

Developing Interdisciplinary RCR: Opportunities & Challenges

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Outline

- Responsible Conduct of Research: Opportunities
- RCR Challenges
- *“Interdisciplinary RCR”* what does it mean?
- Sample Syllabus: Work in Progress
- Final Thoughts

RCR Opportunities:

National Attention

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■ Funding

- Council of Graduate Schools
- National Science Foundation
- NIH and ORI

■ New Cases of:

- *Irresponsible* Conduct of Research
- *Misconduct* in Research

■ Data in support of RCR

- Showing disconnect between faculty/students
- Online resources

RCR Challenges:

Ourselves!

RCR Challenges: *Ourselves!*

- Buy-in from Faculty
 - To see value-added in ethics education
 - To see their own role in that education
 - To support their students

- Buy-in from Students
 - To see value-added in ethics education
 - To see their own role in that education
 - To see their advisor's role

- Buy-in from University
 - To recognize the shortcomings of current ethics/RCR education at their university
 - To accept leadership responsibility

Interdisciplinary RCR:

What does it mean?!

Interdisciplinary RCR: what does it mean?!

- *It means cover everything!*
- There are Nine tenets of RCR, i.e.,
*Gospel according to Nick Steneck**
 1. Research misconduct (plagiarism, falsification, fabrication)
 2. Protection of human subjects
 3. Protection of animals
 4. Conflict of interest
 5. Data management practices
 6. Mentor and trainee responsibilities
 7. Collaborative research
 8. Authorship and publication
 9. Peer review

RESPONSIBLE CONDUCT OF RESEARCH

There are two sides to RCR

1. Compliance

Legal Rules

Codes of Conduct

2. Ethics

Rules

Decision Framework

Aims of RCR Regarding Students*

1. Teach them pertinent laws and rules
2. Sensitize them to ethical issues
3. Give them the tools necessary to think through ethical issues: vocabulary and techniques
4. Enable them to take part in ethical discussions about policy

(Making them philosophers is not an aim of RCR.)

IF WE HAVE THOSE AIMS, HOW CAN WE ACHIEVE THEM?

1. Teach pertinent laws, rules, codes
 - throughout the curriculum
2. Sensitize to ethical issues
 - throughout the curriculum
3. Give them the tools necessary to think through ethical issues -- stand-alone course
4. Enable them to take part in ethical discussions about policy -- stand-alone course

Sample Syllabus

of a Stand-Alone Course

Work in Progress

A One-Hour Stand-alone Course:
Issues in Scientific Integrity

In Pharmaceutical Chemistry

1-hour Stand-alone Course

Syllabus

■ Lecture-Discussion Schedule

Week 1

I. *The nature of ethics* The nature of the philosophical discipline of ethics and the role of ethical principles in regulating practical behavior among scientists.

Prof. Richard T. De George
Department of Philosophy

1-hour Stand-alone Course

(in Pharmaceutical Chemistry)

■ *II. The scientist as reviewer*

Weeks 2 & 3

Ethical issues in the evaluation of the work of others, particularly in the peer review of manuscripts for publication and of grant applications, including conflicts of interest; proper handling of confidential documents and information; avoiding incompetent reviewing; timeliness and comprehensiveness in providing reviews; the use and abuse of anonymity.

Two professors team teaching

The Use of Video: AAAS video 1: *Only a bridge*

1-hour Stand-alone Course

(in Pharmaceutical Chemistry)

Weeks 4 & 5

■ *III. The scientist in the laboratory*

Ethical principles governing the responsible and careful design of experiments; rigorous observation of good laboratory practices in the conduct of experiments; exact, rigorous, comprehensive record-keeping; care in the storage and maintenance of original data in a form accessible to others; maintenance and storage of research materials; regular report writing.

Two professors team teaching
The Use of Video: AAAS video 2: *Noah's dilemma*

1-hour Stand-alone Course

(in Pharmaceutical Chemistry)

Weeks 6 & 7

■ ***IV. The scientist as grantee***

Ethical issues in obtaining, administering and using financial support for the conduct of research, including fiscal accountability; conflicts of interest in receiving and expending funds; ethical practices with human subjects including informed consent; ethical use of animals; maintenance of accurate records; rigor and caution in preparing grant applications; rigor and caution in reporting to granting agencies.

Two professors team teaching
The Use of Video: AAAS video 3: *Sharing in science*

1-hour Stand-alone Course

(in Pharmaceutical Chemistry)

Weeks 8 & 9

- ***V. The scientist as an entrepreneur***

Ethical issues with patents and developing business relationships.

Two professors team teaching

1-hour Stand-alone Course

(in Pharmaceutical Chemistry)

■ *VI. The scientist as author*

Weeks 10 & 11

Ethical issues in the reporting of research, including evaluation of data; rigorous interpretation and reporting of sources and magnitudes of probable errors; appropriate recognition of alternative interpretations; fair evaluation of the roles of individuals in collaborative research and appropriate assignment of authorship; ethical recognition and citation of previous work; avoidance of plagiarism; obtaining permission where appropriate in the use of the work of others; avoidance of multiple publication and submission. Patents and entrepreneurship.

Two professors team teaching
The Use of Video: AAAS video 4: *Where credit is due*

1-hour Stand-alone Course

(in Pharmaceutical Chemistry)

Weeks 12 & 13

- ***VII. The scientist as employer/employee and teacher/student***

Ethical issues arising in situations of divided responsibility and unequal distribution of power. Informed consent and conflict of interest; racial, gender and other discrimination and harassment; affirmative-action practices; fair and appropriate recognition of contributions.

One professor teaches

1-hour Stand-alone Course

(in Pharmaceutical Chemistry)

■ *VIII. The scientist as citizen*

Week 14

Ethical issues in the interaction of scientists in their professional roles with governmental or other public bodies, with the mass media, and with lay members of the public. Care in establishing areas of competence; avoidance of conflicts of interest; rigorous accuracy in the portrayal of scientific issues in general language.

One professor teaches

1-hour Stand-alone Course

(in Pharmaceutical Chemistry)

Week 15

■ ***IX. Regulation of scientific conduct***

Approaches by government agencies, professional organizations, and institutions to governing ethical behavior in research and addressing charges of misconduct will be examined in the light of material covered during the preceding sessions. Local regulations and procedures for handling misconduct will be reviewed and explained.

Director of Research Integrity Office
AAAS video 5: *The whole truth*

Final Thoughts

CHALLENGE OF RCR

1. Engage entire faculty
2. Make room for both compliance and ethics in courses
3. Team teach stand-alone RCR courses