

MLA 560 - The Nuclear Dilemma

Dot Sulock

Department of Mathematics RBH 321

This class is intended to enable you to understand the present day nuclear dilemma. Are our defense efforts making us safe or threatening our existence? Do our efforts to produce electricity by nuclear power save us from air pollution and dependence on fossil fuels or threaten us with environmental catastrophe?

This nuclear dilemma includes international security issues of nuclear weapons and their proliferation, consideration of costs and benefits from generating electricity using nuclear power, and environmental questions connected with disposal of radioactive waste and cleanup of radioactive sites. There is a tremendous interdependency between these three areas: nuclear weapons, nuclear energy, and the environment.

Understanding the nuclear dilemma requires learning a little physics of fission, fusion, and radiation; leaning some of the physiology, psychology and sociology of human beings; studying the historical development of nuclear energy and nuclear weapons; studying arms control and nonproliferation efforts; looking at environmental consequences of nuclear activities, and close attention to current events. Above all, it requires thinking outside the box, making connections between disciplines, and analyzing the big picture.

Citizens are often unwilling to confront this dilemma because of ignorance and a sense of helplessness. This class is intended to enable you, as a citizen, to play a role in helping humankind find a sensible course through these troubled waters.

In the attempt to accomplish these objectives, you will:

1. Watch most of the videos from the PBS series "War and Peace in the Nuclear Age"

2. Read and consider:

Nuclear Choices: A Citizen's Guide to Nuclear Technology (Richard Wolfson), a publication of the Alfred P. Sloan foundation's New Liberal Arts Series, created with the belief that a liberal education for our time should involve students in meaningful experiences with technology;

The Gift of Time, The Case for Abolishing Nuclear Weapons Now (Jonathan Schell);
Repairing the Regime (Joseph Cirincione, editor), a compilation of talks given at the Carnegie Endowment for International Peace Non-Proliferation Conference in January 1999.

3. Conduct a weekly search for nuclear issues "In the News" from newspapers, magazines, and the internet. One such article is due each week, highlighted with a one-paragraph commentary and questions.
4. Answer weekly questions that include identifying important terminology, people, acronyms, etc. as well as answering brief factual and opinion questions.
5. Study a related topic of special interest to you, write a 10 page paper summarizing your findings, and give a brief (5-7 min) oral presentation of the highlights of your paper accompanied by an informative one-page handout for the class.
6. Write an open book final examination in class.

Evaluation:

weekly assignments 25%
"In the News" articles and commentary 15%
class attendance/participation 15%
research paper 25%
class presentation 10%
final exam 10%

1/10 Introduction. "Dawn" video. Assignment: Wolfson: 1-118

1/17 "The Weapon of Choice" video. Assignment: Wolfson: 121-212

1/24 "A Bigger Bang for the Buck" video. Assignment: Wolfson: 213-285

1/31 "Europe Goes Nuclear" video. Assignment: Wolfson: 289-337

2/7 "At the Brink" video. Assignment: Wolfson: 338-390

2/14 "The Education of Robert McNamara" video. Assignment: Wolfson: 391-419

2/21 "One Step Forward" video. Assignment: Wolfson: 420-462

2/28 "The Haves and the Have Nots" video. Assignment: Schell: 5-114

3/7 Spring Break!

3/14 excerpts from "Carter's New World," "Zero Hour," and "Missile Experimental" videos

Assignment: Schell: 115-223

3/21 "Reagan's Shield" video. Assignment: Circincione: Foreword

1- Historical Overview and Introduction

2 - The State of the Regime

3 - Post-Cold War Nuclear Challenges
4 - Proliferation Challenges

3/28 New World Orders, Ballistic Missile Defense, Space Command. Dr. Cornett,
Department of Political
Science, guest lecturer
Assignment: Cirincione: 7 - A Detailed Analysis of the Urgently Needed New Steps to
Control Warheads and Fissile Materials

4/4 International Security Issues: tactical weapons, strategic weapons, arms control,
Russia, India and
Pakistan, China, Israel, proliferation, DU weapons, and more.
Assignment: Cirincione: 8 - China's Perspective on Non-Proliferation
9 - Nuclear Relations in South Asia
13 - Middle East Arms Control and Regional Security Dilemmas

4/11 Environmental and Energy Issues: Waste disposal, MOX fuel, alternative energy,
fusion, conservation.
Dr. Airat Khasanov, Mossbauer Center. guest lecturer.
Chernobyl, Three Mile Island, transportation, transmutation, and more.
Assignment: Cirincione: 16 - A Fissile Material Cut-Off Treaty and the Future of
Nuclear Arms Control

4/18 Student Reports. Assignment: Cirincione: 17 - Next Step in Strategic Reductions

4/25 Student Reports. Assignment: Cirincione: 18 - Constructing a New Agenda

5/2 Summary and look to the future. What lies ahead? What can be done now?

5/9 Final Examination (open book, open notes)