional option. 10 students stated that they would select the new interdisciplinary option. Student comments regarding the two new degree options are
  - I think this is a great idea because it gives people an easier option to gain a broader education.
  - I find the new CS curriculum much better than an old one. I would switch to the new curriculum for sure.
  - For people like me, who are a jack of many trades, one career with intensive knowledge is difficult to achieve. I like the idea of the interdisciplinary degree, and I'm sure many others will as well.
  - The interdisciplinary option would fit my double major (Math) and minor (Japanese) perfectly.

- ABET. The next accreditation visit will take place in Fall 2009 and both options have been designed to meet the ABET requirements that will be in effect at that time.

- Other universities. There has been much interest in the computer science educational community for new and more flexible degree requirements. For example, the “threads” idea at Georgia Tech that allows students to choose pathways through the CS curriculum has generated much publicity and accolade. Although our faculty is too small to implement the threads approach, the new options being proposed are a large step in this direction.

- The proposal was reviewed and endorsed by the Undergraduate Studies Committee of MSU.
A computer science degree is highly marketable. Between 2010 and 2020, one study projects that there will be a shortfall of 32 million technically specialized professionals in the U.S., Europe, Japan, China and India.

Our curriculum is designed with considerable flexibility, due to the numerous types of computer science jobs that exist. The bachelor’s degree provides every student with a strong fundamental understanding of the field. Students may then select from exciting computer science electives such as artificial intelligence, computational biology, computer graphics, computer networks, databases, embedded systems, numerical computation, operating systems, software engineering and special topics courses. Students who complete a bachelor’s degree will find themselves both highly marketable and well-prepared for graduate school.

The department also offers graduate programs leading to the M.S. and Ph.D. degrees in Computer Science.

The bachelor’s degree is accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 - telephone: 410-347-7700.

**Professional Option**

The professional option allows a student to delve more deeply into both computer science and related technical areas. The compilers course, CS 450, serves as the capstone for this option.

**Interdisciplinary Option**

Many opportunities and challenges lie at the intersection of technology and other fields. The interdisciplinary option allows a student to pursue a minor of choice such as business or Japanese. During a student’s senior year, the minor area must be connected back to computer science through a senior project. Undergraduate Research / Creative Activity Instruction, CS 489, and Undergraduate Research / Creative Activity, CS 490, serve as the capstone for this option.

---

**Curricula in Computer Science**

- Professional Option
- Interdisciplinary Option
- Minor (Non-Teaching)
## PROFESSIONAL OPTION

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<th>Freshman Year</th>
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A minimum of 120 credits is required for graduation; 42 of these credits must be in courses numbered 300 and above.
INTERDISCIPLINARY OPTION

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A minimum of 120 credits is required for graduation; 42 of these credits must be in courses numbered 300 and above.
NON-TEACHING MINOR

The department offers a minor in computer science for students who wish to receive formal acknowledgement for taking a core of computer science courses. The minor is designed to strengthen the students' opportunities for industrial employment or for admission to graduate school.

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<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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2008-2010 Computer Science Degree
Detailed Requirements

Professional Option (120 credits)

I. Computer Science (69 credits)

Required Fundamentals (38 credits – all courses required)

4 - CS 160, Intro to CS
3 - CS 201, Program Design with C
3 - CS 215, Social and Ethical Issues
4 - CS 221, Advanced Programming
4 – CS 223, Data Structures and Algorithms
4 – CS 330, Computer Organization
3 – CS 350, Theory of Computation
3 – CS 351, Software Engineering
3 – CS 355, Programming Paradigms
4 – CS 450, Compilers
0 – CS 499, Computer Science Program Assessment
3 – ENGR 310R, Engineering Design

CS Electives (19 credits – choose from below)

3 – CS 304, Multimedia
3 – CS 324, Programming Strategies
3 – CS 392, Numerical Computation for Scientists and Engineers
3 – CS 418, Operating Systems
3 – CS 422, Intro to Simulation
4 – CS 425, Computer Graphics
3 – CS 430, Image Processing
2 – CS 432, Computational Biology
3 – CS 435, Database
3 – CS 436, Artificial Intelligence
4 – CS 440, Computer Networks
3 – CS 445, Embedded Systems
4 – CS 451, Software Engineering II
3 – CS 460R, Senior Design Project I
3 – CS 461R, Senior Design Project II
3 – CS 480, Special Topics
CS or Related Electives (12 credits – choose from below)

Unused credits or courses from the above section
3 – CS 150 (only if taken before CS 160 was taken)
Variable – CS 270, Independent Study
3 – CS 280, Special Topics
Variable – CS 289, Undergraduate Research / Creative Activity Instruction
Variable – CS 290, Undergraduate Research / Creative Activity Instruction
1 – CS 400, Seminar
Variable – CS 470, Independent Study
1 – CS 474, Undergraduate Consultation
Variable – CS 476, Internship
Variable – CS 489, Undergraduate Research / Creative Activity Instruction
Variable – CS 490, Undergraduate Research / Creative Activity Instruction
3 – EE 261, Intro to Logic Circuits
1 – EE 262, Logic Circuits Lab
4 – EE 367, Logic Design
4 – EE 371, Microprocessor Hardware and Software System
3 – EE 414, Intro to VLSI Design
4 - EE 465, Real Time Microcontroller Applications
3 - EE 466, Computer Architecture and System Organization
1 - EE 467, Advanced Embedded Systems Lab
3 - EE 475, Hardware and Software Engineering for Embedded Systems
3 - Phil 231, Introduction to Logic
3 - Stat 420, Probability
Or an advisor approved course
II. Math and Science (30 credits minimum)

Math (17 credits)

3 - CS 222, Discrete Math
4 – Math 181, Calculus I
4 – Math 182, Calculus II
3 – Math 221, Matrix Theory (see Note)
3 – 2xx or higher probability or statistics course such as I&ME 354 or STAT 216 (see Note)

Note: Math 221 and the probability/stats requirement can be replaced by the all or nothing substitution of Math 224 and Math 225 (8 credits)

Science (6 - 8 credits)

Take two courses from the following to satisfy both the university IN and CS requirements. One of the courses must have an accompanying 1+ credit lab. (http://www.montana.edu/wwwcat/requirements/reqs4.html#Substitutions):

ARNR 240, BCHM 122, BIOL 101, BIOL 102, BIOL 207, BIOL 208, BIOL 213, BIOL 214, BIOL 215, BIOL 251, CHEM 131, CHEM 132, CHEM 141, CHEM 142, CHEM 215, ESCI 111, ESCS 112, GEOL 102, GEOL 204, GEOL 210, LRES 201, MBEH 210, PHYS 211, PHYS 212, PHYS 213, PHYS 213, PHYS 221, PHYS 222, PSPP 101, PSPP 102

Additional Science or Math (enough credits so that this section sums to 30)
- Note: The Math courses must be at least 200 level
- Note: Stat courses may also be used
- Note: Any science course except for the following may be used: PHYS 103, PHYS 205, PHYS 206 and CHEM 121.

III. University Core and Other Liberal Arts (21 credits)
(Q, CS, IN, R already satisfied)

3 – W, Engl 121, College Writing
3 – US course
3 – D course
3 – IA or RA course
3 – IH or RH course
3 – IS or RS course
3 – Engl 223, Technical Writing
Interdisciplinary Option (120 credits)

I. Computer Science (57 credits, 12 less than before)

Required Fundamentals (34 credits, 4 less than before, CS 450 is no longer required)

Upper Division CS Electives (19 credits, same as before)
   Note: CS 450 can now be used in this category

CS and Related Electives (0 credits, 12 less than before)

Additional Required CS Courses (4 credits, 4 more than before)

   1 – CS 489R, Undergraduate Research / Creative Activity Instruction
   3 – CS 490R, Undergraduate Research / Creative Activity

II. Math and Science (30 credits, same as before)

III. University Core and Other Liberal Arts (21 credits, same as before)

IV. Minor (Variable, 12 or more)

   Select a minor in a field of choice outside of CS.

   If the minor requires less than 12 additional credits to what you have already taken in the preceding three sections, take additional credits from the minor rubric at the 200 level or higher so that this section contains at least 12 credits.
**MONTANA BOARD OF REGENTS**

**LEVEL I REQUEST FORM**

<table>
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<tr>
<th>Item No.:</th>
<th>138-2016+R0308</th>
<th>Date of Meeting:</th>
<th>March 5-7, 2008</th>
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<tbody>
<tr>
<td>Institution:</td>
<td>Montana State University-Bozeman</td>
<td>Program Title:</td>
<td>Termination Of Multiple HHD Majors And Options</td>
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</table>

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner’s designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

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Page 1 of 2
Specify Request:

The Department of Health and Human Development has restructured its entire undergraduate curriculum to make its offerings more up-to-date and visible to current and prospective students. To this end, the department will eliminate its major and options in Health and Human Development beginning fall 2008. In the 2008-10 catalog, five majors will take the place of the major and related options/programs as advertised in prior catalogs. Those majors will be as follows:

- Early Childhood Education and Child Services
- Family and Consumer Sciences
- Food and Nutrition
- Health and Human Performance
- Health Enhancement K-12

Early Childhood Education and Child Services was a program under the Family and Consumer Sciences option; it will now be a separate major.

Family and Consumer Sciences was an option with four programs: Consumer Science, Early Childhood Education, Family and Consumer Sciences Education/Extension, Family Science; it will now be a separate major with two options: teaching and nonteaching.

Food and Nutrition was an option with two programs: dietetics and nutrition science; it will now be a separate major with two options: dietetics and nutrition science.

Health and Human Performance is the combination of Exercise Science and Pre-Physical Therapy options; it will be a separate major with two options: Exercise Science and Kinesiology.

Health Enhancement K-12 was an option and will now be a separate major.
Montana Board of Regents

Level I Request Form

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Date of Meeting</th>
<th>Institution</th>
<th>Program Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>138-2801+R0308</td>
<td>March 5-7, 2008</td>
<td>Montana State University-Northern</td>
<td>Associate of Science in Nursing</td>
</tr>
</tbody>
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All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.

**Specify Request:**

Montana State University-Northern Department of Nursing submits a request for approval to adopt the common nursing curriculum for two year nursing programs approved by the Office of the Commissioner of Higher Education. The MSU-Northern nursing faculty believe this curriculum provides nursing students with increased ease of transferring credits among nursing programs in the state of Montana and feel that having completed the 24 credits of general education/core requirements before being admitted to the nursing program will benefit the students. This proposal includes a copy of the curriculum.
### Montana State University-Northern
#### Department of Nursing
#### Curriculum for 72 Credit ASN
#### August, 2007

<table>
<thead>
<tr>
<th>SEMESTER ONE</th>
<th>SEMESTER TWO</th>
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</thead>
<tbody>
<tr>
<td><strong>Course</strong></td>
<td><strong>Credits</strong></td>
</tr>
<tr>
<td></td>
<td>Didactic/</td>
</tr>
<tr>
<td></td>
<td>Clinical/Lab</td>
</tr>
<tr>
<td>Anatomy &amp; Physiology I</td>
<td>3/0/1 = 4</td>
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<tr>
<td>Freshman English</td>
<td>3/0/0 = 3</td>
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<tr>
<td>College Algebra</td>
<td>3/0/0 = 3</td>
</tr>
<tr>
<td>Nutrition</td>
<td>2/0/0 = 2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>11/0/1 =12</td>
</tr>
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</table>

**NOTE:** Admission to Nursing Program required before taking Semester Three coursework

<table>
<thead>
<tr>
<th>SEMESTER THREE</th>
<th>SEMESTER FOUR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course</strong></td>
<td><strong>Credits</strong></td>
</tr>
<tr>
<td>Pharmacology</td>
<td>3/0/0 = 3</td>
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<tr>
<td>Fundamentals of Nursing</td>
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<tr>
<td>Gerontology</td>
<td>1/1/0 = 2</td>
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<tr>
<td><strong>Total</strong></td>
<td>8/1/3 =12</td>
</tr>
</tbody>
</table>

**(**Transition to Registered Nursing for LPN’s transferring into program)**

<table>
<thead>
<tr>
<th>SEMESTER FIVE</th>
<th>SEMESTER SIX</th>
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</thead>
<tbody>
<tr>
<td><strong>Course</strong></td>
<td><strong>Credits</strong></td>
</tr>
<tr>
<td>Complex Care Needs—Maternal/Child Client</td>
<td>2/1/0 = 3</td>
</tr>
<tr>
<td>Complex Care Needs—Mental Health Client</td>
<td>1/1/0 = 2</td>
</tr>
<tr>
<td>Pathophysiology</td>
<td>3/0/0 = 3</td>
</tr>
<tr>
<td>Microbiology</td>
<td>3/0/1 = 4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>9/2/1 =12</td>
</tr>
</tbody>
</table>

Clinical credits are 3:1  
Lab credits are 2:1  
72 credit ASN  
—30 credits cognates; 42 credits Nursing  
—53 credits didactic, 11 credits clinical, 8 credits lab
MONTANA BOARD OF REGENTS
LEVEL I REQUEST FORM

Item No.: 138-2802+R0308  Date of Meeting: March 5-7, 2008

Institution: Montana State University-Northern

Program Title: Authorization To Deliver A Bachelor Of Science Degree In Business Technology To Medicine Hat College

Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner’s designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

A. Level I action requested (check all that apply): Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

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All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure
that all other campuses receive program information well in advance of submission.

Specify Request:

Montana State University-Northern seeks approval to deliver its Bachelor of Science degree in Business Technology to Medicine Hat College. Medicine Hat College approached MSU-Northern with the opportunity to deliver the bachelor of science degree on its campus, and has offered office and classroom space at no cost to Northern. Medicine Hat College students will gain an additional semester of general education classes that will bridge to our programs and will provide students easy access to an accredited four-year US degree. MSU-Northern plans to deliver the program using its faculty through hybrid (onsite and online) methods and hiring additional Medicine Hat College faculty as adjunct professors. The program will be delivered as a trial two-year cohort program and will be reevaluated by both institutions after completion of the trial period.
Level 1 Request for Authorization for MSU-Northern to Deliver a Bachelor of Science Degree in Business Technology at Medicine Hat College

Background
During a recent visit to Medicine Hat College the opportunity to deliver the upper division courses of our business degree on their campus became available.

Medicine Hat College has approached MSU-Northern with the opportunity to deliver MSU-Northern’s Bachelor of Science degree in Business Technology on their campus. They have graciously offered office and classroom space at no cost to Northern. This is a benefit to Medicine Hat College because their students will gain an additional semester of general education classes to bridge to our programs and their students will have easy access to an accredited four-year US degree. We plan to deliver the program using our faculty through hybrid (onsite and online) methods and hiring some of Medicine Hat’s faculty as adjunct professors.

Implementation Plan
In order to make this new Canadian Initiative work we request the approval of the Montana Board of Regents to do the following things:

- Offer MSU-Northern’s existing Business degree in Canada on the campus of Medicine Hat College.
- Develop an all inclusive market sensitive tuition (without any additional fees) to better match the way Canadian schools charge for education.

This program will be delivered as a trial two-year cohort program and will be reevaluated by both institutions after the two years have been completed. It will run with a minimum of 20 students and will be capped at 35.

Medicine Hat College has asked that we have our approvals and promotional material in place by the middle of March so they can help promote the program to their current students before they finish their semester.

International students on the MHC campus will be allowed to take the program as MHC is authorized to grant them a student VISA. They will not be required to get an I-20 in the U.S. because they will not be crossing the border to get their degree. The current plan will start Fall semester of 2008. A report on the first year of activity will be delivered to the Board following the 2008-09 academic year.
Implementation Resources
Since there will be no charges for facilities or services the primary costs will be for instruction, travel, housing, and marketing.

The following breakdown projects the costs for 20 Canadian students taking a typical 3 credit course. This represents the worst case scenario as the profit margin will get better if more international students take the class since they pay a higher tuition fee.

Revenue Projections

Canadian Student Scenario
$150/credit x 3 credits = $450/student
20 Canadian students x $450 = $9,000

International Student Scenario
$360/credit x 3 credits = $1080/student
20 International students x $1080 = $21,600

Expense Projections

Northern Faculty Scenario
Hire a Northern Faculty to teach the course = $2,437
8 trips to MHC $152/trip = $1,216
16 days per diem $23/day = $368
8 nights in a hotel $135/night = $1,080
Total = $5,101.

MHC Faculty Scenario
Hire a MHC Professor to teach the course = $6,000

Promotional Expenses (spread out over the entire program)
Recruiting trips to Medicine Hat $800
Print a promotional brochure $1,000
Several Newspaper ads $2,000

Office Expenses (spread out over the entire program)
Fax, Scanner/Printer $200
Computer $1000
Administrative support person MHC $10,000/year
Faculty Coordinator $13,000/year
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that all other campuses receive program information well in advance of submission.

Item No.: 138-2803+R0308  Institution: Montana State University-Northern

Specify Request:

Montana State University-Northern seeks approval to re-title the Bachelor of Science degree in Business Technology to a Bachelor of Science degree in Business Administration. The change will more accurately reflects the degree curriculum and will better suit the needs of partnership institutions.
MONTANA BOARD OF REGENTS
LEVEL I REQUEST FORM

Item No.: 138-2851+R0308  Date of Meeting: March 5-7, 2008
Institution: Montana State University-Great Falls COT
Program Title: Welding Technology

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Specify Request:

MSU-Great Falls College of Technology requests approval from the Montana Board of Regents and the Montana University System to offer the College's Certificate of Applied Science program in Welding Technology in Great Falls. In preparation for the completion of the new Construction and Industrial Trades facility on the Great Falls campus the College is advancing this request. The College currently has an approved Welding Technology CAS program in Bozeman (through the Bozeman COT) and would like approval to offer it in Great Falls.
MONTANA BOARD OF REGENTS

LEVEL I REQUEST FORM

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<td></td>
<td></td>
</tr>
<tr>
<td>Program Title</td>
<td>Design Drafting</td>
<td></td>
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MSU-Great Falls College of Technology requests approval from the Montana Board of Regents and the Montana University System to offer the College's Associate of Applied Science Degree in Design Drafting to the Gallatin Valley through its extension in Bozeman (the Bozeman COT). The College has received significant response from the community for this program, both from area employers and prospective students. The College currently has an approved Design Drafting program in Great Falls and would like approval to offer it in Bozeman.
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Specify Request:

MSU-Great Falls College of Technology requests approval from the Montana Board of Regents and the Montana University System to change the name of its Associate of Applied Science in Accounting and Business Technology, with an option in Accounting, to an Associate of Applied Science in Accounting.
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**Specify Request:**

MSU-Great Falls College of Technology requests approval from the Montana Board of Regents and the Montana University System to change the name of its Associate of Applied Science in Office Technology with a specialty in Medical Transcription, to an Associate of Applied Science in Medical Transcription.
MONTANA BOARD OF REGENTS
LEVEL I REQUEST FORM

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<th>138-402+R0308</th>
<th>Date of Meeting:</th>
<th>March 5-7</th>
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<td>Program Title:</td>
<td>Termination Of Certificate and AAS in Office Information Technology</td>
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Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner’s designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

A. Level I action requested (check all that apply): Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

- 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);
- 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;
- 3. Adding new minors or certificates where there is a major;
- 4. Adding new minors or certificates where there is an option in a major;
- 5. Departmental mergers and name changes;
- 6. Program revisions; and
- 7. Distance delivery of previously authorized degree programs.

B. Level I with Level II documentation: With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

- 1. Options within an existing major or degree;
- 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools with the exception of the five Colleges of Technology where changes require Board action;
- 3. Consolidating existing programs and/or degrees.

C. Temporary Certificate or A.A.S. degree programs: Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other campuses receive program information well in advance of submission.
Specify Request:

Miles Community College seeks approval to terminate its Certificate and Associate of Applied Science degree in Office Information Technology as it is listed in the 2006-2008 catalog. On the Degree Inventory list for Miles Community College these programs are listed as Executive Administrative Assistant and Executive Secretary. At some point prior to the current administration, these names must have been changed without notification to the Office of the Commissioner of Higher Education.

The Office Information Technology or Executive Administrative Assistant program currently has no students enrolled, and has had low enrollment during the past five years. Please see the attached termination checklist for more detailed information.
Level I proposals are those that may be approved by the Commissioner of Higher Education or the Commissioner’s designee. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the board. The institution must file the request with the Office of the Commissioner of Higher Education by means of a memo to the Deputy Commissioner.

☐ A. **Level I action requested (check all that apply):** Level I proposals include campus initiatives typically characterized by (a) minimal costs; (b) clear adherence to approved campus mission; and (c) the absence of significant programmatic impact on other institutions within the Montana University System and Community Colleges.

☐ 1. Re-titling existing majors, minors, options and certificates; (e.g. from B.S. in Mechanized Agriculture to B.S. in Agricultural Operations Technology);

☐ 2. Eliminating existing majors, minors, options and certificates via a Program Termination Checklist;

☐ 3. Adding new minors or certificates where there is a major;

☐ 4. Adding new minors or certificates where there is an option in a major;

☐ 5. Departmental mergers and name changes;

☐ 6. Program revisions; and

☒ 7. Distance delivery of previously authorized degree programs.

☐ B. **Level I with Level II documentation:** With Level II documentation circulated to all campus chief academic officers in advance, the Commissioner or designee may propose additional items for inclusion in the Level I process. For these items to move forward, the Commissioner or designee must reach consensus with the chief academic officers. When consensus is not achieved, the Commissioner or designee will move the item to the Level II review process.

☐ 1. Options within an existing major or degree;

☐ 2. Eliminating organizational units within larger institutions such as departments, divisions and colleges or schools with the exception of the five Colleges of Technology where changes require Board action;

☐ 3. Consolidating existing programs and/or degrees.

☐ C. **Temporary Certificate or A.A.S. degree programs:** Certificate or Associate of Applied Science Degree Programs may be submitted as Level I proposals, with memo and backup documentation, when they are offered in cooperation with and/or at the request of private or public sector partners and the decision point to offer the program is not consistent with the regular Board of Regents program approval process. Level I approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the normal program approval process as Level II Proposals.

All other Certificate or Associate Degree programs may be placed on submission at any Board of Regents meeting. They will be placed on action agendas at subsequent meetings. All campuses agree to insure that all other
Item No.: 138-301+R308
Institution:  Flathead Valley Community College

Specify Request:
Flathead Valley Community College requests approval to offer the previously authorized Medical Transcription Certificate of Applied Science fully online.
Revision to Policy 301.16, Writing Proficiency, to Include International Baccalaureate Criterion

THAT:

The Board of Regents of Higher Education approves additional language in Policy 301.16, Writing Proficiency, to establish International Baccalaureate criterion as one of the recognized ways to demonstrate writing proficiency under the Policy.

EXPLANATION:

International Baccalaureate programs in Montana’s high schools are a new...and rare...phenomenon. Flathead High School is the only institution in Montana that currently has such a program. But it is a remarkable endeavor, and students who complete the coursework typically receive college credit for their efforts. In fact, Montana State University-Bozeman grants sophomore standing to high school students who complete the entire curriculum.

The revision to this policy simply establishes another way to demonstrate writing proficiency, this time focusing on the International Baccalaureate program and its standards.

While the International Baccalaureate program is unusual in Montana, and doesn’t impact a large number of students, it is much more common in other states. At least one other high school in Montana is also considering implementation of the program at this time.
I. Board Policy:

A. Any student seeking full admission to a four-year degree program at Montana State University-Bozeman, Montana State University-Billings, Montana State University-Northern, The University of Montana-Missoula, Montana Tech of The University of Montana, and The University of Montana-Western must satisfy a writing proficiency standard. That standard is as follows:

For Fall 2009 and the following years, students must earn a minimum score of:

7 on the Writing Subscore or 18 on the Combined English/Writing section of the Optional Writing Test of the ACT; or
7 on the Essay or 440 on the Writing Section of the SAT; or
3.5 on the Montana University System Writing Assessment; or
3 on the AP English Language or English Literature Examination; or
4 on the International Baccalaureate Language A1 Exam.

B. The writing proficiency standard will be phased in:

For Fall 2008, students must earn a minimum score of:

6 on the Writing Subscore or 17 on the Combined English/Writing section of the Optional Writing Test of the ACT; or
6 on the Essay or 420 on the Writing Section of the SAT; or
3 on the Montana University System Writing Assessment; or
3 on the AP English Language or English Literature Examination; or
4 on the International Baccalaureate Language A1 Exam.

C. In lieu of the indicators set out in paragraphs A and B above, students may offer CLEP Subject Examinations in Composition if their scores on the examination meet or exceed the ACE Recommended Score for Awarding Credit of 50.

D. A student who has not yet demonstrated the ability to meet these standards may be admitted (without condition) to a two-year degree program or admitted provisionally to a four-year degree program on any campus of the Montana University System. The Montana Board of Regents has approved additional guidelines to assist students who have been provisionally admitted to a four-degree program under this policy. The most important guideline requires students to change their admission status from provisional to full very early in their academic career; and if they don’t they cannot continue to work on a four-year degree. Those guidelines are entitled Operational Rules for the Provisional Admissions Status Created by Montana Board of Regents.

E. Before gaining full admission status to a four-year program, the student may prove that he/she has the appropriate proficiency in the following ways:

1. re-take one or more of the listed writing assessments to earn the required score;

2. earn a grade of C- or better in the composition course that is the prerequisite to the composition course that satisfies the general education program requirements described in Board Policy 301.10;
3. submit a letter to the admissions office documenting a disability that prevented him/her from adequately demonstrating proficiency in a test setting if no accommodation was provided at the time of the test.

F. A student receiving a score of 5.5 or higher on the MUS Writing Assessment will be issued a certificate of merit from the Montana Board of Regents for use in applying for college admissions or scholarships.

High schools throughout Montana will receive:

- certificates of appreciation from the Montana Board of Regents for their partnership activities with the Montana University System on behalf of the Writing Assessment project;
- awards of merit from the Montana Board of Regents for the exemplary performance earned by their students on the Writing Assessment project.

G. The Montana University System will establish a uniform system to collect and report student data related to writing proficiency to provide evaluation and analysis of the writing proficiency requirement.

H. The following categories of students are exempt from the provisions of this policy:

1. non-traditional students (those who do not enter college for a period of at least three years from the date of high school graduation or from the date when they would have graduated from high school);

2. summer-only students; and

3. part-time students taking seven or fewer college-level semester credits.

History: