

## “Instructional Approaches/Strategies: Informal Education”

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### Informal Science Education (ISE) Program Solicitation NSF 03-511 National Science Foundation

Designed to increase public interest in, understanding of, and engagement with science, technology, engineering, and mathematics.

Projects have the informal learner (from young child to senior citizen) as their primary audience, and are not related to formal school activities or curricula.

Outcome is an informed citizenry that has access to the ideas of science and engineering, and an understanding of their role in enhancing quality of life.

Categories of projects include media (television, radio, film); exhibits (museums, science centers, aquariums, zoos, libraries, other informal learning institutions); and community and youth-based programs.

The screenshot shows the HHMI (Howard Hughes Medical Institute) website. At the top right is the AAAS logo. Below it is a green navigation bar with the HHMI logo and the text 'HOWARD HUGHES MEDICAL INSTITUTE'. To the right of the logo are links for HOME, ABOUT HHMI, PRESS ROOM, EMPLOYMENT, and CONTACT. A search bar is also present. Below the navigation bar is a dark grey menu with categories: HHMI NEWS, SCIENTISTS & RESEARCH, JANELIA FARM, SCIENCE EDUCATION, and RESOURCES & PUBLICATIONS. The date 'APRIL 14, 2009' is displayed on the right. The main content area features a news article titled 'HHMI Awards \$12 Million for Informal Science Education' dated July 10, 2001. The article includes a photo of two students working with ice and a caption about 'The Imaginarium' in Anchorage. To the left of the article is a sidebar with 'HHMI NEWS' and 'INSTITUTE NEWS' sections, listing various news items. To the right of the article are links for 'DOWNLOAD STORY PDF', 'RELATED LINKS', 'AT HHMI', and 'ON THE WEB'.

## Scientists' Social Responsibilities

- Contribute to knowledge for social benefit
- Identify risks and benefits
- Acknowledge uncertainties
- Present research results objectively
- Counter misrepresentation/misuse of scientific information
- Distinguish between evidence-based advice and opinion/advocacy
- Work to improve public understanding of science
- Resist suppression of scientific information related to public welfare
- Resist access to scientific information that may be used by others for ill will



## American Chemical Society

### Chemical Professionals Acknowledge Their Responsibility To the public

Chemical professionals have a responsibility to serve the public interest and safety and to further advance the knowledge of science. They should actively be concerned with the health and safety of co-workers, consumers and the community. Public comments on scientific matters should be made with care and accuracy, without unsubstantiated, exaggerated, or premature statements.



National Society of  
Professional Engineers®

### Code of Ethics for Engineers

- Engineers shall at all times strive to serve the public interest.
- Engineers are encouraged to participate in civic affairs; career guidance for youths; and work for the advancement of the safety, health, and well-being of their community.
- Engineers shall avoid all conduct or practice that deceives the public.

## Survey of Scientific Societies on Promoting Research Integrity

American Association for the Advancement of Science

Mark S. Frankel, PhD

Sanyin Siang

Margot Iverson

2000

### Survey Sample Size

- 126 Scientific Societies
- 45% (57 useable surveys) were returned

Table 1 – Scientific Disciplines of Participating Societies

DISCIPLINE CATEGORIES	NO.	%
Agricultural/Botanical	5	9
Animal/Life Sciences	12	21
Medical/Dental	10	18
Physical and Atmospheric Sciences/Computing	14	25
Social Sciences	13	23
Other	3	5
<b>Total</b>	<b>57</b>	<b>101</b>

*\*Percentages that do not add up to 100 percent are a result of rounding off.*

Table 2 – Does your society currently engage in or plan to engage in any activities for promoting research integrity?

ACTIVITIES?	NO.	%
Yes	30	53
No	26	46
No Response	1	2
<b>Total</b>	<b>57</b>	<b>101</b>

*\*Percentages that do not add up to 100 percent are a result of rounding off.*

Table 3 – If yes, what for do those activities take?\*

ACTIVITIES	NO.	%
Programs at Annual/Regional Meetings	23	40
Ethics Committees	20	35
Columns/Articles in Professional Journals/Newsletters	18	32
Publications on Research Ethics	15	26
Workshops	11	19
Resource Materials	8	14
Discussion Groups	7	12
Special Activities for Students/Trainees	5	9
Mentorship Programs	4	8
Other	2	4
Awards to Members Exemplifying Integrity in Research	2	4
In-service Training	0	0
Hotlines	0	0

\*Respondents were instructed to check as many activities as applied

## What is Mentoring?

Taking special interest in a person's professional development and career. Goal is not to "clone" oneself, but to foster confidence and independent thinking.

To teach the normative standards (values and ethics) of the profession/discipline in order to help the student/trainee's socialization into the culture of the profession/discipline.

While the professional community "does not produce the next generation biologically, it does socially," and the character and behavior of individuals can be explained, at least in part, by how well the community and individual mentors have done.

## Qualities of a Good Mentor

- Values the organization, its mission and its work
- Treats everyone with respect and accepts personal differences
- Able to establish a comfortable environment for discussions
- Demonstrates sensitivity to student/trainee's needs
- Shares information and experience openly
- Good communication and listening skills
- Knows his/her field well
- Motivating, encouraging, positive and empowering
- Willing to set aside/commit time to mentor someone
- Committed to making a difference, one individual at a time

## Role of The Student/Trainee:

- Assess your development needs and goals
- Demonstrate interest in your career growth
- Develop mentoring plan with mentor including time, frequency, duration, and place of meetings
- Be honest in communicating with mentor
- Maintain confidentiality and open lines of communication
- Diligently pursue course work, internships, research and teaching assignments
- Be willing to give feedback about mentoring program
- Learn from the experience, knowledge, and wisdom of mentor



## Postdoctoral Scholar Mentoring Guidelines

At UC San Diego, postdoctoral experience emphasizes scholarship and continued research training under the oversight of a faculty mentor. "Faculty mentors are responsible for guiding and monitoring the advanced training of Postdoctoral Scholars."

## A Guide to Training and Mentoring in the Intramural Research Program at NIH

- [Preface](#)
- [Introduction](#)
- [Supervisors, Mentors, and Trainees](#)
- [Training in Scientific Investigation](#)
- [Training in Communication](#)
- [Training in Personal Interactions](#)
- [Career Planning](#)
- [Training in Scientific Responsibility](#)
- [Conclusion](#)
- [Directory of Useful Web Sites](#)





## AAAS Mentor Awards

Nomination Deadline: 31 July

The two categories of the AAAS Mentor Awards (Lifetime Mentor Award and Mentor Award) both honor individuals who during their careers demonstrate extraordinary leadership to increase the participation of underrepresented groups in science and engineering fields and careers. These groups include: women of all racial or ethnic groups; African American, Native American, and Hispanic men; and people with disabilities.



The screenshot shows the NSF website with the following elements:

- Header:** NSF logo with tagline "WHERE DISCOVERIES BEGIN", a search bar, and navigation links: HOME | FUNDING | AWARDS | DISCOVERIES | NEWS | PUBLICATIONS | STATISTICS | ABOUT | FastLane.
- Left Sidebar:** A "News" section with a "NEWS" graphic and a list of links: News From the Field, For the News Media, Special Reports, Research Overviews, NSF-Wide Investments, Speeches & Lectures, NSF Current Newsletter, Multimedia Gallery, News Archive, and News by Research Area.
- Main Content:**
  - Press Release 07-172: President Honors Mentors of Scientists and Engineers**
  - Text:** "Eleven awards recognize those who broaden opportunities and support success in the sciences"
  - Image:** A group photo of award winners and officials seated in front of an American flag.
  - Portraits:** Two individual portraits of David B. Allison and Juan F. Arratia, each with their name, affiliation, and a "Credit and Larger Version" link.