

**The George Washington University**  
Department of Engineering Management and Systems Engineering  
Environmental and Energy Management Program  
EMSE 6245: Analytical Tools in Environmental Management  
COURSE SYLLABUS

Environmental and Energy Management Institute  
Room 415, Phillips Hall  
Course web page: <http://blackboard.gwu.edu>  
Instructor web page: <http://www.seas.gwu.edu/~jdeason>  
E&EM web page: <http://www.gwu.edu/~eem>  
E&EM newsletter: <http://www.gwu.edu/~eemnews>

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### Course Description

This is a survey course in environmental management focusing on tools to assess the environment. It focuses on widely used environmental management tools, including quantitative risk assessment and management, wetlands delineation and permitting, biological assessment, analytical tools in determining environmental valuations for benefit-cost analyses, multi-objective decision making, and land use and comprehensive planning. In addition, Congressional and Executive Branch processes as they relate to the environmental management area are discussed.

### Learning Objectives

At the end of this course, students will have a working knowledge of widely used environmental management tools, including quantitative risk assessment, environmental valuation methods, wetlands protection tools, and endangered species protection tools. The course also includes coverage of federal legislative and executive processes as they relate to environmental management.

### Grading

Case studies	10%
Mid-term exam	30%
Course project	25%
Final exam	30%
Class participation	5%

### Class Logistics

A notification roster will appear on the class web site and will be used to alert each class member if the class is cancelled due to inclement weather or other reasons. If you are uncertain about class cancellation at any time, please call me. If I fail to arrive for the class at the designated starting time and have not notified the class of a late starting time or cancellation, students should wait in the classroom for at least 30 minutes before departing. One member of the class should be selected to notify the EMSE Department of the Instructor's absence by calling the EMSE Department at 202-994-1892 on the next business day.

All students should familiarize themselves with the emergency evacuation routes from our classroom. Pay particular attention to understanding how evacuate if power is out and there is no light. In the event of an emergency evacuation of the class building, students are to assemble at the southeast corner of 21st and G Streets, N.W. (primary location) and not depart until I have accounted for everyone.

#### GW Campus Advisories and Alerts

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. All students, faculty and staff registered in the GW Banner system will receive emergency alerts, notifications and updates sent 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. Ignorance is no excuse.

#### University Policy on Religious Holidays

In accordance with University Policy, students should notify faculty during the first week of the semester of their intention to be absent from class on their day(s) of religious observance.

Faculty should extend to these students the courtesy of absence without penalty on For more details and policy accommodations for religious holidays please see:

<https://students.gwu.edu/accommodations-religious-holidays> .

#### Support for Students Outside the Classroom: Disability Support Services (DSS):

Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in Rome Hall, Suite 102, to establish eligibility and to coordinate reasonable accommodations. For additional information please refer to: <https://disabilitysupport.gwu.edu/> [disabilitysupport.gwu.edu/](https://disabilitysupport.gwu.edu/).

#### Mental Health Services

The University's Mental Health Services offers assistance and referral to address students' personal, social, career, and study skills problems. Services for students include: crisis and emergency mental health consultations, confidential assessments, counseling services (individual and small group), and referrals. Colonial Health Services: 202-994-5300, <https://healthcenter.gwu.edu/mental-health>

[counselingcenter.gwu.edu/](http://counselingcenter.gwu.edu/)

## SCHEDULE AND ASSIGNMENTS

<u>Session</u>	<u>Topics</u>	<u>Assignments</u>
1 Jan 14	<u>Introduction to Environmental Analytical Tools.</u> Introductions, course requirements and overview, Federal environmental processes	
Feb 21	<u>Martin Luther King Day</u> (no classes)	
2 Jan 28	<u>Quantitative Risk Assessment (1).</u> Nature of risk; uses of risk assessment; risk assessment framework; types of risk; perceptions of risk	
3 Feb 4	<u>Quantitative Risk Assessment (2).</u> Risk Assessment Case Study: Kesterson National Wildlife Refuge	Turn in project proposals
4 Feb 11	<u>Environmental Valuation Methods (1).</u> The role of monetary valuation in environmental management; overview of applications- relationship with cost-benefit analyses, natural resource damage assessment, environmental impact assessment, Section 4(f) analyses, Principles and Guidelines	
Feb 18	<u>Presidents' Day</u> (no class)	
5 Feb 25	<u>Environmental Valuation Methods (2).</u> Market Value Approaches; Travel Cost Method; Contingent Valuation; Replacement Cost Approach	
6 Mar 4	<u>Presentations and Review.</u> Project Progress Report Presentations; Review for Mid-term Examination	
Mar 11	<u>Spring Break</u> (no class)	
7 Mar 18	<u>Mid-Term Examination</u>	

8 Mar 25	<u>Wetlands Protection Tools (1)</u> . Wetlands overview; wetlands jurisdiction, permitting, enforcement, mitigation and monitoring	
9 Apr 1	<u>Wetlands Protection Tools (2)</u> . Wetlands delineation procedures; Federal wetland programs	
10 Apr 8	<u>Endangered Species Protection Tools (1)</u> . Overview of ESA; Section 7 consultation process and Habitat Conservation Plans	
11 Apr 15	<u>Endangered Species Protection Tools (2)</u> . Biological assessments and biological opinions	
12 Apr 22	<u>Endangered Species Protection Tools (3)</u> . Case Study: Daniels Parkway, Florida	
13 Apr 29	<u>Presentations and Review</u> . Project Final Report Presentations; Review for Final Examination	Turn in: Project Final Reports
14 May 1 (Wednesday)	<u>Presentations and Review</u> . Project Final Report Presentations; Review for Final Examination (if needed)	
15 May 6	<u>Final Examination</u>	