

Workshop # 1: Ethics in Research

Speaker: Dr. Daniel B. Oerther, Professor and Head of the Department of Civil and Environmental Engineering, College of Engineering, University of Cincinnati

Date: June 25, 2008

Time: 10:00 am to 1:00 pm (3 hours)

This workshop was given by Dr. Daniel B. Oerther, Professor and Head of the Department of Civil and Environmental Engineering, College of Engineering, University of Cincinnati on June 25, 2008 from 10:00 a.m. to 1:00 p.m. (3 hours). Dr. Oerther joined the University of Cincinnati in September 2000. He earned his B.A. in molecular biology and biochemistry and his B.S. in environmental engineering from Northwestern University in 1995, and his M.S. and Ph.D. in environmental engineering from the University of Illinois, Urbana in 1998 and 2002, respectively. Dr. Oerther's research interests include molecular microbial ecology, public health microbiology, and bioprocess engineering as well as sustainable development. As the director of the Molecular Biology Laboratory (MBL), daily duties include meeting with team members, coordinating extramural funding, editing MBL publications, and instruction. Dr. Oerther is also serving as the director of the Center for Sustainable Urban Engineering. The photographs in Figure 1 show the workshop in progress.



Figure 1. Dr. Oerther Lecturing During the Workshop

This workshop was jointly held for the 9 REU participants and 14 teachers participating in a concurrent NSF Research Experiences for Teachers (RET) Site. The main topics covered in this workshop were to familiarize the REU and RET participants with the ethics and problems that arise when researching. The main focus of the workshop was the ethics case studies used for an Ethics Challenge Board Game. The board game involved group discussions of real life situations and the course of actions, whether it required an ethical, moral, or political response. The game relied on previous knowledge and personal experiences on what the participants felt were the ethical thing to do, even if the ethical action seemed wrong to some people. Some of the case studies were: family members investing in a small portion of your company, employee misrepresenting themselves in a resume, sexual harassment, and a situation where a quality manager is suffering retribution for doing their job. The photographs in Figure 2 show the participants playing the ethics board game.



Figure 2. Participants Playing Ethics Board Game

The other discussion involved ethics in actual research. The topics covered were quality assurance, peer reviews, and publishing. The main purpose behind research is to accomplish things that no one has dreamed of and if the data acquired does not fit, there must be more experiments done to describe the inconsistencies. The researcher cannot simply “throw out” their outliers without first knowing that they are in fact in error or mistake. It was discussed that the only case where an outlier should be completely excluded from the data is in the situation where the outlier was obtained knowing fully well that all of the steps in the process were not followed in the same way as for the rest of the data. The ethics come into play when the numbers don’t come out right. The numbers must always represent the truth, if a work goes out to be published and the numbers are in fact “fudged” then that researcher and their publisher’s credibility declines and impairs all other works published in the future. It was also discussed that in such a case, where an outlier is obtained, the test should be repeated for quality assurance and quality control.

The workshop concluded with a Wikipedia definition for intellectual property rights. This definition was discussed among the group which led to a discussion on patents and the ethics and morals pertaining to knowledge founded through research. The group discussed the ethics of being on a review board for a research paper and what the decision should be in a situation where their research sparks an idea.