Background

The nature of science itself places a strong ethical requirement on its practitioners. Scientific progress relies on members of the community having confidence in the reliability of reported results and how they fit within the context of prior work. Effective collaboration relies on assigning proper credit to colleagues. The credibility of science with the public relies on their trust that ethical standards are followed in scientific pursuits.

At the same time, the proper conduct of research from an ethical standpoint can be confusing. It can be difficult to distinguish between an honest error and misconduct. Different scientists may use different guidelines in assigning authorship to papers. Accepted behavior may differ between cultures. For this reason, guidance in the Responsible Conduct of Research (RCR) is an essential part of the education of science students. This both protects the integrity of the collective results of the scientific community and helps students avoid potential ethical lapses that could have far reaching implications for their career. For example, ethical misconduct such as falsification of data or plagiarism of a paper would likely lead to dismissal from CSM.

Procedure

The goal RCR education in the Physics Department at the Colorado School of Mines will be for students to have a clear understanding of the ethical standards expected of scientists and of how to apply them in a given situation. RCR education for graduate students in the Physics Department occurs through two avenues:

1. At the first colloquium of each spring term RCR training will be discussed and students will be assigned one of the excellent web-based modules available for RCR training at http://www.responsibleresearch.org/ [for which the CSM Department of Physics is a registered institutional user] with a one week time frame for completion of the module. Satisfactory completion will be a requirement to receive a passing grade (PRG) in the Graduate Seminar course (PHGN502 and 602).

2. As part of our on-going work with students in research groups, advisors will discuss student questions about the on-line training and guide students in proper ethical conduct as part of the degree process. This will occur when, for example, the students are reporting their research in group meetings, documenting their results, working on their thesis proposal and its defense, writing their first papers, preparing and presenting their first talks, and applying for employment.