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An NSF-Sponsored Curriculum That Moves Students Toward a Feminist Earth Science

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# An NSF-Sponsored Curriculum That Moves Students Toward a Feminist Earth Science

*Jill S. Schneiderman and Virginia Ashby Sharpe*

We, a geologist and a bioethicist, teach a course entitled Earth System Science and Environment Justice. The course is based in the department of geology and geography at Vassar College but students may take this course for credit in geology, women's studies, or environmental studies. We developed and refined the course using a curriculum grant from the National Science Foundation to Jill Schneiderman. The course expands beyond the intellectual purview of Schneiderman's early course, *Understanding the Earth: Feminist Perspectives* (described in Schneiderman 1994).

Feminist and other studies in the history, sociology, and philosophy of science have demonstrated that science is a culturally embedded activity.<sup>1</sup> The choices of subjects for study and, despite efforts toward objectivity, the answers that scientists glean reflect their standpoints. For students to learn science in its social context reflects the reality of scientific practice. Our course takes as its context both the national civil rights movement as defined by environmental justice activists in the United States<sup>2</sup> and the international movement for equity for women and their children who confront environmental degradation in their daily lives. No one can expect to rectify problems of environmental injustice—whether it be the plight of communities of color in the United States or the struggles of women and children in developing countries around the world—without basic knowledge of the Earth system of which all people are a part. Studies of environmental justice demonstrate that the subjection of groups of people to environmental degradation and pollution is closely tied to impoverishment and racial and gendered power relations. We believe that these concerns, clearly feminist, applied to earth science can motivate the utilization of scientific expertise to aid communities dealing with environmental contamination and thus result in the practice of a new, feminist earth science (Schneiderman 1997).

We've divided the subject matter of our course into three sections entitled "Setting the Framework," "Problems of Consumption and

Production,” and “Multinationals and Militaries.” Texts used for the course are environmental historian Robert Gottlieb’s *Forcing the Spring* (1993), philosopher Jonathan Westphal’s *Justice* (1996), and *Environmental Geology: An Earth System Science Approach* (1998)—a geology textbook by Dorothy Merritts and her colleagues that embeds considerations of geology in reflections on science and technology. Other readings that encompass geology, feminist theory, ethics, history, and politics come from disparate sources not collected in one work.

In “Setting the Framework,” students investigate and critique the history of the traditional environmental movement, explore definitions of racism and environmental justice, and ponder gender and its relation to environment and development. Then they examine definitions of justice according to Hume and Aristotle. In the final section of this part of the course, they learn the basics of earth system science including the geologic time scale, which puts into perspective the place of humans in evolutionary history.

“Problems of Consumption and Production” include problems of water, waste, mining, and energy. Students study “Cancer Alley,” the 135-mile stretch of the Mississippi River between Baton Rouge and New Orleans, Louisiana, that is home to mostly African Americans as well as more than seventy-five petrochemical plants. Tactics for ridding communities of garbage come under scrutiny as students realize that within the United States, crowded states such as Connecticut send their waste to Native American reservations in places such as South Dakota where people who live in poverty, making desperate choices, take in other people’s trash. The students realize that people rarely *freely choose* to host garbage or toxic waste dumps on their land. Rather, because these sites are undesirable, they come to recognize that communities make these agreements, often for little compensation, *out of desperation in the absence of any other options* (Schneiderman and Sharpe 2000). The students learn that other more hazardous trash is sent abroad only to contaminate the physical environments of people in developing countries. In yet another problem caused by overconsumption in the United States, Canada, and western Europe, students learn about the negative effects of mining activities. They study the history of coal and uranium mining on Dine (Navajo) and Hopi lands and the displacement of these people at the convenience of corporations and the U.S. government. In another case study, students learn that Native Hawaiians oppose geothermal energy development on Hawaii because it would violate Pele and primarily supply energy to resort hotels.

In “Multinationals and Militaries,” students come to understand the similar nature of the activities undertaken by militaries and

multinational corporations and explore feminist critiques of those actions. For example, the execution of Ken Saro-Wiwa at the hands of the former dictator of Nigeria, General Sani Abacha, provides an opportunity to learn about the unethical practices of oil companies operating in developing countries.

Our course consists of twenty-five to thirty students and meets twice per week in seventy-five-minute sessions. We meet in a classroom that allows us to arrange seating for lecture, full class discussion in a circle, and exercises or conversation in multiple small groups. We use the readings as the basis for discussion, for a short reflection paper, and for one five-page essay. Demonstrations of geologic principles and hands-on work with geologic materials supplement our oral and written work. Students address questions such as "According to Joni Seager, Maria Mies, Greta Gaard, and Lori Gruen, one of the root causes of militarism is the social construction of manhood. What does this mean? What are some of the environmental effects of militarism? How might knowledge about earth processes, in concert with an awareness of the gendered nature of societies, provide assistance in securing a habitable planet?" Also, for a multiweek project, students use a geographic information system to investigate the distribution of environmental risks in a community of their choice. The syllabus for our course follows.

Feminist scholars have shown well that environmental degradation often disproportionately affects women and children in developing countries. However, feminist concern for the effects of hegemony requires that we scrutinize the effects of environmental risk and degradation not only on women but on all groups of people who find themselves disempowered and with few means to achieve justice.

#### NOTES

1. See, for example, the work of Sharon Traweek, Londa Shiebinger, and Sandra Harding.
2. The definition of environmental justice, according to the U.S. Environmental Protection Agency, is as follows: Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

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**SYLLABUS FOR EARTH SYTEM SCIENCE AND ENVIRONMENTAL JUSTICE****I. Setting the Framework*****Class 1. Introduction to the Course******Class 2. Social Justice and Environmentalism—Early History***

Gottlieb, R. *Forcing the Spring: The Transformation of the American Environmental Movement*. Washington, D.C.: Island Press, 1993, 3–11, chaps. 1, 2.

***Class 3. Contemporary Environmental Movements***

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Carson, R. *Silent Spring*. Boston: Houghton Mifflin, 1962, xi–xiv, chaps. 1, 2.

***Class 4. Race and Risk***

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***Class 5. Sexism, Feminism, and Environmentalism***

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**Class 8. Justice: The Basics**

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## II. Problems of Consumption and Production

### A. Water

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**C. Mining**

**Class 15. Justice: Might or Right?**

Plato, "Justice (from the *Republic*)." In *Justice*, 37–59.

**Class 16. Minerals and Ores**

Merritts, DeWet, Menking. "Lithosphere Materials; Rock and Mineral Resources." In *Environmental Geology*, 93–101, 124–38.

**Class 17. Coal and Uranium from Native American Lands**

*Short Paper Due*

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**D. Energy**

**Class 19. Igneous Rocks, Hot Spots, and Geothermal Energy**

Merritts, DeWet, Menking. "Plate Tectonics and the Rock Cycle; Distribution of Rock Types; Volcanic Eruptions; Geothermal Energy." In *Environmental Geology*, 102–10, 111–19, 139–46, 345–46.

**Class 20. Drilling into Pele: Native Hawaiian Resistance to Geothermal Development**

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**III. Multinationals and Militaries**

**Class 21. Big Business and Big Government**

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**Class 24. The Earth Charter: Earth Systems and Environmental Justice**

"The Earth Charter Initiative: Promoting Change for a Sustainable Future." Online. Available: <<http://www.earthcharter.org/welcome>>.

**Class 25. Strategies for Environmental Justice****Class 26. Review for Final Exam**

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