Syllabus for EMSE 6200
Policy Factors in Environmental and Energy Management
The George Washington University
Dr. Teresa R. Pohlman

The course is designed to impart knowledge about how and why environmental and energy policymaking matter and focuses on many of the factors surrounding the making of environmental and energy policy. Specifically, it is designed to help the student understand how to proactively undertake policymaking in the areas of environmental and energy management. It includes studying management of environmental and energy systems from the policymaking perspective, including the security issues associated with environmental disruption. The instructor is Dr. Teresa Pohlman, Former Executive Director of Sustainability and Environmental Programs at the Department of Homeland Security. There are no prerequisites for this course, either in engineering or in science and none at all in mathematics. 3 hours of credit. Grading: Midterm (20%); Paper (25%); Final Exam (45%); Effective class participation (10%)

Various Handouts Provided by Professor.

Session 1
FRAMEWORK FOR POLICYMAKING IN ENVIRONMENTAL AND ENERGY MANAGEMENT
Reading: Environmental Policy New Directions for the Twenty-first Century - Vig and Kraft – pp 2-20

1. Introductions and Background of the students and instructors
2. Administrative matters: Grading: midterm, papers, and final examination. About Readings and handouts. **Topics for papers due to be submitted in three weeks. Papers will be limited to five pages and should be properly sourced and referenced.**

Example paper topics: (1) How does Artificial Intelligence influence energy and environmental policymaking, and what kind of influence should it have in the future? (2) Compare and contrast policies and principles of the Comprehensive Environmental Response Compensation Liabilities Act (CERCLA) with the Resources Conservation and Recovery Act (RCRA) What are your recommendations for policy improvements in CERCLA and RCRA? (3) What is the most important factor in energy and environmental policymaking? How would you rank the factors we have discussed? (4) How has the Inflation Reduction Act affected Energy and Environmental Policymaking? (5) What is your opinion/recommendation for a a comprehensive Energy policy for the US? What would be your top three goals and how would you prioritize these goals?

3. Definitions of Environmental and Energy Policy and what will be covered in course.
4. Environmental and Energy Policy Framework
5. Public and private Sector Roles
6. How do laws, regulations, Presidential Actions, expenditures, and infrastructure influence policymaking in energy and environmental programs?

Session 2:
KEY FACTORS IN ENVIRONMENTAL AND ENERGY POLICY FORMULATION
Reading: Environmental Policy New Directions for the Twenty-first Century-
Vig and Kraft – pp 21-36

1. Influences and situational factors in environmental and energy policy
   Social
   Legal

Technical
Regulatory
Temporal
Economic
Political
Stakeholders

2. Creation of EPA

Session 3:
Reading: Environmental Policy New Directions for the Twenty-first Century-
Vig and Kraft – pp 37-62
ENVIRONMENTAL POLICY - BALANCE OF POWER BETWEEN THE STATES AND THE FEDERAL GOVERNMENT, AND RISK ASSESSMENT AND RISK COMMUNICATION

1. The roles of EPA, state, federal agencies, and other stakeholders in risk assessment and the balance of power between the states and the federal government
2. The Environmental Council of the States and the National Governors Association
3. The role of the Agency for Toxic Substances and Disease Registry (ATSDR)
4. **CASE STUDY:** The recent declaration of Perfluoroalkylated Substances (PFAS) as a hazardous material by the EPA, and the policymaking process that has resulted from this declaration

Session 4:
Reading: Environmental Law and Policy – Salzman and Thompson, Jr. – pp315-334
ENERGY POLICY AND THE POWER GRID IN THE UNITED STATES

1. Electrification, electric utilities, microgrids, transmission, distribution issues
2. Challenges with regard to integration of public utilities and federal programs
3. The role of the Department of Energy (possible guest speaker – Mary Sotos, Director of the Department of Energy Federal Energy Management Program)
4. The Energy Policy Act
5. Electric vehicles and infrastructure for charging them
6. Cybersecurity and energy infrastructure

Session 5:
ENERGY POLICY AND RESILIENCE STRATEGY
Reading: Ecological Resilience Response to Climate Change and Natural Disasters – Etingoff – pp223-246

1. Renewable energy and resilience – wind, solar, hydro, and geothermal – pros and cons
2. Energy policy and protection of critical infrastructure – definition of critical infrastructure
3. Role of the National Laboratories in energy policy and programs
4. **CASE STUDY:** National Renewable Energy Laboratory Advanced Research on Integrated Energy Systems Platform in Golden, Colorado– capabilities

Session 6:
RESILIENCE STRATEGY AND FRAMEWORK
Reading: The Resilience Dividend – Rodin – pp 9-39

1. Framework for Resilience – definition and characteristics
2. Roles and responsibilities
3. Types of Resilience: Infrastructure, Information and Communications, Transportation, Energy and Water, and Public Health
4. Implications of COVID-19 – the pandemic and beyond – superimposing Public Health and welfare on other aspects of resilience

Session 7:
INSTITUTIONAL FORCES IN ENERGY AND ENVIRONMENTAL POLICYMAKING
Reading: Environmental Policy New Directions for the Twenty-first Century-
Vig and Kraft – pp 88-108

1. Congressional, media – 24-hour news cycle, Non-Governmental Organizations, the Executive Branch, and others
2. **CASE STUDY:** The Inflation Reduction Act and the funding it gave federal agencies and other organizations for climate change and energy and environmental projects. Plus the Building Infrastructure Law and the funding it provided for infrastructure in the US.
3. The Federal Permitting Improvement Steering Committee and its role
4. Communities of Practice across the federal government – interagency working groups
5. The Environmental Justice Interagency Working Group

SESSION 8:
MIDTERM EXAMINATION – 20% OF GRADE

1. Prior to mid-term term, review of first six sessions

SESSION 9:
CLIMATE CHANGE, RESILIENCE, AND ENVIRONMENTAL AND ENERGY POLICY

1. Definition of Climate Change/adaptation/resilience
2. Natural disasters and climate change – policymaking to react
3. National security and climate change
4. **CLASS EXERCISE:** Risk and resilience vulnerability model of Texas to climate change, using a vulnerability scale to rank criteria: water resources, grid protection, timber, food crops, coastline exposure, floodplains, air quality, population and migration or concentration of population

SESSION 10: PAPERS DUE – 25% OF GRADE
SUSTAINABILITY AND ENVIRONMENTAL AND ENERGY POLICY

1. Definition of sustainability
2. Balance between “first cost”, life cycle cost, force protection/safety, efficiency, and long-term goals
3. Leadership in Energy and Environmental Design™ - US Green Building Council consensus standard for sustainable design
4. **CASE STUDY:** The Pentagon Renovation Program – incorporating sustainable construction into the Renovation, lessons learned from September 11, 2001

SESSION 11:
ENVIRONMENTAL SECURITY AND POLICYMAKING – PART ONE

1. Securing environmental infrastructure from attack – Water Sector security, energy sector security
2. National Infrastructure Advisory Council
3. **CLASS EXERCISE** - Mock Vulnerability Assessment for Small Groundwater Facility

SESSION 12:
ENVIRONMENTAL SECURITY AND POLICYMAKING-PART TWO

1. Safe Drinking Water Act Amendments and Technology Forcing Laws
2. Introduction in the role and effectiveness of environmental security regulation
3. What is the greatest contaminant threat to our drinking water and is it credible; what is the greatest structural threat to water infrastructure and is it credible?
4. Dam Safety and Terrorism. Control of threats through design basis engineering
5. Harbor and Waterways Security

SESSION 13:
LESSONS IN RESPONDING TO ENVIRONMENTAL RELEASES FROM FEDERAL CLEANUP PROGRAMS--DERP, FUDS, FUSRAP,CERCLA, RCRA, FFCA

1. Definitions of Defense Environmental Restoration Program (DERP), Formerly Used Defense Sites (FUDS), Formerly Utilized Sites Remedial Action Program (FUSRAP), Comprehensive Environmental Response Compensation and Liability Act (CERCLA), Resources Conservation Recovery Act (RCRA), Federal Facilities Compliance Act (FFCA)
2. **CASE STUDY:** The Cleanup of Rocky Mountain Arsenal
3. Chemical Demilitarization programs and non-proliferation
4. Damage from environmental dispersion and Response actions

SESSION 14:
NATURAL DISASTERS AND ENVIRONMENTAL AND ENERGY POLICY

1. Definition of “disaster”
2. Geological, Meteorological, Hydrological disasters
3. Response to natural disasters – role of the Federal Emergency Management Agency and policies governing their response
4. **CASE STUDY:** The Los Angeles County Community Disaster Resilience Project
5. Review for Final Exam

SESSION 15: FINAL EXAM - 45% OF GRADE

Administrative Information and Academic Integrity

1. Emergency information

What to do if the instructor does not arrive:

If the Instructor does not arrive for the class at the designated starting time and has not notified the class of a late starting time or the cancellation of the class, the students should wait in the classroom for at least 30 minutes before departing. One member of the class will be selected to

notify the EMSE Department of the Instructor's absence by calling the EMSE Department at 202-994-7541 on the next business day.

What to do in the case of an emergency:

- All students should familiarize themselves with the emergency evacuation routes from the classroom that the course is being taught in. Pay particular attention to understanding how to egress if all power is out and there is no light.
- In the event of an emergency evacuation of the class building, the students are to assemble at the intersection of 18th and F Street on the northwest side. If, due to the emergency, that site is unavailable, assemble at the intersection of 19th and F on the northwest side.

General emergency preparedness information:

- GW Campus Advisories. Students should check the GW Campus Advisories Web Site at: http://www.campusadvisories.gwu.edu/index.cfm for current information related to campus conditions, closures, safety information and any other information concerning events that may disrupt normal operations.
- GW Alert. All students, faculty and staff registered in the GW banner system GW will receive emergency alerts, notifications and updates sent directly to their GW email address. If individuals elect to receive these alerts on a mobile device they may log on to GWeb Information Web Site at https://banweb.gwu.edu and update their contact information to include mobile devices.

Academic integrity:

Academic integrity is central to the learning and teaching process. Students are expected to conduct themselves in a manner that will contribute to the maintenance of academic integrity by making all reasonable efforts to prevent the occurrence of academic dishonesty. Academic dishonesty includes, but is not limited to, obtaining or giving aid on an examination, having unauthorized prior knowledge of an examination, doing work for another student, and plagiarism of all types.

The number one problem that students run into with regards to academic integrity is plagiarism. It is not okay to copy, use, or otherwise exploit other people's ideas, words, or creations without giving them credit in the proper form. Sometimes this means you must use quotation marks, while other times a simple source citation will do the trick. Changing a few words in a paraphrase is not enough to turn source material into "your own words" – in fact, that's a really bad idea to even try. Changing the phrasing order of sentences is not okay and using the thesaurus to find ways to change "happy" to "glad" is also a very bad idea.

It is expected that students know how to correctly quote and cite material, and also how to write well. This is a doctoral level course and students will be held to the high standards associated with this level of education. For those students who need assistance, the GWU Writing Center is available. See http://www.gwu.edu/~gwriter/.

There is no such thing as "boilerplate" or "standard language" in academia. Students are expected to write their reports themselves, using their own language and their own formulation. If it is necessary to use material from other sources, it is expected (and mandatory) that the standards of academic style and integrity will be followed. This includes glossaries and appendices. For additional information see The George Washington University Code of Academic Integrity http://www.gwu.edu/~ntegrity/