

Appendix III.

2008 Evaluation Criteria for Program Highlights

In response to a recommendation by the 2007 AC/GPA, specific evaluation criteria have been established for each of the program categories under the three strategic outcome goals of Discovery, Learning, and Research Infrastructure.

For the highlights you are asked to review, please evaluate the accomplishments against **one or more** of the criteria. It is not necessary to match each highlight against each of the criteria. In the end, the Committee will make a judgment whether the Foundation has demonstrated significant achievement under each of the broad strategic outcome goals and not under each program category.

DISCOVERY

Foster research that will advance the frontiers of knowledge, emphasizing areas of greatest opportunity and potential benefit and establishing the nation as a global leader in fundamental and transformational science and engineering. (NSF Strategic Plan FY 2006-2011)

RESEARCH GRANTS

This portfolio consists of grants that deal primarily with traditional investigator-initiated research projects. **Included** are: Disciplinary & Interdisciplinary Research, International Collaborative Research, the CAREER Program, Evaluation and Research to Improve STEM Education, Discovery Research K-12, and the EPSCoR Program. **Excluded** are grants for equipment, education, postdoctoral fellowships, planning and travel grants, and symposia; cooperative agreements for centers and facilities; most of the programs in the Education and Human Resources (EHR) Directorate; and the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

Evaluation Criteria

- Strengthen fundamental research across the full spectrum of science and engineering through support for NSF's fundamental or core disciplinary programs.
- Foster discoveries that have the potential to transform disciplines or fields of science, engineering, or education research.

- Promote innovation and partnerships with industries to stimulate the development of new technologies and processes to further U.S. economic competitiveness and benefit the Nation.
- Promote international collaboration among U.S. investigators and partners in other countries and regions.

SCIENCE AND ENGINEERING CENTERS

Included in this category are: Centers for Analysis & Synthesis, Centers for Chemical Innovation, Engineering Research Centers, Materials Research Science & Engineering Centers, Nanoscale Science and Engineering Centers, Science and Technology Centers, and Science of Learning Centers.

Evaluation Criteria

- Enable academic institutions and their partners to integrate discovery, learning, and innovation on scales that are large enough to transform important science and engineering fields and interdisciplinary areas and stimulate increased innovation.

LEARNING

Cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens. (NSF Strategic Plan FY 2006-2011)

K-12 EDUCATION

Evaluation Criteria

- Support research to improve science and engineering education, and education research that develops successful models for teaching and learning.
- Support active involvement of K-12 teachers in NSF-funded research and workshops to bring fundamental knowledge and technological innovations into their classrooms
- Prepare the next generation of STEM professionals and attract and retain more Americans to STEM careers.

UNDERGRADUATE EDUCATION THROUGH POSTDOCTORAL LEVEL

Evaluation Criteria

- Develop creative, new pathways to engage students and researchers at the frontiers of discovery to facilitate their entry into the science and engineering

workforce and enhance the skills and knowledge needed to advance their early careers.

- Broaden the participation of individuals underrepresented in STEM and diverse institutions throughout the United States in NSF-supported research and education activities and programs.
- Support community college faculty in NSF-funded research to bring fundamental knowledge and technological innovation into their classrooms
- Support active research participation by undergraduate students in NSF-funded projects.
- Provide opportunities for international research experiences that enhance and strengthen undergraduate and postgraduate education.
- Prepare the next generation of STEM professionals and attract and retain more Americans to STEM careers.

PUBLIC UNDERSTANDING OF STEM AND LIFELONG LEARNING

Evaluation Criteria

- Increase interest, engagement, and understanding of science, engineering, and technology by individuals of all ages and backgrounds and within a variety of different formal and informal educational settings.
- Prepare and support the next generation of STEM professionals and attract and retain more Americans to STEM careers.

RESEARCH INFRASTRUCTURE

Build the nation's research capability through critical investments in advanced instrumentation, facilities, cyberinfrastructure and experimental tools. (NSF Strategic Plan FY 2006-2011)

MAJOR MULTI-USER RESEARCH FACILITIES

Evaluation Criteria

- Promote discoveries at large multi-user research facilities supported by NSF, which may be centralized or may consist of distributed installations. These facilities may incorporate large-scale networking or computational infrastructure; multi-user instruments or networks of such instruments; or other infrastructure, instrumentation, and equipment having a major impact on a broad segment of a scientific or engineering discipline. This category includes accelerators,

telescopes, research vessels, aircraft, and geographically distributed but networked earthquake engineering simulation equipment.

INSTRUMENTATION

Evaluation Criteria

- Provide tools, instruments, and facilities to enable the STEM community to conduct research that could not be performed without this advanced instrumentation infrastructure.
- Expand opportunities for U.S. researchers, educators, and students at all levels to access state-of-the-art science and engineering facilities, laboratory instrumentation and equipment, databases, and advanced computing resources, research networks, and other infrastructure.

CYBERINFRASTRUCTURE

Evaluation Criteria

- Enable discoveries facilitated by world-class cyberinfrastructure that drives discovery in all fields of science and engineering.
- Explore the use of potential cyberinfrastructure in integration of research and education.