

**Overview**  
**Division of Graduate Education**  
**(DGE)**  
**and**  
**Division of Research on Learning**

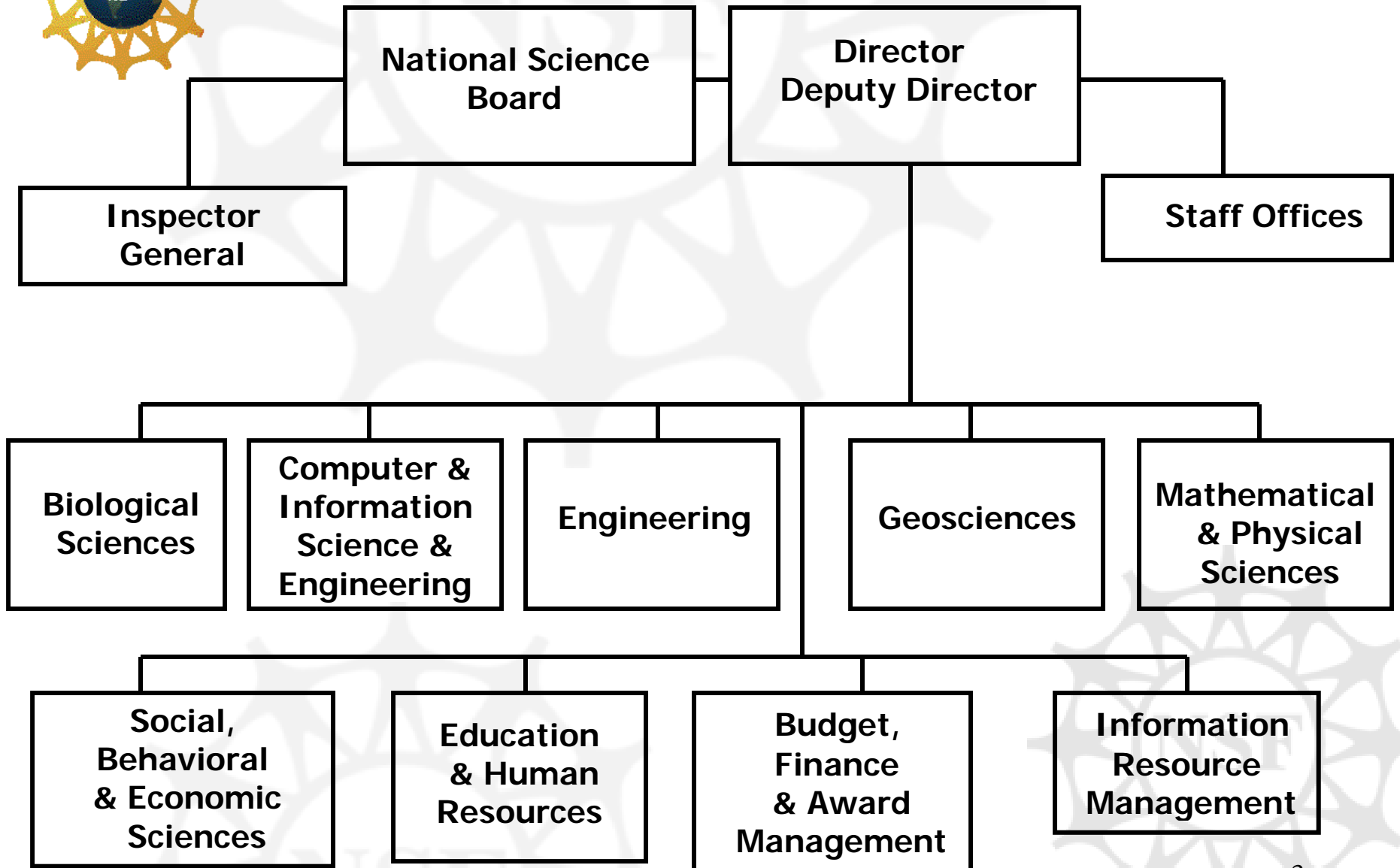
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**Program Director, DRL**  
**National Science Foundation**  
**Maine, 2008**

# Presentation Outline

- Education and Human Resources Directorate
- Division of Graduate Education (DGE)
- DGE Programs
- IGERT
- Division of Research on learning



# National Science Foundation



# Directorate for Education & Human Resources (EHR)

Mission: To enable *excellence in U.S. STEM education* at all levels and in all settings in order to support the development of *a diverse and well-prepared workforce* of scientists, technicians, engineers, mathematicians and educators.

*Transforming Education...*  
*Promoting Excellence...*

# EHR Divisions

- Division of Undergraduate Education (DUE)
- Division of Research on Learning in Formal and Informal Settings (DRL)
- Division of Human Resource Development (HRD)
- Division of Graduate Education (DGE)

# Division of Graduate Education (DGE)

- Today's graduate students are the scientists of the future who will keep America competitive.
- DGE programs strongly support graduate students as they engage in cutting-edge, state-of-the-art research in science and engineering.
- DGE programs act as catalysts to promote graduate education based on new science, emerging technologies, and the changing array of future career opportunities.

# DGE Programs

- Graduate Research Fellowship Program ([GRF](#))
- NSF Graduate Teaching Fellows in K-12 Education ([GK-12](#))
- Integrative Graduate Education and Research Traineeship ([IGERT](#))
- Research on Graduate Education ([DCL](#))

# GRADUATE RESEARCH FELLOWSHIP (GRF) PROGRAM

- Goal: To ensure the vitality of the human resource base of science and engineering in the United States and to reinforce its diversity. The program recognizes and supports outstanding graduate students in relevant science, technology, engineering, and mathematics (STEM) disciplines who are pursuing research-based master's and doctoral degrees, including women in engineering and computer and information science.
- Features
  - Portable (U.S. or foreign institution)
  - Flexible tenure options

# NSF Graduate Research Fellowships

- Award Information
  - \$30,000 stipend per year for three 12-month tenure periods over five years
  - \$10,500 cost-of-education allowance per tenure year payable to the affiliated institution
  - \$1,000 one-time international research travel allowance
  - Honorable Mention for meritorious applicants
  - Facilitation Awards for Scientists and Engineers with Disabilities
  - Women in Engineering and Computer and Information Science Awards
- Value Add
  - Supercomputer usage
  - Prestige

# NSF Graduate Research Fellowships

- Eligibility Requirements
  - U.S. citizen or permanent residents
  - Baccalaureate degree prior to Fall
  - Completion of fewer than twelve months of full-time graduate study
  - Graduate study in STEM disciplines supported by NSF
- Fellowship Applications
  - Personal profile
  - Personal essay
  - Previous research experience
  - Proposed research plan
  - Reference letters

# NSF Graduate Teaching Fellows in K-12 Education (GK-12)

- General information:  
<http://www.ehr.nsf.gov/dge/programs/gk12>
- GK-12 Project Database:  
<http://www.nsfgk12.org>
- Goal: to provide catalytic opportunities for transforming U.S. graduate programs through sustainable partnerships with K-12 schools



*GK-12 Fellows at Work*

# Multiplied Impact

- Value added to graduate students
  - Gain insights and a deeper understanding of their own research in a broadly based social context
  - Learn how to communicate to public about cutting-edge research and technological development
  - Acquire additional skills, including enhanced communications skills, teambuilding, time management, and organizational leadership
- Provide a professional development opportunity for teachers and keep them abreast with current STEM topics
- Provides institutions of higher education with an opportunity to make a permanent change in their graduate programs through sustaining strong partnerships with K-12 schools

# GK-12 Fact Sheet

- Program is in its 10<sup>th</sup> year
- Provides \$30,000 stipend and \$10,500 COE
- Current number of projects: 146 (125 institutions)
- Number of awards/year: 23-36
- Between 600-900 Fellows supported every year
- Active Engagement with a broad spectrum of stakeholders
  - Projects in 47 states and Puerto Rico
  - 5,623 Graduate Fellows funded
  - 9,473 teachers supported
  - 687,594 K-12 students involved
  - 4,732 K-12 schools involved

# NSF Integrative Graduate Education and Research Traineeship Program (IGERT)

- General information:  
[http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=12759&org=DGE&from=home](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=12759&org=DGE&from=home)
- IGERT website:  
<http://www.igert.org>
- Goal: To provide training opportunities for U.S. Ph.D. students that feature:
  - Interdisciplinary cutting-edge research
  - Innovative educational programs
  - Inclusiveness
  - Global awareness



*IGERT Trainees at Work*

# Unique IGERT Features

- Preparation for interdisciplinary research
  - Learning teamwork, crossing disciplines
- Preparation for a variety of careers
  - Academia, Industry, Entrepreneurship
- Preparation for a global future
  - International collaborative research and education

# **IGERT FACT SHEET**

**<http://www.IGERT.org>**

- Program is in its 10<sup>th</sup> year
- Provides \$30,000 stipend and \$10,500 COE
- Total projects awarded: 215
- Number of awards/year: ~20
- Projects in 41 states, DC, and Puerto Rico
- Each year ~1500 trainees supported, average 10-12 trainees/site
- 2-stage competition, >400 preliminary and ~100 invited full proposals/year

# Questions on Programs?

- GRF: Dr. William J. Hahn
- GK-12: Dr. Sonia Ortega
- IGERT: Dr. Carol Van Hartesveldt
- REESE: Dr. Carol Stoel

# Division of Research on Learning

- Discovery Research K-12 (DRK-12)
- Research and Evaluation on Education in Science and Engineering (REESE)
- Informal Science Education (ISE)
- ITEST

# Discovery Research K-12

- Research and Develop innovative resources, models and technologies
- Four challenges
  - Assessment
  - Access to advanced learning for all
  - Enhancing teacher knowledge
  - Implementation and scaling studies
- Proposals due: January 8, 2009

# Research and Evaluation on Education in Science and Engineering (REESE)

- Research on Emerging Topics in STEM
  - Neural basis of STEM learning
  - Cognitive processes underlying STEM learning and teaching
  - Measurement, modeling and methods for research
  - Cyberlearning and teaching
- Contextual
  - Stem Teaching and learning
  - Educational policy and systems studies
  - Evaluation Studies
- Proposals due: November 21, 2008

# Informal Science Education

- Goal is to support life long learning
- Develops exhibits, internet sites, large format films and T.V. shows
- ITEST: ensure that students are prepared to for the developing technology based economy