

LEVEL II MEMORANDUM

DATE: August 26, 2015

TO: Chief Academic Officers, Montana University System

FROM: John Cech, Deputy Commissioner for Academic and Student Affairs

RE: Level II Proposals

The campuses of the Montana University System have proposed new academic programs or changes under the Level II approval process authorized by the Montana Board of Regents. The Level II proposals are being sent to you for your review and approval. If you have concerns about a particular proposal, you should share those concerns with your colleagues at that institution and try to come to some understanding. If you cannot resolve your concerns, raise them at the Chief Academic Officer's conference call on **September 2, 2015**. Issues not resolved at that meeting should be submitted in writing to OCHE by noon on **Friday, September 4**. If no concerns are received, OCHE will assume that the proposals have your approval.

Level II Items

Montana State University Bozeman:

- Request for authorization to Establish the eXTreme Gravity Institute
[Item #168-2011-R0915](#) | [Academic Proposal Request Form](#) | [Institute Proposal Form](#)

Great Falls College Montana State University:

- Request for authorization to Rename the Division of Outreach
[Item # 168-2902-R0915](#) | [Academic Proposal Request Form](#)
- Request for authorization of the Reorganization of Academic Affairs including the Renaming of the Division of Business, Trades, and Technology to the Division of Trades and Division of General Education and Transfer to Division of General Education, Business, Technology & Transfer.
[Item # 168-2903-R0915](#) | [Academic Proposal Request Form](#)

The University of Montana Missoula:

- Request for authorization to Create the Baucus Institute
[Item # 168-1004-R0915](#) | [Academic Proposal Request Form](#) | [Center Proposal Form](#)
- Request for authorization to Create a Center for Integrated Research on the Environment (CIRE)
[Item # 168-1005-R0915](#) | [Academic Proposal Request Form](#) | [Center Proposal Form](#)

September 16-17, 2015

ITEM 168-2011-R0915

Request for Authorization to Establish the eXTreme Gravity Institute

THAT

The **eXTreme Gravity Institute (XGI)** at Montana State University be established to advance the understanding of the most extreme regions of the Universe and the fundamental laws of physics by bringing together world experts in theoretical physics, astrophysics and astronomy. Understanding the Universe when gravity plays a dominant role and matter takes on exotic forms entails confronting detailed theoretical models with new observations using both gravitational and electromagnetic waves.

EXPLANATION

This is a request to establish the **eXTreme Gravity Institute (XGI)** at Montana State University. This Institute will build on the nearly 50-year history of world-leading gravitational research at Montana State University. The Institute will also allow us to play a pivotal role in the renaissance of the field over the next few decades, as powerful new astronomical instruments begin to probe regions of extreme gravity throughout the Universe in unprecedented detail. The XGI will be the first institute in the world to focus exclusively on the physics of extreme gravitational environments, such as black holes, neutron stars and the Big Bang, with a unique synthesis of theoretical modeling and observational analysis.

ATTACHMENTS

Academic Proposal Request Form
Attachment #1- Institute Proposal Form

Montana Board of Regents
ACADEMIC PROPOSAL REQUEST FORM

Item Number: **168-2011-R0915**

Meeting Date: **September 16-17, 2015**

Institution: **MSU Bozeman**

CIP Code: _____

Program Title: **eXtreme Gravity Institute (XGI)**

Please mark the appropriate type of request and submit with an Item Template and any additional materials, including those listed in parentheses following the type of request. For more information pertaining to the types of requests listed below, how to complete an item request, or additional forms please visit the [Academic Affairs Handbook](#).

A. Notifications:

Notifications are announcements conveyed to the Board of Regents at the next regular meeting.

1a. Placing a program into moratorium (Document steps taken to notify students, faculty, and other constituents and include this information on checklist at time of termination if not reinstated)

1b. Withdrawing a program from moratorium

2. Intent to terminate an existing major, minor, option or certificate – Step 1 (Phase I Program Termination Checklist)

3. Campus Certificates- Adding, re-titling, terminating or revising a campus certificate of 29 credits or less

4. BAS/AA/AS Area of Study

B. Level I:

Level I proposals are those that may be approved by the Commissioner of Higher Education. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the Board.

1. Re-titling an existing major, minor, option or certificate

2. Adding a new minor or certificate where there is a major or an option in a major (Curriculum Proposal Form)

3. Revising a program (Curriculum Proposal Form)

4. Distance or online delivery of an existing degree or certificate program

5. Terminating an existing major, minor, option or certificate – Step 2 (Completed Program Termination Checklist)

Temporary Certificate or AAS Degree Program

Approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the proposal to go through the normal Level II Proposal approval process.

Montana Board of Regents
ACADEMIC PROPOSAL REQUEST FORM

 C. Level I with Level II Documentation:

This type of proposal may go to the Board as a Level I item if all Chief Academic Officers are in agreement. If consensus among the Chief Academic Officers is not reached, however, the item will go to the Board as a Level II request.

 1. Consolidating existing programs and/or degrees (Curriculum Proposal Form)

X **D. Level II:**

Level II proposals require approval of the Board of Regents. These requests will go to the Board in a two-meeting format, the first being as informational and the second as action.

 1. Re-titling a degree (ex. From B.A. to B.F.A)

 2. Adding a new minor or certificate where there is no major or option in a major (Curriculum Proposal Form)

 3. Establishing a new degree or adding a major or option to an existing degree (Curriculum Proposal Form)

 4. Forming, eliminating or consolidating a college, division, school, department, institute, bureau, center, station, laboratory or similar unit (Curriculum Proposal Form or Center Proposal Form, except when eliminating or consolidating)

 5. Re-titling a college, division, school, department, institute, bureau, center, station, laboratory or similar unit

Specify Request:

This is a request to establish the **eXtreme Gravity Institute (XGI)** at Montana State University. This Institute will build on the nearly 50-year history of world-leading gravitational research at Montana State University. The Institute will also allow us to play a pivotal role in the renaissance of the field over the next few decades, as powerful new astronomical instruments begin to probe regions of extreme gravity throughout the Universe in unprecedented detail. The XGI will be the first institute in the world to focus exclusively on the physics of extreme gravitational environments, such as black holes, neutron stars and the Big Bang, with a unique synthesis of theoretical modeling and observational analysis.

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1. State the proposed Institute/Center's name and purpose.

This is a request to establish the **eXtreme Gravity Institute (XGI)** at Montana State University. This Institute will build on the nearly 50-year history of world-leading gravitational research at Montana State University. The Institute will also allow us to play a pivotal role in the renaissance of the field over the next few decades, as powerful new astronomical instruments begin to probe regions of extreme gravity throughout the Universe in unprecedented detail. The XGI will be the first institute in the world to focus exclusively on the physics of extreme gravitational environments, such as black holes, neutron stars and the Big Bang, with a unique synthesis of theoretical modeling and observational analysis.

2. A comprehensive statement of the Institute/Center's mission and its relationship to the University mission.

a. State the Institute/Center's mission.

The scientific mission of the XGI is to advance the understanding of the most extreme regions of the Universe and the fundamental laws of physics by bringing together world experts in theoretical physics, astrophysics and astronomy. Understanding the Universe when gravity plays a dominant role and matter takes on exotic forms entails confronting detailed theoretical models with new observations using both gravitational and electromagnetic waves. **The specific scientific goals of the institute are to answer fundamental questions, such as**

- i. Does Einstein's theory of General Relativity accurately describe regions of strong gravity and the Universe on the largest scales?
- ii. What happens when two black holes collide?
- iii. Are the dense objects we call black holes really black holes?
- iv. What are the properties of dense nuclear matter inside neutron stars?
- v. Do gravitational waves travel at the speed of light?

b. Identify the Institute/Center's goals and objectives.

The broad mission of the XGI is to both improve and increase research in astrophysics in the state of Montana, as well as to improve and increase educational opportunities for K-12 students and the general public. **The specific broad goals of the institute are then to:**

- i. **Focus research efforts on the specific challenges presented in extreme gravity scenarios.** We will augment our research capabilities through interactions with visiting Fellows and the organization of scientific workshops. In turn, this will increase the sheer amount and quality of research carried out at MSU, as well as the visibility of Montana science research worldwide.
- ii. **Serve as a scientific hub for the understanding of extreme gravity astrophysics.** We will champion a truly interdisciplinary approach to extreme gravity problems, combining efforts from nuclear physics, observational astronomy and relativistic astrophysics. This will result in an enlargement of the collaborative networks of MSU.
- iii. **Encourage young students to pursue a career in a Science, Technology, Engineering and Mathematics (STEM) field.** Through the creation of public outreach events that combine science with art, we will inspire young minds to pursue a career in STEM. This, in turn, will lead to a growth in the total number of scientists and engineers in the state of Montana.

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- iv. **Ensure that Montanans are given the opportunity to learn about cutting-edge research in astrophysics and extreme gravity.** Public talks on current scientific breakthroughs will provide regular Montanans with an opportunity to learn about science discoveries that are improperly or insufficiently covered in the national media.

c. **What specific need is being responded to in developing the proposed Institute/Center?** Professor Kenneth Nordtvedt established the gravitational research program at MSU in 1967, and MSU quickly became known as a leader in this field. Today, the gravitational astrophysics group at MSU is one of the largest and most successful groups in the university, and the leading draw for students looking to pursue graduate research in physics. The research program of the XGI excites students of all ages, and has tremendous popular appeal with the general public. Our mission is to explore places in our Universe where gravity is so strong that it blurs the separation between space and time and transforms matter into strange new forms. Deep inside the core of a neutron star, even the notion of an atom disappears as the extreme pressure transmutes matter into a state that is unknown within our solar system. The extreme gravitational field near the event horizon of a black hole bends light itself into fantastical patterns. The cataclysmic merger of giant black holes shakes the very fabric of our universe, generating vibrations in space and time that travel outward at the speed of light.

We are about to embark on a new journey of understanding of these gravitational mysteries. A powerful new X-ray telescope will allow us to learn what a neutron star - the burned-out husk of a giant stellar explosion - is made of. The Event Horizon telescope, capable of imaging a golf ball on the Moon, will reveal the shape of the supermassive black hole at the center of the Milky Way. And, most revolutionary of all, a host of gravitational wave detectors will soon be able to sense the ripples in space-time that are generated by the births, deaths, and mergers of stars and black holes throughout the universe. Now is the perfect time to establish a research institute dedicated to using the data from these observatories to explore the extreme universe.

The demand for the Institute is evidenced, for example, by the oversubscription of students to our research program. According to historical MSU data, approximately 50% of all applications for entrance in the MSU Physics graduate program request to do research with the gravitational astrophysics group. Moreover, we anticipate a great demand from the broader physics and astrophysics communities. Similar institutes with visiting fellows, workshop and summer school programs, such as the Aspen Center for Physics and the Kavli Institute for Theoretical Physics in Santa Barbara, are regularly *oversubscribed* because of their ability to foster creativity, education and collaboration in science.

- d. **Describe how the Institute/Center benefits the department, college, or institution.**

The XGI will have its largest impact and usage among the international physics and astrophysics communities, which will in turn impact research and education at MSU. Undergraduate and graduate students from around the world will attend the XGI summer schools, which will attract new students to MSU. Leading researchers will come for extended collaborative visits and to attend workshops, which will increase the MSU collaborative network and allow our students to develop collaborative skills and enhance their employment opportunities. K-12 students throughout Montana will benefit from the XGI education program, and Montanans of all ages will have the opportunity to participate in innovative and inspiring outreach events.

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e. Describe the Institute/Center's relationship to the University mission.

The XGI is well aligned with the MSU Strategic Plan as outlined below. The institute is focused on research, education and outreach, three of the pillars of the strategic plan. The XGI will strive to integrate all three of these, through the development of multi-disciplinary collaborations within MSU and between MSU and other research centers around the world.

Strategic Plan Learning Goal: MSU prepares students to graduate equipped for careers and further education. Classroom learning is essential but not enough for the training of scientists and engineers. Real-life, research experience is indispensable. The institute will act as an incubator for undergraduate and graduate students that wish to pursue a career in a STEM field. Students will work under *long-term apprenticeship programs*, where MSU faculty will act as mentors and Fellows will act as collaborators. In such a program, the students will help solve problems in extreme gravity, thus acquiring invaluable computer science, data analysis, and observational and mathematical skills. Once the apprenticeships are over and the students graduate, they will be in a unique position to continue their careers at other universities associated with the XGI, its fellows and its collaborative network.

Strategic Plan Discovery Goal: MSU will raise its national and international prominence in research, creativity, innovation and scholarly achievement, and thereby fortify the university's standing as one of the nation's leading public research universities. The XGI will undoubtedly raise the profile of MSU as a center for excellence in research. The organization and hosting of scientific workshops and summer schools will attract new students, researchers and faculty. Visiting fellows from world-renown universities and research centers will enhance and augment the quality and quantity of research carried out at the XGI. The creation of outreach events that are then exported to other states in the Nation will have a strong repercussion in MSU's visibility.

Strategic Plan Engagement Goal: The Montana State University community will be leaders, scholars and engaged citizens of their local, national and global communities, working together with community partners to exchange and apply knowledge and resources to improve the human prospect. Public outreach events created, hosted and organized by the XGI will merge astrophysics with art, thus engaging the local and the national communities in topics of extreme gravity. Such events will also inspire young minds to pursue careers in a STEM field. A public talk series, with world-renown speakers, such as Neil de Grasse Tyson and Janna Levin, will provide Montanans with the opportunity to learn about new physics discoveries from the top communicators in the world.

Strategic Plan Integration Goal: By integrating learning, discovery and engagement, and by working across disciplines, the MSU community will improve the world. The XGI is unique in its multi-disciplinary and collaborative core mission, combining the expertise of theorists, experimentalists, and observers. The integration of this research with learning through student apprenticeships and then with engagement through public outreach will allow for new discoveries and their communication to the general public.

Further considerations regarding fit with MSU Strategic Plan:

The Vision Statement in the 2012 MSU Strategic Plan highlighted its commitment to address the world's greatest challenges. Extreme gravity is at the very frontier of humankind's understanding of the Universe. As such, it is one of the greatest challenges in all of science. NASA's ASTRO-2010 Decadal Report and NASA's 2013 Roadmap Report have both declared extreme gravity as one of the main national research priorities in astrophysics. They both identified this area as a particularly fertile ground for revolutionary discoveries.

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By building on the efforts of the gravitational astrophysics group, the XGI will bring extreme gravity research in Montana to an entire new level. Tackling the great challenges of extreme gravity to search for revolutionary discoveries, the XGI will help achieve the Strategic Plan's goal of raising MSU's "national and international prominence in research, creativity, innovation and scholarly achievement, and thereby fortifying the university's standing as one of the nation's leading public research universities."

The Institute's multi-disciplinary and collaborative vision will address one of the biggest challenges to our understanding of the Universe, a perfect embodiment of the Strategic Plan's goal, "By integrating learning, discovery and engagement, and by working across disciplines, the MSU community will improve the world." The XGI's public outreach mission will further ensure that these new revolutionary discoveries are then communicated to the general public, fulfilling the Strategic Plan's goal that "Members of Montana State University community will be leaders, scholars and engaged citizens of their local, national and global communities, working together with community partners to exchange and apply knowledge and resources to improve the human prospect."

3. Briefly describe the Institute/Center's anticipated activities.

The Institute will host scientific workshops and conferences, summer schools, and public outreach activities on a yearly basis, engaging MSU Physics and Astronomy Faculty, as well as MSU postdoctoral researchers, graduate students and undergraduate students. The Institute will also elect Fellows from universities and research centers throughout the world, who will visit the XGI yearly to do research with Institute members and give public talks.

a. Identify faculty expertise available for participation in the Institute/Center's activities.

The gravitational astrophysics group at Montana State University is composed of Prof. Neil Cornish, Prof. Nicolas Yunes, Prof. Bennett Link and Prof. Sachiko Tsuruta, together with their undergraduates, graduate students, and postdoctoral researchers (currently totaling 30 members). As leaders in their fields, they have received numerous honors and awards, and serve on many NASA and NSF panels, helping to drive the future of physics research in America. This core group of researchers, paired with the unparalleled natural beauty of our state, makes Bozeman the ideal location to found the XGI, which will serve as a center for innovation in gravitational astrophysics.

b. Which departments on campus will be involved and how will the Institute/Center contribute to the academic programs of the institution?

The institute will be housed in the Physics Department at the MSU---Bozeman campus. Initially the faculty and students will all be members of the physics department at MSU, but in the future opportunities will exist for involvement from members of other departments. Faculty and students involved in the proposed computational data science program would be an excellent fit with the research program of the XGI.

4. Identify the organizational structure of the Institute/Center within the institution.

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a. Identify all agencies, organizations and/or institutions that will be involved.

Professors Cornish, Yunes and Link will act as a triumvirate directorship, with decisions made by direct voting. The MSU Physics Department will continue to provide administrative support through its financial manager (Mrs. Tracy Guenther), its purchasing manager (Mrs. Sarah Barutha) and its educational liason (Mrs. Margaret Jarret). Extended University Education and Website specialists (Dr. Jaime Cornish and Mrs. M.J Nehasil) will collaborate with the XGI to create a public outreach and educational plan, as well as a website presence.

We seek to establish the XGI as soon as possible (Fall 2015), which will be housed in the Physics Department (EPS Building) at MSU. We envision the following *initial phases* of development:

- ☐ *First phase (2014-2015):*
 - Establish a web presence.
 - Select and invite XGI Fellows.
- ☐ *Second phase (2015-2016):*
 - Organizing a scientific workshop on eXtreme Gravity.
 - Create and organize a public outreach event (*A Voyage Through Space and Time*, an original planetarium show with the MSU Film School and School of Music).
 - Coordinate visits of Fellows.
 - Formalize a collaboration with MSU Extended University to develop a public outreach plan.
- ☐ *Third Phase (2016-2017):*
 - Organize a summer school.
 - Organize a public talk series.
 - Put the outreach plan in action.

These initial phases of development will serve to establish a presence in the international astrophysics community. We have already begun the creation of the public outreach event of 2015-2016, which will be premiered at the Museum of the Rockies in November-December 2015 (and then distributed freely to the over 1,000 planetaria in the Nation). We are also in the process of organizing our first scientific workshop on extreme gravity, to be held in late August 2015 at MSU. Not listed above (but implied) is the research we will continue to do with our undergraduate and graduate students.

b. Identify advisory council information.

An advisory council made up of departmental and college representatives, along with national members from other astrophysics centers will be formed. The council will meet by teleconference twice per year.

5. Identify first year and continuing finances necessary to support the Center/Institute, including the sources of funding.

Current Funding

The XGI was awarded the MSU President's Award for Excellence in Research funding from the MSU President (Dr. Waded Cruzado) and the MSU VPR (Dr. Renee Reijo-Pera) at a level of

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\$50,000 to support the initial research activities associated with starting the institute. This support is being used to organize this year's scientific workshop and to establish the Fellows program for the first year.

In addition to this seed institute funding, Asst. Prof. Yunes has also received external and internal support (that pre-dates the creation of the XGI) to organize a large public outreach event (a planetarium show) in November. The support was at the level of approximately \$82,000, with \$50,000 from an external Educational Enhancement Grant of the Montana Space Grant Consortium, \$10,000 from an external Outreach Grant from the American Physical Society and \$22,000 in internal MSU matching grants. This support is currently being used to develop the planetarium show, in collaboration with the Museum of the Rockies and the MSU School of Film and Photography. Once completed, and if the XGI is approved, the planetarium show will act as the first public outreach event of the Institute.

Finally, our current research activities are being funded by purely external grants from the National Science Foundation (NSF) and the National Aeronautics and Space Agency (NASA). This support in external grants is at the level of approximately \$1,500,000 over the next 3 years, which covers student support, computational costs and travel expenses to international and national conferences.

Future Funding

The XGI will necessarily need to secure additional future funding in the form of external funds not just from federal sources, such as NASA and NSF, but mostly from private sources, such as private foundations and donors. The XGI directorship will work with the MSU Foundation to begin fundraising in 2015, with a *final* goal to raise approximately \$10,000,000 in external donations to create an endowment. This endowment will serve to support all the activities listed in the second phase of development. Any donation toward this endowment will have a clause that states that were the institute to no longer exist, the endowment proceeds will continue to be used to support initiatives in the Physics Dept., such as graduate stipends, undergraduate research, postdoctoral research, workshops and outreach.

The fundraising campaign is expected to be *long-term*, with different fundraising levels to achieve different goals in the first, second and third phases described above. We will create a "menu" for potential donors so that they can choose to support specific individual items of the list of resources presented below. While a \$10,000,000 endowment is our final goal, we can carry out useful activities along the way with smaller donations as we work towards this goal. For example, a donation of approximately \$500,000 would endow the Fellows program, \$1,000,000 would endow the organization of workshops, \$500,000 would endow a graduate research fellowship. All of this will be planned and executed with the MSU Alumni Foundation and the MSU VPR.

Some research expenditures will continue to be covered from external federal grants obtained by XGI members, such as NASA and NSF grants. In addition, the establishment of the XGI will strengthen the case for us and the Institute to apply for other large federal grants, such as the Physics Frontier Center program (approximately \$15,000,000 for five years).

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

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The funding described above will support the following additional resources as the funds become available

- **Fellowships:**
 - **Three to Four XGI graduate fellowships.** These fellowships will support the graduate stipends of three to four graduate students.
 - **Two to three XGI undergraduate fellowships.** These fellowships will provide support for undergraduate research.
 - **One XGI postdoctoral fellowship.** This fellowship will provide complete support to a postdoctoral research.
- **Scientific Events:**
 - **Scientific Workshops.** A scientific workshop to be organized once every two years on various scientific topics related to extreme gravity.
 - **Summer Schools.** A summer school to be organized once every two years for beginning graduate students on various scientific topics related to extreme gravity.
- **Public Outreach and Education:**
 - **Public talk series.** Two talks per year from world-renown invited speakers of the caliber of Profs. Janna Levin and Dr. Neil De Grasse Tyson.
 - **Public outreach events.** A large and original outreach event to be held once every two to three years that combines art and science and is designed to communicate scientific discoveries to the general public.
 - **Montana educational outreach.** A plan developed in collaboration with Extended University to communicate scientific discoveries to the broader Montana community, with a special emphasis on Native American reservations in the state of Montana.
- **Personnel**
 - **Endowed Faculty Position.** We envision the hiring of one new (junior) faculty member in relativistic astrophysics to complement the expertise of the XGI faculty.
 - **Outreach and Meeting Coordinator.** A new administrative hire to coordinate the Fellow visits, the organization of the workshops and summer schools and the creation of new outreach events.

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

At this time there are no plans for additional resources, such as a dedicated new building to house the institute, but if the XGI is very successful this may be reconsidered.

6. Describe other similar Centers/Institutes or research capacities in the state and surrounding region.

There are *no programs* in the entire state of Montana or the surrounding region that focus on

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multi-disciplinary research into extreme gravity. In fact, there are no institutes of the specific type described here in the entire world.

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

The viability of the XGI program will be assessed at years 5 and 10 by the Dean of the College of Letters and Sciences and by the Vice President of Research and Economic Development, at which time further continuance will be determined. The criteria for success will be the following

- Establishment of an endowment to fund the XGI.
- Establishment of a Visiting Fellows program.
- Organization of workshops and summer schools.
- Increased quality and number of graduate students.
- Increased outreach activities in physics and astrophysics.

8. State the internal campus review and approval process which has occurred prior to submission to the Commissioner's Office. Indicate, where appropriate, involvement by faculty, students, community members, professional constituencies, etc.

The XGI concept was presented to the VPRED's research enhancement review team and selected for seed funding. A white paper describing the XGI has been provided to Faculty Senate and the Dean's Council. Formal approval is now being sought based on this form.

September 16-17, 2015

ITEM 168-2902-R0915

Request for Authorization to Rename the Division of Outreach

THAT

Great Falls College MSU requests approval from the Montana Board of Regents to rename the Division of Outreach to the Division of Lifelong Learning.

EXPLANATION

The name Division of Lifelong Learning better reflects the overall mission of the College, and the new name is better understood by the community. Administratively, the division will be supervised by the Chief Academic Officer.

ATTACHMENTS

Academic Proposal Request Form

Montana Board of Regents
ACADEMIC PROPOSAL REQUEST FORM

Item Number: 168-2902-R0915

Meeting Date: September 16-17, 2015

Institution: Great Falls College MSU

CIP Code: _____

Program Title: Division of Lifelong Learning

Please mark the appropriate type of request and submit with an Item Template and any additional materials, including those listed in parentheses following the type of request. For more information pertaining to the types of requests listed below, how to complete an item request, or additional forms please visit the [Academic Affairs Handbook](#).

A. Notifications:

Notifications are announcements conveyed to the Board of Regents at the next regular meeting.

1a. Placing a program into moratorium (Document steps taken to notify students, faculty, and other constituents and include this information on checklist at time of termination if not reinstated)

1b. Withdrawing a program from moratorium

2. Intent to terminate an existing major, minor, option or certificate – Step 1 (Phase I Program Termination Checklist)

3. Campus Certificates- Adding, re-titling, terminating or revising a campus certificate of 29 credits or less

4. BAS/AA/AS Area of Study

B. Level I:

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1. Re-titling an existing major, minor, option or certificate

2. Adding a new minor or certificate where there is a major or an option in a major (Curriculum Proposal Form)

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5. Terminating an existing major, minor, option or certificate – Step 2 (Completed Program Termination Checklist)

Temporary Certificate or AAS Degree Program

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Approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the proposal to go through the normal Level II Proposal approval process.

 C. Level I with Level II Documentation:

This type of proposal may go to the Board as a Level I item if all Chief Academic Officers are in agreement. If consensus among the Chief Academic Officers is not reached, however, the item will go to the Board as a Level II request.

 1. Consolidating existing programs and/or degrees (Curriculum Proposal Form)

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 5. Re-titling a college, division, school, department, institute, bureau, center, station, laboratory or similar unit

Specify Request:

Great Falls College MSU requests authorization from the Montana Board of Regents for the renaming of the Division of Outreach to the Division of Lifelong Learning. Lifelong Learning more accurately reflects the overall mission of the college, and the new name is better understood by the community.

September 16-17, 2015

ITEM 168-2903-R0915

Request for Authorization of the Reorganization of Academic Affairs including the Renaming of the Division of Business, Trades, and Technology to the Division of Trades and Division of General Education and Transfer to Division of General Education, Business, Technology & Transfer.

THAT

Great Falls College MSU requests authorization from the Montana Board of Regents for a minor change in the administrative structure of Academic Affairs resulting in the renaming of the Division of Business, Trades, and Division of General Education and Transfer.

EXPLANATION

The Division of Business, Trades, and Technology has been renamed the Division of Trades. Business and Technology programs have been reassigned to the Division of General Education and Transfer. That division will be renamed the Division of General Education, Business, Technology & Transfer. These structural changes better reflect the expertise of the division directors and the mission and aspirations of the programs in those areas.

ATTACHMENTS

Academic Proposal Request Form

Montana Board of Regents
ACADEMIC PROPOSAL REQUEST FORM

Item Number: 168-2903-R0915 Meeting Date: September 16-17, 2015
Institution: Great Falls College MSU CIP Code: _____
Program Title: Reorganization of Academic Affairs: Division of Business, Trades, and Technology and Division of General Education and Transfer.

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- 1a. Placing a program into moratorium** (Document steps taken to notify students, faculty, and other constituents and include this information on checklist at time of termination if not reinstated)
- 1b. Withdrawing a program from moratorium**
- 2. Intent to terminate an existing major, minor, option or certificate – Step 1** (Phase I Program Termination Checklist)
- 3. Campus Certificates- Adding, re-titling, terminating or revising a campus certificate of 29 credits or less**
- 4. BAS/AA/AS Area of Study**

 B. Level I:

Level I proposals are those that may be approved by the Commissioner of Higher Education. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the Board.

- 1. Re-titling an existing major, minor, option or certificate**
- 2. Adding a new minor or certificate where there is a major or an option in a major** (Curriculum Proposal Form)
- 3. Revising a program** (Curriculum Proposal Form)
- 4. Distance or online delivery of an existing degree or certificate program**
- 5. Terminating an existing major, minor, option or certificate – Step 2** (Completed Program Termination Checklist)

 Temporary Certificate or AAS Degree Program

Approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the proposal to go through the normal Level II Proposal approval process.

Montana Board of Regents
ACADEMIC PROPOSAL REQUEST FORM

 C. Level I with Level II Documentation:

This type of proposal may go to the Board as a Level I item if all Chief Academic Officers are in agreement. If consensus among the Chief Academic Officers is not reached, however, the item will go to the Board as a Level II request.

 1. Consolidating existing programs and/or degrees (Curriculum Proposal Form)

 D. Level II:

Level II proposals require approval of the Board of Regents. These requests will go to the Board in a two-meeting format, the first being as informational and the second as action.

 1. Re-titling a degree (ex. From B.A. to B.F.A)

 2. Adding a new minor or certificate where there is no major or option in a major (Curriculum Proposal Form)

 3. Establishing a new degree or adding a major or option to an existing degree (Curriculum Proposal Form)

 4. Forming, eliminating or consolidating a college, division, school, department, institute, bureau, center, station, laboratory or similar unit (Curriculum Proposal Form or Center Proposal Form, except when eliminating or consolidating)

 5. Re-titling a college, division, school, department, institute, bureau, center, station, laboratory or similar unit

Specify Request: Great Falls College MSU requests authorization from the Montana Board of Regents of a minor change in the administrative structure of Academic Affairs. The Division of Business, Trades, and Technology has been renamed the Division of Trades. Business and Technology programs have been reassigned to the Division of General Education and Transfer. That division will be renamed the Division of General Education, Business, Technology & Transfer. These structural changes better reflect the expertise of the division directors and the mission and aspirations of the programs in those areas.

September 16-17, 2015

168-1004-R0915

ITEM

Request for Authorization to Create the Baucus Institute—University of Montana-Missoula

THAT

The Board of Regents of Higher Education authorizes the University of Montana to create the Baucus Institute.

EXPLANATION

The Max S. Baucus Institute, a non-partisan, multidisciplinary, public policy center, will be housed at the Alexander Blewett III School of Law at the University of Montana. It will provide hands-on educational experiences by drawing upon the University of Montana's traditional areas of strength, in fields ranging from environmental and natural resources law to business and entrepreneurship to forestry and American Indian studies, while promoting new initiatives in areas such as global education and energy law.

ATTACHMENTS

Academic Proposal Request Form
Center Proposal Form

Montana Board of Regents
ACADEMIC PROPOSAL REQUEST FORM

Item Number: 168-1004-R0915

Meeting Date: September 16-17, 2015

Institution: University of Montana-Missoula

CIP Code: NA

Program Title: Baucus Institute

Please mark the appropriate type of request and submit with an Item Template and any additional materials, including those listed in parentheses following the type of request. For more information pertaining to the types of requests listed below, how to complete an item request, or additional forms please visit the [Academic, Research and Student Affairs Handbook](#).

 A. Notifications:

Notifications are announcements conveyed to the Board of Regents at the next regular meeting.

 1a. Placing a program into moratorium (Document steps taken to notify students, faculty, and other constituents and include this information on checklist at time of termination if not reinstated)

 1b. Withdrawing a program from moratorium

 2. Intent to terminate an existing major, minor, option or certificate – Step 1 (Phase I Program Termination Checklist)

 3. Campus Certificates, CAS/AAS-Adding, re-titling, terminating or revising a campus certificate of 29 credits or less

 4. BAS/AA/AS Area of Study

 B. Level I:

Level I proposals are those that may be approved by the Commissioner of Higher Education. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the Board.

 1. Re-titling an existing major, minor, option or certificate

 2. Adding a new minor or certificate where there is a major or an option in a major (Curriculum Proposal Form)

 3. Revising a program (Curriculum Proposal Form)

 4. Distance or online delivery of an existing degree or certificate program

 5. Terminating an existing major, minor, option or certificate – Step 2 (Completed Program Termination Checklist)

 Temporary Certificate or AAS Degree Program

Approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the proposal to go through the normal Level II Proposal approval process.

Montana Board of Regents
ACADEMIC PROPOSAL REQUEST FORM

 C. Level I with Level II Documentation:

This type of proposal may go to the Board as a Level I item if all Chief Academic Officers are in agreement. If consensus among the Chief Academic Officers is not reached, however, the item will go to the Board as a Level II request.

 1. Adding an option within an existing major or degree (Curriculum Proposal Form)

 2. Consolidating existing programs and/or degrees (Curriculum Proposal Form)

X **D. Level II:**

Level II proposals require approval of the Board of Regents. These requests will go to the Board in a two-meeting format, the first being as informational and the second as action.

 1. Re-titling a degree (ex. From B.A. to B.F.A)

 2. Adding a new minor or certificate where there is no major or option in a major (Curriculum Proposal Form)

 3. Establishing a new degree or adding a major or option to an existing degree (Curriculum Proposal Form)

X **4. Forming, eliminating or consolidating a college, division, school, department, institute, bureau, center, station, laboratory or similar unit** (Curriculum Proposal Form or Center Proposal Form, except when eliminating or consolidating)

 5. Re-titling a college, division, school, department, institute, bureau, center, station, laboratory or similar unit

Specify Request:

The Max S. Baucus Institute, a non-partisan, multidisciplinary, public policy center, will be housed at the Alexander Blewett III School of Law at the University of Montana. It will provide hands-on educational experiences by drawing upon the University of Montana's traditional areas of strength, in fields ranging from environmental and natural resources law to business and entrepreneurship to forestry and American Indian studies, while promoting new initiatives in areas such as global education and energy law.

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1. State the proposed Institute/Center's name and purpose.

The Max S. Baucus Institute, a non-partisan, multidisciplinary, public policy center, will be housed at the Alexander Blewett III School of Law at the University of Montana. It will provide hands-on educational experiences by drawing upon the University of Montana's traditional areas of strength, in fields ranging from environmental and natural resources law to business and entrepreneurship to forestry and American Indian studies, while promoting new initiatives in areas such as global education and energy law.

2. A comprehensive statement of the Institute/Center's mission and its relationship to the University mission.

A. State the Institute/Center's mission.

Throughout his long and distinguished career in public service, both as a United States Senator representing the State of Montana and as U.S. Ambassador to China, Max Baucus has promoted economic growth while seeking to ensure a livable and just world for ourselves and future generations. The Max S. Baucus Institute at the University of Montana School of Law will further that legacy as it positions the University of Montana to serve as a global leader.

The Baucus Institute will focus the resources of the University of Montana by drawing on traditional areas of strength, in fields ranging from environmental and natural resources law to business and entrepreneurship to forestry and American Indian studies, while promoting new initiatives in areas such as global education and energy law.

B. Identify the Institute/Center's goals and objectives.

By bringing together leaders in the fields of academia, government, law, and business, the Baucus Institute will provide a forum for the exchange of ideas in a setting devoted to problem-solving rather than opposition. At the same time, the Institute will help students and faculty from Montana serve the public good at the state, national, and international levels. Through interdisciplinary programs, the Institute will foster collaboration among all units of the Montana University system, advancing the University's strategic goal of Education for the Global Century.

C. What specific need is being responded to in developing the proposed Institute/Center?

The Baucus Institute will create a center of national and international excellence within the law school by providing additional resources and opportunities for its students and faculty in areas ranging from international law, to transactional law skill training, to federal tax law and beyond. The Institute will augment and enhance the School's Juris Doctor degree program, as well as its three joint degree programs: JD/Master of Business Administration, JD/Master of Public Administration and JD/Master of Environmental Studies.

In the near term, development of the Baucus Institute will likely focus in two key areas: international legal education and enhancing teaching of the law and transactional practice skills necessary for the School's graduates to assist in developing Montana's economy.

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The Baucus Institute will act as the home for the School's existing summer academic program in China, conducted in partnership with leading Chinese law schools, as well as American law schools at Gonzaga University and the University of South Dakota. Development of the Institute will allow UM to assume a larger leadership role, while increasing the program's reach and prestige. Successful fundraising for an endowed chair in international law, or related fields, will fill an existing substantive law gap on the School's full-time faculty.

For nearly a decade, the law school faculty has examined the possibility of creating a non-profit corporations and/or transaction skills clinic in an effort to expand its clinical offerings for students interested in business and transactional law. The proposal has never advanced due to a lack of funding opportunities. Clinical offerings in those areas remain limited, though the number of graduates practicing in those areas is significant. Development of the Institute, and with it the potential to create clinical opportunities similar to the Entrepreneurial Law Clinic at the University of Colorado School of Law and the Community Economic Development Clinic at the Denver University Sturm College of Law, will provide new opportunities for law students which do not currently exist in the School's academic program.

According to a recent study from the Kaufmann Foundation, Montana leads the nation in business start-ups and the demand for these types of legal services will only increase in coming years. The law school has initiated informal conversations with various entities, including the Governor's Office of Economic Development and the Montana World Trade Center, aimed at exploring the potential partnerships to benefit students and more broadly, the state's economy.

D. Describe how the Institute/Center benefits the department, college, or institution.

The School of Law has a long and distinguished tradition of training lawyers for the practice of law in Montana. Historically, that has mostly meant preparing young attorneys to be outstanding advocates in civil and criminal litigation. At the same time, the School of Law has built outstanding programs in natural resources and environmental law, Indian law, and conflict resolution, with certificate programs in each of those areas. Two areas in which the school has placed less emphasis are fields related to international and transactional practice. These areas are becoming increasingly important. As our economy becomes globalized, our graduates need to have exposure to the international dimensions of legal practice. And to have the greatest value to their clients, they need to understand how businesses are structured and the role lawyers can play in economic development. These issues, in turn, implicate considerations of sustainability and relations with indigenous peoples in the US and abroad. The Baucus Institute will help fill these critical needs by serving as a center for collaborative initiatives that bring together our existing strengths within a global and economic development perspective.

The Institute will raise the School of Law's profile nationally and internationally by attracting prominent leaders from the fields of academia, government, and business to the School of Law and by providing resources for students and faculty to engage with communities outside the school. On a more pragmatic level, the Institute has the potential to generate revenue, through programs aimed at students and professionals from around the state, the nation, and the world.

E. Describe the Institute/Center's relationship to the University mission.

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A central goal of the University's mission is to "provid[e] unique educational experiences through the integration of the liberal arts, graduate study, and professional training with international and interdisciplinary emphases." The Baucus Institute will serve that goal. The educational experiences contemplated for the Institute are not being provided by the School of Law or other units. They will reach both graduate students and professionals in programs having an international and interdisciplinary perspective. In this way, the Institute also advances the University's strategic goal, education for the global century.

3. Briefly describe the Institute/Center's anticipated activities.

As the Institute develops and fundraising allows, it is anticipated that Institute will engage in the following areas of activity and productivity.

Teaching

The Baucus Institute will bring academic, policy, legal and business leaders to teach in a variety of expected areas, including international trade law, tax law, economic development law and policy, and other subjects related to Ambassador Baucus' work for Montanans and the United States. Such subjects may include legislation, the federal budget process, agriculture and rural development, health care reform, and public lands. The Institute will coordinate the Law School's study abroad program in China and, in conjunction with the Law School and the Office of International Programs, will explore opportunities for the creation of certificate or degree programs in fields relating to global development.

1. Student Fellows. An initial emphasis will be to establish a student fellows program to engage Montana students at UM and other institutions in projects with government and business at home and abroad. "Baucus Fellows" will be selected from the best and brightest students in the School of Law and other undergraduate and graduate programs in Montana. Opportunities may include a law student working a summer on Capitol Hill in Washington, D.C., a business student working a semester abroad on international trade issues, or an undergraduate working on an economic development project in rural Montana.
2. Faculty Fellows. The Institute will provide funding for faculty at UM and other institutions to teach undergraduate, graduate, and continuing education courses related to the Institute's purpose and objectives.
3. Practice-Based Curriculum. The School of Law will integrate the work of the Baucus Institute into new practice-based curricular opportunities, consistent with the School's distinctive approach to skills-based legal education. The Baucus Institute will help fill critical coverage needs in international trade and entrepreneurship law. In addition to seminars offered by visiting faculty sponsored by the Baucus Institute, the School of Law will develop related clinical opportunities in economic development, legislation, and other areas associated with its work.
4. International Programs. The School of Law also will extend its current study abroad programs in China and Ireland to incorporate international trade and other issues associated with the Baucus Institute. The China program in particular will benefit from Ambassador Baucus in the near

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term, and may expand into a broader exchange program bringing Chinese lawyers and law students to Missoula for courses.

Scholarship

1. Baucus Papers. The Baucus Institute, with the Mansfield Library Archives and Special Collections, will provide a gateway to research critical moments in Congress over nearly four decades reflected in the Baucus Papers. Working with the School of Law's two academic journals, the Montana Law Review and the Public Land and Resources Law Review, as well as other campus-based scholarly outlets, the Institute may work to publish topical articles which related to various aspects of Ambassador Baucus' career in public service. And, working with the School of Business Administration and selected programs in the College of Humanities and Sciences, the papers will be used to identify important milestones in economic development stimulated by Ambassador Baucus.
2. Max S. Baucus Chair. The School of Law plans to fundraise with the goal of eventually endowing a chair for the areas associated with the work of the Institute. In addition to teaching duties, the Chair will enjoy access to the Baucus Papers, the Law, Business, and related faculty, and related programs to support scholarship.

Service

The Baucus Institute will provide multiple opportunities for service within Montana, nationally and internationally. Initial, envisioned activities include:

1. Montana Economic Development Summit. One of Ambassador Baucus' signature achievements in the Senate was convening national and international business and policy leaders at a half-dozen Montana Economic Development Summits. The Baucus Institute will bring this world-class gathering to the University of Montana Campus and/or its affiliate campuses including Montana Tech, which has hosted a past summit and which Ambassador Baucus has indicated will host at least one more summit. The Montana Economic Development Summit, or a variant thereof, provides a significant opportunity for cross-campus collaboration with the School of Business Administration, Departments of Economics, Political Science, and Computer Science, natural resource programs and others on campus. The summits have been supported through corporate fundraising partnerships.
2. Baucus Lecture in Tax Policy. For more than six decades, the Montana Tax Institute has featured a distinguished national tax faculty attracting leading tax practitioners from the region. The Baucus Institute will build on this tradition by sponsoring a Baucus Lecture in Tax Policy, which will provide a broader perspective on tax law and policy to complement the in-depth focus of the Tax Institute.

A. Identify faculty expertise available for participation in the Institute/Center's activities.

Prof. Sam Panarella: Professor Sam Panarella teaches Contracts I & II, Business Transactions, Business Organizations and Renewable Energy Law and serves as the director of the School's summer program in China. Before joining the law school faculty, Professor Panarella was the CEO of Crux Consulting, LLC, a legal process and management consulting firm whose clients include the

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legal departments of several Fortune 500 companies. Prior to that, Professor Panarella was a partner at Stoel Rives LLP, a leading western law firm, where he focused his legal practice on energy law, with a specialty in renewable energy development, and representing public and private companies in large-scale industrial and commercial project development. Professor Panarella clerked for United States 9th Circuit Court of Appeals Judge Otto R. Skopil, Jr. before entering private practice. Professor Panarella was selected for inclusion in the 2007 edition of The Best Lawyers in America.

Prof. Elain Gagliardi: Professor Gagliardi teaches Business Organizations, Business Transactions, Estate Planning, Wills and Trusts, Taxation of Estates and Gifts, and Tax Exempt Organizations. She also serves as the faculty supervisor for three clinics, Rocky Mountain Elk Foundation, Montana Department of Transportation, and University of Montana General Counsel. Professor Gagliardi is currently the law school's Dean of Students, and served as Associate Dean from 2007-2010.

As of 2012, Professor Gagliardi directs the law school's Montana Tax Institute held each fall in October. She has been elected as an Academic Fellow of both the American College of Trust and Estate Counsel and the American College of Tax Counsel. Professor Gagliardi is a past chair of the Business, Estates, Trust, Tax and Real Estate Section of the State Bar of Montana.

Prior to teaching Professor Gagliardi practiced in the areas of estate planning, business planning and tax with the law firms of Perkins Coie, Seattle, Washington, and Day, Berry & Howard, Hartford, Connecticut. She was also Of Counsel to George Law Offices, Missoula, Montana. She clerked for The Honorable William J. Jameson, Senior Judge, United States District Court for Montana, and for the Honorable James R. Browning, then Chief Judge, Ninth Circuit Court of Appeals. Professor Gagliardi earned her LL.M. in taxation from New York University School of Law, where she received the Harry J. Ruddick award for distinction in the graduate tax program and served on the New York Tax Law Review as a graduate editor. She received her J.D. from the University of Montana School of Law and her B.A. in Economics from Yale University.

Prof. Cathay Smith:

Cathay Smith joins the Blewett School of Law in fall 2015 from the Denver University Sturm College of Law where she served as Whiting Clinical Fellow in the Community Economic Development Clinic. Professor Smith received her MSc. in Law, Anthropology and Society from the London School of Economics and Political Science, J.D. from Loyola University Chicago School of Law, and B.S. from Washington and Lee University. Her scholarship focuses on intellectual and cultural property law. After law school, Professor Smith practiced as an intellectual property attorney in the Chicago office of Katten Muchin Rosenman LLP for six years, where she represented clients in consumer products, technology, fashion and apparel, and media industries. Her practice included intellectual property infringement cases in federal courts, opposition and cancellation proceedings in the USPTO's Trademark Trial and Appeal Board, and WIPO UDRP proceedings. In addition to her litigation experience, Professor Smith regularly counseled clients on issues involving trademarks, copyrights, and domain names.

B. Which departments on campus will be involved and how will the Institute/Center contribute to the academic programs of the institution?

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The Baucus Institute will be the first public policy institute within the law school, and the Blewett School of Law will be the primary, though not exclusive, campus unit most affected by its operation.

Enhancing of the role and profile of the School's China summer program, as well as increased academic opportunities for students interested in international law, will be an immediate effect of the Institute's development. A potential endowed chair, in international law or related fields, presents a major opportunity for expansion of the School's existing faculty and curricular offerings in an area of growing need.

As noted above, development of a transactional clinic is a core need of the School, and one naturally filled through development of the Institute. Collaborative opportunities across the state and world will allow students the chance to gain experience in matters of economic development, international trade and transactional law.

The School presently offers three joint-degree programs, each of which may be enhanced by the development of the center: the joint Juris Doctor/Master of Business Administration; the joint Juris Doctor/Master of Public Administration; and the joint Juris Doctor/Master of Arts in Environmental Studies. Development of a public policy institute has the potential to significantly enhance the caliber of these programs through internship and externship opportunities, fellowship opportunities, guest speakers and the like.

Finally, the Baucus Institute provides opportunities for campus units linked to law through the joint degree programs, the School of Business Administration and the College of Humanities and Sciences, as well as enhancement of existing campus program such as the Mansfield Center and the World Trade Center.

4. Identify the organizational structure of the Institute/Center within the institution.

The Baucus Institute will be led by a member of the Law Faculty who will serve as Director of the Institute. The Director will report to the Dean of the Law School. The Advisory Council will provide programmatic and other advice to the Director and the Dean of the Law School.

A. Identify all agencies, organizations and/or institutions that will be involved.

The Baucus Institute will seek to complement and, where appropriate, integrate with the activities of several campus centers of excellence related to its work. While based at the School of Law, the Baucus Institute will work with the School of Business Administration and the World Trade Center on trade and economic development issues, the Mansfield Center on Asia relations, and other related programs. The Baucus Institute also will develop relationships with relevant local, state, tribal, and federal agencies, as well as non-governmental organizations, concerning trade, tax, and economic development law and policy.

B. Identify advisory council information.

The Baucus Institute will be advised by a national advisory council and a steering committee.

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1. Advisory Council. The Advisory Council will provide programmatic advice and will be comprised of a bipartisan group of national and international thought leaders in the areas of the Institute's focus. The Advisory Council will function similar to the Board of Visitors of the School of Law. The Deans of the School of Law, the School of Business Administration and School of Humanities and Sciences will serve in an ex-officio capacity on the Advisory Council.

2. Steering Committee. The Steering Committee will provide strategic and development advice, particularly in the initial fundraising phase of the Institute's development and construction of physical space, and may be reduced or eliminated once the Institute is funded and operational.

5. Identify first year and continuing finances necessary to support the Center/Institute, including the sources of funding.

It is anticipated that the first-year expenses will include the following:

Director:	\$10,000
Consultant:	\$30,000
Supplies:	\$10,000
Travel:	\$15,000
Misc.:	\$5,000
Student Fellows:	\$20,000
<u>Lecture Series:</u>	<u>\$30,000</u>
Total:	\$120,000

Of those expenses, the costs for the consultant will be paid by the UM Foundation. The stipend for the Director, who will be a member of the law faculty, will be included as part of a request for state funding for the School of Law. The remaining expenses will be paid through private donations.

Expenses in future years may fluctuate depending on the programs the Institute undertakes. Additional funding will be provided through a combination of revenue-generating programs and private donations.

A. Will additional faculty and other resources be required to implement this Center/Institute? If yes, please describe the need and indicate the plan for meeting this need.

As an initial matter, no additional faculty will be needed to implement the Institute. The Institute will be directed by a current faculty member, and other faculty members will help to organize and participate in Institute activities. Longer term, the Institute may grow to include an endowed faculty Chair. In that event, the funding for the new faculty member would come from private donations.

B. Are other, additional resources required to ensure the success of the proposed Center/Institute? If yes, please describe the need and indicate the plan for meeting this need.

The Institute will need physical space. A tentative plan is in place to renovate and expand the north wing of the law school building to house the Institute. Funding for that construction will come from private donations.

6. Describe other similar Centers/Institutes or research capacities in the state and surrounding region.

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Montana and the surrounding region offer several successful models for university-based public policy institutes, though none with the distinct focus and connections the Baucus Institute will offer.

A. Mansfield Center (UM). Established in 1983, the Mansfield Center is dedicated to increasing mutual understanding between the U.S. and Asia, particularly Japan, China, Korea, and Vietnam. Reflecting the Mansfield legacy, the Center seeks to incorporate an ethical dimension in all its work and, recently, has also dedicated increased attention to public policy and leadership, as well as to the teaching of critical languages and cultures.

B. World Trade Center (UM). The stated purpose of the Montana World Trade Center (MWTC) is to promote international trade and economic development in Montana through public private-partnerships, business networking and student education.

C. Montana Economic Developers Association (Missoula). The Montana Economic Developers Association sponsors educational seminars, workshops and conferences to advance the economic development profession. The Association conducts research to stimulate the interchange of ideas and experiences between individuals with mutual goals and interests. The association also develops network and communications systems to disseminate information and acts as a clearinghouse and contact point within Montana for other state, regional, national and international economic development organizations and agencies.

D. Wheeler Center (MSU). The Burton K. Wheeler Center for Public Policy promotes the discussion, analysis and eventual resolution of critical issues facing Montana and the region. The Center holds conferences, sponsors research and lectures, publishes conference reports and maintains a Web page for Montanans and others who are seeking solutions to some of today's most pressing issues and problems.

E. Alan K. Simpson Institute for Western Politics and Leadership (Wyoming). The Alan K. Simpson Institute for Western Politics and Leadership is a program of the American Heritage Center focusing on the acquisition, preservation, and research use of the papers of prominent individuals, businesses, and organizations that have provided leadership – political, economic, social, and cultural – for Wyoming and the Rocky Mountain West.

F. Frank Church Institute (Boise State). The Institute, which is housed within the College of Social Sciences and Public Affairs at Boise State University, emphasizes the ideals of Senator Church including a strong belief in the rule of law, eloquence firmly based on reason, and an unwavering faith in the American political system. The Frank Church Institute's mission is to "promote civic engagement and understanding of public policy with focus on foreign relations." The Institute is non-partisan, but it seeks to "provide a forum for open and informed discussion characterized by civility, tolerance, and compromise." The Institute seeks to fulfill its mission through the sponsorship of the annual Frank Church Conference, the Frank and Bethine Church Chair of Public Affairs, and the Frank Church Scholarships at Boise State University.

G. Henry M. Jackson Foundation (Washington). The Henry M. Jackson Foundation was founded in 1983 to continue the unfinished work of the late Senator Henry M. "Scoop" Jackson in the areas in which he played a key leadership role: international affairs education, human rights, environment and natural resources management, and public service. Through its grant-making and strategic

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initiatives, the Foundation seeks to perpetuate the Jackson legacy for the benefit of future generations.

H. Udall Center for Studies in Public Policy (Arizona). Established in 1987, the Udall Center for Studies in Public Policy sponsors policy-relevant, interdisciplinary research and forums that link scholarship and education with decision-making. The Center specializes in issues concerning: (1) environmental policy, primarily in the Southwest and U.S.-Mexico border region (2) immigration policy of the United States and (3) Indigenous nations policy.

I. Panetta Institute for Public Policy (CSU- Monterey). Founded in 1997 by Leon and Sylvia Panetta, the Panetta Institute serves the entire California State University system plus several other schools. Under the direction of Leon and Sylvia Panetta, the Institute provides a variety of study opportunities in government, politics and public policy, and sponsors a range of other programs.

J. See also: Dole Institute of Politics (Kansas); Harkin Institute for Public Policy & Citizen Engagement (Drake); Edward M. Kennedy Institute for the United States Senate (UMass-Boston).

Among these centers, however, the Baucus Institute is unique. Physically housed within a law school and located in close proximity to one of the two World Trade Centers in America based in an academic institution, the collaborative opportunities with graduate level programs, such as the joint JD/MBA program, developing expertise in areas such as rural health care delivery, and long-standing leadership in areas such as forestry and conservation, present deep connections to Ambassador Baucus' congressional legacy. Moreover, the existing Mansfield Center represents not a competitor, but a real chance for UM to take a national lead in Asian affairs and, potentially, a unique position in Asian legal affairs and comparative legal training for foreign lawyers.

A. Describe the relationship between the proposed Center/Institute and any similar Centers/Institutes, programs, or research capacities within the Montana University System.

As the only public policy institute within the law school, the Baucus Institute will play a unique role in the life of the University and the broader MUS. The most similarly situated center is the Mansfield Center at UM. Initial conversations, aimed at identifying areas of potential collaboration, are already underway and the opportunities are significant. The Mansfield Center's historic ties to Asia, particularly Japan, when bonded with the Baucus Institute's current potential ties to China, place UM and the Blewett School of Law, in a unique position among public universities. The overlay of the Montana World Center, one of only two such centers in the country located at an academic institution, further solidifies UM's unique position. Opportunities exist to build relationships with other programs, such as the Wheeler Center at Montana State University, exist and will be developed in coming years.

B. In cases of substantial duplication, explain the differences between these and the need for the proposed Center/Institute at an additional institution. Describe any efforts that were made to collaborate with these Centers/Institutes, programs or research capacities. If no efforts were made explain why.

Because the Baucus Institute is housed within the Alexander Blewett III School of Law, the only law school in the state, and will focus primarily upon programs unique to the study of law, the School believes that substantial duplication does not exist. Where collaborative opportunities exist, for

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example with the School of Business Administration at UM, or with the Mansfield Center, those opportunities will be explored and, where possible, developed. In areas, such as the join-degree programs with those other units at UM, the potential for collaboration and substantial mutual benefit is high.

Despite the lack of substantial duplication, efforts were made throughout development of the Baucus Institute proposal to apprise other departments of the focus and any affected departments, the Mansfield Library, the Mansfield Center, the School of Business Administration and the College of Humanities and Science, each signed off on the proposal prior to its delivery to the Provost and Vice President of Academic Affairs.

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

From a programmatic perspective, the mission of the Baucus Institute is to promote collaboration, bringing together existing programs of excellence at the School of Law and in other University units and linking them to further the goal of global economic development. The measure of its success will be its ability to foster those collaborations. From a financial perspective, the Institute should be self-sustaining, through a combination of private donations and revenue-generating programs. Private donations should fully fund the construction of the Institute's physical space. Those goals should be achieved within five years.

8. State the internal campus review and approval process which has occurred prior to submission to the Commissioner's Office. Indicate, where appropriate, involvement by faculty, students, community members, professional constituencies, etc.

Development of the proposed Baucus Institute, from concept to reality, occurred over many months. The process has involved University of Montana executive leadership, leadership from the School of Law, deans of other schools and colleges on the UM campus, leadership from the University of Montana Mansfield Library, including Archives and Special Collections, the law faculty and other campus leaders. The Board of Visitors for the School of Law has been briefed on the project development, as well as the student leadership liaisons to the law school faculty. Potential funders for the project have been identified and fundraising evaluations made. The Department of State has been apprised of the plans and consulted for guidance on future fundraising. The formal proposal for the project was developed by a law faculty committee, approved unanimously by the faculty of the law school, and unanimously by the University Faculty Senate.

September 16-17, 2015

ITEM 168-1005-R0915

**Request for Authorization to Create a Center for Integrated Research on the Environment (CIRE)—
University of Montana-Missoula**

THAT

The Board of Regents of Higher Education authorizes the University of Montana to create a Center for Integrated Research on the Environment (CIRE).

EXPLANATION

The Center for Integrated Research on the Environment (CIRE) is proposed to provide an administrative framework specifically designed to bring institutional organization to research and sustainable management projects in the area of natural and cultural resources that fall under the umbrella of a Cooperative Agreement (CA) between the Department of Defense (DoD) - US Army Corps of Engineers (USACE) and the University of Montana (Award: June 1, 2014 – May 31, 2019; \$45,000,000).

ATTACHMENTS

Academic Proposal Request Form
Center Proposal Form

Montana Board of Regents
ACADEMIC PROPOSAL REQUEST FORM

Item Number: 168-1005-R0915

Meeting Date: September 16-17, 2015

Institution: University of Montana-Missoula

CIP Code: NA

Program Title: Center for Integrated Research on the Environment (CIRE)

Please mark the appropriate type of request and submit with an Item Template and any additional materials, including those listed in parentheses following the type of request. For more information pertaining to the types of requests listed below, how to complete an item request, or additional forms please visit the [Academic, Research and Student Affairs Handbook](#).

 A. Notifications:

Notifications are announcements conveyed to the Board of Regents at the next regular meeting.

 1a. Placing a program into moratorium (Document steps taken to notify students, faculty, and other constituents and include this information on checklist at time of termination if not reinstated)

 1b. Withdrawing a program from moratorium

 2. Intent to terminate an existing major, minor, option or certificate – Step 1 (Phase I Program Termination Checklist)

 3. Campus Certificates, CAS/AAS-Adding, re-titling, terminating or revising a campus certificate of 29 credits or less

 4. BAS/AA/AS Area of Study

 B. Level I:

Level I proposals are those that may be approved by the Commissioner of Higher Education. The approval of such proposals will be conveyed to the Board of Regents at the next regular meeting of the Board.

 1. Re-titling an existing major, minor, option or certificate

 2. Adding a new minor or certificate where there is a major or an option in a major (Curriculum Proposal Form)

 3. Revising a program (Curriculum Proposal Form)

 4. Distance or online delivery of an existing degree or certificate program

 5. Terminating an existing major, minor, option or certificate – Step 2 (Completed Program Termination Checklist)

 Temporary Certificate or AAS Degree Program

Approval for programs under this provision will be limited to two years. Continuation of a program beyond the two years will require the proposal to go through the normal Level II Proposal approval process.

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 C. Level I with Level II Documentation:

This type of proposal may go to the Board as a Level I item if all Chief Academic Officers are in agreement. If consensus among the Chief Academic Officers is not reached, however, the item will go to the Board as a Level II request.

 1. Adding an option within an existing major or degree (Curriculum Proposal Form)

 2. Consolidating existing programs and/or degrees (Curriculum Proposal Form)

X **D. Level II:**

Level II proposals require approval of the Board of Regents. These requests will go to the Board in a two-meeting format, the first being as informational and the second as action.

 1. Re-titling a degree (ex. From B.A. to B.F.A)

 2. Adding a new minor or certificate where there is no major or option in a major (Curriculum Proposal Form)

 3. Establishing a new degree or adding a major or option to an existing degree (Curriculum Proposal Form)

 4. Forming, eliminating or consolidating a college, division, school, department, institute, bureau, center, station, laboratory or similar unit (Curriculum Proposal Form or Center Proposal Form, except when eliminating or consolidating)

 5. Re-titling a college, division, school, department, institute, bureau, center, station, laboratory or similar unit

Specify Request:

The Center for Integrated Research on the Environment (CIRE) is proposed to provide an administrative framework specifically designed to bring institutional organization to research and sustainable management projects in the area of natural and cultural resources that fall under the umbrella of a Cooperative Agreement (CA) between the Department of Defense (DoD) - US Army Corps of Engineers (USACE) and the University of Montana (Award: June 1, 2014 – May 31, 2019; \$45,000,000).

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1. State the proposed Institute/Center's name and purpose.

The Center for Integrated Research on the Environment (CIRE) is proposed for the University of Montana - Missoula to provide an administrative framework specifically designed to bring institutional organization to research and sustainable management projects in the area of natural and cultural resources that fall under the umbrella of a Cooperative Agreement (CA) between the Department of Defense (DoD) - US Army Corps of Engineers (USACE) and the University of Montana (Award: June 1, 2014 – May 31, 2019; \$45,000,000).

2. A comprehensive statement of the Institute/Center's mission and its relationship to the University mission.

A. State the Institute/Center's mission.

The mission of CIRE is to conduct specific research and management assistance related to the US Army Corps of Engineers' research projects around the state, nation and world. Primary research functions are organized within two interactive, interdisciplinary divisions: the Natural Resources Division and the Cultural Resources Division.

CIRE is designed to facilitate research with existing faculty, students and staff, as well as existing infrastructure facilities such as research laboratories, instrumentation, equipment, and other prior investments across the University of Montana (e.g., labs and core facilities specializing in water quality analyses, metals analyses, genomics, soils analyses, wildlife physiology, plant physiology, anthropological and archaeological field-processing and curation, ecological simulation modeling, human environmental health and toxicology, and state-of-the-art GIS).

The CIRE will function within the research and education mission of the UM-Missoula campus. The Program Director of the Cooperative Agreement Award will be the Director of CIRE. The Center will provide the leadership and administration for executing research projects coming to the University through the Cooperative Agreement.

B. Identify the Institute/Center's goals and objectives.

CIRE objectives include, but are not limited to:

1. Provide the leadership and administration for executing the Cooperative Agreement between the US Army Corps of Engineers and the University of Montana.
2. Create a collaborative administrative framework that will advance interdisciplinary environmental/ecosystem science and cultural resource research and education.
3. A central goal of the Center is to distribute CA-based research broadly across UM faculty, staff and students, thereby advancing research programs across diverse academic units.

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4. Increase state and national visibility for the University of Montana and the MUS in environmental and ecosystem science and cultural resources, particularly in research and education.
5. Increase capacity to recruit and retain nationally competitive faculty, graduate students, and undergraduate students in areas critical to the CA.
6. Expand opportunities for students to participate in basic and applied research, develop critical thinking and communications skills, and receive state-of-the-art education to increase their competitiveness in the workforce.
7. Facilitate broad engagement and communication with the DoD to better support informed decision-making on environmental and cultural heritage issues, and to generate research opportunities that are important to the state and nation.
8. Strengthen the primary research connections between UM and MSU, then secondarily with regional, national, and international partners to create new opportunities for interdisciplinary collaboration and innovation in natural and cultural resources research and education.

C. What specific need is being responded to in developing the proposed Institute/Center?

The USACE and DoD, similar to any federal agency, must address the regulatory implications of both Natural Resources and Cultural Resources on lands and waters under the jurisdiction of the agency. For example, the following federal acts directly bear on the activities that CIRE will address: Federal Clean Air Act, Clean Water Act, National Environmental Policy Act, Endangered Species Act, the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act.

The Cooperative Agreement requires an administrative entity to run the various projects, protect the interests of the University, and fulfill the requirements of the Award. The Center will provide that administrative structure with the Program Director of the Cooperative Agreement serving as the Director of the Center.

D. Describe how the Institute/Center benefits the department, college, or institution.

CIRE is conceived as an Interdisciplinary Center extending across many colleges and departments within the university. It will directly involve a broad array of disciplines and the faculty, post-docs, graduate and undergraduate students from many academic departments, as well as research staff at the UM campus. Currently, five colleges and schools are directly involved in the development of CIRE: College of Humanities and Science, College of Forestry and Conservation, College of Health Professions and Biomedical Sciences, School of Business Administration and the Alexander Blewett III School of Law. CIRE-based research will also reach out across the Montana University System whenever appropriate, thus involving faculty, students and other researchers from across the MUS.

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E. Describe the Institute/Center's relationship to the University mission.

The University of Montana mission:

The University of Montana pursues academic excellence as demonstrated by the quality of curriculum and instruction, student performance, and faculty professional accomplishments. The University accomplishes this 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. The University also educates competent and humane professionals and informed, ethical, and engaged citizens of local and global communities; and provides basic and applied research, technology transfer, cultural outreach, and service benefiting the local community, region, State, nation and the world. The University of Montana will lead as a globally focused public research university that serves the state, nation, and world. Intrinsic to this mission are the underlying values of leadership, engagement, diversity, and sustainability.

The Center will directly support the mission of the university by increasing research opportunities and support for unique educational opportunities across the physical, chemical and biological sciences, the social sciences, natural resources, cultural heritage, and human health in the environment. The center will expand student opportunities to learn highly practical skills in workforce development by providing research/work across the nation.

3. Briefly describe the Institute/Center's anticipated activities.

A. Identify faculty expertise available for participation in the Institute/Center's activities.

CIRE will function within a single administrative structure with a Director (Professor F. Richard Hauer), who with the UM Administration support and the colleagues listed herein, competitively acquired the Cooperative Agreement. The Center is organized within two interdisciplinary divisions: the Natural Resources Division and the Cultural Resources Division. Each division is composed of five specific areas of expertise led by an Associate Director, who helped in the development of the award and who now plays an active role in the research activities. The Associate Directors also assist the Director in oversight of the research activities conducted by other faculty and their students and staff. Each Associate Director is a leader in their field of research at national and international levels.

Natural Resources Division

Forests, Rangelands, and Terrestrial Invasive Species

Associate Director and Regents Professor Ragan Callaway (also Director of the NSF MT-EPSCoR Program). The University of Montana has particular strengths in Forests,

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Rangelands, and Terrestrial Invasive Species research and has extensive experience and expertise that spans a wide range of biology, encompassing the areas of botany, ecophysiology, microbial ecology, field experimentation, restoration, biogeography, ecosystem productivity, and terrestrial plant invasions. CIRE research and management capacity is particularly well versed in biogeographic comparisons of the ecology of invaders in their native vs. non-native ranges and the control of invasive species. Natural resource management initiatives will involve the terrestrial ecological management of lands within the scope of the DoD Land and Resource Management Plan. We will also have the capacity and opportunity to teach short courses, workshops and training in regional ecosystem management, such as habitat preservation and invasive plant species control. A particular area of research strength is in the assessment, prevention, and control of exotic invasive plants that threaten terrestrial and wetland ecosystems. We have capacity to mobilize efforts to reestablish native plant communities and renew ecological functions on landscapes that have been degraded, damaged, and/or invaded by exotic species. These actions include, but are not limited to, erosion control, reforestation, use of local genotypes, removal of weeds, re-vegetation, and reintroduction of native-targeted species. Ecological Restoration processes employ planning, implementation, monitoring, and management.

Water Resources and Aquatic Invasive Species

Associate Director and Professor H. Maurice Valett (also Director of the UM Systems Ecology Intercollegiate Graduate Program). The CIRE research and management team in Water Resources and Aquatic Invasive Species has extensive experience in aquatic ecosystem management specializing in freshwater systems: lakes, reservoirs, streams, rivers, groundwater systems, wetlands and floodplains. Water resource management includes practical understanding of how ecosystems resist and recover from human effects associated with water diversion, dams, flooding, agriculture, mining and mine contamination, urban development, and water pollution. CIRE will provide particular expertise on freshwater ecological issues involving the Clean Water Act, freshwater invasive species, mitigation/management strategies for meeting federal, state and local environmental stewardship laws and regulations. CIRE faculty have the capacity and expertise to teach courses/short courses, workshops, and training in freshwater ecology and management.

Fish and Wildlife Resources

Associate Director and Associate Professor Winsor Lowe. Stewardship of terrestrial and aquatic wildlife on lands and waters of the US (such as those under DoD jurisdiction) is central to CIRE research capacity. We draw on the expertise of faculty at the University of Montana, as well as the network of fish and wildlife scientists within the Institute on Ecosystems, which includes faculty at Montana State University. Scientists in our network offer expertise with a wide range of taxa, including large mammalian herbivores and carnivores, forest and grassland birds, native fishes and amphibians, and aquatic and terrestrial invertebrates. We can provide approaches to analyses of wildlife population viability, critical habitat, population connectivity, genetic structure, biodiversity surveys, and

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impact assessment for a wide range of human activities (e.g., residential and industrial development, environmental pollution, water regulation, non-native species introductions).

Ecological Restoration

Associate Director and Associate Professor Cara Nelson (also Director of the UM Ecological Restoration Program). CIRE will conduct research and provide management support in Ecological Restoration. CIRE capacity in this area is wide-ranging in managing research and training related to the repair of degraded ecosystems, encompassing forests, grasslands, rivers, and wetlands. The field of ecological restoration has matured considerably over the last three decades, growing from a relatively minor component of natural resource management to a dominant activity in terrestrial and aquatic ecosystems. In the United States alone, it is now an over-81-billion-dollar-per-year industry. As the scope and scale of restoration increases worldwide, there is a corresponding need for increased understanding of the effects of abiotic and biotic disturbance on ecosystem composition and function, the ecological goals of restoration, the efficacy and effects of restoration practices, and best practices for solving the complex challenges of restoring ecosystems in an era of rapid environmental change. Accordingly, the CIRE program in ecological restoration is focused on research and training to improve the quality of restoration practice in the United States and across the globe.

Climate Impacts, Remote Sensing, and GeoSpatial Modeling

Associate Director and Professor John Kimball (also Deputy Director of the Numerical Terradynamic Simulations Group). There is an Executive Directive to all federal agencies to evaluate the potential impacts associated with climate change. CIRE conducts research and support activities addressing Climate Impacts, Remote Sensing and Geospatial Modeling. CIRE capacity in this area includes modeling of the interface of hydrology and terrestrial ecology, including the study of climate impacts to water resources and ecosystems. Our work involves all aspects of natural resource data collection and analysis, together with the design and application of airborne and satellite remote sensing for environmental data collection and monitoring. These activities comprise forest and rangeland productivity, environmental trend analysis, vegetation health and biodiversity, and water quality. We are particularly strong in geospatial modeling and GIS for environmental prediction, risk, impact and mitigation assessment, and decision support.

Cultural Resources Division

Anthropological and Archaeological Resources

Associate Director and Professor Kelly J. Dixon (also Director of the Montana Anthropological Research Cooperative). CIRE provides the top practices in sustainable Cultural Resource Management (CRM) and planning, including guidance and compliance with federal [e.g., Section 106 of the National Historic Preservation Act (NHPA)], state and tribal cultural resource and preservation legislation, for integration with environmental and human health policy statements of federal, state, and tribal authorities. Following guidelines in the Federal Cultural Resources Program Area, CIRE will work with DOD installation resource managers,

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drawing from an existing interdisciplinary support network grounded in collaborative projects within the UM Department of Anthropology, the Montana State University-Billings Drafting and Design Program, as well as partnerships with tribal organizations, numerous academic consultants on and off the UM campus, and private CRM and environmental consulting firms to ensure that regional expertise and stakeholder needs are included in planning and decision-making.

Environmental Toxicology and Human Health

Associate Director and Professor Andrij Holian (also Director of the Center for Environmental Health Sciences). CIRE conducts investigations and analyses in Environmental Human Health within the Department of Biomedical and Pharmaceutical Sciences, including toxicology and human health effects. These include validated *in vitro* models using primary cells and cell lines from most tissues; *in vivo* exposure studies in various rodent models including sensitive and resistant strains, as well as obese and compromised rodent models; zebra fish for developmental studies; exposure assessment capabilities and epidemiology. We also have the ability to work with clients on specific environmental health problems initiated by various environmental exposures and their contribution to diseases ranging from type II diabetes, lung fibrosis and asthma, atherosclerosis, autoimmune diseases and central nervous system disorders and cancers. In addition, we have expertise in evaluating toxicity of nanomaterials and other emerging new materials. Air Quality studies can be conducted to determine the amount of contaminants in the air. Equipment is available to do field studies to measure the amount of particulates and conduct source apportionment of the particulates. Epidemiology studies can determine if there is an increase in the prevalence of any environmental diseases in populations of interest. These studies would involve accessing health records in hospitals and clinics in areas of interest. Studies can also be conducted on humans using validated questionnaires and/or collection of physiological data, as well as biological samples including exhaled breath condensate, blood or urine.

Environmental Law and Policy

Associate Director and Professor TBD (former School of Law Professor Irma Russell has been serving in this capacity but is no longer at UM). CIRE can work with the USACE and DoD on Environmental Policy and Legal Compliance in Resource Management in the legal policy areas of natural and cultural resources. We have capacity and approaches for best practices and adherence to legal requirements related to hazardous substances in natural environments, restoration ecology and related inquiries. We support assessment and implementation of policy and legal guidelines with attention to the environmental policy statements of the Corps and other federal and state authorities. CIRE does not provide legal advice or practice law. Rather, members of the CIRE team help by identifying legal issues and applicable standards to assist the Corps of Engineers and DoD in achieving goals in line with legal policy and identified best practices. CIRE provides legal research and assessment of applicable requirements for preservation of environmental amenities and values of areas subject to agency projects. Restoration of degraded natural or cultural resources, such as

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historic sites, forests, grasslands, rivers, and wetlands requires assessment in light of legal requirements. Data collection guidelines and other requirements set by regulation, memoranda of understanding, or other contractual undertaking all require monitoring and management in compliance with the mandated or chosen standards.

Social Dimensions of Natural Resources

Associate Director and Assistant Professor Elizabeth Metcalf (also Professor of Recreation Management and Human Dimensions of Natural Resources). The Social Dimensions of Natural Resources is a critical area for understanding stakeholders involved in natural resource management, including recreationists, community members, NGOs, and interfaces with other agencies. Through state-of-the-art research methods and engagement strategies, the public has improved representation in natural resource management. Using both qualitative and quantitative methods CIRE will help the DoD to better understand population parameters while embracing the complexity of natural resource issues. Our approaches often include on-site surveys, mail/web based surveys, focus groups, facilitated discussions, in-depth interviews, and other methods. CIRE also works with managers to solve on-the-ground issues associated with recreation management like crowding and recreation conflict.

Environmental Innovation and Natural Resource Management

Associate Director and Regents Professor Jakki Mohr (also Professor of Marketing and Rosemary and William Gallagher Distinguished Faculty Fellow). As the nation looks for better Environmental and Innovation Initiatives focused on the human dimension of ecological management that includes preservation and restoration, CIRE will work with the DoD to restore degraded environments. New innovations in ecological management of federal lands and waters, especially in the area of restoration ecology, must be implemented to ensure that best practices are utilized. However, existing practices, routines, conflicting goals, incompatible performance metrics, and entrenched communication patterns can inhibit an agencies' ability to change and achieve mandated management goals. Furthermore, managing public perceptions, crafting communication messages to build goodwill with local stakeholders, and utilizing media effectively are essential. CIRE can also provide courses/short courses, workshops, and training in business innovation of natural resource and cultural resource management.

B. Which departments on campus will be involved and how will the Institute/Center contribute to the academic programs of the institution?

The Cooperative Agreement is a large and complex award designed to support a diverse research scope. The Associate Directors, who oversee specific research projects along with other faculty as PIs come from the College of Humanities and Science, College of Forestry and Conservation, College of Health Professions and Biomedical Sciences, School of Business Administration and Alexander Blewett III School of Law. Faculty, graduate and undergraduate students, and staff will be directly involved in CIRE-based research and accompanying building of academics across programs within each unit.

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4. Identify the organizational structure of the Institute/Center within the institution.

A. Identify all agencies, organizations and/or institutions that will be involved.

The Center for Integrated Research on the Environment is organized to maximize project coordination and response efficiencies through an Executive Team and a Management Team. The Executive Team is composed of the CIRE Director and CA Program Director/Principal Investigator, the UM Vice President for Research, the Director of the Office for Research and Sponsored Programs, and the Associate Vice President for Human Resources (see Figure 1). The Executive Team’s responsibilities include program management within the larger University (CIRE Director Hauer), maintaining consistency with university research policy (VPR Whittenburg), contracting and fiduciary responsibilities including pre- and post-CA adherence to all federal, state and university accounting and fiduciary reporting laws and regulations (ORSP Director Fredenberg), and meeting all federal, state and university employment regulations (Assoc. VP-HR Phillips).

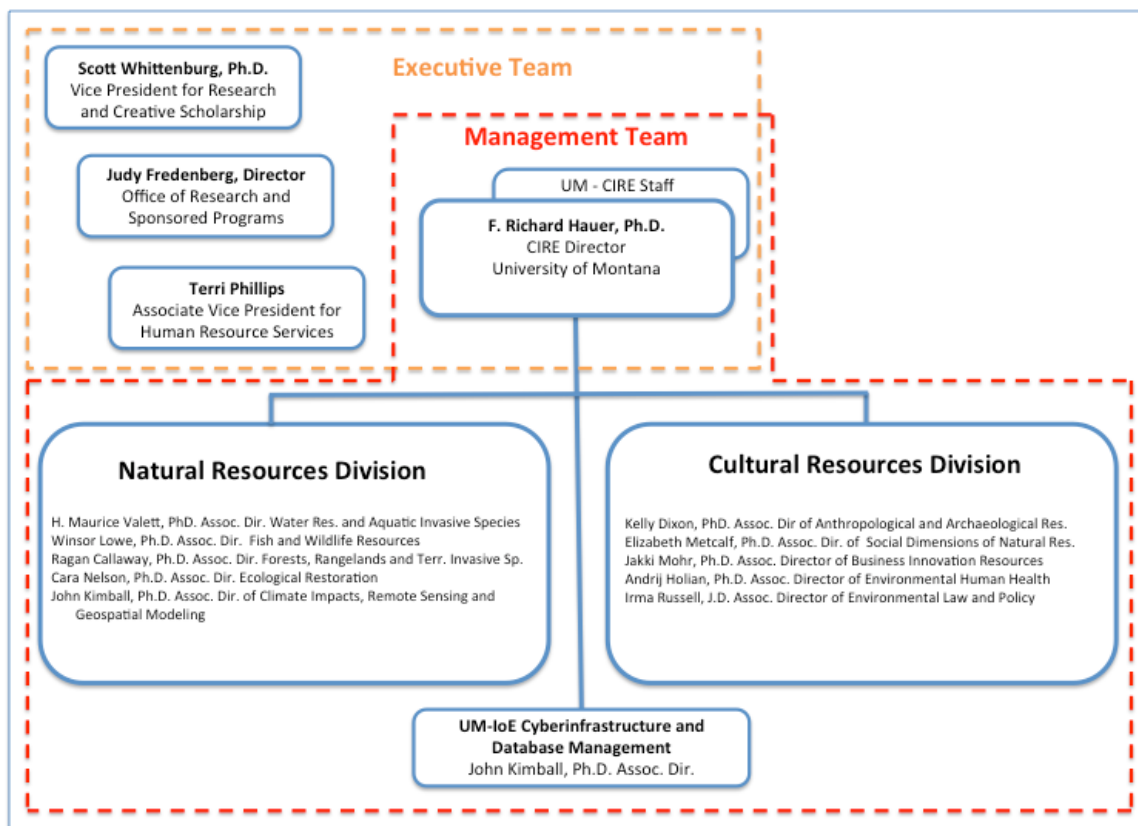


Figure 1. Organization Chart of the Project: the Executive Team (surrounded by dotted Orange Line) assures maximum efficiencies and coherence with federal fiduciary and hiring practices, the Management Team (surrounded by the dotted Red Line) is responsible for implementation of research projects.

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The Management Team is at the core of this Cooperative Agreement (see Figure 1, above). The Management Team's responsibilities are to implement the common research, data collection, support, and management goals of the CA. The Management Team is organized within two overarching topical divisions: a Natural Resources Division and a Cultural Resources Division. The Director of CIRE is responsible for overall program management and is the Program Director/ Principal Investigation of the CA, serving as the primary contact between the university and the Corps. Daily information flow within the CIRE Office is managed by a Program Office Manager who works immediately with the Director to maintain office organization and administrative workflow. The CIRE Fiscal Officer manages fiscal matters including forecasting, fiscal strategies, accounting and purchasing. The CIRRE FO reports directly to the Director to maintain accounts and coordinates these accounts with the Office of Research and Sponsored Programs (ORSP, see above). This assures immediate financial tracking of all accounts and strong accounting coordination between CIRE operations and financial tracking.

B. Identify advisory council information.

The Center for Integrated Research on the Environment has established a Advisory Council composed of the following:

Chair – UM President

Provost and Vice President for Academic Affairs

Vice President for Research and Creative Scholarship

Vice President for Administration and Finance

Dean, College of Humanities and Science

Dean, College of Forestry and Conservation

Dean, College of Health Professions and Biomedical Sciences

Dean, School of Business Administration

Dean, Alexander Blewett III School of Law

The Advisory Council will meet at the end of the fall semester and at the end of the spring semester to review CIRE and provide oversight of activities and fit with the mission of the University of Montana.

5. Identify first year and continuing finances necessary to support the Center/Institute, including the sources of funding.

A. Will additional faculty and other resources be required to implement this Center/Institute? If yes, please describe the need and indicate the plan for meeting this need.

The Center for Integrated Research on the Environment is a UM initiative stemming from the Cooperative Agreement between UM and the US Army Corps of Engineers. This \$45M/5-year award will support the research and support activities of the participating faculty, students and staff, thus no additional funds are needed or requested. The CA funds will provide administrative support; enhance and improve faculty research opportunities;

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provide opportunities for interdisciplinary research; enhance UM infrastructure and development; facilitate new research funding; support graduate and undergraduate student research and workforce development; and encourage outreach and public engagement in the area of environmental science and sustainability. We do not anticipate new tenure line faculty hires. Although, existing faculty engaged in CIRE-based research may add research faculty or post-docs to their labs and thus to the academic unit.

B. Are other, additional resources required to ensure the success of the proposed Center/Institute? If yes, please describe the need and indicate the plan for meeting this need.

Additional resources are not needed for the support of the Center. Sustainability of CIRE beyond the 5-yrs of the current award is highly likely. This projection is based on two things: 1) the level of interest expressed by the US Army Corps of Engineers, and 2) the track record of a similar center at Colorado State University (Center for Environmental Management on Military Lands-CEMML), which has been sustained for over 10 years by individual contracts and a similar cooperative agreement. While CIRE is being developed in specific response to the Cooperative Agreement between UM and the USACE, we expect the Center to work with and have working contracts with other federal, state, tribal or foundation agencies that fund environmental research. No general fund dollars are requested to fund the Center.

6. Describe other similar Centers/Institutes or research capacities in the state and surrounding region.

A. Describe the relationship between the proposed Center/Institute and any similar Centers/Institutes, programs, or research capacities within the Montana University System.

The express purpose of CIRE is to manage the projects associated with the Corps of Engineers contract, consequently there is no other entity in the system that has that purpose. However, there are a number of other initiatives that will either strengthen CIRE or be strengthened by it.

The Montana Institute on Ecosystems (IoE) is a collaborative and complimentary organization that involves multiple partners across the MUS. The IoE is focused around large landscapes and riverscapes of Montana and the integration of ecosystem science across spatial and time scales. The Center for Integrated Research on the Environment is not a competing institute because the focus is more widely expressed across Natural Resources and Cultural Resources with very specific establishment of research relationship with the DoD. We expect faculty and students from across the MUS besides UM-Missoula, especially at MSU-Bozeman, to have research opportunities through CIRE as a direct outgrowth of joint environmental research efforts that have been developed through the IoE since its inception in 2011. We also believe that CIRE-based research fits well into the complementary PhD programs at UM-Missoula and at MSU-Bozeman. Thus, the scope of CIRE will foster both

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intra- and inter-university collaborations, as well as external collaborations that would otherwise be difficult to develop and administer. UM will successfully fulfill its obligations specified in the Cooperative Agreement with the US Army Corps of Engineers by drawing on the enhanced research and education capacity extending across the MUS faculty, thus serving as a model for achieving collaborations across institutions and enhancing total state-wide capacity through pooled resources and common purpose.

Some of the PhD programs at UM and MSU that exist in the areas of Natural Resource and Cultural Resource Management that may be enhanced through CIRE and its collaborative organizational structure with the Montana Institute on Ecosystems across the MUS are:

- UM-Systems Ecology
- UM-Ecology
- UM-Forest and Conservation Sciences
- UM-Fish and Wildlife Biology
- UM-Anthropology
- UM-Geosciences
- UM-Health Professions and Biomedical Science
- UM-Law
- MSU-Ecology and Environmental Sciences
- MSU-Engineering
- MSU-Earth Science
- MSU-Fish and Wildlife Biology

B. In cases of substantial duplication, explain the differences between these and the need for the proposed Center/Institute at an additional institution. Describe any efforts that were made to collaborate with these Centers/Institutes, programs or research capacities. If no efforts were made explain why.

There is no substantial duplication either within the UM or across the MUS.

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

Success in the program and in the Center will be evaluated by the Advisory Council and by the participating faculty, students and staff. Participation in the CIRE research and support activities will extend to tenure-track and research faculty of all ranks and their graduate and undergraduate students at UM and across the MUS. We expect more than 100 faculty and students at UM-Missoula to be involved in CIRE-based research. These faculty and students will represent a broad array of disciplines including, but not limited to, geosciences, atmospheric sciences, forestry, chemistry, biological sciences, environmental health, sustainable business practices, environmental economics, and environmental policy and law. Success will be measured by the successful research conducted and by the involvement of faculty, graduate students, and undergraduates that receive research opportunities embedded within the academic programs distributed across the university and the MUS.

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8. State the internal campus review and approval process which has occurred prior to submission to the Commissioner's Office. Indicate, where appropriate, involvement by faculty, students, community members, professional constituencies, etc.

The organizational development and sustaining approach of the Center were conceived during the proposal development and submission process to the US Army Corps of Engineers RFQ. This was done in cooperation with the UM President and Vice President for Research and Creative Scholarship, the Provost, the Deans of the five Colleges numerated in the Advisory Council (above), and with the collaboration of the ten Associate Directors of CIRE listed on the Organizational Chart and above in Section 3.A.