

EPSCoR in Missouri

Experimental Program to Stimulate Competitive Research

Request for Concept Papers for the Research Infrastructure Improvement (RII-Track 1) Competition

SUBMISSION DEADLINE

Concept papers should be submitted in PDF format to epscor@missouri.edu by 5:00pm CST on May 1, 2012.

NSF EPSCoR

The Experimental Program to Stimulate Competitive Research (EPSCoR) is designed to fulfill the mandate of the National Science Foundation (NSF) to promote scientific progress nationwide. The EPSCoR program is directed at those jurisdictions that have historically received lesser amounts of NSF Research and Development (R&D) funding. Through this program, NSF establishes partnerships with government, higher education and industry that are designed to effect sustained improvements in a state's or region's research infrastructure, R&D capacity, and hence, its national R&D competitiveness.

Research Infrastructure Improvement Program: Track-1 (RII Track-1) awards provide up to \$4 million per year for up to 5 years to support physical, human, and cyberinfrastructure improvements in research areas selected by the jurisdiction's EPSCoR governing committee as having the best potential to improve the long-term R&D competitiveness of the jurisdiction.

Missouri's NSF funding made it EPSCoR-eligible in Fall 2011, and a statewide team submitted the required planning grant proposal in January 2012. If that proposal is awarded, an RII Track-1 proposal will be submitted in October 2012.

The RII Track-1 competitions are increasingly competitive. While the announcement for 2012 may differ, the current RII announcement can be found here for reference:

http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf11565

MISSOURI'S EPSCoR THEME

The general theme of the Missouri RII program will center on *biosciences as they are supported by cyberinfrastructure*. Bioscience research represents a clear point of leverage for raising Missouri's research enterprise as a whole. Bioscience research is by far Missouri's strongest magnet for NSF funding, attracting over four times the number of awards made in FY09-FY11 as the next strongest areas among the State's target clusters. In addition to NSF awards, the state's institutions attracted over \$2 billion in NIH awards during this period, further documenting the strength of the state's bioscience research as it pertains to human health.

The relative weakness of the state's cyberinfrastructure, however, limits further growth in the bioscience research enterprise, which is increasingly dependent upon the ability to store, manage and mine very large datasets.

The *biosciences as they are supported by cyberinfrastructure* is a very broad theme, however, and the Missouri EPSCoR Governance Committee seeks concept papers from Missouri's science and education community to help identify the most powerful points of leverage within this theme for boosting and integrating the state's infrastructure.

GUIDING PRINCIPLES

1. “Infrastructure” (including cyberinfrastructure) is broadly defined and can include equipment and facilities, but also people and programming. This definition does not, however, extend to include individual research projects.
2. Missouri’s planning process seeks to identify and build upon the concepts with the most transformative potential, concepts that build on the state’s strengths and those that leverage EPSCoR investments in other states.
3. Active participation of 2-year and 4-year colleges and K–12 schools in research and STEM education activities is absolutely central to and a requirement of the EPSCoR mission.
4. The best strategy for developing Missouri’s ability to make significant contributions to the national research and economic development agenda is to build niche areas of statewide excellence.
5. All RII programs must be sustainable beyond the period of NSF EPSCoR support.
6. Missouri EPSCoR should stand out for conducting high-risk but potentially high-payoff research, as described in EPSCoR 2020 and in the FY2012 NSF EPSCoR solicitation.

REQUEST FOR CONCEPT PAPERS

The process outlined below reflects these guiding principles. In this preliminary stage, Missouri’s EPSCoR Governance Committee is seeking concept papers that fall into one or more of the following four areas:

- Research programs with a focus on the *biosciences as they are supported by cyberinfrastructure* that could form the core of the state proposal. Cross-cutting themes in animal-plant-human biology, from single cell to eco-systems are especially welcome.
- Innovative concepts for integrating research with STEM education at any level from pre-K through continuing education of professionals.
- Transformative concepts for the sustainable engagement of traditionally underserved communities in STEM fields.
- Cyberinfrastructure (CI) innovations that support discovery and learning.

This is a request for preliminary concepts. At this stage, these short papers should not try to satisfy the RII expectations for state-wide engagement of all colleges and universities or for inclusion of the multiple aspects of human resource development. That said, authors should feel free to point out potential linkages, especially in cases where collaborations have already been initiated. This solicitation is open to Missouri’s research, education, and technology development communities.

The ideas in the Concept Papers will be judged based on the *transformative and innovative* nature of the proposed work. For Missouri to be competitive in the EPSCoR competition, we must convince reviewers that the EPSCoR investment will result in a significant transformation or major leap forward. Incremental progress is not the focus of the EPSCoR program. *This is an invitation to think big.* Additional review considerations will include the following:

- Potential to build networks across scientific and educational communities
- Consistency with the NSF EPSCoR RII solicitation

- Linkage to the department, college and institutional strategic plans and the Missouri Science & Technology Plan, where appropriate
- Potential to meet national research and local needs

Since individual concept papers are not expected to cover the full spectrum of EPSCoR RII proposal requirements, applicants should focus on a specific idea. The objective of the review process will be to develop a team environment that leads to a major, cohesive initiative rather than a collection of individual research projects. EPSCoR RII is not intended to fund individual research *per se* but rather research infrastructure strategies that will lead to a major increase in the region's competitive capacity.

CONCEPT PAPER FORMAT

Concept papers must follow the format and guidelines detailed below.

- Maximum 6 pages (including the cover page and narrative)
- References Cited (not counted in the page limit)
- 2-page NSF-formatted biographical sketch for each author listed (not counted in page limit) (Please see the NSF Grant Proposal Guide: http://nsf.gov/pubs/policydocs/pappguide/nsf11001/gpg_2.jsp#IIC2f)
- 12-point Times New Roman font (smaller type size may be used in tables, figures and captions)
- 1-inch margins
- A maximum of THREE authors may be associated with each concept paper.
- An individual may appear as lead author on only ONE concept paper and as a second or third author on no more than two others (i.e., an individual's name may appear on no more than three concept papers).

CONCEPT PAPER PREPARATION

Cover Page (1 page)

A cover page must be included (template attached). The cover page includes a 100 word summary.

Narrative (Up to 5 pages)

The narrative should be organized around the following section headings:

1. Concept Overview

This section should provide a brief narrative description of the proposed work, including the following:

- Summary of the concept
- Transformative nature of the concept

- How this concept represents a point of leverage for building Missouri’s research and technology enterprise
- How this concept will transform the research/education culture of Missouri and the author(s)’ institution(s)
- Similar programs at other institutions outside Missouri that might compete with and/or complement this concept
- Who will benefit in Missouri and the region
- How this concept will contribute to national research needs

2. Existing Resources

This section should describe existing state and institutional resources or prior investments that this concept would exploit, including the following:

- Related work that has been funded (if any)
- Existing or proposed collaborations with nationally recognized individuals or programs in the proposed area
- Names of programs at NSF, other federal agencies, or private entities which future funding requests would target

3. Institutional Priorities

This section should provide a brief description of how the proposed concept links to institutional plan(s).

CONCEPT PAPER REVIEW

The concept papers will be reviewed by an external advisory panel for the quality of the science and/or scholarship, the efficiency and effectiveness of cyberinfrastructure ideas, and/or the pedagogical and practical soundness of plans for developing the state’s human infrastructure. Recommendations of the external advisory panel will be considered by the Governance Committee, in light of the committee members’ broad knowledge of the state’s context, to narrow the EPSCoR program’s focal theme(s).

RII TRACK-I PROPOSAL DEVELOPMENT

After the Governance Committee narrows EPSCoR Missouri’s theme, implementation objectives and activities for EPSCoR Missouri will be prioritized. This decision-making will include identifying working groups, naming members and chairs for these groups, and charging each group with specific responsibilities for the development of Missouri’s RII proposal. We anticipate that working groups will convene in early July to initiate this phase of the planning process.

**EPSCoR Missouri
Concept Paper Cover Sheet**

Project Title: _____

EPSCoR Area(s) (check all that apply):

- Concepts for Bioscience Research as they are Supported by Cyberinfrastructure
- Concepts for Integrating Research with STEM Education
- Concepts for the Sustainable Engagement of Traditionally Underserved Communities in STEM Fields
- Cyberinfrastructure (CI) innovations that support discovery and learning.

Does the proposal include an educational component?

- Yes No

Project Director/Principal Investigator:

Name _____

Email _____

Department _____

Institution _____

Contact person (if different than PD/PI):

Name _____

Email _____

Department _____

Institution _____

Additional Participants

Department & Organization

1. _____

2. _____

PROJECT SUMMARY (100 words or less):