Research Strategic Planning Committee Recommendations

Our mission

The [Research Council](#) serves as an advisory body to the Vice President for Research and Creative Scholarship (VPRCS) on matters pertaining to the development of research and creative activities at the University of Montana (UM). To this end, the Council recommends guidelines to the VPRCS to maintain a dynamic strategic plan for the Office of Research and Creative Scholarship (ORCS) that will enhance the ability of UM to realize its potential for distinction in research, creative, entrepreneurial, and scholarly activities. In formulating these recommendations, the Research Strategic Planning Committee has considered the Research Strategic Plan, created by the Research Strategic Planning Task Force in February 2011.

Here, we present a plan of action to stimulate research and creative scholarship by UM faculty.

Scope of and support of Research and Creative Scholarship (RCS)

RCS encompasses all forms of creative activity; it is essential to the educational mission of the University, enhances its prestige and enlivens the intellectual life and breadth of its faculty and students. UM's "Discovery and Creativity to Serve Montana and the World", constitutes one of the four planks of the Strategic Plan UM 2020. Also, RCS supports pillar five of the Montana Governor's Main Street Project "Nurture Emerging Industries and Encourage Innovation" and in particular, the goal to "strengthen the role of universities as technology incubators through research, development and commercialization".

Faculty-initiated RCS cannot be conducted with reliance solely on institutional resources available to UM faculty. RCS must be supported from a variety of sources. Research that requires substantial resources in the form of infrastructure, equipment and the participation of students, technicians and postgraduate scholars is typically funded by extramural agencies. Funds from these sources are channeled through the ORCS and are typically augmented by facilities and administration fees, which constitute the primary source of funding for the VPRCS. However, RCS is also supported by other mechanisms: the UM Foundation, direct contracts to faculty, advances and royalties from publishing companies, fees generated through the development of intellectual property, and release from instructional and service duties. Provision of adequate time to conduct research and scholarship, in the form of release time, remains the most fundamental and universal mechanism of support that UM offers to its faculty. Productivity in RCS cannot be achieved without a supportive administrative structure and a focus that supports and coordinates the RCS mission, along with the acquisition of resources and services to support faculty-initiated RCS. Consequently, any plan to promote or facilitate RCS must involve deliberate collaboration among the VPRCS, the Provost, the President, all levels of academic leadership, the Office of Budget and Finance, as well as the faculty.

This committee has identified four essential components to a plan of action to support and sustain RCS:

1) ***Evaluate, quantify and allocate***: RCS promotes student enrollment, retention and success, enhances the prestige and reputation of UM, and stimulates economic development and employment in Montana. However, the value of RCS is not adequately considered in allocation of funds to UM and its departments and centers. Quantifiable or qualitative metrics and indicators that accurately model the contributions of RCS to enrollment, retention, student success, the reputation of UM and the impact of these on the Montana economy must be developed. RCS metrics and indicators should not be used to compare academic units, centers and disciplines with each other, but rather, focus on unit-defined RCS outputs that constitute productivity within the unit's field of endeavor. RCS metrics, with appropriate baselines, should be considered as criteria (in addition to instruction-related needs) for allocation of state general funds, and particularly for performance-based funding, to schools and colleges. Such metrics should supplement the traditional model of measuring productivity though extramural funding, an input that does not capture a substantial share of RCS activity, particularly in the arts and humanities and some of the professional schools.

2) ***Coordinate and Facilitate***: RCS fully integrates the academic and research mission(s) of this campus. Therefore, mechanisms to ensure coordination and cooperation between the Offices of the President, VPRCS and the Provost must be established and institutionalized to facilitate effective and guided support for RCS. Financial resources of UM are limited. Therefore, to use these resources prudently and effectively, UM must develop a cohesive vision for RCS by identifying areas with the greatest existing and potential strengths, emerging trends, technologies and opportunities that merit both near and long-term support. Realization of this vision encompasses competitive faculty hiring, tenure and promotion, support of graduate programs, and core facilities, construction, renovation and allocation of space for RCS and the development of RCS fundraising goals and priorities for the UM Foundation. UM must identify and pursue various sources of support (i.e., state, federal and private) for major RCS initiatives in a coordinated and directed manner. At the same time, all faculty members should be encouraged and supported to pursue RCS in areas of their choosing.

3) ***Incentivize***: Beyond existing incentives (promotion, tenure, merit increases, etc.) faculty must be recognized and rewarded for their pursuit of RCS. Recognition of the value of RCS is reflected by departmental unit standards, availability of resources to help faculty seek and maintain research funding, time afforded to conduct RCS, access to support for students, and access to infrastructure needed to conduct these activities.

4) ***Publicize***: Broader support for RCS, at both private and state level, will require more effective communication of faculty achievements. The significance of faculty research must be disseminated to the public and our elected representatives. UM should establish a centralized RCS communications and public relations infrastructure, with effective tools for data collection and access, instruction and institutional promotion.

The following are specific actions that should be taken by the VPRCS (R), the Provost (P) and Academic Affairs, deans and departments (D) and the Office of Budget and Finance (B), under the leadership of the President and the Montana Board of Regents (BOR):

1) ***Evaluate, quantify and allocate****:*
   a. Establish metrics to measure RCS productivity of academic units. Measures of RCS productivity can be formulated from information received directly from units possibly with the aid of software tools (4a). Inputs (extramural funding of RCS activity and student/tuition waivers generated from extramural funding) and outputs (publications, public recognition for creative works, students employed in RCS) should be measured. Impact of publication/scholarship could be considered as a metric. However, because many established metrics (e.g., H-index) do not fully or accurately capture the impact of RCS by individuals or units, these should be used with caution, or novel metrics should be developed. Qualitative measures, should be considered and be fairly weighted and integrated into a quantitative matrix (R, P, D, B,).
   b. Quantitative and qualitative models used to measure the overall productivity of UM units should incorporate metrics and indicators of RCS productivity devised by and appropriate for each unit and the professional standards of its discipline (1a). The weight accorded to all RCS relative to instructional activity should be based on the contribution of RCS to the mission of UM (R,P, B).
   c. Quantitative models used by the BOR to direct "performance-based funding" allocations, should incorporate metrics of RCS activity (1b) (R, P, President, BOR).
   d. General Funds allocated to MUS institutions should support RCS in proportion to the educational, economic and cultural value of RCS to the state and the nation (R, P, President, BOR).

2) ***Coordinate and Facilitate****:*
   a. Establish a Strategic Goal for UM to attain status as a Carnegie Very High Research University (President, R,P).
   b. Institutionalize mechanisms for communication, collaboration, and joint decision-making between the VPRCS and the Provost, in matters that affect RCS activities at UM, including graduate education, faculty promotion and tenure, faculty recruitment, and allocation, renovation and construction of space devoted to RCS (R, P, President).
   c. Major RCS initiatives typically require substantial support from limited institutional resources. Development of such initiatives should be driven by a long-term UM RCS strategic plan, rather than by incidental opportunities**.** The RCS strategic plan should guide faculty recruitment that is to be supported by extramural research funding (with due consideration of curricular needs), construction and renovation, and fundraising priorities of the UM Foundation. The President should direct the VPRCS and Provost to assemble a faculty and administrative working group to develop and review RCS priorities encompassing all campus sectors: sciences (including biomedical and social sciences), arts and humanities and professional schools. The working group should

identify areas of endeavor in which UM has established strength or is poised to develop strength by virtue of its situation, faculty interests, capabilities, potential to attract students and the potential to attract sufficient extramural, UM Foundation or state funding. The working group should be comprised deans of schools and colleges, along with highly accomplished and nationally-recognized senior faculty and junior faculty who have demonstrated exceptional promise in RCS. The working group should invite the participation of departments, centers and institutes by soliciting proposals to develop particular RCS activities. Findings of the working group should be openly discussed among UM faculty and students at-large, and views of this body should be considered in adopting RCS priorities for UM. Final determination of RCS priorities should be made by the VPRCS, deans and Provost, under the guidance of the President. (R, P, D, President).

    i. The VPRCS and Provost should jointly approve faculty hiring initiatives (establishment of new lines or replacement lines), as recommended by deans, that involve significant RCS activity. Approval of such lines should take RCS priorities (1b) into account, as well as the need to maintain strength in RCS-productive programs that offer graduate degrees at the Ph.D and equivalent levels (R,P, D).

    ii. Allocation of new or existing research space, renovation of existing research space, or creation of new research space should be conducted in consultation with the VPRCS in a manner consistent with UM RCS priorities (1b) (R, P, D, President).

    iii. The President, in consultation with the VPRCS, should propose fundraising goals for the UM Foundation to support RCS in accordance with RCS priorities (1b). These should emphasize completion and renovation of research space, startup funding for faculty hired into tenure-track lines assigned to UM schools and colleges (which could be in the form of named junior professorships and include substantial startup funds as required) and competitive research, innovation, and entrepreneurship fellowships for graduate students (R, President).

    iv. The VPRCS should continue to seek opportunities for major funding for collaborative research within and outside UM, in accordance with RCS priorities (1b) (R). d. Research Centers and institutes that are funded primarily from research grants that pass through the office of the VPRCS should report to and be reviewed by the VPRCS (R).

3) ***Incentivize***:
    a. All departments are encouraged to adopt unit standards that require significant, externally-reviewed (according to the methods and professional standards of the unit) RCS activity reflective of the highest standards within the field for tenure and promotion (D, P), using well-defined metrics (1a).
    b. Consider mechanisms to raise UM faculty salaries to make UM more competitive in attracting and retaining RCS-productive faculty.

    c.   Consider mechanisms to encourage interdisciplinary RCS.

    d.   Funding support:

        i.   Develop and publish guidelines that govern the return of indirect costs through the deans to individual faculty members, departments and centers that is tied to specific disciplines and fields, and includes the RCS contributions of faculty and students (R,D).

        ii.   Create a fund for competitive awards to fund teaching buyouts for approved faculty. Award criteria could include potential for research grant productivity, but also potential outcomes that generally benefit RCS at UM (R). Deans and departments should develop and publish college/school/department-specific guidelines that govern the process by which faculty may apply for teaching buyouts, the criteria by which they are awarded and their monetary value (D, P).

        iii.   Provide departments one Research Assistantship (RA) for every two or three RAs funded by research grants to unit faculty (R).

        iv.   Set aside a source of funds to provide bridge support to productive and established investigators who find themselves unfunded, to maintain support for their laboratories while they are seeking extramural support for their research. Establish and publicize criteria and conditions for bridge funding, and a mechanism by which investigators can apply for bridge funding.

    e.   Resources:

        i.   Protect and grow funding for journal subscriptions and databases endangered by losses of funding to the UM Mansfield Library (Library). Funding of such resources could be tied to RCS productivity of stakeholders (R).

        ii.   Dedicate 1% of indirect cost funds to the Library for collections and open access publishing initiatives (e.g. maintaining ScholarWorks, the UM Institutional Repository; funding institutional memberships with open access publishers such as BioMed Central, which then allow UM researchers to publish at discounted rates).

        iii.   The VPRCS has created mechanisms for support and maintenance of research core facilities that are also funded by user fees and grants. Voucher programs to cover these user fees in the absence of researcher funding have been created by VPRCS and centers. Mechanisms by which new research cores can be created and funded have also been established. These initiatives should be publicized and perhaps expanded. A research core governance committee should be established to evaluate core productivity, recommend funding levels for core facilities, and consider establishing new core facilities based on research needs as articulated by centers and departments, and terminate or direct reorganization of core facilities that are not used or well-managed. Billing and accounting functions of core facilities should be centralized within the Office of the VPRCS to improve oversight, reporting and to ease the administrative burden on core staff (R).

iv. The VPRCS should support a central research computing infrastructure. Important elements include: 1) access to computing hardware, software, operating system and hardware maintenance; 2) access to remote supercomputing and data storage resources; 3) access to software application assistance; 4) support for research data management. These issues are under discussion by various campus groups, including a research computing committee organized by research computing managers at UM. However, there is a need to coordinate efforts of campus research computing managers, IT (Matt Riley) and faculty stakeholders. The VPRCS should be involved in these discussions and strategic plans for achieving specific goals to be defined and implemented (R).

v. TA stipends are grossly underfunded in many units. Recognizing the role of TAs in UM's RCS mission, the VPRCS should develop a collaborative strategy with the office of Academic Affairs to raise TA stipends to a level that is comparable to those in public Carnegie "Very High Research Activity" institutions that are seen to embody the RCS potential of UM (R, P).

vi. Recognition and Awards: The VPRCS should consider establishing annual awards for RCS productivity in several campus sectors (e.g., basic sciences, social sciences, biomedical sciences, professional, humanities, performing/visual arts). Awards could be co-funded by schools, colleges, and departments. The VPRCS should seek opportunities to nominate meritorious faculty, especially junior faculty, for awards and recognition by national societies and foundations (D,R).

vii. Establish mentoring resources for junior faculty. These could include establishment of a group of faculty mentors qualified to advise junior faculty members in grant writing and management, organizing grant-writing workshops, and employing consulting services to assist in organizing and writing grant proposals.

f. Intellectual Property development: already a strong focus of the VPRCS, the UM as a whole must encourage and facilitate this activity. Examples of services to which faculty should have access to include: consultation on intellectual property protection, patent application and licensing. Sources of funding to support these activities should be established. Opportunities for funding of business/academic partnerships (e.g. NIH SBIR grants) should be actively pursued and developed (R).

4) ***Publicize RCS by UM faculty***: Effective communication of RCS across disciplines requires a robust mechanism to collect and report faculty RCS activity, and allow access to tools and methods to communicate RCS work to the public.

a. Devise or acquire a faculty analytics system that can be used across departments to record faculty RCS activity and generate virtual faculty CVs. A comprehensive set of descriptors must be defined that encompass the range of faculty RCS. Capability to capture information from public databases would be desirable. The database should be easily searchable and accessible internally and externally. Data entry should be

straightforward, and information stored could be used for developing *evaluation and quantification* metrics, as well as supporting requests for merit increases, tenure applications and promotion in conjunction with an on-line IPR system (B, IT). This database should include (but not be limited to):

    i.   Books, journal publications, abstracts
    ii.   Professional service (service on review committees, society leadership, government bodies)
    iii.   Community outreach and activities that have broad impact (NSF, broader impact criteria, significant in evaluation of NSF grant applications)
    iv.   Grants/fellowships awarded
    v.   Awards for professional achievement
    vi.   Contributions to public performances and exhibitions
    vii.   Training of graduate students and RCS training/mentoring of undergraduate students
    viii.   Research/scholarship/creative interests

b. Conduct workshops for faculty on communication and outreach to the public, the business community, and our elected officials (P).
c. Maintain a "roster of experts" with expertise in (or who can identify faculty with expertise in) RCS activities at UM and within the MUS system (R).
d. Website development resources to assist faculty in developing their own websites (R, P, B).
e. Access to writing expertise (faculty, interested graduate students) in various departments including, but not limited to: English, Journalism, Marketing and Media Arts (D).
f. Create a comprehensive "one-stop shop" web resource to access tools/methods for public communication through news media, social media, websites (B, IT).

Implementation

The VPRCS shall oversee the organization of task-groups, composed of interested faculty members and those with specific expertise, to implement these Research Strategic Planning Committee's recommendations. Refining, revising, and possibly re-envisioning recommendations will be the first task of each group, a process that will involve outreach to the faculty at-large, campus-wide discussion forums, coordinated data collection efforts and consensus-building platforms. The recommendations set forth above are intended to be specific and actionable, but they are nevertheless seen as a starting point in a process that will require substantial faculty and institutional engagement.