Kevin Snyder will share how one seemingly silly goal in his life - to appear as a contestant on the famed CBS television program, *The Price is Right* - became a lesson in passion, persistence and payoff. He will show how a determined approach to personal goals, no matter how ambitious or trivial, can change your life. Kevin teaches students how to focus on their goals, tap into their own inner willpower, overcome obstacles, and find delight in their missions.

Kevin Snyder studied Marine Biology at the University of North Carolina at Wilmington. He earned his Masters degree from the University of South Carolina and is currently pursuing a Doctorate from the University of Central Florida. Kevin is a University Administrator and has worked in the areas of: Greek Life, Student Orientation, Counseling, and Residence Life. His focus in his work is helping leaders identify their passions, take action, and lead fulfilled lives.
General instructions for paper submission for Quest Proceedings and the template can be found on the ORSP home page.

Papers must be submitted to Linda Cook (lcook@oswego.edu) by end of day, Monday, April 6, 2009.

Before submission, papers written by students must be reviewed and edited by a faculty sponsor. Faculty sponsor should make sure that the paper is in the format specified. Papers which do not follow the guidelines will be returned to faculty sponsors or authors. Editors will reject papers lacking in quality and proper content. Papers in proper format will be edited and reviewed by a committee from student SCAC and published in Quest Proceedings before the last day of spring classes. Authors may only use MS Word (please specify the version used).

## Campus Grants Timeline

For information and application materials for campus grants, visit our web site http://www.oswego.edu/administration/ORSP/index.html and look under Campus Grants & Awards.

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<td>STUDENTS—Graduate &amp; Undergraduate Scholarly &amp; Creative Activity Grants</td>
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<td>FACULTY—President’s Award for Scholarly &amp; Creativity and Research</td>
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<td>FACULTY &amp; STUDENTS—Student/Faculty Collaborative Challenge Grants</td>
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Economic Recovery

The American Recovery and Reinvestment Act (ARRA) includes funding for many federal agency programs that support college and university activities, particularly in the areas of infrastructure and instrumentation; education and training; and research.

The State University of New York has created a site to provide you with current information relative to ARRA opportunities and links directly to web pages for the federal agencies highlighting its ARRA activities, as required by the legislation. They have designated four areas that will contain information about opportunities for our campuses. They are:

1) Infrastructure and Instrumentation Opportunities;
2) Education and Training Opportunities;
3) Research Opportunities and
4) Other Grant Opportunities.

Also posted are links to the ARRA legislation and their summaries; links to individual federal agencies web pages related to the ARRA; the link to Governor Paterson's Economic Recovery Task Force and initiatives site, and NYSTAR's Economic Recovery webpage.

Visit the site for complete information.

http://www.suny.edu/govtRelations/federal/economic_recovery/index.cfm

Workshops

Come join us this semester for an open house forum to discuss your research and scholarly ideas, answer questions, and talk about potential funding opportunities.

This semester, in lieu of organized workshop presentations, ORSP staff will be available on the first Friday of each month from 12:00 to 1:00 (or later, if additional time is needed). This will be a chance for us to learn more about what your specific interests and how we can best facilitate support for you.

Please feel free to drop in and bring your ideas. We will help you focus your ideas and develop an externally fundable project. The grantsmanship process is not as challenging as it may seem when you put many hands and heads together.

When: April 3 and May 1.

Time: 12:00 p.m. to 1:00 p.m.

Place: Room 4, Penfield Library (lower level)

No RSVP necessary!
ARTS

CIES, Fulbright Programs--Africa--Guinea--Fine Arts and Music [92788]
Deadline: 08/01/09
Synopsis: The sponsor provides a lecturing or lecturing/research award in fine arts and music tenable at the Higher Institute of Fine Arts, Dubreka. Grants are for ten months. French proficiency is required for lecturing.
Objectives: The grantee will: teach undergraduate courses in fine arts or music; assist in developing curriculum and give faculty, staff and student seminars; and conduct research in his/her area of specialization. Specializations sought are: Ph.D. or master of fine arts in arts education, photography, painting, drawing sculpture, ceramics, art history, music education, performance, music history, and the history of musical instruments.

NEA, Grants for Arts Projects--Learning in the Arts for Children and Youth [46842]
Deadline: 06/11/09
Synopsis: The Learning in the Arts for Children and Youth category offers funding for projects that help children and youth acquire knowledge and understanding of and skills in the arts.
Objectives: The Learning in the Arts for Children and Youth category offers funding for projects that help children and youth acquire knowledge and understanding of and skills in the arts. Projects must provide participatory learning and engage students with skilled artists, teachers, and excellent art. Funded projects apply national or state arts education standards. All projects submitted to the Learning in the Arts category must include: Experience: Students and their teachers will have the chance to experience exemplary works of art -- in live form where possible. Study: Through the guidance of teachers, teaching artists, and cultural organizations, students will study works of art in order to understand the cultural and social context from which they come, and to appreciate the technical and/or aesthetic qualities of each work. Where appropriate, study will include the acquisition of skills relevant to practicing the art form. Performance: Informed by their experience and study, students will create artwork. In the case of literature, the primary creative activities will be writing and/or recitation. Assessment: Students will be assessed according to national or state arts education standards. Where appropriate, projects will employ multiple forms of assessment including pre- and post-testing.

EDUCATION

NEA Foundation for the Improvement of Education [81624]
Deadline: 06/01/09, 10/15/09
Synopsis: The sponsor provides grants to support public school teachers, public education support professionals, and/or faculty and staff in public institutions of higher education in either Learning & Leadership or Student Achievement.
Objectives: Grants are awarded in the following categories: Learning & Leadership: Grants to individuals fund participation in high-quality professional development experiences, such as summer institutes or action research. Grants to groups fund collegial study, including study groups, action research, lesson study, or mentoring experiences for faculty or staff new to an assignment. All professional development must improve practice, curriculum, and student achievement. Student Achievement: The sponsor provides grants to improve the academic achievement of students in U.S. public schools and public higher education institutions in any subject area(s). The proposed work should engage students in critical thinking and problem solving that deepen their knowledge of standards-based subject matter. The work should also improve students’ habits of inquiry, self-directed learning, and critical reflection. Proposals for work resulting in low-income and minority student success with honors, advanced placement, or other challenging curricula are particularly encouraged. Grant funds may be used for resource materials, supplies, equipment, transportation, software, or scholars-in-residence. Although some funds may be used to support the professional development necessary to implement the project, the majority of grant funds must be spent on materials or educational experiences for students.

NSF, Computational Science Training for Undergraduates in the Mathematical Sciences [87393]
Deadline: 10/17/09
Synopsis: The sponsor provides funding to enhance computational aspects of the education and training of undergraduate students in the mathematical sciences--mathematics and statistics--and to better prepare these students to pursue careers and graduate study in fields that require integrated strengths in computation and the mathematical sciences.
Objectives: The goal of Computational Science Training for Undergraduates in the Mathematical Sciences (CSUMS) is to enhance computational aspects of the education and training of undergraduate students in the mathematical sciences--mathematics and statistics--and to better prepare these students to pursue careers and graduate study in fields that require integrated strengths in computation and the mathematical sciences. The core of the activity is long-term research experiences for cohorts of at least six undergraduates. Projects must focus on research topics that require interplay between computation and mathematics or statistics. They should expose students to contemporary mathematics, statistics, and computation, addressed with modern research tools and methods. That is, projects must be genuine research experiences rather than rehearsals of research methods. Interdisciplinary projects are encouraged, and appropriate mentorship from the disciplines involved is
welcomed. In addition, the sponsor expects that projects will strengthen the research and education capacity, infrastructure, and culture of the participating institutions. To this end, the sponsor welcomes projects that create models for education in the mathematical sciences and influence the direction of academic programs for a broad range of students.

HEALTH & WELLNESS

AHRQ, Utilizing Health Information Technology (IT) to Improve Health-Care Quality [99427]
Deadline: 05/25/09, 09/25/09, 01/25/10, 05/25/10, 09/25/10, 01/25/11
Synopsis: The sponsor provides support for health information technology (IT) demonstration projects that evaluate factors associated with successful implementation and utilization of health IT in order to improve the quality, safety, effectiveness and efficiency of health care in ambulatory settings and in the transitions between care settings. The use of health IT has been demonstrated to improve health care in various large health care delivery systems. Yet, there has been limited diffusion and evaluation of the implementation and utility of health IT in ambulatory care settings and in transitions between care settings. This FOA supports real world demonstration projects that evaluate factors (facilitators and barriers) associated with successful health IT implementation and use and ultimately improve health care outcomes. As appropriate, facilitators and barriers to health IT implementation may include adequacy of engagement and training of health care staff, patients, and family in the use of health IT; characteristics of the health care setting; organizational processes and practices; workflow; adequacy of health IT implementation plan; nature of technical support of health IT; integration of new health IT with existing health IT; and, other factors. Applications responding to this FOA must seek to evaluate and demonstrate how to optimize functionality of existing health IT; implement health IT in new settings or with new providers and patient populations; or, demonstrate sustainability of health IT. This FOA will use the AHRQ Research Demonstration and Dissemination Projects (R18) grant mechanism.
Objectives: This FOA supports the conduct of demonstration research grants that rigorously evaluate health IT implementation to improve the quality, safety, effectiveness and efficiency of health care in ambulatory settings and that support transitions in care between ambulatory settings or ambulatory and non-ambulatory settings. These grants must evaluate the utilization and implementation of health IT and be designed to provide scientific findings about the implementation process of health IT and its effects on quality and safety. AHRQ is interested in supporting health IT demonstration projects for which the findings regarding the health IT functionality or implementation approach are demonstrated to be transferable to other settings or circumstances. Applications responsive to this FOA should also include a small strategic dissemination plan. This FOA is focused on three research areas of interest: Health IT to improve the quality and safety of medication management via the integration and utilization of medication management systems and technologies; Health IT to support patient-centered care, the coordination of care across transitions in care settings, and the use of electronic exchange of health information to improve quality of care; and, Health IT to improve health care decision making through the use of integrated data and knowledge management. Each application must clearly identify one of these research areas as the primary research area to be addressed.

HUMANITIES

NEH, Challenge Grants [00607]
Deadline: 05/05/09
Synopsis: The sponsor provides support to help institutions and organizations secure long-term improvements in and support for their humanities programs and resources. These challenge grants require applicants to match federal funding.
Objectives: Challenge grants help institutions and organizations secure long-term improvements in and support for their humanities programs and resources. Awards are made to museums, public libraries, colleges, research institutions, historical societies and historic sites, public television and radio stations, universities, scholarly associations, state humanities councils and other nonprofit entities. Because of the matching requirements, these awards also strengthen the humanities by encouraging nonfederal sources of support. Both federal and nonfederal funds must provide long-term benefits to the humanities. Challenge grant funds should not merely replace funds already being expended on the humanities, but instead should reflect careful strategic planning to improve and strengthen the institution's activities in and commitment to the humanities.

NEH, Programming Grants to Accompany NEH On the Road Exhibitions [94330]
Deadline: 12/31/09
Synopsis: These grants support ancillary public humanities programs to accompany NEH on the Road traveling exhibitions
Objectives: Typical formats involve lectures, reading and discussion programs, film discussion programs, Chautauqua presentations by scholars, family programs, exhibition tours, or other appropriate formats for reaching the general public.

EH, Preservation Assistance Grants for Smaller Institutions [64461]
Deadline: 05/14/09
Synopsis: The sponsor provides support to help small and mid-size institutions improve their ability to preserve and care for their humanities collections.
Objectives: Preservation Assistance Grants help small and mid-sized institutions, such as libraries, museums, historical societies, archival repositories, town and county records offices, and colleges, improve their ability to preserve and care for their humanities collections. These may include special collections of books and journals, archives and manuscripts, prints and photographs, moving images, sound recordings, architectural and cartographic records, decorative and fine arts, textiles, archaeological and ethnographic artifacts, furniture, and historical objects.

Preservation Assistance Grants can be used for: general preservation assessments; consultations with preservation professionals to address a specific preservation issue, need, or problem; purchase of storage furniture and preservation supplies; purchase of environmental monitoring equipment for humanities collections; and education and training.

NY Council for the Humanities, Major Grants [02050]
Deadline: 09/15/09
Synopsis: The sponsor provides support of up to $20,000 to New York nonprofit, tax-exempt organizations for humanities projects.

Objectives: Grants are designed to help public audiences learn more about the humanities. The sponsor favors applications that display a critical approach, and encourages projects that pose questions rather than answering them—that explore the “why” rather than simply the “how.” The centrality of humanities scholars and scholarship in Council-funded projects is essential. We also favor projects that bring the humanities to new audiences. Some appropriate formats for these projects include, but are not limited to: lectures, conferences, symposia, and panel discussions intended for the general public; planning or implementation of exhibitions; film screenings or readings combined with interpretive discussion; interpretive bro-

chures, docent scripts, or walking tours; exhibition catalogues with significant humanities scholarship; radio programs; and/or internet presentations such as online exhibitions or moderated discussions.

INTERDISCIPLINARY

Greenwall Foundation [01746]
Deadline: 08/01/09
Objectives: Bioethics: The sponsor provides funding for physicians, lawyers, philosophers, economists, theologians and other professionals to address micro and macro issues in bioethics, providing guidance for those engaged in decision making at the bedside as well as those responsible for shaping institutional and public policy. The sponsor is especially interested in supporting pilot projects and the work of junior investigators, and it is prepared to address issues regarded by some as sensitive or potentially controversial.

Keck (W. M.) Foundation, Science and Engineering, Medical Research, and Liberal Arts [01692]
Deadline: 05/01/09, 11/01/09
Synopsis: Grants are provided for high-risk/high-impact projects that are distinctive and novel in their approach to intractable problems, push the edge of their field, or question the prevailing paradigm. Past grants have been awarded to major universities and independent research institutions to support pioneering science and engineering research and the development of promising new technologies, and to facilitate the purchase of advanced instruments where such instruments would further research ideas.

Objectives: Eligible projects are those for which one or more of the following applies: focus on emerging areas of research at the forefront of science, engineering and/or medicine; have the potential to lead to breakthrough technologies that are innovative, distinctive and interdisciplinary; demonstrate a high level of risk in that the research pushes the edge of its field, represents unconventional approaches to intransigent problems, or challenges the prevailing paradigm; have the potential for transformative impact, such as creation of a new field of research, development of new instrumentation enabling observations not previously possible, or discovery of new knowledge that challenges prevailing perspectives.

NSF, Virtual Organizations as Sociotechnical Systems [96142]
Deadline: 05/26/09
Synopsis: The Virtual Organizations as Sociotechnical Systems (VOSS) program supports scientific research directed at advancing the understanding of what constitutes effective virtual organizations and under what conditions virtual organizations can enable and enhance scientific, engineering, and education production and innovation.

Objectives: The Virtual Organizations as Sociotechnical Systems (VOSS) program supports scientific research directed at advancing the understanding of what constitutes effective virtual organizations and under what conditions virtual organizations can enable and enhance scientific, engineering, and education production and innovation. VOSS funded research must be grounded in theory and rooted in empirical methods. It must produce broadly applicable and transferable results that augment knowledge and practice of virtual organizations as a modality. VOSS supported projects that use functioning organizations as data sources are encouraged, but should be designed such that the findings extend beyond that unit and sample. VOSS does not support proposals that aim to implement or evaluate individual virtual organizations. Projects that develop or build on research perspectives that cross disciplinary lines are strongly encouraged. VOSS research might draw on theories and findings from anthropology, com-
plexity sciences, computer and information sciences, decision and management sciences, economics, engineering, organization theory, organizational behavior, social and industrial psychology, public administration, and sociology. Research methods may span a broad variety of qualitative and quantitative methods, including (but not limited to): ethnographies, surveys, simulation studies, experiments, comparative case studies, and network analyses. Critical challenges and prominent themes that scientific inquiries might address under VOSS may include (but are not limited to):

- Units and frameworks of analysis—both social and technical: Social units of analysis may be individuals, teams, scientific disciplines, individual or multiple organizations. Technical units of analysis may include specific tools or objects, virtual or immersive environments or “worlds,” specialized niches, or collections of such virtual environments. What are the conceptual and comparative frameworks of analyzing virtual organizations? What theoretical, methodological, and empirical approaches can be applied, what need to be adapted, what need to be developed?
- Organizational life cycles: What are the stages and causes of virtual organization evolution, including, for example, formation of new organizations, organizational change or transformation, and organizational crisis or decline? How do they vary across task, domain, population, and/or stage of organization lifecycle?
- Production and innovation: What technological, social, and legal arrangements support intellectual production and innovation in virtual organizations? How do these arrangements interact? How do they vary across task, domain, population, and/or stage of organization lifecycle?
- Organizational structure, scope, and scaling: Are there levels of connectivity, diversity, and interactivity at which scientific production and innovation can be optimized in virtual organizations? How does optimization on

**Entergy Charitable Foundation**  
**[74294]**  
**Deadline:** 05/01/09, 08/01/09  
**Synopsis:** The sponsor seeks to support initiatives that help create and sustain thriving communities. The sponsor has a special focus on low-income initiatives as well as educational and literacy programs.

**Objectives:** Grants are awarded in two areas:
- Low-Income Initiatives and Solution Grants: the sponsor seeks programs that provide for innovative and measurable ways to positively impact families and their ability to support those most vulnerable, the children and the elderly. Such programs should emphasize: sustaining families and self-sufficiency; technical assistance and training for non-profits; housing; home-ownership preparation; energy management and awareness; and innovative use and promotion of alternative sources of energy.
- Education and Literacy Grants: the sponsor believes that an essential element to healthy, thriving communities is creating an environment where every individual has basic reading and writing skills.

**NSF, Research in Disabilities Education**  
[85486]  
**Deadline:** 08/25/09  
**Synopsis:** The RDE program seeks to broaden the participation and achievement of people with disabilities in all fields of STEM education and associated professional careers by contributing to the research knowledge base and increasing the number of students with disabilities completing associate, undergraduate and graduate degrees in STEM and entering our nation's science and engineering workforce. RDE projects contribute to closing the gaps occurring for people with disabilities in STEM fields by successfully disseminating findings, project evaluation results, and proven good practices and products to the public.

**Objectives:** Research projects contribute to the knowledge base by investigating disability related differences in secondary and post-secondary STEM learning and in the educational, social and pre-professional experiences that influence student interest, academic performance, retention in STEM degree programs, STEM degree completion, and career choices. Projects also investigate effective practices for transition-
ing students with disabilities across critical academic junctures, retaining students in undergraduate and graduate STEM degree programs, and graduating students with STEM associate, baccalaureate and graduate degrees. Projects may include student interventions, with or without a focus on accessible technology and cyberlearning, involving students as subjects only if the intervention is an integral part of gathering data and if the findings from the intervention would substantially answer the research questions posed within the context of theory and hypotheses. Results from research projects inform the delivery of innovative, transformative and successful practices employed by the Alliances for Students with Disabilities in STEM.

83266 Alliances for Students with Disabilities in STEM are projects designed to advance the number of students with disabilities completing associate, undergraduate and graduate degrees in STEM and to increase the number of students with disabilities entering our nation’s science and engineering workforce. Alliances engage multiple institutions of higher education and secondary school systems to work as a team to employ evidenced-based practices and promising interventions to advance students across critical academic junctures, to degree completion, and into the workforce or graduate STEM degree programs.

Demonstration, Enrichment or Dissemination projects are three distinct types of RDE awards: Demonstration projects are pilot investigations designed to offer proof-of-concept data for future RDE Research studies. Enrichment projects are test beds for establishing Alliances for Students with Disabilities in STEM and piloting the implementation of promising practices to advance students with disabilities completing associate, baccalaureate and graduate degrees in STEM and to increase the number of students with disabilities entering our nation's science and engineering workforce or graduate STEM degree programs. Dissemination projects communicate the research in disabilities education knowledge base, findings from RDE projects, and successful practices and products for advancing secondary and post-secondary students with disabilities in STEM.

Proposals submitted to the Innovation through Institutional Integration (I3) track would request support for projects that enable faculty, administrators and others in institutions to think and act strategically about the creative integration of NSF-funded awards, with particular emphasis on awards managed through programs in the Directorate for Education and Human Resources (EHR), but not limited to those awards. For Fiscal Year 2009, proposals are being solicited in nine EHR programs that advance I3 goals: CREST, GSE, HBCU-UP, ITEST, LSAMP, MSP, Noyce, RDE, and TCUP.

**NSF, Science, Technology, and Society [96572]**

**Deadline:** 08/01/09

**Synopsis:** The sponsor provides a range of funding opportunities designed to support the full spectrum of research, educational, and scholarly activities undertaken by scholars working on science, technology and society. This program solicitation covers the eight modes of support detailed below: Scholars Awards; Standard Research Grants and Grants for Collaborative Research; Postdoctoral Fellowships; Professional Development Fellowships; Doctoral Dissertation Research Improvement Grants; Small Grants for Training and Research; Conference and Workshop Awards; and other funding opportunities.

**Objectives:** STS considers proposals that examine historical, philosophical, and sociological questions that arise in connection with science, engineering, and technology, and their respective interactions with society. STS has four components: Ethics and Values in Science, Engineering and Technology (EVS); History and Philosophy of Science, Engineering and Technology (HPS); Social Studies of Science, Engineering and Technology (SSS); and Studies of Policy, Science, Engineering and Technology (SPS).

Scholars Awards are the usual awards for individual investigators who are undertaking research projects and need full- time release for an academic year or an academic year and a summer. Additional support may be requested through two more years (up to three years in total), although full-time support normally is provided for only one year.

Standard and Collaborative awards include proposals for research, infrastructure or education projects. These proposals ordinarily do not require full-time investigator support like that for Scholars Awards. These grants can also support projects that require several investigators, advisors, or collaboration among Principal Investigators, including investigators at different institutions. They may also involve postdoctoral researchers, or graduate or undergraduate student assistants.

The Fellowships enhance the methodological skills and research competence of researchers in STS fields. Consequently, proposals must describe both a training and a research component, and the site for the Fellowship must be different from the institution where the Fellow received the PhD degree. The proposal should justify the choices of the venue for the Fellowship and the host faculty member, in terms of the Fellow’s research and training goals. Professional Development Fellowships are available for researchers trained in all areas of Science, Technology, and Society who wish to improve and expand their skills in the areas of science or engineering, and conversely for physical and natural scientists and engineers who desire training in STS disciplines. For example, historians, philosophers, ethicists, and others in fields of the social, behavioral and economic sciences may use this award to work with a scientist or engineer to learn the technical aspects of research in their area. Alternatively, scientists or engineers may use this award to work with...
a historian, philosopher or social scientist to learn the research methods, analytical tools and approaches current in STS fields.

Doctoral Dissertation Research Improvement Grants provide funds for dissertation research expenses not normally available through the student's university. The dissertation advisor is the principal investigator on these proposals; the doctoral student should be listed as co-principal investigator. Small Grants for Training and Research (SGTR) are intended to provide sustained research opportunities for graduate students and post-doctoral fellows on important issues in STS. Senior investigators at an institution may propose a sustained course of study, research and training for these students (for from one to three years) on a subject that is significant and innovative. These training programs should have a specific research theme (e.g., ethics and computers in education; logic, rhetoric, and policy; science, technology, and business).

The sponsor can help to support national and international conferences, symposia, and research workshops that enable scientists, engineers, researchers in STS areas of support, policy makers, and representatives of interested groups to develop, evaluate, and share new research findings. STS also supports projects on the interactions of engineering, science, technology and society that emphasize capacity building. Such activities can include national summer workshops for graduate students or faculty, or projects by professional societies to develop concentrations in the ethical, philosophical, historical and social context of science and engineering for undergraduate or graduate level science and engineering students.

SCIENCEs

NSF, Institutional Transformation Catalyst---ADVANCE [94098]
Deadline: 08/04/09
Synopsis: IT-Catalyst awards are designed to support institutional self-assessment activities, such as basic data collection and analysis and policy review, in order to identify specific issues in the recruitment, retention and promotion of women faculty in STEM academics within the institution of higher education.

Objectives: This type of work is fundamental for institutions that plan to undertake institutional transformation. The institution's need for external resources to undertake institutional self-assessment and policy review will specifically be evaluated using an additional ADVANCE merit review criterion.

IT-Catalyst projects are expected to be designed to assess all departments or schools of STEM fields, including the social and behavioral sciences. If an IT-Catalyst proposal focuses on a subset of science and engineering departments, the rationale for such a focus must be included in the proposal. Institutions that seek to undertake institutional transformation must first understand what transformation is required, which is often informed by data collection and analysis, climate surveys, and review of institutional policies and practices. It is anticipated that a successfully completed IT-Catalyst project can serve as a springboard for embarking on a full-scale institutional transformation - with or without further external funding.

A wide range of self-assessment activities may be undertaken as part of an IT-Catalyst project: data collection on STEM faculty at the institution with respect to indicators such as salaries, faculty recruitment and retention, faculty applicant pools, tenure and promotion outcomes; identification of resources to assist with recruitment, such as national pool data by discipline; review of institutional policies and their usage regarding work and life issues, climate surveys, and any other tools or indicators that capture the institution's current culture and environment. Both men and women should be involved with the project implementation in order to achieve the program goals; men and women should also be participants in project initiatives, as appropriate.

Based on the results of the IT-Catalyst project, the awardee should be able to determine the most critical institutional transformation needs and formulate specific institutional transformation strategies and goals.

NSF, Chemical and Biological Separations Program [93838]
Deadline: 09/15/09
Synopsis: The sponsor provides funding to support fundamental research on novel methods and materials for separation processes. Objectives: The program program supports fundamental research on novel methods and materials for separation processes. These processes are central to the chemical, biochemical, materials, energy and pharmaceutical industries. A fundamental understanding of the interfacial, transport, and thermodynamic behavior of multiphase chemical systems as well as quantitative descriptions of processing characteristics in the process-oriented industries is critical for efficient resource management and effective environmental protection. The program encourages proposals that address emerging research areas and technologies, have a high degree of interdisciplinary thought coupled with knowledge creation and integrate education and research.

Research topics in CBS include fundamental molecular-level work on: biochemical separations, microporous and novel molecular-recognition adsorbents; self-assembly in the synthesis of adsorbents and membranes; nanostructured materials for separations; fuel-cell membranes; biomimetic materials for separations; chiral separations; separations for environmentally benign processing; novel polymeric membranes; hybrid separation processes; control and separation of organic crystalline materials; separations using ionic liquids; purification of drinking water; membranes for ion-selective sensors; adsorption and chromatography; field (flow, magnetic,
electrical) induced separations; separation of molecular constituents from blood; thermodynamics and transport simulations for the design of separation processes; combinatorial design of separation systems; and rational ligand design for separations.

**NSF, Environmental Implications of Emerging Technologies [90488]**

**Deadline:** 09/15/09

**Synopsis:** The Environmental Implications of Emerging Technologies program provides support to develop and test the environmental effects of new technologies.

**Objectives:** Fundamental and basic research is sought to establish and understand outcomes as a result of the implementation of new technologies such as nanotechnology, biotechnology, and information technology. The program also supports research on the development and refinement of sensors and sensor network technologies that can be used to measure a wide variety of physical, chemical, and biological properties of interest in characterizing, monitoring, and understanding environmental impacts.

The program emphasizes engineering principles underlying technology impacts. Innovative production processes, waste reduction, recycling, and industrial ecology technologies are of interest. All of these have implications that would be relevant to this program. Current areas of support include: Understanding and mitigating how new developments in nanotechnology, biotechnology, and information technology will interact with the environment; Nanotechnology environmental, health, and safety implications and applications; Predictive methodology for the interaction of nanoparticles with the environment and with the human body, including predictive approaches for toxicity; Fate and transport of natural, engineered, and incidental (by-product) nanoparticles; Risk assessment and management of the effect of nanomaterials in the environment; Evaluation of the effect of increased usage of renewable resources on water supply and land use; and Sensor and sensor network technologies as they relate to the measurement of these environmental implications.

**NSF, Environmental Engineering [90485]**

**Deadline:** 09/15/09

**Synopsis:** The Environmental Engineering program supports fundamental research and educational activities across the broad field it serves.

**Objectives:** The goal of this program is to encourage transformative research which applies scientific principles to minimize solid, liquid, and gaseous discharges into land, inland and coastal waters, and air that result from human activity, and to evaluate adverse impacts of these discharges on human health and environmental quality. The program fosters cutting-edge research based on fundamental science and four types of engineering tools - measurement, analysis, synthesis, and design.

Major areas of interest and activity in the program include: Developing innovative biological, chemical, and physical treatment processes to remove and degrade pollutants from water and air; Measuring, modeling, and predicting the movement and fate of pollutants in the environment; and Developing and evaluating techniques to clean up polluted sites, such as landfills and contaminated aquifers, restore the quality of polluted water, air, and land resources and rehabilitate degraded ecosystems.

Along with its sibling environmental programs (Environmental Technology, Energy for Sustainability, and Energy for Sustainability), the program fosters environmental sustainability through the development of techniques to minimize or avoid generating pollution. Research may be directed toward improving the cost-effectiveness of pollution avoidance, as well as developing new principles for pollution avoidance technologies. Research for new and improved sensors of environmental conditions and innovative waste reduction and recycling processes also are important components of this program.

**NSF, Energy for Sustainability [90480]**

**Deadline:** 09/15/09

**Synopsis:** The sponsor provides funding to support fundamental research and education in energy production, conversion, and storage and is focused on energy sources that are environmentally friendly and renewable.

**Objectives:** With projected increases in global energy needs, more sustainable methods for energy production will need to be developed, and production of greenhouse gases will need to be reduced. Hydrogen and alcohols are potential energy carriers that can be derived from renewable sources. Research that generates enabling science and technologies for more efficient hydrogen generation and storage is supported by the program. Potential sources of hydrogen include conversion from biomass and from electrolysis, photolysis or thermolysis of water. Biomass is available from agricultural crop residues, forest products, aquatic plants, and municipal wastes. In addition to hydrogen, biomass can be a source of liquid, solid, and gaseous fuels including biofuels such as ethanol.

Fuel cells have the potential to convert fuels such as hydrogen and alcohols to electricity at high efficiencies and should play an increasing role in energy conversion. Critical components of fuel cells requiring additional research include catalysts and electrolytes. Development of these components also requires fundamental research on the reaction and transport mechanisms at the catalyst and membrane electrolyte interface. Advances in these areas are needed to address key challenges in efficiency, durability, power density, and environmental impacts. The engineering aspects of fuel-cell design and operation also require further study in areas such as water and...
thermal management.

Wind power is a growing source of electrical energy. Increased efficiency requires a fundamental knowledge of the interaction of wind with the blade structure. Understanding the fluid flow, and optimizing blade design are important aspects in developing more efficient wind generators. Photovoltaic devices have the potential to supply a significant fraction of electrical energy to the power grid. Although silicon-based materials have been most widely used, other semiconducting materials and titanium dioxide also have potential. New materials and novel fabrication techniques for solar energy conversion are supported by the program.

NSF, Expeditions in Computing [94463]

**Deadline:** 09/10/09

**Synopsis:** The sponsor awards funding to provide the CISE research and education community with the opportunity to pursue ambitious, fundamental research agendas that promise to define the future of computing and information.

**Objectives:** The program has three goals: to catalyze far-reaching research explorations motivated by deep scientific questions or hard problems in the computing and information fields, and/or by compelling applications that promise scientific, economic and/or social benefits; to inspire current and future generations of Americans, especially those from under-represented groups, to pursue rewarding careers in computer and information science and engineering; and to stimulate significant research and education outcomes that, through effective knowledge transfer mechanisms, promise scientific, economic and/or other societal benefits.

Projects supported by the program comprise the following characteristics: foster research climates that nurture creativity and informed risk-taking, and value complementary research and education contributions such that the whole Expedition is greater than the sum of its parts; draw upon well-integrated, diverse teams of investigators from one or more disciplines within computer and information science and engineering, as well as investigators from other fields where necessary; stimulate effective knowledge transfer; and demonstrate experimental systems or support shared experimental facilities (including instruments, platforms and/or testbeds), where necessary, to enable discovery and learning.

**NSF, CISE Computing Research Infrastructure [79624]**

**Deadline:** 08/05/09

**Synopsis:** The sponsor drives discovery and learning in the computing disciplines through support for the creation, enhancement and operation of world-class computing research infrastructure. Further, through the CRI program the sponsor seeks to ensure that individuals from a diverse range of academic institutions, including minority-serving and predominantly undergraduate institutions, have access to such infrastructure.

**Objectives:** Examples of research infrastructure of interest to the program include, but are not limited to, systems of security and monitoring devices, linguistically annotated electronic language and vision corpora, spectrum and protocol analyzers, system testbeds, suites of robots, clusters of graphic processing units, software libraries and tools, networks of wireless and mobile devices, programmable network components, motion capture systems for digitally recording the movement of people or other moving artifacts, Field Programmable Gate Array (FPGA)-based systems, data clusters, and integrated systems of sensors, data repositories and visualization capabilities. These computing infrastructure resources (and others not listed here) are expected to provide unique and compelling research opportunities otherwise inaccessible to the CISE research and education community.

Cognizant of the diversity of research infrastructure needs in the computing community, the CRI program supports two classes of projects as defined below:

**Institutional Infrastructure - Each Institutional Infrastructure (II) award supports either the creation of new computing research infrastructure or the enhancement of existing computing research infrastructure. The proposed research infrastructure must enable compelling new research and education opportunities for the proposing PI or team of PIs and associated students and collaborators (i.e. for individuals at the awardee and collaborating institutions).**

II proposals involving multiple investigators from one or more departments and/or institutions are welcome. II proposals that are led by or include 2-year, predominantly undergraduate, and/or minority-serving institutions are especially encouraged. II proposals may request up to $1.5M total for project durations not to exceed 3 years.

**Community Infrastructure - Each Community Infrastructure (CI) award supports the planning for computing research infrastructure, or the creation of new computing infrastructure, or the enhancement of existing computing research infrastructure in order to provide compelling new research and education opportunities for a broadly-based community of researchers and educators that extends well beyond the awardee institution(s).**

Furthermore, each CI award may support the operation of such infrastructure, ensuring that the awardee institution(s) is well-positioned to provide a high quality of service to community researchers and educators expected to use the infrastructure to realize their research and education goals. Since CI awards serve communities of researchers and educators, CI proposals must provide compelling evidence that a diverse community of investigators will find the proposed infrastructure valuable to their research and education endeavors.

Support for CI is provided in two award categories:

- **CI Planning (CI-P) grants of up to $100,000 for durations of up to 1 year to prepare for the submission of a CI-**
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ADDO proposal. CI Acquisition, Development, Deployment and/or Operations (CI-ADDO) grants of up to $4 million for durations of up to 4 years to either a) create and operate new computing research infrastructure, or b) enhance and operate existing computing research infrastructure, or c) operate existing computing research infrastructure. The sponsor will provide no more than $250,000 per year for operating the infrastructure.

NSF, Research Coordination Networks (RCN) in Biological Sciences [55509] Deadline: 06/29/09 Synopsis: The goal of this program is to encourage and foster interactions among scientists to create new research directions or advance a field. Innovative ideas for implementing novel networking strategies are especially encouraged.

Objectives: Groups of investigators will be supported to communicate and coordinate their research, training and educational activities across disciplinary, organizational, institutional, and geographical boundaries. The proposed networking activities should have a theme as a focus of its collaboration. The focus could be on a broad research question, a specific group of organisms, or particular technologies or approaches.

NSF, Enhancing the Mathematical Sciences Workforce in the 21st Century [36024] Deadline: 06/02/09 Synopsis: The sponsor awards grants for projects designed to increase the number of U.S. citizens, nationals, and permanent residents who are well-prepared in the mathematical sciences and who pursue careers in the mathematical sciences and in other disciplines supported by the sponsor.

Objectives: This program is intended to help stimulate and implement permanent positive changes in education and training within the mathematical sciences in the U.S. Support is provided under the following components:

- Grants for Vertical Integration of Research and Education (VIGRE): The focus of this component is enhancing the educational experience of all students and postdoctoral associates in a department (or departments). Broad faculty commitment and a team approach to enhancing learning are necessary. A principal element of VIGRE activity is increasing the interaction among undergraduates, graduate students, postdoctoral associates, and faculty members. Integrating research and education for graduate students and postdoctoral associates, involving undergraduates in substantial learning by discovery, and developing a team approach are keys to successful VIGRE projects.
- Research Training Groups in the Mathematical Sciences (RTG): This component will provide groups of researchers with related research goals in the mathematical sciences with funds to foster research-based training and education. The groups may include researchers and students from different departments and institutions, but the research-based training and education activities must be based in the mathematical sciences. The RTGs are expected to vary in size, scope, proposed activities and in their plans for organization, participation, and operation, but will all have the following characteristics: based in a U.S. academic institution that grants the Ph.D. in the mathematical sciences (faculty and students from a predominately undergraduate institution may participate); focused on a major research theme in the mathematical sciences; have a realistic plan showing how the proposed activity would create new or enhanced research-based training and education experiences in the mathematical sciences for the students and post-doctoral investigators; and be directed by a principal investigator, with at least two other faculty members, who will assist in management and participate fully in the educational and research plans of the RTG.
- Mentoring through Critical Transition Points in the Mathematical Sciences (MCTP): This component will provide a system of mentoring devoted to points of transitions in a mathematical sciences career path that are critical for success from undergraduate studies to the early years in a tenure track position. The goal is to encourage the participation of research oriented mathematicians in the nurturing of students and those new to research as they change the intensity of their involvement in university mathematics. The range of activities can vary from preparing postdocs for an academic or industrial career to preparing talented high school students to begin the study of serious mathematics at a university.

NSF, Undergraduate Research and Mentoring in the Biological Sciences [44697] Deadline: 09/15/09 Synopsis: Funds are provided to increase the number and diversity of individuals pursuing graduate studies in all areas of biological research supported by the sponsor.

Objectives: The Undergraduate Research and Mentoring in the Biological Sciences (URM) program will fund projects that provide year-round support for undergraduate students to engage in exciting and contemporary research activities that are potentially publishable. Research can be in any area of biology supported by the NSF Directorate for Biological Sciences or in interdisciplinary areas supported by BIO. Research conducted by URM students should not have medical or veterinary goals and should involve modern biological tools and methods. Students participating in URM projects should experience the excitement of creating new knowledge in the course of conducting research. Projects must include a strong mentoring component and emphasize strategies that encourage and enable members of underrepresented groups to enter, and remain in, graduate programs in biology. URM projects must address building the
skills needed for full participation in graduate research.

**NSF, EarthScope [70432]**
**Deadline:** 07/16/09
**Synopsis:** The sponsor calls for single or collaborative proposals to conduct scientific research associated with EarthScope and support activities that further its scientific and educational goals.

**Objectives:** The rich fabric of tectonic provinces in North America provides a solid scientific framework for a major program to investigate the relationships among processes and structures over a wide range of scales within the crust, lithosphere, and mantle, with the goal of understanding the tectonic and geologic processes that have constructed the continents. The North American Continent is also ideally located with respect to global seismicity to provide unprecedented views of the deep mantle. EarthScope addresses fundamental questions about the evolution of continents and the processes responsible for earthquakes and volcanic eruptions. Through the integration of scientific information derived from geology, geochemistry, geophysics, and geodesy, the EarthScope program is yielding a comprehensive time-dependent picture of the continent far beyond that which any single discipline or technology can achieve. EarthScope includes new observational technologies that are linked through high performance computing and telecommunication networks. These observational facilities provide a framework for broad, integrated studies across the Earth sciences, including research on fault properties and the earthquake process, crustal strain transfer, magmatic and hydrous fluids in the crust and upper mantle, plate boundary processes, large-scale continental deformation, continental structure and evolution, deep-Earth structure, and associated educational aspects. The EarthScope Program is part of the Division of Earth Sciences (EAR). EAR provides funding for the conduct of research in most areas of the solid-earth and surface-terrestrial sciences. EAR focuses on improving our understanding of the Earth’s structure, composition, evolution, and the interaction with the Earth’s Biosphere, atmosphere, and hydrosphere. In addition, EAR supports work for instrumental and observational infrastructure, cyberinfrastructure, and innovative educational and outreach activities. Projects may employ any combination of field, laboratory, and computational studies with observational, theoretical, or experimental approaches. Support is available for research and research infrastructure through grants, contracts, and cooperative agreements awarded in response to investigator-initiated proposals. EAR will consider co-funding of projects with other agencies and supports international work and collaborations.

**NSF, Math and Science Partnership Program [64831]**
**Deadline:** 08/20/09, 08/25/09
**Synopsis:** The Math and Science Partnership (MSP) program is a major research and development effort designed to improve K-12 student achievement in mathematics and science. The sponsor’s MSP program coordinates its effort with the Mathematics and Science Partnerships program of the U.S. Department of Education in the expectation that effective innovations in mathematics and science education will be disseminated into wider practice.

**Objectives:** Through this solicitation, the sponsor seeks to support five types of MSP projects plus EHR-wide projects: Targeted Partnerships focus on studying and solving teaching and learning issues within a specific grade range or at a critical juncture in education, and/or within a specific disciplinary focus in mathematics or the sciences. Institute Partnerships — Teacher Institutes for the 21st Century focus on meeting national needs for teacher leaders/master teachers who have deep knowledge of disciplinary content for teaching and are fully prepared to be school- or district-based intellectual leaders in mathematics or the sciences. MSP-Start Partnerships are for awardees new to the MSP program, especially from minority-serving institutions, community colleges and primarily undergraduate institutions, to support the necessary data analysis, project design, evaluation and team building activities needed to develop a full MSP Targeted or Institute Partnership.

Phase II Partnerships for prior MSP Partnership awardees focus on specific innovative areas of their work where evidence of the potential for significant positive impact is clearly documented. The intent is that focused efforts carry out the necessary research to advance knowledge and understanding in the specific area(s). Research, Evaluation and Technical Assistance (RETA) projects directly support the work of the Partnerships by conducting methodologically rigorous studies of the impacts of MSP activities on student or teacher learning. Longitudinal and cross-site studies are particularly encouraged as are those that test innovative methodologies.

Proposals submitted to the Innovation through Institutional Integration (I3) track would request support for projects that enable faculty, administrators, and others in institutions to think and act strategically about the creative integration of sponsor-funded awards, with particular emphasis on awards managed through programs in the Directorate for Education and Human Resources (EHR), but not limited to those awards. For Fiscal Year 2009, proposals are being solicited in nine EHR programs that advance I3 goals: CREST, GSE, HBCU-UP, ITEST, LSAMP, MSP, Noyce, RDE, and TCUP.

**NSF, Computing and Communication Foundations (CCF): Core Programs [77555]**
**Deadline:** 08/31/09, 11/28/09
**Synopsis:** The sponsor supports research and education projects that de-
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velop new knowledge in three core programs: The Algorithmic Foundations program; The Communications and Information Foundations program; and The Software and Hardware Foundations program.

Objectives: The sponsor supports three core programs as described below:

Algorithmic Foundations -- The Algorithmic Foundations program supports research characterized by algorithmic thinking accompanied by rigorous mathematical analysis. The goal is to understand the fundamental limits of resource-bounded computation and to obtain optimal solutions within those limits. Specifically, the time and space complexity of finding exact and approximate solutions in deterministic and randomized models of computation are the central concern of the program. Resources other than time and space, such as communication, heat, power, etc., are also of interest. In addition to the traditional, sequential computing paradigm, research on models such as the streaming model, parallel, distributed and hybrid models and the quantum-computing model are welcomed. Such research includes optimizations across complex processor/memory hierarchies as well as measurement of the performance of algorithms by correct, reproducible computational experiments. Theories that exploit algorithmic scalability and portability are especially welcome. The program also supports research in algorithms that is applicable to other areas both within and outside computer science. Especially welcome are algorithmic applications in databases, networks, operating systems, languages and compilers and machine abstractions. New techniques for the design and analysis of algorithms in areas such as cryptography, computational geometry, computational biology, numerical, symbolic, algebraic, and scientific computing are appropriate for the program. In computational geometry, research can range from theoretical problems to algorithms for applications that arise in computational biology and computer graphics. Numerical methods include recent algorithmic innovations such as smoothed analysis and convergence of geometric algorithms. They also include hybrid numeric-symbolic-algebraic methods in support of multi-scale, multi-grid methods and computation on peta-scale machines. An emerging area of interest lies at the interface of computer science and economics. This program supports research on computing economic equilibria, mechanism design, graphical economic models and other topics in computational game theory and economics. Relevance to the application areas is important and collaborations with researchers in these areas are encouraged. However, research funded by this program must advance the study of algorithms.

Communications and Information Foundations (CIF) -- The Communications and Information Foundations (CIF) program supports transformative research that addresses the theoretical underpinnings and current and future enabling technologies for information acquisition, transmission, and processing in communication and information networks. As a result, CIF research and education projects strengthen the intellectual foundations of communications and information theory and signal processing in a variety of types of networks such as sensor networks, wireless and multimedia networks, biological networks, and networks of quantum devices. Research outcomes can lead to more secure and reliable communications and advanced mathematical capabilities that are applicable throughout science and engineering. This program continues to seek advances in theory of and techniques for secure and efficient representation, transmission and reception of digital and analog information over a variety of channels, e.g., wired line, mobile multi-antenna wireless, optical, quantum and biological channels. Research that involves cooperation at different layers is especially welcome. Notions of mobility, location, belief propagation, negotiation, gossip, and other information distribution and flow are vital to the program. Research that advances network information theory, network coding, multi-user communications is sought. Applications of information-theoretic concepts to secure communications that protect against attacks on the privacy and integrity of information are also welcome. Recent advances that have resulted in simultaneous breakthroughs in both biology and in communications and information theory promise to continue offering a rich area for research, especially in coding and networking.

Software and Hardware Foundations (SHF) -- The Software and Hardware Foundations program supports foundational research essential to advance the capability of computing systems. The combined power of the software and hardware of these systems enables new, possibly unforeseen application. At the same time, new and emerging technologies require continued advances in software and hardware foundations. The focus of this program is on reasoning, comparing and establishing properties of existing and newly-conceived software and hardware components, systems, and other artifacts. Foundational advances are sought in formal semantics, models, methods, logics, languages, architectures, and tools for specifying, designing, programming, analyzing (statically and at run-time), evaluating, and reasoning about the software and hardware of current and future computing systems. Especially welcome are collaborations with researchers in theoretical computer science, machine learning, artificial intelligence, and the social sciences that provide new perspectives on these problems. Advances should be driven by the need to address desired system functional and performance behavior, including properties such as correctness; efficiency in time, space, and energy; composability; predictability and provability; maintainability and usability; and adaptability to changing requirements or dynamic environments. Innovative engineering methods for developing software and hardware through synthesis, optimization, transformation, or design-time verification,
are welcome. Especially challenging for the future is the need to develop new software and hardware foundations for heterogeneous computing systems, where components in a single system may be diverse in one or more dimensions. Examples of these dimensions of a system are: size of component, from molecular machines to nanocomputers to mobile devices to desktops to supercomputers; number of components, from single processor to multi-/many-core processors to networks (clusters) of servers; substrate type, from traditional silicon to biological to nanotechnology to quantum; and software type, from legacy code to applets and web services to open source to domain- or device-specific. Adding to the challenge of heterogeneity is that of managing complexity due to interactions across multiple system layers, from high-level application features to low-level technology-driven circuit characteristics. Numerous challenges must be addressed to harness the full computing power of multi-core architectures. The SHF program supports projects whose research outcomes promise advances in parallel programming models, abstractions, languages and algorithms; software development, compilation, debugging and visualization tools and platforms for parallel architectures and scientific computing; frameworks for automatic parallelization, optimized code generation and dynamic run-time execution; scalable mechanisms for concurrency control and synchronization in heterogeneous environments; virtualization for optimized performance; and power-aware scheduling algorithms and load balancing schemes. Software research for compute-intensive applications and hardware is welcome; projects focused on data-intensive applications and hardware should be submitted to the Data-intensive Computing program described in the CISE Cross-Cutting Programs solicitation. Investigators interested in the Software and Hardware Foundations program may also have interest in the Computer Systems Research program. The emphasis here is on reasoning about software and hardware components while the emphasis in Computer Systems Research is in the engineering of complex systems.

**NSF, Information and Intelligent Systems (IIS): Core Programs [82174]**

**Deadline:** 08/30/09, 11/28/09, 12/17/09

**Synopsis:** The sponsor supports research and education projects that develop new knowledge in three core programs: The Human-Centered Computing program; The Information Integration and Informatics program; and The Robust Intelligence program.

**Objectives:** The sponsor supports three core programs as described below: Human Centered Computing (HCC)--The HCC program encourages research on how humans, in various roles and domains, perceive computing artifacts as they design and use them, and on the wider social implications of those artifacts. HCC supports social and behavioral scientists as well as computer and information scientists whose research contributes to the design and understanding of novel computing technologies and systems. Information Integration and Informatics (III) -- The Information Integration and Informatics (III) program focuses on the processes and technologies involved in creating, managing, visualizing, and understanding diverse digital content in circumstances ranging from individuals through groups, organizations, and societies, and from individual devices to globally-distributed systems. Further, data are only part of a “knowledge life cycle” that progresses from data through knowledge and insight and, ultimately, to action. III funds innovative information technology research that can transform all stages of the knowledge life cycle. III-funded projects are expected to lead to advances that are driven by specific information-technology challenges. Projects directed mainly at data-collection building and use, that apply existing data technologies to (perhaps) novel data sets, or that propose other activities with limited computing and information technology research potential are not appropriate for this program. III-supported activities can range from theoretical investigations to projects grounded in multi-disciplinary collaborations where data are central to the III-area research. In the case of multi-disciplinary projects proposers should explain the utility of the proposed work to the application domain and demonstrate expertise in that domain among the project participants. Regardless of research modality, proposals should make clear what computing and information technology challenges are being addressed and how the effectiveness of the work will be assessed. Robust Intelligence (RI) -- The Robust Intelligence (RI) program encompasses all aspects of the computational understanding and modeling of intelligence in complex, realistic contexts. In contrast to systems that use limited reasoning strategies or address problems in narrow contexts, robust intelligence may be characterized by a system’s flexibility, resourcefulness, use of a variety of modeling or reasoning approaches, and use of real-world data in real time, demonstrating a level of intelligence and adaptability seen in humans and animals. The RI program advances and integrates the research traditions of artificial intelligence, computer vision, human language research, robotics, machine learning, computational neuroscience, cognitive science, and related areas. Researchers across all areas of RI are addressing progressively richer environments, larger-scale data, and more sophisticated computational and statistical approaches, looking to nature in many cases to model cognitive and computational processes. Interactions across traditional disciplines are also of increasing importance. For example, speech and dialogue research seeks to understand the cognitive psychological underpinnings
of conversation that contribute to the robustness of human speech perception and intention understanding. Computer vision is exploring approaches developed in language processing to represent the semantic information in images and video in ways useful for mining, navigation, and robotic interaction, and working with ideas developed in computer graphics and physics-based modeling to understand and depict collections of images. A cognitive architecture may bridge sophisticated planning and problem solving modules with perception and action modules, perhaps accounting for certain human or animal behaviors. Robotic systems need to understand and interact with humans in unfamiliar and unstructured environments. Computational understanding of neurons, networks, and the brain increasingly draws on computer vision, robotics, and machine learning, and provides insights into the coding, representations, and learning underlying intelligent behavior in nature.

**NSF, Computing and Communication Foundations (CCF): Core Programs [77555]**
**Deadline:** 08/31/09, 11/28/09, 12/17/09

**Synopsis:** The sponsor supports research and education projects that develop new knowledge in three core programs: The Algorithmic Foundations program; The Communications and Information Foundations program; and The Software and Hardware Foundations program.

**Objectives:** The sponsor supports three core programs as described below:

- **Algorithmic Foundations -- The Algorithmic Foundations program supports research characterized by algorithmic thinking accompanied by rigorous mathematical analysis. The goal is to understand the fundamental limits of resource-bounded computation and to obtain optimal solutions within those limits. Specifically, the time and space complexity of finding exact and approximate solutions in deterministic and randomized models of computation are the central concern of the program. Resources other than time and space, such as communication, heat, power, etc., are also of interest. In addition to the traditional, sequential computing paradigm, research on models such as the streaming model, parallel, distributed and hybrid models and the quantum-computing model are welcomed. Such research includes optimizations across complex processor/memory hierarchies as well as measurement of the performance of algorithms by correct, reproducible computational experiments. Theories that exploit algorithmic scalability and portability are especially welcome. The program also supports research in algorithms that is applicable to other areas both within and outside computer science. Especially welcome are algorithmic applications in databases, networks, operating systems, languages and compilers and machine abstractions. New techniques for the design and analysis of algorithms in areas such as cryptography, computational geometry, computational biology, numerical, symbolic, algebraic, and scientific computing are appropriate for the program. In computational geometry, research can range from theoretical problems to algorithms for applications that arise in computational biology and computer graphics. Numerical methods include recent algorithmic innovations such as smoothed analysis and convergence of geometric algorithms. They also include hybrid numeric-symbolic-algebraic methods in support of multi-scale, multi-grid methods and computation on peta-scale machines. An emerging area of interest lies at the interface of computer science and economics. This program supports research on computing economic equilibria, mechanism design, graphical economic models and other topics in computational game theory and economics. Relevance to the application areas is important and collaborations with researchers in these areas are encouraged. However, research funded by this program must advance the study of algorithms.

- **Communications and Information Foundations (CIF) -- The Communications and Information Foundations (CIF) program supports transformative research that addresses the theoretical underpinnings and current and future enabling technologies for information acquisition, transmission, and processing in communication and information networks. As a result, CIF research and education projects strengthen the intellectual foundations of communications and information theory and signal processing in a variety of types of networks such as sensor networks, wireless and multimedia networks, biological networks, and networks of quantum devices. Research outcomes can lead to more secure and reliable communications and advanced mathematical capabilities that are applicable throughout science and engineering. This program continues to seek advances in theory of and techniques for secure and efficient representation, transmission and reception of digital and analog information over a variety of channels, e.g., wired line, mobile multi-antenna wireless, optical, quantum and biological channels. Research that involves cooperation at different layers is especially welcome. Notions of mobility, location, belief propagation, negotiation, gossip, and other information distribution and flow are vital to the program. Research that advances network information theory, network coding, multi-user communications is sought. Applications of information-theoretic concepts to secure communications that protect against attacks on the privacy and integrity of information are also welcome. Recent advances that have resulted in simultaneous breakthroughs in both biology and in communications and information theory promise to continue offering a rich area for research, especially in coding and networking.

- **Software and Hardware Foundations (SHF) -- The Software and Hardware Foundations program supports foundational research essential to advance the capability of computing systems. The combined power of the software and...**
hardware of these systems enables new, possibly unforeseen application. At the same time, new and emerging technologies require continued advances in software and hardware foundations. The focus of this program is on reasoning, comparing and establishing properties of existing and newly-conceived software and hardware components, systems, and other artifacts. Foundational advances are sought in formal semantics, models, methods, logics, languages, architectures, and tools for specifying, designing, programming, analyzing (statically and at run-time), evaluating, and reasoning about the software and hardware of current and future computing systems. Especially welcome are collaborations with researchers in theoretical computer science, machine learning, artificial intelligence, and the social sciences that provide new perspectives on these problems. Advances should be driven by the need to address desired system functional and performance behavior, including properties such as correctness; efficiency in time, space, and energy; composability; predictability and provability; maintainability and usability; and adaptability to changing requirements or dynamic environments. Innovative engineering methods for developing software and hardware through synthesis, optimization, transformation, or design-time verification, are welcome. Especially challenging for the future is the need to develop new software and hardware foundations for heterogeneous computing systems, where components in a single system may be diverse in one or more dimensions. Examples of these dimensions of a system are: size of component, from molecular machines to nanocomputers to mobile devices to desktops to supercomputers; number of components, from single processor to multi-/many-core processors to networks (clusters) of servers; substrate type, from traditional silicon to biological to nanotechnology to quantum; and software type, from legacy code to applications and web services to open source to domain- or device-specific. Adding to the challenge of heterogeneity is that of managing complexity due to interactions across multiple system layers, from high-level application features to low-level technology-driven circuit characteristics. Numerous challenges must be addressed to harness the full computing power of multi-core architectures. The SHF program supports projects whose research outcomes promise advances in parallel programming models, abstractions, languages and algorithms; software development, compilation, debugging and visualization tools and platforms for parallel architectures and scientific computing; frameworks for automatic parallelization, optimized code generation and dynamic run-time execution; scalable mechanisms for concurrency control and synchronization in heterogeneous environments; virtualization for optimized performance; and power-aware scheduling algorithms and load balancing schemes. Software research for compute-intensive applications and hardware is welcome; projects focused on data-intensive applications and hardware should be submitted to the Data-intensive Computing program described in the CISE Cross-Cutting Programs solicitation. Investigators interested in the Software and Hardware Foundations program may also have interest in the Computer Systems Research program. The emphasis here is on reasoning about software and hardware components while the emphasis in Computer Systems Research is in the engineering of complex systems.

**NSF, Undergraduate Research and Mentoring in the Biological Sciences (URM)** program will fund projects that provide year-round support for undergraduate students to engage in exciting and contemporary research activities that are potentially publishable. Research can be in any area of biology supported by the NSF Directorate for Biological Sciences or in interdisciplinary areas supported by BIO. Research conducted by URM students should not have medical or veterinary goals and should involve modern biological tools and methods. Students participating in URM projects should experience the excitement of creating new knowledge in the course of conducting research. Projects must include a strong mentoring component and emphasize strategies that encourage and enable members of underrepresented groups to enter, and remain in, graduate programs in biology. URM projects must address building the skills needed for full participation in graduate research.

**SOCIAL / BEHAVIORAL**

**Guggenheim (Harry Frank) Foundation, Research Grants [01014]**

**Deadline:** 08/01/09

**Synopsis:** Support is provided to individuals for research in any of the natural and social sciences and the humanities that will increase understanding of the causes, manifestations, and control of violence, aggression, and dominance. Awards normally range from $15,000 to $30,000 per year for one or two years.

**Objectives:** Highest priority is given to research that can increase understanding and lead to amelioration of urgent problems of violence, aggression, and dominance in the modern world. Particular questions that interest the foundation concern violence, aggression, and dominance in relation to social change, the socialization of children, intergroup conflict, interstate warfare, crime, family relationships, and investigations of the control of aggression and violence.
The Office of Research and Sponsored Programs (ORSP) is responsible for the development, coordination and financial management of all contracts and grants at the College. All externally sponsored projects for research, scholarly / creative activity, curriculum development or services utilizing SUNY Oswego facilities and / or personnel must be processed and administered through ORSP.

A project is externally sponsored if a grant or contract is awarded to the College in support of a specific activity. For example, external sponsors consist of federal and state agencies, private foundations, business and industrial enterprises, local and state governments and professional organizations. Sponsored projects include, but are not limited to, research, conferences, curriculum development, workshops, meetings, special events and scholarly and creative activities.

**ORSP Pre-Award Services Available**

1) Maintain a faculty/staff profile of research and special projects interests
2) Match faculty/staff projects with potential sponsors
3) Notify faculty/staff of funding opportunities appropriate to their interests
4) Maintain a current resource collection of funding sources
5) Obtain guidelines and application forms
6) Assist with interpret guidelines and preparation of agency forms
7) Provide technical and editorial critique of proposals
8) Discuss budget categories and provide assistance with the development of an appropriate inclusive budget
9) Assist with the development of competitive proposals
10) Submit assurance reports and policies to maintain an approved institutional animal care and use committee and human subject committee in compliance with state and federal procedures
11) Review of final application
12) Obtain administrative approvals

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**PRE AWARD**

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**POST AWARD**