

Proposal for a Post-Baccalaureate Pre-Medical Certificate Program
Montana State University – Bozeman

Program Description

The proposed Post-Baccalaureate Pre-Medical Certificate Program will address the needs of students who have completed their bachelor's level work at MSU—Bozeman or other four-year institutions, but who still must complete the science courses traditionally required for application to medical and dental schools. These requisite courses – two semesters each of general chemistry, introductory biology, organic chemistry, introductory physics, biochemistry, and calculus – already exist in the MSU—Bozeman curriculum, and are taught variously in the semesters and the summer sessions, thus ensuring a.) flexibility in scheduling for those pursuing such a program and b.) an efficiency possible in program completion for those eager to move on to the time-consuming graduate school application process.

A need exists for such a program in this region of the country. In the fall of 2004, 21% of the people with whom the Director of Health Professions Advising met for advising were graduates of MSU—Bozeman or other four-year institutions who wished to complete their pre-medical requirements and continue on to some form of graduate school in the health professions. At present, there is no other such post-baccalaureate certificate program at any public university in all of the Northwest. MSU—Bozeman will thus be breaking new and fertile ground with this endeavor. This program would draw applicants from the region who wish to remain here for this coursework, their professional training, and ultimately, their careers, but would also attract out-of-state applicants drawn to the program's attractive location in Montana. The imprimatur of a "certificate" gives cohesion to this collection of courses, and lends itself well to describing this option both to candidates and to the professional schools to which they will apply.

Objectives and Needs

Goals and Objectives

The Montana State Board of Regents is committed to offering "programs and services consistent with the changing market and employment needs of the state and nation." A Certificate Program in the pre-medical sciences would bring more aspiring health professionals to a state in desperate need of doctors and dentists in its rural areas. [See *Attachment I.*] While it is hoped that many of these Certificate holders will return to the State to practice after they have earned their professional degrees, the program will also ensure that well trained physicians and doctors across the country will have been launched in their careers from Montana. As individuals move more readily in and out of careers now, it is important that those who wish to tackle an emotionally and financially draining endeavor such as medical school be offered the best possible preparation. MSU—Bozeman can provide that preparation through this Certificate Program.

Another goal of the Board of Regents is to "promote the full spectrum of higher education needs and opportunities in 2-year, 4-year, graduate, and professional education." There is a market for such a certificate program. While a large number of such post-baccalaureate programs exist in the East (e.g, those at Bryn Mawr, Johns Hopkins, Goucher), there is no such certificate program at a public university in the following Western and Mid-Western states: Alaska, Colorado, Hawaii, Idaho, Iowa, Kansas, Minnesota, Nevada, New Mexico, North Dakota, South Dakota, Utah, or Wyoming. One only begins seeing them in some concentration in California. Thus, this Certificate Program would fill a gap in the means by which students in Montana, the West, and indeed, across the country can prepare themselves for medical or dental school.

More locally, the Certificate Program will introduce MSU - Bozeman's excellent array of science courses to a national audience of health professions advisors and graduates of four year colleges. With time, it is expected that this program's reputation will grow such that college graduates across the country will elect to come to MSU—Bozeman to take their medical and dental school pre-requisites. These will be mature and well motivated students. Their success in obtaining entry to medical and dental school will reflect favorably on MSU—Bozeman, which already has a well-established record of success in placing students in medical and other health professions schools. In 2004, for example, 83% of those who applied to allopathic and osteopathic medical school were accepted, compared to the national acceptance rate of 47%.

The MSU—Bozeman campus itself will benefit from the programming that will be developed to provide an "extracurricular" element to the Certificate Program. An attraction of this program to potential applicants is that the Director of Health Professions Advising will be developing lectures and special events that expose these nascent doctors and dentists to their respective professions. Naturally these events will be open to other MSU—Bozeman

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students. She will also be developing physician shadowing and other experiential opportunities in the larger Bozeman community for these post-baccalaureate students of which current undergraduate pre-medical and pre-dental students may also avail themselves. These efforts fulfill aspirations espoused in MSU—Bozeman's Five Year Vision Document to increase campus-community "strategic partnerships."

As the program will be advertised to pre-medical advisors all over the country, it is expected that the MSU—Bozeman "Five Year Outlook" goal of attracting more non-residents to the campus will receive a modest boost through this Certificate Program.

At the state-wide level, it is very much in Montana's interest to attract students who want to pursue well-regarded professional careers such as medicine and dentistry. Whether they be current Montana residents or not, the holders of this certificate will invariably feel some loyalty to the institution, and by extension, to the State that launched them into these professional schools. It is hoped that many of those who obtain the certificate will return to practice their professions in Montana. This Certificate Program, then, fits well the Mission Goal of MSU—Bozeman to "serve the people and communities of Montana by sharing our expertise and collaborating with others to improve the lives and prosperity of Montanans."

Course of Study

Post-baccalaureate students completing 36 of the 45 credits available (see below) will be awarded the Certificate at the completion of their studies. Students at other Montana public colleges will be able to transfer in as many as 12 credits toward the Certificate in the coursework listed below.

The post-baccalaureate candidates will wish to proceed through their Certificate coursework as expeditiously as possible, as the application process to medical or dental school consumes at least one year. The proposed program of courses has been designed to **a.)** fulfill the science requirements of all 126 allopathic medical schools, to **b.)** offer an efficient timetable toward completion of the courses while preparing the post-baccalaureate candidate well for the Medical College Admission Test (MCAT) or Dental Admission Test (DAT) and **c.)** to present a pedagogical logic in its sequence:

Summer sessions I and II:

CHEM 131-132 –General Chemistry I and II	each 4 cr.
Math 181- Calculus and STAT 216 – Elementary Statistics	each 4 cr.

Fall semester:

BIOL 214: Introductory Biology: Molecules to Cells	4 cr.
PHYS 205: College Physics I	4 cr.
CHEM 311: Organic Chemistry	4 cr.

Spring semester:

BIOL 213: Introductory Biology: Cells to Organisms	4 cr.
PHYS 206: College Physics II	4 cr.
CHEM 312: Organic Chemistry II	4 cr.
an elective	

Summer session:

BCHM 340 – Biochemistry	5 cr.
Total	45 cr.

Additional Elements of the Certificate Program

Post-baccalaureate students will be advised in their curricular choices and medical school applications by Jane Cary, Director of Health Professions Advising at MSU—Bozeman . Ms. Cary commenced her present appointment in August 2004. Previously she had been Director of Health Professions Advising at Princeton University (eight years) and at Amherst College (three years). Post-baccalaureate students carrying 12 credits or more for each of two semesters will be able to have their medical or dental school applications supported by Ms. Cary and the faculty pre-medical committee with an evaluative letter to the medical schools. The receipt of such a statement is a requirement for both medical and dental school application. Her office will also serve as the

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collection point for other letters of recommendation (three or four) that must be collected for each applicant and forwarded to the professional schools that they designate.

Additionally, these students may take advantage of shadowing and volunteering opportunities in the Bozeman community, and presentations by invited speakers about topics of interest to health practitioners mentioned above. MSU—Bozeman -Bozeman has an active chapter of Alpha Epsilon Delta, the national pre-medical honor society, the only such chapter in the State. Jane Cary serves as Faculty Advisor. In the 2004-2005 year a graduate student at MSU—Bozeman served as the society's president, an indication that non-traditional students such as these post-baccalaureate candidates would be most welcome to participate in the organization's programming.

Adequacy, Accreditation, and Assessment Issues:

There exist at present the personnel and pedagogical resources at MSU—Bozeman to make this Certificate Program successful. The post-baccalaureate candidates will need to take the courses that are pre-requisite for application to graduate schools of the health professions, which as previously described, are open and available to them at MSU—Bozeman , and they will seek guidance from the Director of Health Professions Advising on the application process. She has the experience to guide them successfully through the challenging processes of preparing to apply, and applying.

The Certificate Program's success will be measured three ways: in the quality and quantity of applications received for the Certificate Program; in the number of matriculants (as stated elsewhere, the goal will be ten for the first year) in the program; and lastly by those students' acceptances to medical and dental schools. Their rate of acceptance is expected to exceed 80% each year, based on the recent history of MSU—Bozeman students' acceptance to medical and other health professions schools. Please refer to the news article (*Attachment II*) about MSU—Bozeman's success in placing medical school applicants that appeared in newspapers throughout the State last fall.

Impact on Faculty, Facilities, Costs, Students, and Other Departments and Campuses

Faculty

In planning this Certificate Program, the following faculty at MSU—Bozeman were consulted and have offered their strong endorsement of it: the Provost, the Deans of the School of Letters and Science and Graduate Studies; the chairs of the Chemistry, Physics, and Cell Biology and Neurosciences departments; the members of the Undergraduate Studies Committee; and the chair of the Academic Affairs sub-committee of faculty council. From these discussions it was determined that for the foreseeable future, no extra resources will be needed in terms of faculty, facilities, equipment, or library holdings to effect this Certificate Program. The three department chairs of the departments teaching the requisite courses all agree that the existing courses can absorb the ten to twenty extra students that the program hopes to attract within its first two years with no undue stress on faculty, laboratories, and classroom space.

Facilities

No impact on existing facilities is anticipated. The existing advising and teaching infrastructure is adequate in all respects.

Costs

The Director of Health Professions Advising, who now works twenty hours per week, would need to increase her hours by four to six hours a week to accommodate the administration, outreach, and advising inherent in this Program (estimated at 0.125 FTE). The estimated cost of this salary increase would be \$5000 to \$6000 per annum. Currently, the Director has .5 FTE of a classified support person. Should the 10 to 20 Certificate candidates expected enroll, that need would increase to .75 FTE, at an estimated cost of \$5000 per annum.

The 900 + health profession advisors around the country would be mailed information about the Post-Baccalaureate Pre-Medical Certificate program annually. The costs of this publicity should not, however, exceed \$1000. Much publicity and information about the Certificate Program would be web-based, from the MSU—Bozeman site, and thus free. Pending approval of the Certificate Program by the Montana Board of Regents, free

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advertising can be arranged via the Association of American Medical College's (AAMC) web site for Postbaccalaureate Premedical Programs: <http://services.aamc.org/postbac/> .

The Certificate Program would thus pay for itself every year if only one non-resident student enrolled for twelve credits each of two semesters (\$16,163, based on the 2005 spring semester).

Students

The Certificate Program is a hybrid in that the desired participants will be college graduates who will be taking undergraduate courses. The targeted student may be a college senior dealing with the necessity of entering the work world with no "practical" skills, or an older person who has tried other careers, and in doing so, has confirmed a desire to enter medicine. Experience demonstrates that these students learn about post-baccalaureate programs by contacting their alma maters' pre-medical advisors, medical school admission offices, and/or by searching the World Wide Web. Thus, the Certificate Program's features should be readily available to these "seekers" in both print and web format.

Applicants will apply for the Certificate Program by a pre-determined deadline each spring. Enrollment will be open provided that the candidate can articulate an interest in the health professions (via short essay), and that transcripts from the undergraduate institution indicate a graduating GPA of at least 3.0. This is the GPA requirement for entry into other post-baccalaureate programs around the country, and necessary, as one with too poor an undergraduate record will not be accepted to medical school even with a sterling performance at MSU—Bozeman . Students already enrolled in post-baccalaureate pre-medical science courses at MSU—Bozeman will be "grandfathered" into the Certificate Program without a formal application provided they have maintained at least a 3.3 GPA in their MSU—Bozeman coursework to that point.

The program's proposed sequence of courses was modeled after those of several successful post-baccalaureate programs, specifically Bryn Mawr College's and that of Johns Hopkins' University.

In the first year, ten students will be sought to enroll in the Certificate Program, as measured by the number enrolled in the Post-Baccalaureate science courses by Summer Session I, 2006. It is hoped that the program will grow to twenty enrolled students. With an average of three semesters for completion, this equates to a sustained FTE of 15. More could be accommodated, but not without the faculty being consulted again about the impact of additional students on their class sizes and lab space. Another consideration is that the faculty pre-medical committee must interview each of these applicants in conjunction with their medical school applications and write a subsequent letter for each (currently six applicants per faculty committee member), and thus, they would need to be consulted about any potential increase in that work load.

The MSU—Bozeman undergraduates fulfilling the pre-medical science requirements should notice little difference in terms of the attention given to them by Ms. Cary or their science faculty. It is hoped that as the reputation of success of this program spreads, MSU—Bozeman will attract ever more high-caliber students, both post-graduates and undergraduates, to undertake their pre-medical studies in Bozeman.

Other Departments, Campuses, and Institutions

As stated elsewhere, the program has been thoroughly vetted with critical faculty at MSU—Bozeman. It has the enthusiastic approval of all the appropriate academic constituencies on campus.

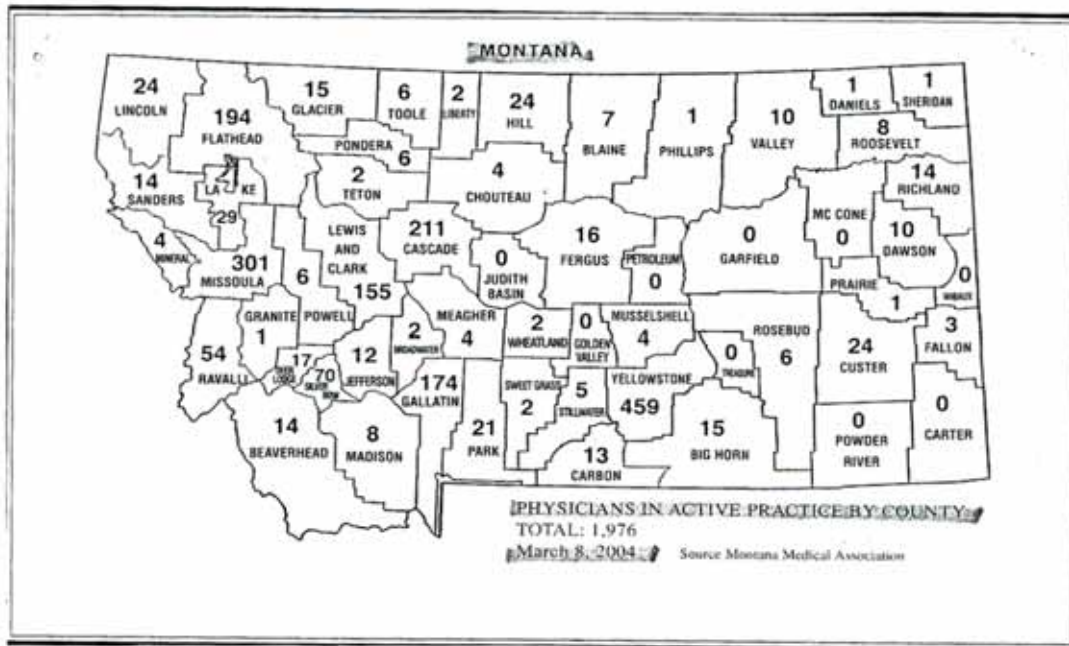
With respect to other campuses, the program will be a resource for college graduates in and out of Montana. As described earlier, there is no other such program at any public university in the surrounding states. The University of Oregon offers post-baccalaureate coursework, but no certificate, and Seattle University, a private university, has a small certificate program (see <http://www.seattleu.edu/scieng/biology/Postbacinfo.html>), that commences its program description modestly: "We have a very informal setup for postbaccalaureate premeds, pre-dents, prevets." The Certificate Program at MSU—Bozeman —Bozeman would thus fill a profound gap in this region for those students who wish to stay in the West for these studies, and will be an attractive option for those from other regions of the country who wish to experience a new and beautiful environment.

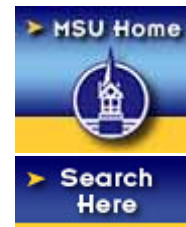
Those eligible for the certificate and meeting certain GPA pre-requisites in their post-baccalaureate course work will be able to participate in linkages that MSU—Bozeman —Bozeman hopes to establish with the Western medical schools, in which the schools will guarantee a number of admission slots to MSU—Bozeman post-

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baccalaureate students each year. (NB: These linkages between medical schools and post-baccalaureate programs are quite common in the East.) The Associate Dean for Admissions at the University of Colorado School of Medicine has already agreed to save two or three slots in that entering class each year for MSU—Bozeman Post-Baccalaureate Certificate holders (pending the Program’s approval), and the prospect of such a program has been enthusiastically endorsed by the University of Washington School of Medicine. Dr. Tom E. Norris, Vice Dean for Academic Affairs at UWSOM wrote of the proposed Certificate Program, “There was tremendous support for this at the Faculty Council meeting. Most of the members were aware of students who would travel to Montana and spend time there taking such a program if it were available to them...I appreciate the initiative that you have shown in suggesting this, and you have strong support from the University of Washington School of Medicine in this endeavor.” Pending Board of Regent approval of the Certificate Program, the medical schools in Oregon, Utah, and Nevada will be approached about guaranteeing spots in their entering classes each year for a MSU—Bozeman post-baccalaureate student.

Attachments





MSU University News

83 percent of med school applicants from MSU accepted

January 03, 2005

Eighty-three percent of medical school applicants from Montana State University's Bozeman campus were admitted in 2004 compared to 47 percent nationally.

The statistics from the Association of American Medical Colleges are even better for MSU students who are also Montana residents. They were accepted to medical school 89 percent of the time.

Those facts "make me incredibly proud of our students and staff," says Linda Hyman, vice provost of MSU's Division of Health Sciences. "By any way of looking at the data, 83 percent is very good and much better than the national average."

All Montana college students are eligible for special admission consideration through the WWAMI Medical Education Program at the University of Washington Medical School in Seattle. Just under one-third of MSU grads attending medical school attend UW. Other students have accepted places in medical schools from Kansas to Massachusetts, with western schools claiming the majority.

Jane Cary, who took over as health professions advisor in the fall of 2004, said the statistics look similar to statistics from previous years, though no in-depth analysis has been done to compare the years. Cary was quick to point out that the previous advisor, William Dorgan, should be acknowledged for helping MSU applicants. The statistics were for students starting medical school in 2004.

Cary also termed the statistics as "very honest," pointing out that any student who applies to medical school is included in the count.

MSU also has statistics about the success rate of students applying to other health professions schools. Applicants to osteopathic schools had an 83 percent acceptance rate. Those applying to dental schools had a 74 percent acceptance rate. Both were "well above the national average," said Cary.

Cary and the MSU Pre-Professional Advising Committee help MSU Health Sciences students with their application process. Students typically have practice interviews to prepare them for that part of the admissions process and receive help in meeting application requirements. MSU also has a premedical honor society called Alpha Epsilon Delta, which hosts speakers and workshops on topics as various as ethical issues and how to prepare for the Medical College Admissions Test.

Throughout the college years, "the motivation and hard work of our MSU students is critical for their eventual success in admission to these highly competitive programs," added Cary.

All Montana applicants fared somewhat better than the national average, with those from all state universities and colleges averaging 53 percent acceptance, six percent above the national average.

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