

The Importance of Education in a Responsible Research Environment

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Presentation to the RCREC

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NSF Guidance

1. **Grantee Responsibilities and Federal Requirements**
 - a. The **grantee has full responsibility for the conduct of the project or activity** supported under this award and for adherence to the award conditions. . . . the grantee's **responsibility for making sound scientific and administrative judgments** . . . The grantee is responsible for notifying NSF about: (1) any allegation of research misconduct that it concludes has substance and requires an investigation in accordance with NSF research misconduct regulations published at [45 CFR \(Code of Federal Regulations\) §689](#); or (2) any significant problems relating to the administrative or financial aspects of the award.

NSF Guidance

- By accepting this award, the awardee agrees to **comply with the applicable Federal requirements** for grants and cooperative agreements and to the **prudent management** of all expenditure and actions affecting the award.

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NSF Guidance

Prior approvals

No-cost extensions

Allowable costs

Project reports

Records retention

Animal Welfare

Human Subjects

Recombinant DNA

Financial Disclosure

Sharing findings and data

Permits

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Why Educate?

- Levels the playing field
- Moves culpability
- Decreases likelihood of irresponsible acts
- High profile cases or numerous cases can result in eroding public support
 - Congressional/Federal interest—more mandates

Integrity is not optional

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Integrity is a Partnership

- ◆ **The Agency** (National Science Foundation)
 - OIG
 - Program Officers
 - Grants Officers
- ◆ **Institution Officials**
 - Administrative
 - Financial
 - Education
- ◆ **Researcher**
 - Students
 - Colleagues
 - Postdocs
 - Administration



Agency Commitment (NSF's)

- ◆ Clear articulation of rules/expectations
- ◆ Timely notification
- ◆ Responsiveness
- ◆ Limit bureaucracy
- ◆ Coordination between agencies
- ◆ Balance compliance, institution responsibility and latitude
- ◆ Numerous opportunities for funding (CAREER, REU, Fellowships, SGER, etc)

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NSF's Office of Inspector General

- ◆ Provide leadership, coordination and recommend policies to:
 - ✓ Prevent detect, and investigate fraud, waste, abuse
 - ✓ Promote economy, efficiency, effectiveness
 - ✓ Independence from agency management
 - ✓ Jurisdiction (NSF activities, programs operations)
 - ✓ Our staff : administrators, attorneys, auditors, criminal investigators, and scientists

Fancy words for ensuring integrity in NSF's programs and operations

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Institution Commitment

◆ Overall

- * A financial and administrative system to manage projects and staff
- * Create an environment in which employees can operate with integrity

◆ Proposal

- * Certification to comply with terms and conditions

◆ Award

- * Full responsibility for conduct of project (Article 1, GC-1)
- * Responsibility for administrative, financial, and research management and oversight
- * Report significant issues

Researcher Commitment

- ◆ **Overall -- Uphold ethics and standards of community**
- ◆ Proposal
 - * Develop a proposal that responds to the review criteria
 1. Intellectual Merit of Proposal
 2. Broader Impacts of Activity
 - * Know and adhere to the rules
- ◆ Award
 - * Ensure compliance and education of staff, students
 - * Know the rules
 - * Conduct the funded activity

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Institutional Compliance

- ◆ 7 elements of a good compliance program
 - 1) Reasonable Compliance Standards and Procedures
 - 2) Specific High-level Personnel Responsible
 - 3) Effective Communication of Standards and Procedures
 - 4) Due Care in Assignments with Substantial Discretionary Authority

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Institutional Compliance (con't)

- 5) Establish Monitoring and Auditing Systems **and** Reporting System (Whistleblowing without fear of Retaliation)
- 6) Consistent Enforcement of Standards through Appropriate Mechanisms (including failure to detect)
- 7) Respond Appropriately to the Offense (reporting to agency, law enforcement, modify program, prevention)

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Ethics is choosing among shades
of gray



Where do you stand?

Ethical Issues you will Confront

- ◆ Data Selection
- ◆ Sharing and Using Ideas
- ◆ Making Financial Decisions
- ◆ Collaborations
- ◆ Conflicts of Interest
- ◆ Paraphrasing and Plagiarism
- ◆ Mentorship/Advisor Problems
- ◆ Merit Review
- ◆ Obtaining Oversight Reviews

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Data Issues

- ◆ Full disclosure, cleaning, fudging, falsification, fabrication
 - ◆ Share with whom, when, what restrictions and agreements?
 - ◆ Who owns the data?
- ? Foreign grad student takes notebooks and returns to homeland. Ongoing
- ? PI alters data because he anticipates it will be correct, it is not published. Finding of research misconduct
- ? Graduate student fabricates spectra to obtain Ph.D. Finding of research misconduct

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Sharing and Using Ideas

- ◆ Ideas are “in the air”, a continuum, unique,
 - ◆ Agreements, seminars and meetings
 - ◆ Sharing manuscripts, proposals
- ? PI shared manuscript with another researcher who refined it, was named as a co-author and then used the manuscript in NSF proposal without PI. Concluded this was an authorship dispute.

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Making Administrative and Financial Decisions

- ◆ Adhering to NSF's grant conditions (GC-1, FDP)
- ◆ Understanding what you can and can't buy
- ◆ Proper use of Participant Support
- ? PI purchases personal books and uses telephone for personal business. PI required by institution to reimburse grant; More serious cases become civil, criminal issues resolved with DOJ.
- ? PI uses grant monies to make over \$300K of personal purchases. Fired, convicted, serving 2 yr sentence, court ordered restitution from retirement accounts.



Collaborations

- ◆ Written agreements on work, authorship, proprietary nature, subsequent use, data mgmt and rights
- ? Foreign collaborations
- ? NSF funds collaboration to research three distinct tribes in South America—each of three PI's to contribute to comparative study. After study complete, one PI writes paper on her own data and says tenure pressures forced her to complete paper and focus on completing a book. Determined it was an NSF management issue...formal agreement might have allowed us to seek some measure of enforcement.

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Conflicts of Interests

- ◆ Balancing and Disclosing Financial and Commitment conflicts
 - ◆ What are conflicts?
 - ◆ SBIR vs. basic research awards
- ? PI has research grant and private business. Use NSF funds to support travel costs for business. Fraud, Conflict of Interest
- ? PI wants to hire sister-in-law as administrative assistant—university denies. Contracts for administrative services with a private company—later found to be owned by brother. COI and PI was forced to repay funds.

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Paraphrasing and Plagiarism

- ◆ **Background, methods, research plan and ideas**
- ◆ **Common knowledge, limited usage, adequate citation**

- ? How much can you copy without attribution and offset before it becomes misconduct? When must you provide attribution?
- ? Proactive study with plagiarism software. Rate of 2.5% overall
- ? Care when sharing proposals
- ? Care with student derived text

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Mentor/Advisor Problems

- ◆ He/she took my idea
- ◆ I took “my” data/notebook
- ◆ Collaboration rules apply here

- ? Graduate student has a falling out with advisor and finds that data and ideas are used by advisor in publication that fails to provide authorship or acknowledgment to student.
Research Misconduct
- ? Graduate student leaves laboratory either happily or unhappily and takes laboratory notebooks with him/her.
Had to return notebooks, may take copies.

Merit Review

- ◆ Confidentiality, sharing proposals

- ? PI shares proposal received for review with research staff. Member of staff uses text and idea in proposal in own submission. PI violated confidentiality of peer review. Could be barred from participating.
- ? Reviewer shares proposal with colleague. Colleague then uses small amount of text in his own proposal. Research Misconduct and violation of confidentiality of peer review.

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Obtaining Oversight Reviews

- ◆ Human / animal / biohazards reviews
- ◆ Collection permits
- ? PI collects endangered species and imports into US without permits. PI removed from grants, action taken by Justice Department
- ? Recent review of REU and other educational related proposals lack necessary IRB review..

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Allegations Reviewed (%)

✓ Intellectual theft	24	Fabrication in proposal	3
✓ Verbatim plagiarism	16	Data sharing	3
✓ False statements (CV& CPS)	9	Impeding research progress	3
NSF procedures	8	Conflicts of interests	2
✓ Falsification in a proposal	7	✓ Duplicate submissions	2
✓ Peer review violation	7	✓ Mishandled investigation	1
✓ Mentoring or colleague abuse	6	✓ Data tampering	1
✓ Retaliation	4	✓ Human subjects	1
✓ Fraud	3	Animal welfare	0.1
		Recombinant DNA	0.1

Findings of Misconduct as of April 2005:

♦ 14% Fabrication ♦ 61% Plagiarism
 ♦ 14% Falsification ♦ 11% Other

✓ Indicates a finding

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Case Study A

Allegation:

University informs NSF OIG that a university professor may have plagiarized in his final report to a Small Business Innovative Research grant

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Case Study A

The Facts after OIG Inquiry

- * Professor used a former graduate student's thesis as the basis for the final report of his SBIR Phase I grant
- * No apparent work accomplished under the Phase I (\$100K)
- * Original PI changed : Graduate Student -> PI's wife
- * Signature styles vary throughout grant period
- * Company already received Phase II award

Case Study A

Complete Investigative Facts

- * **Virtually no work was done during Phase I and II**
- * **Final and interim reports plagiarized**
- * **claimed “office” was a trailer in some field**
- * **although wife was PI she was deceived by spouse**
- * **Professor’s actions were willful to pay for equipment he previously bought for his university lab**

Case Study A

NSF and Gov't Findings and Actions

- ❑ Falsification of information in proposal and reports
- ❑ Evidence of an extensive pattern
- ❑ Convinced them to reimburse all funds
- ❑ Referred to AUSA -- pleaded guilty to US Code Title 18, 1001 violation
- ❑ Final criminal resolution: 5 yrs suspended
\$15K fine
- ❑ Debarment

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Case Study B

It's a small world after all

Allegation:

PI plagiarized text and ideas into his NSF proposal

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Case Study B

The facts after the OIG Inquiry

- Complainant was a reviewer of proposal and recognized his own text originally contained in a proposal submitted to a European funding agency
- European funding agency confirmed that subject was a reviewer of the European proposal
- OIG review confirmed that approx 50 lines of text was copied from peer reviewed proposal

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Case Study B

Facts after the Institutional Investigation

- Subject plagiarized text which into the research methodology section of his proposal
- Plagiarized text included ideas original to the source
- Subject intercepted letter sent to co-PI

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Case Study B

Institution and NSF Findings and Actions

- Finding of Research Misconduct
- Letter of Reprimand
- Debarred for 2 yrs
- Certification and Assurances for 3 yrs
- Removed as PI of current grants
- All pending proposals withdrawn

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Interesting Pending Cases

Case of the missing research assistant

Case of the missing “submitted” manuscripts

Case of the PI who didn't write the proposal

Case of Fastlane ate my quotes

Case of minor fabrication

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INTEGRITY STARTS WITH YOU!

If you are aware of, or suspect

- research misconduct
 - fraud
 - waste
 - abuse
- Issues of economy or efficiency
or if you just have questions,

Please contact the
NSF Office of Inspector General

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-
- ◆ Internet: www.nsf.gov/oig/
 - ◆ E-mail: oig@nsf.gov
 - ◆ Telephone: 703-292-7100 (Jim x5012)
 - ◆ Anonymous: 1-800-428-2189
 - ◆ Write: 4201 Wilson Blvd. Suite II-705
Arlington, VA 22230

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