Academic Integrity, The Responsible Conduct of Research, and How to Present your Data

NJMS Cancer Summer Research Program
Dr. Gwen Mahon, Program Director
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Academic integrity means honesty and responsibility in scholarship and research

You must always distinguish your own words and ideas from the words and ideas of others

and

the results of your work (data) from the work (data) of others
What is PLAGIARISM?

the use of any source, published or unpublished, without proper acknowledgment.
Cite Sources

“when in doubt whether or not to cite a source, do it.”

from http://www.princeton.edu/pr/pub/integrity/pages/plagiarism.html

1. Direct Quotation
2. Paraphrase: restate another person’s thoughts or ideas in your own words
3. Summary
4. Facts, Information, and Data
5. Supplementary Information
False Citation

When one documents outside sources that were not really consulted.

did you really read it ????
Websites

Be extra careful to verify the accuracy or validity of information obtained from electronic sources.
Independent versus Collaborative Work

ALWAYS ACKNOWLEDGE OTHERS!
Early 1980s: Public Concern about misconduct in research following reports of several cases of falsification, misrepresentation.

Eventually Congress stepped in and required Federal agencies and research institutions to develop research misconduct policies.
In 2000, The Office of Science and Technology Policy (OSTP) defines “research misconduct” as “fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results”
Universities must have a research misconduct policy

Research misconduct policies provide guidance on responsible conduct in three areas.

They:

• establish definitions for misconduct in research
• outline procedures for reporting and investigating misconduct
• provide protection for whistleblowers (persons who report misconduct) and persons accused of misconduct.
“The Scientific Research Enterprise, like other human activities, is built upon a foundation of trust. Scientists trust that results reported by others are valid. Society trusts that results of research reflect an honest attempt by scientists to describe the world accurately without bias. The level of trust that has characterized science and its relationship with society has contributed to a period of unparalleled productivity. But, this trust will endure only if the scientific community devotes itself to exemplifying and transmitting the values associated with ethical scientific conduct.”
Responsible Conduct In Research, Scientific Integrity

NIH, Office of Research Integrity

- Data Acquisition, Management, Sharing and Ownership
- Conflict of Interest and Commitment
- Human Subjects
- Animal Welfare
- Research Misconduct
- Publication Practices and Responsible Authorship
- Mentor / Trainee Responsibilities
- Peer Review
- Collaborative Science
Responsible Conduct In Research, Scientific Integrity

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IRB and Human Subjects Protection

CITI Course
Informed Consent
Patient Privacy
Respect
IRB
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According to U.S. federal law, institutions that use laboratory animals for research or instructional purposes must establish an Institutional Animal Care and Use Committee (IACUC) to oversee and evaluate all aspects of the institution's animal care and use program.

American Association for Laboratory Animal Science (AALAC) is an organization committed to serving society through education and the advancement of responsible laboratory animal care and use.
Responsible Conduct In Research

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Publication
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Grant Funding and Peer Review

The mazes were too easy, so now they have me running through bureaucracies and looking for grants.
How do you fund your research program?

- Government: Federal or State
- Private Foundations
- Industry
**General Process**

Principle Investigator (PI) Seeks Funding Opportunity

PI Reads Guidelines and Obtains Application Package

Writes Grant

Submits Grant

Grant is Reviewed

Grant is Scored for Merit

Funding Decision is Made

Receives Grant or Starts all over Again!
Government

- **Federal**: NIH, NSF, DOD, DOE, NASA

- **State**: New Jersey Commission on Spinal Cord Injury, New Jersey Commission on Cancer Research, New Jersey Commission on Science and Technology
Approx 70 Study Sections at the NIH

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<tr>
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<td>STUDY SECTION</td>
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<td>METABOLIC PATHOLOGY .............</td>
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<td>METABOLISM .....................</td>
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The NIH Peer Review Process

- **Significance:** Does the study address an important problem? How will scientific knowledge be advanced?
- **Approach:** Are design and methods well-developed and appropriate? Are problem areas addressed?
- **Innovation:** Are there novel concepts or approaches? Are the aims original and innovative?
- **Investigator:** Is the investigator appropriately trained?
- **Environment:** Does the scientific environment contribute to the probability of success? Are there unique features of the scientific environment?
**SCORING of Scientific Merit: Lower is Higher!**

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<thead>
<tr>
<th>Impact</th>
<th>Score</th>
<th>Descriptor</th>
<th>Additional Guidance on Strengths/Weaknesses</th>
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<tbody>
<tr>
<td>High</td>
<td>1</td>
<td>Exceptional</td>
<td>Exceptionally strong with essentially no weaknesses</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Outstanding</td>
<td>Extremely strong with negligible weaknesses</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Excellent</td>
<td>Very strong with only some minor weaknesses</td>
</tr>
<tr>
<td>Medium</td>
<td>4</td>
<td>Very Good</td>
<td>Strong but with numerous minor weaknesses</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Good</td>
<td>Strong but with at least one moderate weakness</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Satisfactory</td>
<td>Some strengths but also some moderate weaknesses</td>
</tr>
<tr>
<td>Low</td>
<td>7</td>
<td>Fair</td>
<td>Some strengths but with at least one major weakness</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Marginal</td>
<td>A few strengths and a few major weaknesses</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Poor</td>
<td>Very few strengths and numerous major weaknesses</td>
</tr>
</tbody>
</table>

Proposals judged in the bottom half of the percentile ranking by initial review are not recommended for further consideration.
The research that you propose in your application must be innovative and focused
You do not want a reviewer to make this comment about your application:

“In addition to proposing a research design that is a fishing expedition, the applicant also proposes to use every type of bait and piece of tackle ever known to mankind.”
What about Ethics?
Ethics of the Reviewer

- Can not discuss the grant with other scientists
- Can not use data/info/ideas in the grant for their own work
- Can not discuss the review with the applicant
- DO NOT DO EXPERIMENTS in your own lab proposed by others in a grant
- Should not review a grant for which you have conflict of interest
- Should not review a friend’s grant (trained on the same lab) or a collaborators grant
- Should not review the grant of a personal competitor
- Can not review a grant from your own institution
Sources of Ethical Problems

Financial Conflicts

Evaluating work that might impact a company, product or invention in which you or your immediate family have financial interest can be a conflict.

The standards vary tremendously.

Intellectual Conflicts

What if you don't agree with the person's theory or perspective?

In extreme cases you should not be a reviewer.

Try to evaluate the work, not the author's views.
Sources of Ethical Problems (2)

Personal Conflicts
   *You don't like the person*
   *You do like the person*

Some Broad Categories That MIGHT Be Considered Conflicts:
   *Co-publication with a person in the past 3 to 5 years is generally considered a conflict*
   *Being at the same institution as a person is almost always considered a conflict in grant proposal review*
   *For some granting agencies, being of a different campus of some (but not all) state University Systems can be a conflict (go figure)*
   *In at least one agency, you are considered to have a lifetime conflict with your dissertation advisor and your students*
Certification of No Conflict of Interest

This will certify that in the review of applications and proposals by (study section) on (date), I did not participate in the evaluation of any grant or fellowship applications from (1) any organization, institution or university system in which a financial interest exists to myself, spouse, parent, child, or collaborating investigators; (2) any organization in which I serve as officer, director, trustee, employee or collaborating investigator; or (3) any organization which I am negotiating or have any arrangements concerning prospective employment or other such associations.

________________________  ________________________
________________________  SIGNATURES
________________________  ________________________

Ethics Post-Award

- Must use the money as you said you would (within the scope of work)
- Can only use money as defined in the grant guidelines (are the charges allowable?)
- Must spend it within defined amount of time, or request an extension, or give it back
- Can not use the money for an unrelated project
- Can not have significant overlap with other grants
- If the same grant is funded by 2 different agencies, must turn down one
- Must have all IACUC, IRB and IBCs in place before accepting the award

MUST SHOW TRANSPERENCY and FULL DISCLOSURE
Effective Poster Presentations
Your Abstract

• Guidelines: go to the website
• See booklet on-line from last year’s program
A scientific poster is a large document that can communicate your research at a scientific meeting, and is composed of a short title, an introduction to your burning question, an overview of your trendy experimental approach, your amazing results, some insightful discussion of aforementioned results, a listing of previously published articles that are important to your research, and some brief acknowledgement of the tremendous assistance and financial support conned from others—if all text is kept to a minimum, a person could fully read your poster in under 10 minutes.

Direct Excerpt from: Advice on designing scientific posters
Colin Purrington, Department of Biology, Swarthmore College, Pennsylvania
http://www.swarthmore.edu/NatSci/cpurrin1/posteradvice.htm
You never get a second chance to make a first impression
Posters

author/title/affiliation
background/introduction
methods
results
conclusions
funding source

http://www.makesigns.com/tutorial/tutorial_scientificPoster.htm
Insert the Title of the Poster Here

Names of Researchers
Name of Institution can be placed here

Introduction

Insert your text here. You can place your organizations logos on either side of the title of the poster. Insert your text here. You can place your organizations logos on either side of the title of the poster. Remember, you can change template colors to suit your own taste or institution colors. The graphic can be replaced with several smaller graphics. Insert your text here. You can place your organizations logos on either side of the title of the poster. Remember, you can change template colors to suit your own taste or institution colors. The graphic can be replaced with several smaller graphics.

Methods

Insert your text here. You can place your organizations logos on either side of the title of the poster. Remember, you can change template colors to suit your own taste or institution colors. The graphic can be replaced with several smaller graphics. Insert your text here. You can place your organizations logos on either side of the title of the poster. Remember, you can change template colors to suit your own taste or institution colors. The graphic can be replaced with several smaller graphics.

Conclusion

Put your information here. Remember to size your font accordingly.

- Point one
- Second conclusion
  - Sub point
- Next interesting point
  - Sub point
  - Sub point
- Last point of interest
  - Sub point
  - Sub point
  - Sub point

Chart or Graphic title here

Insert your text about the chart here.

- Interesting info
- Point two
- Third note
- Fourth finding

References

Insert references here

Funding Source: these gracious people listed here
Background

Insert your text here. You can change the font size to fit your text. You can change the font size to fit your text. Insert your text here. You can change the font size to fit your text. Insert your text here. You can change the font size to fit your text. Insert your text here. You can change the font size to fit your text. Insert your text here.

Objectives

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Methods

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• Put your second point here.
• Third point here.

Participants

• Insert your text here. You can change the font size to fit your text.
• Second point here
• Third participant goes here
• Information about fourth goes here

Results

• Insert your text here. You can change the font size to fit your text.
• Second point here
• The third point can go here
• Information about fourth goes here

Conclusion

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• Second point here
• Third conclusion goes here
• Information about fourth goes here

Table 1. magna non (n=17)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>60.9 ± 9.2</td>
</tr>
<tr>
<td>Parity*</td>
<td>2 (100)</td>
</tr>
<tr>
<td>Menopausal</td>
<td>9 (52.9)</td>
</tr>
<tr>
<td>Hormone therapy</td>
<td>7 (41.2)</td>
</tr>
<tr>
<td>Previous posterior repair</td>
<td>9 (52.9)</td>
</tr>
<tr>
<td>Defecatory symptoms</td>
<td>15 (88.2)</td>
</tr>
<tr>
<td>POP-Q stage of posterior wall prolapse*</td>
<td>2 ± 1.0</td>
</tr>
<tr>
<td>Point Ap on POP-Q*</td>
<td>9 (52.9)</td>
</tr>
<tr>
<td>Concurrent urogynecologic procedures</td>
<td>6 (35.4)</td>
</tr>
<tr>
<td>Site-specific defect</td>
<td>5 (29.4)</td>
</tr>
</tbody>
</table>

Data are presented as mean ± standard deviation or n (%)

*Data presented as median

This research was supported by ...

References

1. Insert your references here
2. Second reference here
3. So on and so forth

Future Directions

Insert your text here. You can change the font size to fit your text. Insert your text here. You can change the font size to fit your text. Insert your text here. You can change the font size to fit your text. Insert your text here. You can change the font size to fit your text. Insert your text here. You can change the font size to fit your text.

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INSERT YOUR POSTER TITLE
ON THESE LINES HERE
Name of Author
Department Name and Institution Name can go here

BACKGROUND

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- You can also make this box shrink or grow with the amount of text. Simply double click this text box, go to the “Text Box” tab, and check the option “Resize AutoShape to fit text”.
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MATERIALS AND METHODS

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RESULTS

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CONCLUSIONS

- A new kernel has been introduced in SVM prediction of protein-subcellular localizations.
- The new method outperforms the corresponding conventional k-peptide encoding method.
- The new method outperforms the Frequent Subsequence-Based SVM module used in PSORTb v2.0.
- It is a general protein sequence encoding method, and could be applied to other biological prediction problems.

REFERENCES

1. Reference here
2. Second reference
3. Third reference

Insert your acknowledgements here. This research supported by…
Do's and Don'ts of Poster Presentation

Steven M. Block
Department of Molecular Biology, Princeton University, Princeton, New Jersey 08544 USA

http://www.biophysics.org/education/block.pdf

Mortal Sins in Poster Presentations or How to Give the Poster No One Remembers

Thomas G. Wolcott

Poster presentations are used to disseminate new knowledge at scientific conferences and meetings and to provide opportunities for liaison within the scientific community. The factors that influence people’s decisions to visit scientific posters are not well understood. Through a MEDLINE search, we found only 2 studies that addressed poster design and outlined techniques for making posters attractive to viewers.¹² Neither study examined the influence of the presenter’s attire on visitation rates. We therefore decided to determine whether the degree to which a presenter’s attire coordinates with the poster influences the number of visitors at the poster.
Fig. 1: Study presenter in lavender-coloured blouse (chosen to coordinate with poster colour) and in rust-coloured blouse (chosen to clash with poster).
Example of poster/wardrobe coordination. Please note that his tie features teeth and tooth care products.
PHOTO COURTESY (AND COPYRIGHT) NICOLE BARKER (AKA 'PIXIENIKI')