

**America COMPETES Act,  
Section 7009: “Responsible Conduct of  
Research” -- NSF Implementation Plans**

CGS Summer Workshop &  
New Deans Institute  
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Jean I. Feldman  
Head, Policy Office  
Division of Institution & Award Support  
National Science Foundation

# America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act: The America COMPETES Act

- Legislative History
  - Introduced - May 10, 2007
  - Passed House - May 22, 2007
  - Passed Senate - July 19, 2007
  - Differences Resolved - Aug 2, 2007
  - Signed by President - Aug 9, 2007



# America COMPETES Act: NSF Implementation

- 5 internal working groups were formed in the following areas:
  - Budget
  - Major Research Equipment & Facilities Construction
  - Education & Human Resources
  - Computer & Information Science & Engineering/Cyber Infrastructure
  - Policy



# SEC 7009: Responsible Conduct of Research

- “The Director shall require 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.”



# SEC 7009: Responsible Conduct of Research (Cont'd)

- NSF-funded workshop – *Ethics Education: What's Been Learned? What Should be Done?* held by the National Academies of Science & Engineering
- The workshop report is available at the NAE's Center for Engineering, Ethics and Society website: <http://www.nae.edu/?ID=14646>.



# Observations from Workshop



- Use of non-instructor lead on-line only training is less effective;
- Ethics training should be integrated into scientific and engineering research;
- Multiple approaches are needed;
- Time available for training must be considered;
- Content can vary by disciplinary areas and career age (undergrad versus postdoc);
- PIs should be positively involved;
- Mentoring can have negative effects on integrity, if the context of science and engineering is not considered – this directly leads to bad behavior; and
- Consideration should be given to funding (and maintenance of) a web-based clearinghouse that is easily accessible, user-friendly, and houses the many resources that currently exist on ethics education.

# SEC 7009: Responsible Conduct of Research (Cont'd)

- NSF is adding “training in the responsible and ethical conduct of research” as a Representative Activity in the listing of Broader Impacts Representative Activities
- Published Federal Register Notice (Feb 26, 2009) announcing NSF’s proposed implementation plan and requested public comment



# SEC 7009: Responsible Conduct of Research (Cont'd)

- **Proposed** Implementation Plan (as described in Federal Register):
  - NSF will require that, at the time of proposal submission to NSF, a proposing institution's AOR must certify that the institution has a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students, and postdoctoral researchers who will be supported by NSF to conduct research.





# SEC 7009: Responsible Conduct of Research (Cont'd)

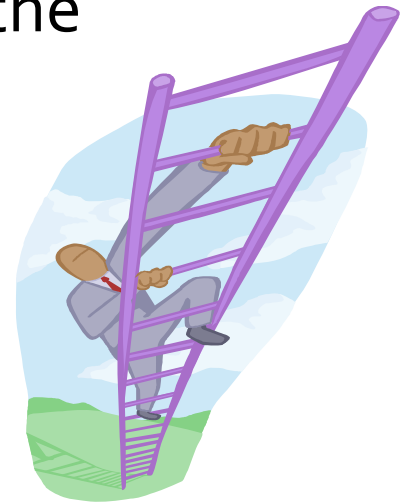
- Proposed Implementation Plan:
  - While training plans are not required to be included in proposals submitted, institutions are advised that they are subject to review upon request.
  - NSF will modify its standard award conditions to clearly stipulate that institutions are responsible for verifying that undergraduate students, graduate students, and postdoctoral researchers **supported by** NSF to conduct research have received RCR training.
  - NSF will support the development of an on-line digital library containing research findings, pedagogical materials, and promising practices regarding the ethical and responsible conduct of research.

# Suggested Areas of Input

- What challenges do institutions face in meeting the new RCR requirement?
- What role should Principal Investigators play in meeting NSF's RCR requirement?
- There are likely to be differences in the RCR plans that institutions develop to respond to this new requirement? What are the pros and cons of exploring a diversity of approaches?
- How might online resources be most effective in assisting with training students and postdocs in the responsible and ethical conduct of research?
- Discuss possible approaches to verifying that the requisite RCR training has been provided.

# Status Update on RCR

- NSF received 188 comments in response to the proposed Implementation Plan
- Major Comment Areas:
  - RCR training content
  - Tracking of postdocs and students
  - Role of PI in meeting NSF's RCR requirement
  - Usefulness of the funding of on-line resources
    - NSF Award 0936857, PI: Fountain, University of Massachusetts, Amherst. <http://www.umass.edu/sts/digitallibrary/>
    - NSF Award 0936865, PI: Hollander, National Academy of Sciences. <http://www.onlineethics.org/CMS/about/UserGuide/18848.aspx>



# Status Update on RCR (Cont'd)

- Draft Federal Register Notice announcing NSF's final implementation is currently being reviewed
  - Requires senior management review and approval
- Revised estimated implementation dates:
  - Publish Revised Proposal & Award Policies & Procedures Guide & Federal Register Notice:
    - October 2009
    - Implementation: January 2010



# Ask Early, Ask Often



[jfeldman@nsf.gov](mailto:jfeldman@nsf.gov)

[e-mail: policy@nsf.gov](mailto:policy@nsf.gov)

[www.nsf.gov](http://www.nsf.gov)

<http://www.nsf.gov/bfa/dias/policy/>

**Policy Office: (703) 292.8243**