Title: Improving Undergraduate STEM Education: Education and Human Resources (IUSE:HER)
Sponsor: NSF

Abstract: The fields of science, technology, engineering, and mathematics (STEM) hold much promise as sectors of the economy where we can expect to see continuous vigorous growth in the coming decades. STEM job creation is expected to outpace non-STEM job creation significantly, according to the Commerce Department, reflecting the importance of STEM knowledge to the US economy.

The National Science Foundation (NSF) plays a leadership role in development and implementation of efforts to enhance and improve STEM education in the United States. Through the NSF Improving Undergraduate STEM Education (IUSE) initiative, the agency continues to make a substantial commitment to the highest caliber undergraduate STEM education through a Foundation-wide framework of investments. The IUSE: EHR program is a core NSF undergraduate STEM education program that seeks to improve the effectiveness of undergraduate STEM education for both majors and non-majors. The program is open to application from all institutions of higher education and associated organizations. NSF places high value on educating students to be leaders and innovators in emerging and rapidly changing STEM fields as well as educating a scientifically literate populace. In pursuit of this goal, IUSE: EHR supports projects that have the potential to improve student learning in STEM through development of new curricular materials and methods of instruction, and development of new assessment tools to measure student learning. In addition to innovative work at the frontier of STEM education, this program also encourages replications of research studies at different types of institutions and with different student bodies to produce deeper knowledge about the effectiveness and transferability of findings.

IUSE: EHR also seeks to support projects that have high potential for broader societal impacts, including improved diversity of students and instructors participating in STEM education, professional development for instructors to ensure adoption of new and effective pedagogical techniques that meet the changing needs of students, and projects that promote institutional partnerships for collaborative research and development. IUSE: EHR especially welcomes proposals that will pair well with the efforts of NSF INCLUDES (https://www.nsf.gov/news/special_reports/nsfincludes/index.jsp) to develop STEM talent from all sectors and groups in our society. Collaborations are encouraged between IUSE proposals and existing INCLUDES projects, provided the collaboration strengthens both projects. For all the above objectives, the National Science Foundation invests primarily in evidence-based and evidence-generating approaches to understand and improve STEM learning and learning environments, improve the diversity of STEM students and majors, and prepare STEM majors for the workforce. In addition to contributing to STEM education in the host institution(s), proposals should have the promise of adding more broadly to our understanding of effective teaching and learning practices.

The IUSE: EHR program recognizes and respects the variety of discipline-specific challenges and opportunities facing STEM faculty as they strive to incorporate results from educational research into classroom practice and work with education research colleagues and social science scholars to advance our understanding of effective teaching and learning.

Toward these ends the program features two tracks: (1) Engaged Student Learning and (2) Institutional and Community Transformation. Two tiers of projects exist within each track: (i) Exploration and Design and (ii) Development and Implementation.

Deadline are as follows:

Development and Implementation Tier Engaged Student Learning & Institution and Community Transformation Deadline:
December 12, 2017 and December 11, 2018

Exploration and Design Tier for Engaged Student Learning & Institution and Community Transformation Deadline:
October 1, 2017 – September 30, 2019
Deadline: Proposals Accepted at Anytime

record of the production, transportation, and deposition of modern and ancient physical and chemical sediments. (3) The science of dating and measuring the sequence of events and rates of geological processes as embodied in Earth's deep time (pre-Holocene) sedimentary and biological (fossil) record; and (4) the geologic record of the production, transportation, and deposition of modern and ancient physical and chemical sediments.

Title: Sedimentary Geology and Paleobiology
Sponsor: NSF
Abstract: Sedimentary Geology and Paleobiology supports innovative research that addresses the deep-time sedimentary crust and advances our understanding of environmental and evolutionary change. The program seeks to fund projects that focus on: (1) the changing aspects of life, ecology, environments, and biogeography in geologic time based on fossil organisms and/or sedimentological data; (2) all aspects of the Earth's sedimentary lithosphere—insights into the geological processes and rich organic and inorganic resources locked in rock sequences; (3) the science of dating and measuring the sequence of events and rates of geological processes as manifested in Earth's deep-time (pre-Holocene) sedimentary and biological (fossil) record; and (4) the geologic record of the production, transportation, and deposition of modern and ancient physical and chemical sediments.

Deadline: Proposals Accepted at Anytime
Title: **Discovery Research PreK-12**  
**Sponsor:** NSF  
**Abstract:** The Discovery Research PreK-12 program (DRK-12) seeks to significantly enhance the learning and teaching of science, technology, engineering and mathematics (STEM) by PreK-12 students and teachers, through research and development of STEM education innovations and approaches. Projects in the DRK-12 program build on fundamental research in STEM education and prior research and development efforts that provide theoretical and empirical justification for proposed projects. Projects should result in research-informed and field-tested outcomes and products that inform teaching and learning. Teachers and students who participate in DRK-12 studies are expected to enhance their understanding and use of STEM content, practices and skills.  
DRK-12 invites proposals that address immediate challenges that are facing preK-12 STEM education as well as those that anticipate radically different structures and functions of preK 12 teaching and learning. The DRK-12 program has three major research and development strands: (1) Assessment; (2) Learning; and (3) Teaching. The program recognizes the synergy among the three strands and that there is some overlap among them. However, PIs should identify a clear focus of the proposed research efforts (i.e., assessment, learning, or teaching) consistent with the proposal’s main objectives and research questions. The program supports five types of projects: (1) Exploratory, (2) Design and Development, (3) Impact, (4) Implementation and Improvement, and (5) Conferences and Syntheses. All five types of projects apply to each of the three DRK-12 strands.  
**Deadline:** November 14, 2017 and November 14, 2018

Title: **Earth Sciences: Instrumentation and Facilities**  
**Sponsor:** NSF  
**Abstract:** The Instrumentation and Facilities Program in the Division of Earth Sciences (EAR/IF) supports meritorious requests for infrastructure that promote research and education in areas supported by the Division. EAR/IF will consider proposals for: 1) Acquisition or Upgrade of Research Equipment that will advance laboratory and field investigations and student research training opportunities in the Earth sciences. The maximum request is $500,000. The maximum request for upgrade of research group computing facilities remains $75,000. 2) Development of New Instrumentation, Techniques or Software that will extend current research and research training capabilities in the Earth sciences. The maximum request is $500,000. 3) Community Facility Support to make complex and expensive instruments, systems of instruments or services broadly available to the Earth science research and student communities. There are no maximum request limitations but potential proposers of new Community Facilities must contact cognizant Program Officers before submission. Planned research uses of requested instruments, software, and facilities must include basic research on Earth processes SUPPORTED BY CORE PROGRAMS OR SPECIAL PROGRAMS OF THE DIVISION OF EARTH SCIENCES (see [http://www.nsf.gov/div/index.jsp?div=EAR](http://www.nsf.gov/div/index.jsp?div=EAR) for a current list of programs funded by the Division of Earth Sciences). Support is available through grants or cooperative agreements awarded in response to investigator-initiated proposals. Human resource development and education are expected to be an integral part of all proposals submitted to EAR/IF. Efforts to support participation of underrepresented groups in laboratory and/or field instrument use and training are encouraged. Proposals from early career (tenure track but untenured) lead investigators are also encouraged. Such proposals will be given due consideration as part of the Broader Impacts merit review criterion. All proposers to EAR/IF are encouraged to consider Support of Outreach and/or Broadening Participation Activities. Proposals submitted to the EAR/IF Program may request up to $20,000 for such activities (please refer to Sections V.A Proposal Preparation Instructions and V.B Budgetary Information). Proposals for Community Facility Support are excluded from the $20,000 maximum for outreach and broadening participation activities. Proposals requesting equipment, infrastructure or personnel that will also serve disciplines outside the Earth sciences may be jointly reviewed with other programs within the Foundation. EAR/IF will consider co-funding of projects with other NSF programs and other agencies. Potential applications who consider joint review a possibility for their proposal are encouraged to contact the relevant program officer to discuss this possibility.  
**Deadline:** Proposals Accepted At Anytime
Title: **EHR Core Research**  
**Sponsor:** NSF  
**Abstract:** The EHR Core Research (ECR) program of fundamental research in STEM education provides funding in critical research areas that are essential, broad and enduring. EHR seeks proposals that will help synthesize, build and/or expand research foundations in the following focal areas: STEM learning, STEM learning environments, STEM workforce development, and broadening participation in STEM. The ECR program is distinguished by its emphasis on the accumulation of robust evidence to inform efforts to (a) understand, (b) build theory to explain, and (c) suggest interventions (and innovations) to address persistent challenges in STEM interest, education, learning, and participation. The program supports advances in fundamental research on STEM learning and education by fostering efforts to develop foundational knowledge in STEM learning and learning contexts, both formal and informal, from childhood through adulthood, for all groups, and from the earliest developmental stages of life through participation in the workforce, resulting in increased public understanding of science and engineering. The ECR program will fund fundamental research on: human learning in STEM; learning in STEM learning environments, STEM workforce development, and research on broadening participation in STEM.  
**Deadline:** September 14, 2017

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Title: **Target Grants in Mathematics and Physical Sciences**  
**Sponsor:** Simons Foundation  
**Abstract:** The program is intended to support high-risk projects of exceptional promise and scientific importance on a case-by-case basis.  
**Deadline:** Letter of Intent: Rolling Deadline

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Title: **Research and Exploration Grant**  
**Sponsor:** National Geographic Society  
**Abstract:** The National Geographic Society awards grants for scientific field research and exploration through its Committee for Research and Exploration. All proposed projects must have both a geographical dimension and relevance to other scientific fields and be of broad scientific interest. Applications are generally limited to the following disciplines: anthropology, archaeology, astronomy, biology, botany, geography, geology, oceanography, paleontology, and zoology. In addition the committee is emphasizing multidisciplinary projects that address environmental issues (e.g., loss of biodiversity and habitat, effects of human-population pressures).  
**Due Date:** Continuous

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Title: **High-Risk Research in Biological Anthropology and Archaeology**  
**Sponsor:** NSF  
**Abstract:** Anthropological research may be conducted under unusual circumstances, often in distant locations. As a result the ability to conduct potentially important research may hinge on factors that are impossible to assess from a distance and some projects with potentially great payoffs may face difficulties in securing funding. This program gives small awards that provide investigators with the opportunity to assess the feasibility of an anthropological research project. The information gathered may then be used as the basis for preparing a more fully developed research program. Projects which face severe time constraints because of transient phenomena or access to materials may also be considered. Investigators must contact the cognizant NSF Program Director before submitting an HRRBAA proposal. This will facilitate determining whether the proposed work is appropriate for HRRBAA support.  
**Due Date:** Proposals Due at Anytime
Title: Toyota USA Foundation Grant  
Sponsor: Toyota USA Foundation  
Abstract: The Toyota USA Foundation is committed to enhancing the quality of K-12 education by supporting innovative programs and building partnerships with organizations dedicated to improving the teaching and learning of mathematics, science and environmental science. A high priority is placed on the following:  
- Creative and innovative programs which develop the potential of students and/or teachers;  
- Programs which are broad in scope and incorporate systemic approach; and,  
- Cost-effective programs that possess a high potential for success with relatively low duplication of effort.  
Grants are provided to support the development and implementation of programs that generally range from $50,000 - $500,000. The Foundation will only fund a program one time; however, a grant recipient may present a new program for consideration after three years.  
The Toyota USA Foundation reviews applications continually and does not have deadlines. The review process can take up to six months.  
Funds are not provided for:  
- Routine business expenses, operating costs, annual fund drives or deficit reductions  
- Endowments, capital campaigns, fund-raising events, construction and equipment (except as noted above where the equipment is as a component of an eligible program)  
- Conferences  
- Publication subsidies, advertising and mass mailings  
- Lobbying organizations, political parties, labor organizations, fraternal groups and religious organizations  
- Individual scholarships  
- Vehicle donations  
- Scholarships  
- Sports teams  
- Non U.S.-based charities  
- Organizations without 501©(3) status  
Currently, the Toyota USA Foundation will review applications that range between a total of $50,000 to $200,000.  
Due Date: Continuous