NSF's Investment in Ethics in Science, Math, and Engineering

Kelly Joyce, Program Director
Ethics Education in Science and Engineering Program
Science, Technology and Society Program
Section 7009 of the Act requires that “each institution that applies for financial assistance from the Foundation for science and engineering research or education describe in its grant proposal a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate students, graduate students, and postdoctoral researchers participating in the proposed research project.”
NSF’s Implementation of Section 7009: From Workshop to Implementation Plan


Published NSF Proposed Implementation Plan in the Federal Register (Feb 26, 2009) and requested public comment:

At the time of proposal submission to NSF, a proposing institution's AOR must certify that the institution has a plan to provide appropriate ethics training and oversight to undergrads, graduate students, and postdocs who will be supported by NSF to conduct research.
NSF’s Implementation of Section 7009: NSF Proposed Implementation Plan (Cont.)

- NSF recognizes that training needs may vary depending on specific circumstances of research or the needs of students. It is each institution’s responsibility to determine both the content and the delivery method for the training that will meet the institution’s particular needs.

- While training plans are not required to be included in proposals submitted, institutions are advised that they are subject to review upon request.
NSF’s Implementation of Section 7009: NSF Proposed Implementation Plan (Cont.)

- NSF will issue revised award conditions that clearly stipulate that institutions are responsible for verifying that undergrads, graduate students, and postdocs supported by NSF to conduct research have received ethics training.

- NSF will support the development of an online resource center containing research findings, pedagogical materials, and promising practices regarding the ethical and responsible conduct of research.

- NSF received and reconciled 188 comments in response to the Proposed Implementation Plan.
NSF’s Implementation of Section 7009: The Final Steps

- Published NSF’s Implementation Plan in the Federal Register (August 20, 2009)
  - With the exception of the proposed implementation date, all other aspects of our proposed implementation remained intact.

- Issued revised Proposal & Award Policies & Procedures Guide to formally implement requirement
  - Published: October 1, 2009
  - Implementation: For Proposals Submitted, or Due, on or after January 4, 2010.
Other NSF Ethics-Related Activities

- Ethics Education in Science and Engineering Program (EESE)
  Deadline: March 1

- Science, Technology, and Society Program (STS)
  Deadlines: August 1 and Feb 1

- International Ethics Research Integrity Workshop (July 24, 2010)

- International Ethics Research Integrity Links
  http://www.nsf.gov/od/oise/intl-research-integrity.jsp
EESE Recent Awards

Juan Lucena, PI, Colorado School of the Mines (#0529777)

- The PI team will conduct research on the application of humanitarian ethics (HE) to engineering, and to create a model of HE for engineering in graduate education.
- Humanitarian engineering (examples include Engineers without Borders, Engineers for Sustainable World)
- Develop a module and course to be used with graduate students
EESE Program: International Ethics Awards
Sheila Bonde, PI, Brown University (#0933509)

- RCR instruction has largely been proscriptive, field- and country-specific, and universalizing, based on fundamentally western notions of individual intellectual property rights rather than collaborative values.

- This project emphasizes cultural context and partnership with international scholars and diverse community groups to develop a new kind of training in scholarly integrity.

- Collaboration sites: Brown University, Indian Institute for Technology, India, and Zhejiang University, China.
NSF’s Continued Investment in Ethics

- Two beta on-line resource sites
  - UMASS, Amherst (0936857; $249,999)
    http://www.ethicslibrary.org
  - National Academy of Engineering (0936865; $274,968)
    http://www.onlineethics.org/

- Solicitation for an online resource center
Ethics in Science, Math, and Engineering Online Resource Center

- One award to support a multidisciplinary team of researchers who will create an electronic resource center that develops, compiles, and maintains resources related to ethics in science, math, and engineering.
- PI team will generate new knowledge and collect existing knowledge about ethics education in science and engineering.
- Differences in current ethics training must be addressed (e.g. biology and engineering have rich tradition of ethics training curriculum; different disciplines focus on different ethical issues; international differences).
The site will help scientists, mathematicians, and engineers incorporate ethical issues and reasoning into their research and pedagogy.

The site will help universities and administrators evaluate and implement an ethics training program.

Web 2.0 features to ensure community participation and constantly evolving content.
DUE DATES

- Letter of Intent (Required)
  Deadline Date: April 30, 2010

- Full Proposal Deadline Date: June 3, 2010

- Keep an eye on NSF’s website to monitor progress towards the Ethics in Science, Math, and Engineering Online Resource Center.