University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE

Applied Environmental Science

2 credit

MEES 601
Spring 2022

Course Objectives / Overview

MEES 601 Applied Environmental Science (AES) is the sole required course in the MEES Curriculum. All MEES students should take AES in their second semester, after having taken a Foundation course in their first semester. As it is a required course, we obviously believe that it is important. Why?

1) We believe that ensuring a sustainable environment is the single biggest scientific, economic, social, political and moral issue of our time. Problems of this scale are never simple and require interdisciplinary solutions. This course seeks to explore interdisciplinary approaches to some of the most pressing problems facing society today. This course also provides an appreciation and understanding of disciplinary backgrounds, approaches and language across the breadth of the MEES program.
2) Whether you work ultimately in academia, government, not-for-profit sector, consulting or industry, we believe that you will be required to synthesize material with which you may not be familiar. Consequently, exploring how to synthesize, summarize and communicate science effectively is an important goal of this course
3) Also, whether you work ultimately in academia, government, the not-for-profit sector, consulting or industry, we believe that you will likely have to work in teams. Thus, we provide training in how to be successful in teams, and provide opportunities to work in several different interdisciplinary teams.
4) The examples chosen for this semester are based on our experience in the Chesapeake Bay region, but are pervasive globally. We welcome discussion of these problems at the global scale.

The AES course is NOT a policy course. We have completely redesigned the AES course with input from previous students. The goals of the course is to explore and understand the role of science and scientists in providing information to policy makers and managers on complex environmental challenges. To make this clear and to provide current examples, we have invited several guests to talk to the class from the world of journalism, management and advocacy.

INSTRUCTOR DETAILS:
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CLASS MEETING DETAILS:
Dates: Mondays (2022.01.24 – 2021.05.09)
Times: 2:00 – 3:50 pm

Taught over Zoom
https://umces-edu.zoom.us/j/93796652615?pwd=ZlB4TXl0Nk5lZEY4S0pkbHFlNWl3Zz09

Meeting ID: 937 9665 2615
Passcode: 1925

CURRICULUM FULLFILMENT:
MEES 601 is a required MEES course.

Prerequisites
Any MEES foundation course

Teaching Assistant
None

Expected Course Learning Outcomes

The Learning Outcomes for Applied Environmental Science are informed by and support the MEES Program Learning Outcomes (PLOs). Specifically, the AES course supports:

PLO 2: Synthesize a disciplinary grounding and apply the resulting knowledge in an interdisciplinary context toward addressing important societal problems
PLO3: Learn and apply essential professional development skills for scientific careers

The specific Course Learning Outcomes (CLO) of the AES course are aligned with these PLOs. The CLOs for the AES course are:
CLO 1: Understand the role of scientific knowledge in advancing policy and management questions (PLO 2)
CLO 2: Analyze and evaluate evidence from natural and social sciences relevant to a policy and or management question (PLO 2).
CLO 3: Develop critical reading skills and understand how to synthesize information to answer specific questions as in a legislative briefing or similar, including those not directly related to your current area of expertise (PLO 3)
CLO 4: Learn how to work effectively in interdisciplinary teams
CLO 5: Understand alternative careers in environmental science

Course Assessment / Grading

Your grade is composed of assessment of both individual assignments, group assignments and participation. The rubric is as follows

Individual assessments:	
One-page summary of climate change report	15
One-page summary of nitrogen pollution report	15
One-page summary of microplastics report	15
Submission of 5- question exercises (4 x 5%)	20
Group assessment	
8-page maximum group report	20
Participation	
In class participation(being prepared, engaged, responsive)	10
Submission of course evaluation	5

Required textbooks, reading and/or software or computer needs

None

Course Communication

All communication in the course will be conducted through the UMCES Moodle portal:

http://moodle.cbl.umces.edu.

You will be provided with a login if you do not already have one. If you have never used Moodle before, there is a Student Quick Start Guide (https://moodle.cbl.umces.edu/course/view.php?id=241) that is available once you have logged in which contains some important information on use of Zoom, Moodle and online learning support.

The course materials are available at https://moodle.cbl.umces.edu/course/view.php?id=236

Attendance will be self-recorded through Moodle. All reading materials will be provided on Moodle, and all assignments will be submitted through this portal as well.

Resources

Campus Policies

The University of Maryland Center for Environmental Science has drafted and approved various academic and research-related policies by which all students and faculty must abide. Please visit the following website for more information on the University of Maryland Center for Environmental Science Code of Academic Integrity and Policy III-1.00: Policy on Faculty, Student and Institutional Rights and Responsibilities for Academic Integrity.

Course-Specific Policies and Expectations

1. You are required to attend every class meeting unless you provide email notice ahead of time of other commitments (e.g., field work, conferences, etc). If you miss a class because you are sick, please let us know as soon as possible.
2. We strongly encourage active participation during class hours. At some points during the course we will be meeting as a single group – at other times you will be meeting in separate zoom rooms. We ask that, when your personal situation allows, you have your camera switched on. We will ask questions of people directly – we do so to encourage engagement. But, it is OK to say you are unsure of the answer, or not ready to discuss the topic. We encourage use of the hand raise function, and of the chat function. We remind you that with 30 people in the course, moderating the chat stream can be challenging. Ten (10) percent of the course grade is for participation.
3. Many, but not all classes will be recorded, and so taking the course, you acknowledge and agree to be recorded. Some lectures will not be recorded at the request of the speaker or guest.
4. You are required to regularly check the MOODLE site and read all materials posted in preparation for class
5. Course credits are assigned based on the expectation that students will invest 2-3 hours work per tuition credit per week outside of class in readings and assignments. Thus, for this 2-credit course you can expect to invest 4-6 hours per week outside of class.

6. This class strives to be an inclusive environment with the understanding that we learn from the many perspectives that come from having different backgrounds and beliefs. We reject all forms of prejudice and discrimination. We ask that you speak up and share you opinions. We ask you engage respectfully with regard to the beliefs and dignity of others in the course.

Tentative Weekly Course Schedule

Date	Class	Learning Support	In class activity	Learning Outcome	Assignment due
24-Jan	1		Introductions and course objectives		Submit five questions (due 2022.01.31)
31-Jan	2	http://fredtutman.com/ https://www.umces.edu/rona-kobell https://www.salisbury.edu/faculty-and-staff/twhorton	Is science enough discussion panel (Fred Tutman, Patuxent River Keeper Karl Blankenship, editor Bay Journal Rona Kobell, journalist, MD Sea Grant Tom Horton, journalist and author)	PLO2 & 3, CLO1, CLO5	
7- Feb	3	Why work in teams? Working in teams.	• Working with Jamboard • Development of statement of best practices for working in teams in MEES 601	PLO3, CLO4	
14-Feb	4	Read Mach and Field 2017, Siitari et al 2014, Wong-Parodi and Strauss 2014, Kemp and Boynton 2012	• Discussion in teams "What makes science actionable?" "What must be communicated?" • Q&A in plenary of team discussions	PLO2 & 3, CLO4	
21-Feb	5	State of Knowledge exercises Writing a brief	• Co-production of draft SoK structure • Synthesis of SoK structure • Goal of group project	PLO2, PLO3, CLO1	1 page summary of STAC 16-006 report (Due 2022.02.21)
28-Fe	6	Chesapeake Bay Climate Change Report (STAC 16-006)	• Discussion in teams – 5 prompts • Q&A in plenary of team discussion	PLO2, PLO3, CLO2, CLO3	5 questions for Secretary Grumbles (Due 2022.03.07)
7-Mar	7	Maryland Climate Change Commission Report Ben Grumbles - MDE Ben Grumbles – Linked In	MD Secretary of the Environment, Ben Grumbles.	PLO3, CLO1, CLO5	1 page summary of report

14-Mar	8	Chesapeake MidPoint TMDL Assessment Batuik et al. (submitted) West et al. (submitted)	• Discussion in teams – 5 prompts • Q&A in plenary of team discussion	PLO2, PLO3, CLO2, CLO3	5 Questions for Ann Swanson (Due 2022.03.28)
21 Mar		**Spring Break**			
28-Mar	9	CBC Annual Report 2015 CBC Annual Report 2020. Ann Swanson – Ches Bay Comm.	Ann Swanson, Exec Director, Chesapeake Bay Commission	PLO3, CLO1, CLO5	1 page summary of STAC 19-006 report (Due 2022.04004)
4- Apr	8	Chesapeake Bay Microplastics Report (STAC 19-006)	• Discussion in teams – 5 prompts • Q&A in plenary of team discussion	PLO2, PLO3, CLO2, CLO3	5 questions for Margaret Spring (Due 2022.04.11)
11-Apr	9	NASEM (2021) Reckoning with the U.S. Role in Global Ocean Plastic Waste Margaret Spring – Mont. Bay Aq Margaret Spring - LinkedIn	Margaret Spring, Chief Conservation and Science Officer, Monterrey Bay Aquarium	PLO3, CLO1, CLO5	
18- Apr	10		Presentation of Climate Change State of Knowledge	PLO 2&3 CLO 1-4	All group projects due
25-Apr	11		Presentation of Bay restoration State of Knowledge	PLO 2&3 CLO 1-4	
2-May	14		Presentation of Microplastics State of Knowledge	PLO 2&3 CLO 1-4	
9-May	15	**Course Summary / Evaluation**			