Who is NSF OIG?

- Independent office reporting to the Congress and NSB
- **Promotes economy, efficiency, and effectiveness**
- **Prevents and detects fraud, waste, and abuse**
- Accomplishes mission through:
  - Audits
  - Investigations
    - Criminal and Civil (e.g., false claims, false statements, embezzlement)
    - Administrative (e.g., regulatory and policy violations)
    - Legal Support Team (serves both criminal and administrative groups)

Where does Research Integrity (RI) and the Responsible Conduct of Research (RCR) fit?

NSF delegated the responsibility for investigating research misconduct at NSF to OIG
- **Unique among the IG Community**
NSF/OIG and ORI

- Responsible for intake/assessment of allegations
- Refer matters to university for investigation
- Make recommendations regarding administrative actions
- Work together on matters of joint jurisdiction

But there are some subtle differences

<table>
<thead>
<tr>
<th>ORI</th>
<th>NSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negotiates Voluntary Exclusions (VE)</td>
<td>Refers exclusion requests to NSF/OGC</td>
</tr>
<tr>
<td>Cases presented to ALJ</td>
<td>NSF DD is deciding official</td>
</tr>
<tr>
<td>Oversees grantee investigations</td>
<td>Ability to independently investigate</td>
</tr>
<tr>
<td>Not a law enforcement agency</td>
<td>LE agency with subpoena authority</td>
</tr>
<tr>
<td></td>
<td>Search warrant capability (criminal)</td>
</tr>
<tr>
<td>Division of Education/Integrity</td>
<td>Limited outreach by inv. staff</td>
</tr>
<tr>
<td>Publishes all findings/VEs with names</td>
<td>All closeouts online but names redacted</td>
</tr>
<tr>
<td></td>
<td>Wider variety of RI issues addressed</td>
</tr>
</tbody>
</table>
Where does Research Integrity Fit?

Grant Administration
- Pre-award, e.g., budgeting
- Post-award, e.g., money and reporting
- Patents and other intellectual property rights
- Financial COIs

Research Administration
- IRB
- IACUC
- Biosafety
- RCR training
- Authorship
- Mentoring and traineeship
- Honor Codes and Student Disciplinary processes
- Employee Disciplinary processes

Research Misconduct (FFP) Prevention, Detection, & Investigation

Academic Administration (Student and Faculty)
<table>
<thead>
<tr>
<th>FY</th>
<th>P</th>
<th>F/F</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>9</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>16</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>9</td>
<td>2</td>
<td>8 F/F findings</td>
</tr>
<tr>
<td>2011</td>
<td>14</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>18</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>13</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>19</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>9</td>
<td>2</td>
<td>25 F/F findings</td>
</tr>
<tr>
<td>2016</td>
<td>11</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>5</td>
<td>9</td>
<td>(Estimated)</td>
</tr>
<tr>
<td>2018</td>
<td>7</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Maternity, effort to close out old cases, special projects
<table>
<thead>
<tr>
<th>Allegation</th>
<th>Open Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plagiarism</td>
<td>26</td>
<td>41</td>
</tr>
<tr>
<td>Data F/F</td>
<td>25</td>
<td>39</td>
</tr>
<tr>
<td>Grant Misallocation</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>IRB</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Misc</td>
<td>5</td>
<td>8</td>
</tr>
</tbody>
</table>

Over 100 QRP Letter sent to subjects of our investigations

Plagiarism threshold may return to old level
Current Issues

- Serial spending of grants
- Disclosure of Affiliations
- Harassment
- Sabotage
Serial Spending

- Recent Case
- Scan - Many examples with similar basic characteristics
- Likely Proactive Focus in Near Future
Foreign Affiliations

• NIH Director Letter
  • Diversion of IP in applications or research to other entities including foreign entities
  • Sharing confidential information by peer reviewers with others including foreign entities
  • Failure to disclose substantial resources from other sources including other governments

• NSF aware – unclear at this time what action it may take

• USA Experience

• Doctoral Student at Duke takes sensitive research back to home country
Harassment

• New NSF Policy – Institutions must notify NSF
  • Of any NSF PI who is found to have committed harassment
  • Any PI who is placed on admin leave related to such allegations
  • Will consult with institutions on potential actions by NSF
  • Federal Register -

• Not in OIG purview
  • ODI
  • AGU
  • IG and Director in agreement
Sabotage

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

Did the act impact the data in the research record?

Still might be addressed by OIG as a lack of present responsibility

Are the facts settled or still in dispute?
- Local Prosecution
# Characterization of RCR Training

<table>
<thead>
<tr>
<th>Trainee Population</th>
<th>Required training population is limited to NSF-supported participants</th>
<th>Required trainee population is not limited to NSF-supported participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainee population is able to fulfill the RCR requirement by only taking online training or through document review</td>
<td>64% – Compliance</td>
<td>9% – Hybrid Compliance</td>
</tr>
<tr>
<td>Trainee population receives RCR content through required interactive training (i.e., a course, workshop, or seminar)</td>
<td>9% – Hybrid Educational</td>
<td>19% – Educational</td>
</tr>
</tbody>
</table>

- 73% required only those supported by NSF grant to be trained
- 73% allow online-only training to constitute appropriate training.
Some Best Practices We Saw

- Adding stress management to RCR training
- Requiring RCR training for all graduate students (even if they are not funded by NSF)
- Involving faculty in RCR training (only 15% currently do)
- Requiring periodic RCR refresher training—every 3+ years
- Requiring participants to take training before beginning NSF research
OIG continues to address RCR guidance with NSF leadership

OIG believes that F2F training is a critical component of a good RCR program

Some new guidance likely from NSF in 2020
Preliminary Review of Plagiarism Cases 2007-2017

- **Source of Allegations**
  - 45% reviewers
  - 24% proactives
  - 16% anonymous
  - 7% from other cases
  - 7% universities

- **Academic Position**
  - 46% Assistant Professor
  - 16% Associate Professor
  - 16% Full Professor
  - 9% Researcher
  - 13% Student/Misc
<table>
<thead>
<tr>
<th>First Proposal?</th>
<th>Yes</th>
<th>28%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>72%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>U.S.</th>
<th>Foreign</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.S.</td>
<td>19%</td>
<td>81%</td>
</tr>
<tr>
<td>M.S.</td>
<td>32%</td>
<td>68%</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>63%</td>
<td>37%</td>
</tr>
</tbody>
</table>
The RM Investigation Process

Institutions bear primary responsibility for preventing and detecting RM

- **Inquiry** - allegations come from many sources; simply establish substance
- University Investigation referral – 180 days
- OIG Independent Investigation – if necessary
- Report of Investigation – subject gets to comment
- Agency Adjudication – LOR to Debarment
- Appeal
The Research Misconduct Finding

For an NSF finding of RM the **preponderance of the evidence** must support:

- The act *(e.g., plagiarism)* committed by the subject; and
- The subject’s intent in doing the act was at least reckless; and
- The act was a significant departure from accepted practices.

<table>
<thead>
<tr>
<th>Careless</th>
<th>Reckless</th>
<th>Knowing</th>
<th>Intentional (purposeful)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reasonable Person Standard</td>
<td>Individual Standard</td>
<td>Finding of Research Misconduct</td>
<td></td>
</tr>
<tr>
<td>No Finding</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Careless:** Failure to use the degree of attentiveness, caution and prudence that a reasonable person in the circumstances would exercise.

**Reckless:** Behavior that a reasonable person would know is likely to invade another’s right *(e.g. cause harm)*.

**Intent:** Reckless, knowing or intentional - may have multiple levels for various acts but conclude one level for one act.
Preponderance of Evidence

- Preponderance is based on the more convincing evidence and its probable truth or accuracy, and not on the amount of evidence

- Thus, one clearly knowledgeable witness may provide a preponderance of evidence over a dozen witnesses with hazy testimony, or a signed agreement with definite terms may outweigh opinions or speculation about what the parties intended.
Best Practices for Investigations

• Involve your OGC in the process – they can help explain the legal aspects of assessing intent, etc

• If you don’t have anyone on the committee with expertise in that scientific discipline, consider getting someone from another school

• Don’t deviate from your policy – could result in litigation later

• Record interviews – transcripts are good too

• Admissions – get detailed, written documentation of what the subject did or provide an analysis of the RM acts

• Get started quickly – don’t delay; Standing committee

• Adjudicate to protect University’s interests; NSF will take action to protect federal interests if appropriate
Best Practices for Investigations

- Ask the tough, direct questions
- Don’t allow committees to seek the easy way out
- Be prepared for obfuscation
- Corroborate explanations
- Obtain post investigation contact information (particularly for foreign grad students)
Have Talk, Will Travel
Contact Information

www.nsf.gov/oig

2415 Eisenhower Ave.
Suite W 16100
Alexandria, VA 22314

Hotline: 1-800-428-2189
E-mail: oig@nsf.gov
Fax: (703) 292-9158

Jim Kroll
Jkroll @ nsf.gov
703-292-5012