NWSA '96 Proposed Panel Presentation

Organizer: Barbara Whitten, Physics Department, Colorado College

Participants: Jeffrey Noblett, Geology Department, Colorado College
Sue V. Rosser, Director, Center for Women's Studies and Gender Research, University of Florida
Jan Serie, Department of Biology, Macalester College
E.J. Zita, Physics Department, Evergreen State College

Session Title: Feminist Pedagogy for the Physical Sciences

Session Type: panel

Format: 20 minute talks for each participant, followed by discussion with the audience.

Preferred session length: 1 hour and 30 minutes

Equipment needs: overhead projector

Day/Time Preference: prefer Thursday or Friday

Session Description:
Most of the work on applying feminist pedagogy to the sciences has concentrated on the life and social sciences. In this session we discuss the application of feminist pedagogy to class, laboratory, and field work in the physical sciences. Speakers will discuss feminist pedagogical theory and share practical experience.

Abstracts of Individual Talks

Sue V. Rosser, "Funding for Gender and Science Programs from the National Science Foundation"
The National Science Foundation has a number of initiatives, in addition to their traditional grant possibilities, which are specifically for women and girls. Because these are scattered throughout the Foundation, it is sometimes difficult for teachers, college faculty, and researchers to know what is available from which office. As a former senior program officer for women's programs, I will detail the funding possibilities, highlighting those particularly appropriate for women who combine women's studies and feminism with science, mathematics and engineering. I will discuss in detail the following programs: Experimental Projects for Women and Girls, Model Projects for Women and Girls, Information Dissemination Activities, Visiting Professorships for Women, Faculty Awards for Women, Career Advancement Awards and Research Planning Grants.

Jan Serie, "Feminist Pedagogy in the Lab: An Investigative Introductory Biology Laboratory"

Science has traditionally been presented to students as a summary of facts, theories and methodologies presented in a formal lecture format accompanied by a set of laboratory exercises. In order to make our biology courses more accessible to a broader diversity of student, we have identified two problems with the traditional pedagogical approach. First, the pure content of science is presented as if it were interesting in its own right, without social context or justification. Only a handful of students will find the content interesting when presented in its pure, decontextualized form. Secondly, science is presented as a body of information rather than a dynamic process of discovery and a method for knowing the world. We have addressed these problems by producing a core curriculum in biology, taught in the first and sophomore years, that presents material in the context of scientific or social problems. The laboratory sequence for this core curriculum is investigative, thus presenting science as a process of discovery. Features of this core curriculum will be addressed.

E.J. Zita, "Physics Focus in a Gender and Science Course for Undergrads"

A serious obstacle to the feminist analysis of physics is technical; feminist scholars too seldom have the physics background necessary for significant engagement with the content of physics. New technology can help to lift this barrier. I am developing an introduction to Quantum Mechanics (QM) for non-science majors, taught largely through interaction with computer demonstrations and packaged experiments (D. Schroeder and T. Moore). My purpose is to teach Gender and Science students basic principles of QM so that they can engage in a substantive feminist critique of the science. In particular, we will work with physicist Karen Barad's feminist analysis of QM, comparing Niels Bohr's Copenhagen interpretation of QM to Agential Realism, a feminist epistemology.

I will report on the success of training Gender and Science students to critically examine theories of physics for self-consistency and plausibility, and will demonstrate learning tools used in the course. These techniques may empower more feminists to question the authority of "hard" sciences. Critical input from feminists thinkers can be expected to upgrade the consistency and quality of some physics thinking and physics pedagogy (K.Barad).

Addresses of participants

Jeffrey Noblett
Department of Geology
Colorado College
14 E. Cache le Poudre
Colorado Springs, CO 80903
phone: (719) 389-6516
email: jnoblett@cc.colorado.edu

Sue V. Rosser, Director
Center for Women's Studies and Gender Research
115 Anderson Hall
University of Florida
Gainesville, FL 32611
phone: (904) 392-3365
FAX: 904 306-0423

Jan Serie, Professor and Chair
Department of Biology
Macalester College
1600 Grand Ave.
St. Paul, MN 55105-1899
phone: (612) 696-6372
fax: (612) 696-6443
email "Serie@Macalstr.edu"

Barbara Whitten
Department of Physics
Colorado College
14 E. Cache le Poudre
Colorado Springs, CO 80903
phone: (719) 389-6579
fax: (719) 389-6929
email: bwhitten@cc.colorado.edu

E.J. Zita
Department of Physics
Evergreen State College
2700 Evergreen Parkway
Olympia, WA 98505
phone: (360)-866-6000

"A Feminist Approach to Introductory Geology Classes"
Jeffrey B. Noblett
NWSA '96 Panel Presentation
Feminist Pedagogy for the Physical Sciences

The Colorado College Block Plan in which students take one course at a time, for three and one-half weeks, allows considerable flexibility in lecture, lab and field aspects of science courses. Geology faculty typically spend three hours in lecture and three hours in lab daily, or take students on day-long to week-long field trips. Of many pedagogical techniques we have tried, the feminist critiques of science have led to a complete reorganization and re-thinking of how I teach both the 2-block Introductory Geology class and the 1-block Environmental Geology. The first part of the class is devoted to perspectives - from traditional philosophy of science to feminist critiques and ecofeminism. The "labs" contain paths of personal growth which I am comfortable teaching with the point being that before we save the world, we need to know who we are and how we make connections. Establishing validity of personal perspective and wide-open discussion in a science class significantly changes the willingness of students to participate throughout the class. Although the rocks and minerals don't seem to be changed, re-organization into non-linear, non-dichotomous, non-hierarchical cycles (Earth Systems Analysis, Gaia Paradigm) shifts the class from an atoms-build-minerals-build-rocks-build-mountains tradition to a complex system with space and time scale variations (e.g. volcanos explode instantaneously, effect the atmosphere for decades, recur on a century-scale and result from million-year plate tectonic processses; interacting with other phenomena at each scale). This is not a linear study. Placing humans into this system and understanding interactions through lab and especially field studies brings a feminist pedagogy into the sciences as an essential part of the scientific enterprise.