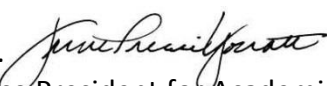



MICHIGAN STATE UNIVERSITY

Memorandum

January 23, 2015

To: Deans, Directors and Chairs

From: June Pierce Youatt, Ph.D. 
Provost and Executive Vice President for Academic Affairs

Stephen Hsu, Ph.D. 
Vice President for Research and Graduate Studies

Subject: Next Steps in the Academic Competitiveness Fund (ACF) Process

On behalf of Provost Youatt and myself, I write to invite submission of full ACF proposals, for consideration by the Office of the Provost and OVRGS within Spring budget planning.

Last semester, 87 pre-proposals were submitted to OVRGS in response to the Academic Competitiveness Fund (ACF) announcement. (A copy of that announcement is attached for your reference.) In cases where pre-proposals exhibited significant topical overlaps, offered opportunity for cross-unit collaboration, or involved large numbers of anticipated hires, OVRGS staff members met with representative faculty proposers to facilitate exploratory conversations regarding those points.

For the avoidance of doubt, full proposals may now be submitted based upon any pre-proposal, whether or not an exploratory conversation has occurred with OVRGS. In the interest of assisting faculty to conserve their time, OVRGS staff will be available (by phone or in person) from January 28th onward, to consult with proposers on the currently anticipated funding prospects for any topic addressed in a pre-proposal.

Unless alternative arrangements are made in advance, full ACF proposals are due in the Office of the Provost and OVRGS by Noon on Monday, March 16, 2015. OVRGS staff will provide copies of all proposals received to OPB.

Each full proposal should contain the following elements, clearly delineated:

- A. An executive summary of what is proposed.
- B. Discussion of each of the six ACF principles in the ACF announcement, vis-à-vis the requested positions. (The principles are listed in bold at the end of the attachment.)



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- C. Where applicable, a discussion of the relevance of the proposed hire(s) to institutional succession planning vis-à-vis retirements and/or recent or threatened external hires of distinguished MSU personnel.
- D. Discussion of all ancillary support, including their costs, which will be needed if the faculty positions are approved. In particular, each of the following should be addressed explicitly:
 - 1. Space needs, if any (new or renovation).
 - 2. Equipment, library, or other infrastructure needs, if any.
 - 3. Financial support for non-tenure system faculty personnel, support staff, or graduate students, if any.
- E. Discussion of the support of the College or Colleges, and alignment with research objectives.

As discussed below, the following optional section may also be included:

- F. Optional -- A discussion of specific individuals elsewhere (and their accomplishments) who might be hired, or who might exemplify individuals appropriate to be hired, within the context of all six of the ACF principles. N.B. – If proposers elect not to include this section due to confidentiality concerns regarding its inclusion in their full proposal, they should state that. They should also be prepared to discuss the same information in a subsequent face-to-face meeting, if their full proposal is otherwise viewed as potentially suitable for approval.

Faculty submitting ACF proposals should comply with the expectations of their colleges, schools, and departments for proposal processing prior to submission. Those expectations may vary considerably by unit, and submitters should inform themselves regarding line expectations as early as possible. ***In the course of reviewing ACF proposals, the Provost and OVRGS will consider the relationship (which should be clearly synergistic) between the ACF positions and support requested and other personnel and support requests being advanced by the cognizant college(s). Thus it will be important for college administrators to be fully informed regarding ACF proposals involving their units.***

On behalf of the Provost and OVRGS, I want to thank all those who have brought their time and creativity to bear on the opportunity presented by the Academic Competitiveness Fund. If you have questions or concerns regarding this, please contact OVRGS staff.

MSU Academic Competitiveness Fund – 2014

Principles and General Intentions

Introduction

In its June 2014 institutional budget action, the MSU Board of Trustees included the creation of an Academic Competitiveness Fund (ACF), potentially comprising up to \$8.7 M in new recurring support beginning in 2014-15 and up to an additional \$6.3 M recurring to begin in 2015-16. This document outlines principles and general intentions for the utilization of the ACF, and provides background for colleges and their departments and schools to consider in preparing specific requests for ACF support.

A central principle of the ACF is that the resources predominantly be utilized for costs associated with tenure system faculty hires that enhance the national and international excellence and competitiveness of MSU as an AAU research university, and one of the hundred outstanding research universities in the world. Throughout the course of *Boldness by Design* and more recent *Bolder by Design* discussions, MSU has taken stock of its scholarly strengths and weaknesses. Through ACF, aggregate improvement is sought in the metrics the AAU, NRC, and leading international evaluators use, including:

- publications,
- citations,
- peer-reviewed extramural support,
- national academy and similar memberships, and
- major fellowships, honors, and awards.

While they are by no means the only indicia of scholarly excellence and competitiveness, such metrics are important measures of the stature MSU has attained, and also compelling indicators of the need for real growth. As academic competition heightens both domestically and abroad, MSU plainly must strive to improve its performance markedly over the coming decade. By providing an unambiguous focus on research and scholarly activity, the ACF offers an avenue for institutional advance that must be used with energy and resolution.

Looking Backward and Forward

The closest analog to the current opportunity for tenure system staffing changes arose in the \$9.7 M “Quality Fund” and the positions established through it in honor of the University’s 2005 Sesquicentennial. Establishment of the Quality Fund was intended to “enhance the quality of the university and the student experience”¹. Quality Fund proposals were subject to “Provost’s Office ... review for student impact”, and 56% of the allocations targeted the “Student Experience” *Bolder by Design* strategic imperative². Thus to first approximation the current ACF hiring opportunity, with its explicit research focus, complements the instructional or student experience emphasis of the Quality Fund.

To achieve the desired outcomes, MSU will need to be truly strategic in its use of the ACF positions and associated funding. *As a key principle, MSU should embrace the proposition that advocacy for competitiveness impacts is meaningful only if the actions of external competitors – including particularly “aspirational peers” and fast-rising international universities -- are considered dispassionately and addressed.* In this regard, it is worth noting that MSU is not alone in planning and funding academic competitiveness activity at this time, as public reports from the Ohio State University³ and Iowa State University⁴ serve to illustrate.

Strategic Alignment with National “Grand Challenges”

The breadth of modern scholarship makes its surveillance and assessment a daunting task. An orthodox approach is for MSU to avail itself of – but not restrict itself to -- the best consensus thinking of research leaders across academe, government, and industry.

On the basis of such thinking, in recent years various agencies and learned bodies have posed “Grand Challenges” to outstanding academic and industrial R&D institutions and their researchers. Such challenges deserve MSU attention as indicators of (a) significant extramural funding availability, and (b) national and international opportunities for world-class collaboration. In assessing proposals for ACF positions and associated funding, MSU will carefully consider alignment with recognized Grand Challenges, such as the following:

- From OSTP at the White House⁵:

¹ <http://president.msu.edu/communications/speeches/speech-2006.html> .

² https://provost.msu.edu/documents/QualityFundPresentation_000.pdf .

³ <http://www.osu.edu/academicplan/stage.html> .

⁴ <http://www.president.iastate.edu/13/pdf/pceie.pdf> .

⁵ <http://www.whitehouse.gov/administration/eop/ostp/grand-challenges> .

- DOE's "SunShot Grand Challenge" is intended "to make solar energy cost competitive with coal by the end of the decade".
 - DoE's "EV Everywhere" seeks "to make electric vehicles that are as affordable as today's gasoline-powered vehicles within the next 10 years".
 - USAID'S "Saving Lives at Birth" challenge "catalyzes groundbreaking prevention and treatment approaches for pregnant women and newborns in poor, low resource communities".
 - NASA's "Asteroid Grand Challenge" seeks to find all asteroid threats to human populations and know what to do about them.
 - NIH, DARPA, and NSF have jointly announced a "Brain Initiative", in order "to revolutionize our understanding of the human mind and uncover new ways to treat, prevent, and cure brain disorders like Alzheimer's, schizophrenia, autism, epilepsy, and traumatic brain injury".
- Some samples from a broader set published by the National Academy of Engineering⁶:
 - "Provide energy from fusion"
 - "Develop carbon sequestration methods"
 - "Provide access to clean water"
 - "Advance health informatics"
 - "Reverse-engineer the brain"
 - "Secure cyberspace"
 - Some plant genomics samples from the USDA⁷:
 - "Expand molecular marker selection tools to create high-resolution genetic maps that can exploit linkage between markers and agronomic traits to include marker assisted selection, quantitative trait locus discovery, positional cloning, and comparative genomics. These resources should be developed to translate and integrate basic research endeavors with applied plant improvement outcomes."
 - "Expand functional genomics research to increase understanding of the biological role of genomic sequence, including coding, regulatory and repeated sequences, and to link these sequences to physiological function."
 - From the Department of Energy Office of Science⁸:

⁶ <http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=02152008> .

⁷ http://www.nifa.usda.gov/nea/plants/in_focus/pbgg_if_grand_challenge_plantgenomics.html .

- “How do we control materials processes at the level of electrons?”
 - “How do we design and perfect atom- and energy-efficient synthesis of revolutionary new forms of matter with tailored properties?”
 - “How do remarkable properties of matter emerge from complex correlations of the atomic or electronic constituents and how can we control these properties?”
 - “How can we master energy and information on the nanoscale to create new technologies with capabilities rivaling those of living things?”
 - “How do we characterize and control matter away - especially very far away - from equilibrium?”
- From the American Academy of Arts and Sciences’ 2013 report entitled *The Heart of the Matter: the Humanities and Social Sciences for a Vibrant, Competitive, and Secure Nation*⁹:
 - “The ethical questions attending the adoption of new technologies.”
 - “The social conditions that provide context for international policy decisions regarding the environment, global health, and human rights.”
 - “The cultural differences that aid or hinder global security.”

Clearly, the examples above are not exhaustive. The examples are listed to illustrate the varying scope and specificity in different Grand Challenge sets identified by different sources. Other authorities posit other Grand Challenges in the same and other areas of scholarship.

A third principle for the ACF is that *proposals for ACF positions that are well aligned with authoritative, externally established Grand Challenges – whether those above, or others -- will be more compelling to ACF proposal evaluators.*

Other Considerations

Although their full analysis falls beyond the scope of this document, three other considerations noted in *Boldness by Design* and *Bolder by Design* deserve attention in

⁸ <http://science.energy.gov/bes/efrc/research/grand-challenges/> .

⁹ http://www.humanitiescommission.org/_pdf/hss_report.pdf .

ACF planning. The first is the current disciplinary pattern of Federal funding availability, growth, and utilization by MSU. Second, MSU must take careful account of the rapid rise of new institutional competitors abroad. Third, ACF must align with MSU's efforts and commitment to create and sustain a diverse community, consistent with societal expectations.

Corresponding principles of ACF may thus be enunciated:

- *Some ACF investments must address the long recognized need for better MSU competitiveness at NIH and various Federal mission agencies.*
- *ACF proposals may be particularly attractive if they offer the opportunity to build on traditional MSU international scholarly strengths, create world-class international research collaborations, or leverage international research funding.*
- *Evaluation of ACF proposals will include explicit review of the proposals' consideration of, and likely impacts upon, MSU institutional diversity.*

A Zeroth-order Budgetary Scenario for the ACF

The assignment of ACF positions and associated funding will depend upon the specific proposals received from the colleges and ultimately approved by the Provost in consultation with OVPRGS. In order to motivate and facilitate positions requests, and to provide transparency regarding an initial for the program, a very preliminary ("zeroth-order") budgetary scenario is summarized below.

Under the scenario:

- Roughly three-quarters of the available recurring funds would be split among (perhaps five?) priority investment areas, for the recurring support of new hires and associated junior personnel.
 - Frontier molecular and genomic methods -- applied to plants, animals, and humans – would almost certainly be among the four areas.

- Other candidates for consideration as priority investment areas might include:
 - Applied computation and data science;
 - Novel and sustainable energy production and storage;
 - Nanotechnology;
 - 21st Century manufacturing, including sustainability;
 - Food and water security, including resource development, management, logistics, and safety;
 - K-12 education, including particularly STEM, literacy, technological facilitation of learning, and languages, augmenting existing MSU strength and resources in mathematics education; and
 - Brain science, aligned with the federal “Brain Initiative”.

- Roughly one-eighth of the total would be devoted to targeted senior hires to strengthen already exemplary programs.
 - Plant and microbial sciences would be likely candidates for some of this support, in part to facilitate their succession planning vis-a-vis intellectual leadership and national prominence.

- Roughly one-eighth of the total would be conserved as recurring funding for non-recurring purposes under the ACF program umbrella, to be used for opportunistic, tactical interventions calculated to enhance MSU academic ACF, eminence, and competitiveness. Example uses might include:
 - High-risk planning support for new “\$100+ M” initiatives, such as three now under discussion. Such support would help bridge the post-conception “valley of death” for projects that require expensive, peer-reviewable architectural, engineering, or other analysis work products before undergoing any extramural funding consideration.
 - Support for artists, musicians, writers, thespians, dancers, journalists, public servants, and similar nationally recognized individuals to be high profile scholars-in-residence in the arts and humanities.
 - Facilitation of retirement and succession plans enhancing program competitiveness.
 - Support for MSU faculty sabbaticals at “top ten” American or similar foreign universities, or reciprocally sabbatical support for visitors from such institutions to come to MSU.
 - Unusual grant or donation matching, including peripheral facilitation of capital campaign donation acceptance when related to academic competitiveness.

The actual hiring of new faculty will necessarily lag search authorizations. Salary savings deriving from the time lags will be accumulated centrally for use to help defray set-up and new hire renovation costs. Units proposing ACF investments will be expected to include clear estimates of *all* associated resource needs, including instrumentation, corollary student support, and space. Additionally, units will be expected to present credible plans to leverage ACF funds creatively: *e.g.*, utilizing resources from retirements and capital campaign donations.

A Two-Phase Path Forward

The ACF does not arise in a strategic planning vacuum, and hence its implementation may reasonably leverage the personnel requests being submitted by campus units through the normal academic planning process. In order to expedite the impact of ACF on institutional stature, a set of “early actions” will receive Provost Office approval to commence in the 2014-15 academic year.

The preponderance of ACF support will be allocated in a second phase, following the *de novo* proposal process outlined below:

- College pre-proposals will be due to OVPRGS, with a copy to the Office of the Provost, on October 15, 2014. The pre-proposals being developed will be identified by colleges in an addendum to their materials submitted for the normal Fall academic planning cycle with the Offices of the Provost and VPRGS.
- OVPRGS staff will review ACF pre-proposals and confer with submitters regarding prospects, and expectations for, and opportunities for synergies in, full ACF proposals by November 15, 2014.
- Colleges will submit final proposals to the Office of the Provost, with copies to OVPRGS, by December 15, 2014. Proposals should reflect each emphasis area’s scholarly strength and readiness to compete successfully for initial external funding through national peer review.
- Budget implications of full ACF proposals will be subject to discussion in the Spring planning cycle discussions with the Offices of the Provost and VPRGS. Coordination of requested ACF investments with colleges’ internal reallocations of financial and space resources (*e.g.*, due to retirements) will be explored in such discussions.
- Notification of units submitting successful ACF applications will occur on a rolling basis.

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Recapitulation of ACF Principles

1. *A central principle of the ACF is that the resources predominantly be utilized for costs associated with tenure system faculty hires that enhance the national and international excellence and competitiveness of MSU as an AAU research university, and one of the hundred outstanding research universities in the world.*
2. *In ACF, MSU should embrace the proposition that advocacy for competitiveness impacts is meaningful only if the actions of external competitors – including particularly “aspirational peers” -- are considered dispassionately and addressed.*
3. *Proposals for ACF positions that are well aligned with authoritative, externally established Grand Challenges – whether those above, or others -- will be more compelling to ACF proposal evaluators.*
4. *Some ACF investments must address the long recognized need for better MSU competitiveness at NIH and various Federal mission agencies.*
5. *ACF proposals may be particularly attractive if they offer the opportunity to build on traditional MSU international scholarly strengths, create world-class international research collaborations, or leverage international research funding.*
6. *Evaluation of ACF proposals will include explicit review of the proposals’ consideration of, and likely impacts upon, MSU institutional diversity.*