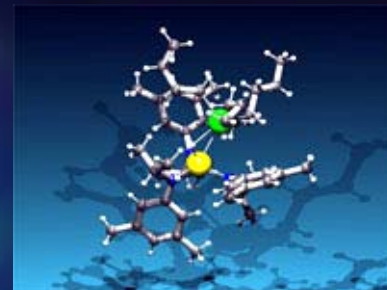


CASE STUDIES INVESTIGATIONS OF RESEARCH MISCONDUCT



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Research Misconduct cases



Five recent case studies from NSF-OIG

each shows different aspects of research
misconduct

each referred (or considered for referral) to
University for investigation

each case resolved with a different and appropriate
end result



Three steps



Initial determination of substance from the definition
of research misconduct

Processes of inquiry and investigation, referral and
deferral

Conclusion and adjudication

Definition of Research Misconduct



“Misconduct means fabrication, falsification, or plagiarism in proposing or performing research funded by NSF, reviewing research proposals submitted to NSF, or in reporting research results funded by NSF.” 45 C.F.R. §689.1

Fabrication means making up data or results and recording or reporting them.

Falsification means manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.

Plagiarism means the appropriation of another person’s ideas, processes or words without giving appropriate credit.

Process of Inquiry and Investigation

a standard NSF OIG policy and procedure

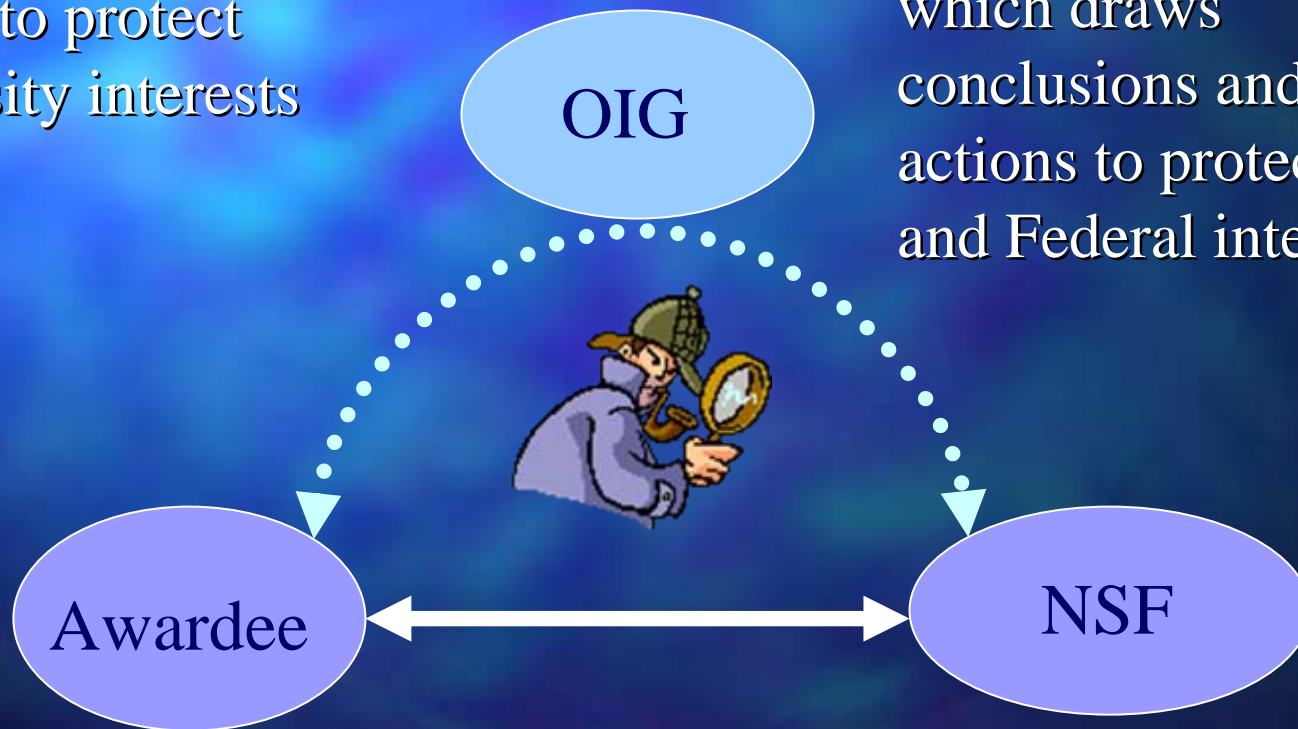
varied University policies and procedures,
each separate and independent

not all ethical issues are research misconduct

Conclusions and Adjudications

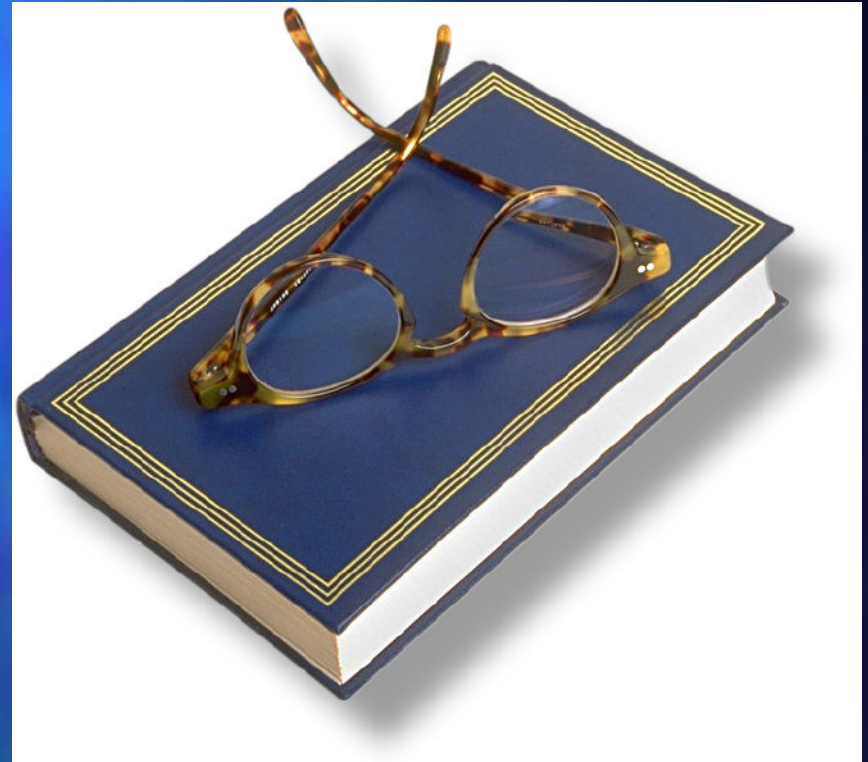
University draws conclusions and takes actions to protect University interests

NSF OIG recommends to NSF, which draws conclusions and takes actions to protect NSF and Federal interests



Template for Case Studies

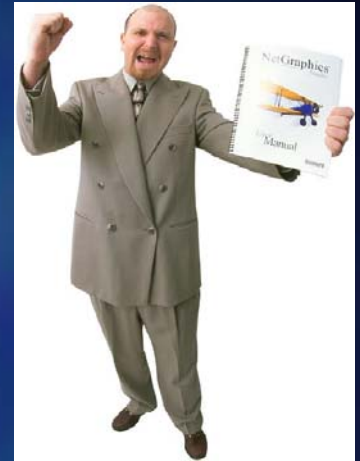
Initial allegation
Case development
Case facts
Conclusions
Lessons learned



Case Study 1 (CS1): A Scientific Divorce

CS1: Initial allegation

Information received from an overseas scientist claimed that his colleague at a U.S. University was being treated unfairly, and that allegations of research misconduct (involving NSF-funded research) may have been made against his colleague





A Scientific Divorce

CS1: Case development

Ongoing University mediation of personal conflicts between collaborators

Accusations grew to the point that research misconduct was alleged

Academic reputation issues, ongoing conflicts over small amounts of money

An exhaustion of patience at the University level

Complication with visa renewal issue, and new administrators involved

A Scientific Divorce

CS1: Case facts

Core issue was connection between microscopic photographs and a new discovery

Investigation halted because a personnel agreement closed files

Subpoena used to open research records and investigation documents

No substance to the allegation of research misconduct

A Scientific Divorce

CS1: Conclusions

University research misconduct investigation policies not followed to completion

Lack of compliance with NSF regulations about administrative difficulties

No referral of investigation from NSF OIG inquiry

No University action for resolution due to personnel agreement

Letter from NSF OIG to University with reminder of obligations

A Scientific Divorce

CS1: Lessons learned

University research misconduct policies can conflict
with other University policies

Scientific divorces are bitter and irrational, and
usually not research misconduct

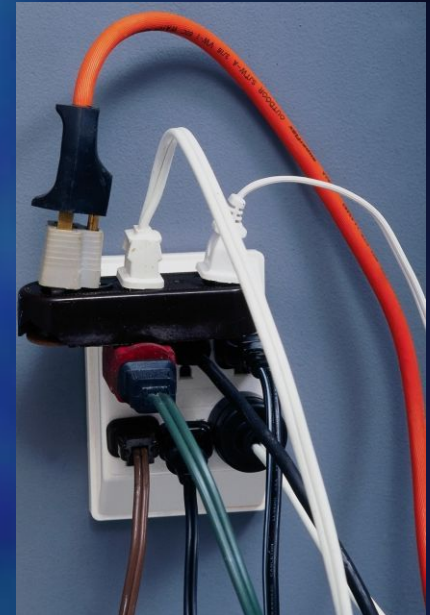
Academic reputation issues complicate cases

Subpoena authority is crucial to access documents

Case Study 2 (CS2): Pressures on Young Scientists

CS2: Initial allegation

A University informed NSF of their Investigation into an allegation that one of their faculty members had claimed in the project description of a prestigious CAREER proposal, and in the PI's biographical sketch of that proposal, manuscripts submitted for publication that did not actually exist. That University had been informed of a finding of research misconduct against the subject by the University where the subject had previously completed his postdoctoral research work



Pressures on Young Scientists

CS2: Case development



Subject was party to a previous voluntary exclusion agreement with NIH ORI

Change in University administrators during the NSF OIG referral of investigation

Subject resigned before completion of

University investigation, before any sanctions

Subject changed employment again before completion of NSF OIG action

Pressures on Young Scientists

CS2: Case facts

Manuscripts claimed as submitted did not exist

Non-existent manuscripts with well-known co-author described as "submitted" to highly ranked journals

Non-existent manuscripts listed in "five most significant publications" section

Reliance of reviewers on publication record

Pattern of claims repeated in proposals to multiple agencies

Falsification of figure also noted in a proposal submitted to a funding agency

Motivation apparently to establish a credible reputation early in a career

Pressures on Young Scientists

CS2: Conclusions

Second University finding of research misconduct
No University sanctions since subject resigned from
the faculty

Subject was replaced as PI on a CAREER NSF
award

NSF finding of research misconduct

NSF imposed two years debarment and three years
certifications and assurances

Subject left the U.S. and is working as a scientist in
Europe

Pressures on Young Scientists

CS2: Lessons learned

Prestigious early career awards increase pressures on young faculty

Publications take time that early career scientists feel they don't have

Early career scientists fear being "scooped"

Early career scientists may be an especially "ethics-susceptible" population

Potential exists for University embarrassment

Case Study 3 (CS3): Fabrication and Falsification

CS3: Initial allegation

A scientific collaborator preparing for his own experiments noted an impossible mathematical relationship between supposedly independent sets of replicate data that appeared in a published paper, and notified the corresponding author of the publication, who then notified the head of his institution, who then notified NSF OIG



Fabrication and Falsification

CS3: Case development



Substance established by direct contact with journal to get supplementary data

Subject fired on his admission of actions before any inquiry began

Another Federal agency involved, but NSF maintained investigative lead

Investigation referred to institution to establish elements for possible NSF action

Fabrication and Falsification

CS3: Case facts

Subject was a post-doctoral researcher who was first author on the publication

Subject managed the lab in the absence of the mentor

Subject searching for an academic faculty position

Pressures of insufficient time, insufficient money, and a need for publication

Replicate sets of data fabricated using a simple mathematical formula and images falsified to correspond to the replicated data sets

Supplementary data first retracted, and eventually the entire publication was withdrawn

Fabrication and Falsification

CS3: Conclusions

Subject committed and admitted to fabrication and falsification

Institution finding of research misconduct, but no further action as subject had already left

NSF finding of research misconduct

NSF imposed two years debarment

Subject now a technical expert in scientific research supply company

Fabrication and Falsification

CS3: Lessons learned

Untested institutional investigation procedures are problematic

Prior adverse action against subject results in lack of serious investigation

Second similar case shows that first-case recommendations not implemented

Case Study 4 (CS4): Intellectual Property Theft

CS4: Initial allegation

A reviewer of an NSF proposal noticed that the principal investigator (PI), an established scientist, copied ideas and text from her proposal that had previously been submitted to a funding agency in another country (UK).



Intellectual Property Theft



CS4: Case development

Complainant contacted to firmly establish substance of the allegation

UK funding agency then contacted and provided official information

Subject claimed a collaborative relationship (not confirmed by complainant)

Subject intercepted OIG initial inquiry letter to the coPI

Intellectual Property Theft

CS4: Case facts

NSF PI was a reviewer of the UK agency proposal

UK agency review predicated on confidentiality

Plagiarism was extensive and confirmed on proposal
comparison

University committee established that a central
unique idea was stolen

Intellectual Property Theft

CS4: Conclusions

Subject knowingly committed plagiarism

Action exacerbated by the source document being a confidential proposal

Interception of letter was subject's self-protection

University terminated the subject's contract, among other sanctions

NSF made a finding of research misconduct

NSF imposed two years debarment

Subject location unknown

Intellectual Property Theft

CS4: Lessons learned

International cooperation works when the process is explained

UK funding agency had no internal process to pursue the violation

Investigation often relies on non-secure communications

Case Study 5 (CS5): The Computer Did It

CS5: Initial allegation

A reviewer of an NSF proposal noticed that the principal investigator (PI) copied ideas and text from another NSF proposal that he had previously reviewed.



The Computer Did It



CS5: Case development

Extensive plagiarism apparent in all three NSF proposals submitted by subject, and the subject admits to sources, but claims that Fastlane removed quotation marks, and that he requested technical help from NSF with no response

Investigation referred to University (part of a larger state University system)

University investigation finds a "failure to meet professional standards," University administration makes finding of research misconduct, and University proposes termination of the faculty member, but the proposed adverse personnel actions stalled in a union appeals process

University administrators change during the process

The Computer Did It

CS5: Case facts

Extensive plagiarism confirmed in all three NSF proposals from subject

Backups of original documents show no quotation marks as claimed by subject

Help desk logs show no request for assistance from the subject

Subject's claims undermined by timeline and contradicted by testimony of others

The Computer Did It

CS5: Conclusions

University failure to complete investigation returns investigation to NSF OIG

NSF OIG and NSF must consider apparent false statements made by the subject

Case is 18 months old, University process continues

Subject apparently unemployed

The Computer Did It

CS5: Lessons learned

Importance of archival records for electronic documents and processes

Importance of email records (agency and individual)

Importance of record dates

Disappearance of web materials

Need for outside training and system transparency

Ending considerations

Science and science tools change faster than either the creation of regulations or the underlying understanding of ethical issues

Generational and cultural and community "gaps" are real and important

Most disputes center on "process"

Many problems of the "process" derive from untested and untried policy

May I answer questions?

