2B. Syllabus

Environmental Chemistry and Ethnicity

Topic: Uranium and American Indians
Semester: Spring 2004
Credits: 3 (course meets Ethnic Studies Requirement)
Meets: Tuesday/Thursday, 4:00-5:15 pm
Instructors: Cathy Middlecamp and Omie Baldwin
Web Site: www.chemincontext.com/201-spring04

This course will explore the connections between uranium and the peoples of the Southwest who live on the land where the uranium was extracted. Topics in nuclear chemistry will include radioactivity, nuclear decay series, nuclear fission, half-lives, the nuclear fuel cycle, radon, and the effects of radiation on health. Topics about the Navajo people will include the history, culture, land issues, politics, spirituality, and tribal government development.

All information will be presented against the backdrop of the Navajo people who mined the uranium, unaware of its consequences. The changes that the Navajo people experienced will be explored in the face of the deadly elements (yeétso leétso) that dropped into their culture.

Mount Taylor (Tsoodzil)
One of the four sacred mountains of the Dineh.

(photo taken from the Haystack uranium district in New Mexico)

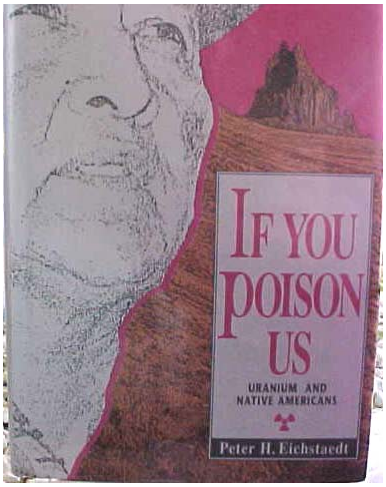
2C. Textbooks

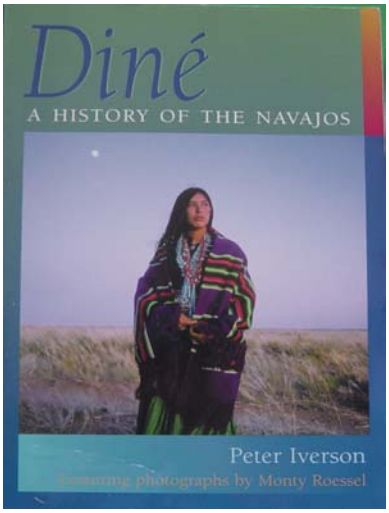
1. Memories Come To Us In the Rain and the Wind, Oral Histories and Photographs of Navajo Uranium Miners & Their Families, Red Sun Press, Jamaica Plain, MA 2000.

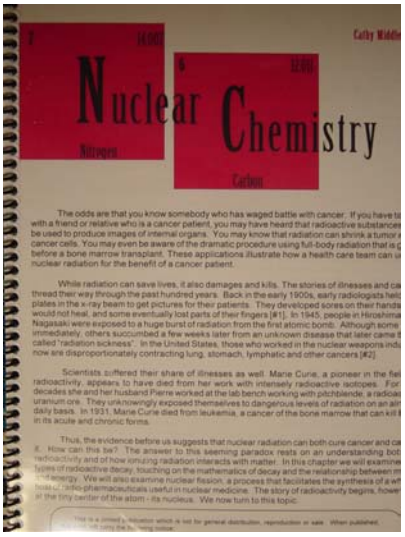
2. If You Poison Us: Uranium and Native Americans, Peter H. Eichstaedt, Red Crane Books, 1994.

3. Diné: A History of the Navajos, Peter Iverson, University of New Mexico Press, 2002.

4. "Nuclear Chemistry", Catherine Middlecamp, 2002.







2D. Semester Overview
Uranium and American Indians

Weeks 1-6

The class opens with a showing of "The Return of Navajo Boy". This documentary film quickly immerses the viewer in the Navajo language and culture, telling the story of a Navajo boy who was reunited with his family as a man, having years earlier been adopted by white missionaries. The film also portrays the trauma that the boy's family endured because members worked in the uranium mines.

Following the film, the first four weeks of the course tell two stories. Cathy describes uranium, its properties, and its history. Classroom presentations illustrate where and how uranium is found on the planet, its radioactive properties, its chemical behavior, radon and radium (two notorious decay products), detection and units of radioactivity, half-lives of radioisotopes, the mining and milling of uranium, the nuclear fuel cycle, the waste from the uranium mining process, and, of course, the process of nuclear fission which was one of the reasons why uranium was mined, purified and enriched in the first place.

Simultaneously, Omie offers classroom presentations that explore the landscape and peoples of the Four Corners region. Diné: A History of the Navajos begins, "They are the children of Changing Woman. They are called the Navajos. They call themselves Diné." Omie discusses topics relating to the Diné, focusing on their history and culture, the Indian policies including reservation development (the Dawes Act and the Allotment Act), the policies of the Bureau of Indian Affairs (BIA), the mining development, the Radiation Exposure Compensation Act (RECA), and the social impact of mining, including how it affected their health, their lifestyle and their communities.

Readings during weeks 1-6:

1. Memories Come To Us In the Rain and the Wind, Oral Histories and Photographs of Navajo Uranium Miners & Their Families, Red Sun Press, Jamaica Plain, MA 2000.

2. If You Poison Us: Uranium and Native Americans, Peter H. Eichstaedt, Red Crane Books, 1994.

3. "Nuclear Chemistry", Catherine Middlecamp, 2002.

Weeks 7-9

Week 7 marks the beginning of lectures and class discussions on the health effects of radiation. In spring 2004, the guest speakers included:

Bruce Thomadsen, UW Medical Physics
"The Biological Effects of Ionizing Radiation"

Doug Brugge, Tufts School of Medicine
"Uranium mining, the Navajo People and Federal Compensation: Lessons in Fairness"

Dr. Tien Hoang, UW Medical School
"The Effects of Lung Cancer"

In spring 2004, the guest speakers included:

Dr. Jennie R. Jo, University of Arizona
"Dying While Waiting: the Fate of Navajo Uranium Miners"

Manuel Pino, Scottsdale Community College
"Uranium Mining at Laguna and Acoma Pueblos"

Milton Bluehouse, Jr., UW Law School
"The Social, Political, and Legal Context of Navajo Uranium Mining"

Sample readings during weeks 7-9:

Douglas Brugge, "The History of Uranium Mining and the Navajo People," American Journal of Public Health, September 2002, Vol 92, No. 9.

Derrick Jensen, "How Science Ignores the Living World: An Interview with Vine DeLoria," The Sun, July 2000, p. 4-13

"Uranium Mining and Processing" Kerr-McGee Nuclear Corporation, Kerr-McGee Center, Oklahoma City, OK 73125

Esther Yazzie-Lewis, "Leetso, The Powerful Yellow Monster: A Perspective From the Plateau," Petroglyph, Canyonland Natural History Association, Moab, UT., Fall 2001.

Hively, Will, "Is Radiation Good for You?" Discover, December 2002, 75-80.

Selected articles, "Voices from the Earth," a quarterly publication of the Southwest Research and Information Center, Albuquerque, NM.

Weeks 10-15

During the last 6 weeks of the semester, students make presentations on topics that weave together chemistry and indigenous culture. In each class period (75 minutes), two students share the time, presenting their work, answering questions, and leading the discussion. Students also provide a list of questions to guide study and discussion of the issues. Each presentation is accompanied by a 4-5 page paper (not including citations and figures).

The topic for the first of these presentations will be “indigenous people”, answering questions such as: What is an indigenous person? Who are the indigenous people in the U.S.? What issues face indigenous people, especially in the U.S., but as time permits, with a world-wide perspective. We ask for two volunteers to split this first topic in any manner they wish.

Students choose the topics for the remainder of the presentations. Each one must explore in more depth the issues raised in If You Poison Us and The Dine, and/or raise new issues.

Examples of topics selected by students in the previous semester include:

Yucca Mountain: storage of nuclear waste on or near tribal lands

Depleted Uranium (DU) and Where the U.S. Military Tests/deploys It

The Radiation Exposure Compensation Act & the Navajo People

The After-Effects of Nuclear Weapons Testing on the Marshall Islands

Weapons Testing & Tribal Lands in the U.S.

Spirituality and the Land.

The Kerr McGee Corporation and the Uranium Miners

Photos from the New Mexico Museum of Mining in Grants