

2-1-2010

# Annotated Bibliography of Ethical Issues in Physics: RCR Education Strategies

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## Recommended Citation

Thomsen, Marshall, "Annotated Bibliography of Ethical Issues in Physics: RCR Education Strategies" (2010). *Ethics in Science and Engineering National Clearinghouse*. 384.

Retrieved from <https://scholarworks.umass.edu/esence/384>

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Ethical Issues in Physics  
Bibliography assembled by  
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February 2012  
Ethics Education

EDU/MEN

Science and Engineering Ethics

Volume 17, Number 3 / September 2011, pp. 447-457

The University and the Responsible Conduct of Research: Who is Responsible for What?

Katherine Alfredo and Hillary Hart

The authors discuss the role of the university and the mentor in providing ethics education to graduate students, using three cases (including Robert Millikan) to illustrate their points.

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Physics Today – August 2011

Volume 64, Issue 8, p. 9

Student lab safety emphasized

Irving E. Dayton

A brief letter to the editor urging that more attention be paid to safety in student laboratories.

Physics Today – October 2011

Volume 64, Issue 10, p. 11

Student lab safety standards needed

Jesse McVaney

The author urges state action to ensure student safety in labs.

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APS Forum on Physics and Society Newsletter

Volume 39, Number 3 July 2010

NSF Ethics Education Requirements

Marshall Thomsen

A discussion of how the NSF Ethics Education Requirements can be used to strengthen the physics community rather than representing a bureaucratic hoop to be jumped through.

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Science and Engineering Ethics

Volume 16, Number 2 / June 2010, pp. 295-301

The Engineering and Science Issues Test (ESIT): A Discipline-Specific Approach to Assessing Moral Judgment

Jason Borenstein, Matthew J. Drake, Robert Kirkman and Julie L. Swann

The authors discuss the development of this test and preliminary results of tests given before and after ethics instruction.

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Science and Engineering Ethics

Volume 14, Number 2 / June, 2008, pp. 251-278

Application of a Sensemaking Approach to Ethics Training in the  
Physical Sciences and Engineering

Vykinta Kligyte, Richard T. Marcy, Ethan P. Waples, Sydney T. Sevier,  
Elaine S. Godfrey, Michael D. Mumford and Dean F. Hougen

The authors define sensemaking as “the process of integrating several  
distinct sources of information and analysis into an overall mental model  
that guides cognition during a complex (e.g., ethical) problem situation.”  
They discuss ethics training emphasizing sensemaking and its impact on  
participants.

Science and Engineering Ethics

Volume 14, Number 3 / September, 2008, pp. 449-472

Mental Models: An Alternative Evaluation of a Sensemaking Approach  
to Ethics Instruction

Meagan E. Brock, Andrew Vert, Vykinta Kligyte, Ethan P. Waples,  
Sydney T. Sevier and Michael D. Mumford

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Science and Engineering Ethics

Volume 13, Number 4 / December, 2007, pp. 387-394

Collective Openness and Other Recommendations for the Promotion of  
Research Integrity

Melissa S. Anderson

This commentary discusses evidence suggesting that current RCR  
instruction and mentoring are ineffective and changing the behavior of  
scientists. Alternative approaches are proposed.

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Science and Engineering Ethics

Volume 13, Number 2 / June, 2007, pp. 249-264

Effectiveness of a responsible conduct of research course: a preliminary study

Sean T. Powell, Matthew A. Allison and Michael W. Kalichman

The authors report on a study of the effectiveness of RCR training that took place during a summer program and involved four 1.5-hour sessions. The study concluded that the participants' knowledge base improved measurably, but not their skill set.

EDU

Science and Engineering Ethics

Volume 13, Number 1 / March, 2007, pp. 117-127

A course treating ethical issues in physics

Marshall Thomsen

Discusses fifteen years of experience teaching the course, looking at how the content evolved during this time and how the students have reacted to the course.

EDU

Science and Engineering Ethics

Volume 12, Number 3 / September, 2006, pp. 435-464

Social and ethical dimensions of nanoscale science and engineering research

Aldrin E. Sweeney

This article reflects on the author's experiences in teaching ethics in the context of an TEU program. It includes a quite lengthy reference list and is designed for instructors.

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Science and Engineering Ethics

Volume 12, Number 3 / September, 2006, pp. 571-582

Student perceptions of the effectiveness of education in the responsible conduct of research

Dena K. Plemmons, Suzanne A. Brody and Michael W. Kalichman

The authors report findings from a survey taken of students in eleven different courses focused on education in responsible conduct of research. Student perceptions were that their knowledge base had increased but not necessarily their skills related to dealing with RCR issues.

EDU

Science and Engineering Ethics

Volume 11, Number 4 / December, 2005, pp. 617-630

Using electronic discussion boards to teach responsible conduct of research

David B. Resnik

Reports on results of a small study of the use of electronic discussion boards in a course in biomedical ethics, indicating that these boards can be useful tools in promoting discussion.

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Science and Engineering Ethics

Volume 11, Number 3 / September, 2005, pp. 329-340

Misconceptions and realities about teaching online

Joan E. Sieber

This article provides background information useful to the educator contemplating creating an online course.

Science and Engineering Ethics

Volume 11, Number 3 / September, 2005, pp. 341-345

Use and abuse of the internet for teaching research ethics

Commentary on "Misconceptions and realities about teaching online" (J. E. Sieber)

Michael Kalichman

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Science and Engineering Ethics

Volume 11, Number 3 / September, 2005, pp. 347-366

Teaching research ethics: Can web-based instruction satisfy appropriate pedagogical objectives?

Brian Schrag

The author argues that ethics education is more than just information dissemination and it is not clear web-based education is up to the task. The article includes an extensive discussion of ethics education objectives.

Science and Engineering Ethics

Volume 11, Number 3 / September, 2005, pp. 367-371

Teaching research ethics and working together

Commentary on “pedagogical objectives in teaching research ethics in science and engineering”

Michael S. Pritchard

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Science and Engineering Ethics

Volume 11, Number 3 / September, 2005, pp. 413-429

Making good use of online case study materials

Matthew Wilks Keefer

The author presents data supporting his contention that what students get out of online case study material depends on their sophistication. His discussion points out that it is not sufficient to have online materials without a good instructor.

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Science and Engineering Ethics

Volume 10, Number 2 / June, 2004, pp. 389-400

Effectiveness of an ethics course delivered in traditional and non-traditional formats

Charles R. Feldhaus and Patricia L. Fox

Reports on a small study of an engineering ethic course delivered in a traditional classroom format, in a compressed format, and via distance learning. Students in all three classes had a similar response to the quality of the course, but students in the traditional format did not fare as well on end of course assessments.

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Science and Engineering Ethics

Volume 9, Number 2 / June, 2003, pp. 141-158

Scientific societies and research integrity: What are they doing and how well are they doing it?

Margot Iverson, Mark S. Frankel and Sanyin Siang

Reports on a survey of science societies on their efforts to promote research integrity. While there is a fair amount of activity, there is not much assessment of the effectiveness of the activity.

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Science and Engineering Ethics

Volume 7, Number 4 / December, 2001, pp. 563-587

Promoting responsible conduct in research through “survival skills” workshops: Some mentoring is best done in a crowd

Beth A. Fischer and Michael J. Zigmond

Discusses a course on survival skills for graduate students and postdocs at the University of Pittsburgh that weaves ethical issues into a broader discussion of professionalism.

Science and Engineering Ethics

Volume 7, Number 4 / December, 2001, pp. 589-591

Survival is not all there is to worry about

Commentary on ‘promoting responsible conduct in research through “survival skills” workshops’ (Fischer and Zigmond)

Stuart I. Offenbach

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Science and Engineering Ethics

Volume 7, Number 4 / December, 2001, pp. 541-548

Group mentoring to foster the responsible conduct of research

Caroline Whitebeck

Reports on the use of discussion groups of students and faculty in research universities to study ethical issues.

Science and Engineering Ethics

Volume 7, Number 4 / December, 2001, pp. 559-562

Trustworthy research

Patricia Woolf

Commentary on 'group mentoring to foster the responsible conduct of research'

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Science and Engineering Ethics

Volume 7, Number 2 / June, 2001 pp. 165-176

Getting scientists to think about what they are doing

John Ziman

Text of a talk arguing that ethics education is an essential part of the science curriculum and that education should include an examination of the interface between science and society.