Annotated Bibliography of Ethical Issues in Physics: RCR Education Strategies

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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.

BEGIN LINK

EDU, MEN
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.

END LINK
EDU
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.

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

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

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.
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.

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.

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.
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.

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.

Misconceptions and realities about teaching online
Joan E. Sieber
This article provides background information useful to the educator contemplating creating an online course.

Use and abuse of the internet for teaching research ethics
Commentary on “Misconceptions and realities about teaching online” (J. E. Sieber)
Michael Kalichman
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.

Teaching research ethics and working together
Commentary on “pedagogical objectives in teaching research ethics in science and engineering”
Michael S. Pritchard

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.
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.

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.

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.

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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.

Trustworthy research
Patricia Woolf
Commentary on ‘group mentoring to foster the responsible conduct of research’

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.