**University of Maryland School of Public Health** 



# MIEH 691: UMD Global STEWARDS: Project-Based Data Practicum at the Nexus of Food, Energy, and Water Systems

Semester:	Fall 2022
Credits:	3
Course Date & Time:	Wednesdays, 1pm – 3:45pm
Location:	Cambridge Community Center, Room 1111
Course webpage:	ELMS course website
Instructor:	Dr. Rianna T. Murray
Office:	2234G School of Public Health Building
Office Hours:	By appointment
Phone:	301-405-2164
Email:	rmurray@umd.edu

# **Course Description:**

This course is framed around a range of food-energy-water (FEW) systems challenges from local to global scales. During the semester, students will gain real-world experience by participating in the conceptualization and/or conduct of an interdisciplinary FEW systems team project. Projects may employ engineering, life sciences, epidemiological or policy approaches; earth system sciences frameworks; computational methods; and/or other innovative approaches. Through this work, students will gain hands-on experience in study design, research methods, and data analysis across varying FEW disciplines. Each student will bring a diverse set of expertise to the projects, creating a microcosm for interdisciplinary team science. During the course, students will have the opportunity to refine oral and written communication skills, including team writing. The deliverable for the course may include a grant proposal, a scientific manuscript, a Fact Sheet, an Op-Ed, or another actionable type of science/policy writing. This course is a requirement for the Global STEWARDS Program and only open to Global STEWARDS fellows.

## **Course Pre-requisites:**

<u>Required</u>: Graduate status, MIEH 690, and permission of the instructor.

# **Course Learning Objectives:**

Upon completing this course, the student will be able to:

- Develop a deeper understanding of interdisciplinary food, energy and water (FEW) systems
- Design and execute a FEW systems project, with data analysis and written outputs as a member of a multidisciplinary team
- Create a product that analyzes and/or offers solutions to FEW nexus challenges
- Analyze the breadth of data management and data presentation styles within the FEW nexus
- Evaluate the effect of scales (local and global) on FEW system analyses and outputs
- Learn the art of collaborating as an interdisciplinary team to create a presentation and written deliverable

## UMD Global STEWARDS NSF NRT Competencies Addressed in this Course:

The following competencies for the UMD Global STEWARDS NSF NRT are addressed in this course:

- 1. Synthesize the approaches and tools from multiple disciplines to evaluate and address a research problem
- 2. Work in a team with individuals trained in different disciplines
- 3. Communicate research based in one discipline or field of study to academic researchers trained in different disciplines
- 4. Communicate interdisciplinary research to non-academic audiences (stakeholders and general public)
- 5. Incorporate and apply ethics, conflict resolution, and professional skills to practice in the context of research studies, policy development, communications, and teamwork
- 6. Understand and appropriately respond to the unique combination of cultural variables and the full range of dimensions of diversity that professionals bring to team science

# Skills Learned or Reinforced in this Course:

- 1. Oral communication skills
- 2. Written communication skills
- 3. Interdisciplinary research skills
- 4. Collaboration skills

# **Required Texts and Other Readings:**

No textbook required. There will be readings assigned each week that can be freely accessed electronically, such as peer-reviewed manuscripts, e-book chapters, etc.

Required Technology and Other Materials: Laptop or desktop; internet access

**Course Communication:** All communications between the instructor and the students will be through the ELMS course website (the Announcements and email functions).

## **Course Requirements and Expectations:**

Classes will consist of weekly live sessions conducted in person. Live sessions will include lectures, guest lectures, discussions, hands-on activities, field-trips and dedicated time for collaboration on interdisciplinary FEW systems team projects. Students are expected to complete the assigned readings and any assigned work prior to the class each week and be prepared to discuss, analyze and critique the topics during class. It is possible that some class sessions could be conducted over Zoom depending on the ability of the guest lecturer to come to campus, but students should generally prepare to meet in person for class.

Students are expected to take an active role in the learning process by engaging and collaborating with other students and the instructor on a regular basis both in classes as well as through group work and activities outside the class time. The instructor welcomes meetings with students outside of class to discuss questions and to gain more insights about the materials presented in class. Students may e-mail, call, or ask during class for an appointment. <u>Attendance and active engagement during every class session is expected</u>. If you expect that you may be absent from a class session due to illness, attending a conference, etc., <u>you must email the instructor before the absence occurs</u>.

## Major Graded Assignments:

1.) Interdisciplinary FEW Systems Team Project:

This project began in the spring semester and will be the main focus of the MIEH691 course. Students were organized into interdisciplinary project groups and presented a project pitch on the last day of the MIEH 690 Spring course. Groups were expected to continue working on their projects during the summer. The groups will gain real-world experience by conceptualizing and/or conducting an interdisciplinary FEW systems research project. Projects may employ a combination of engineering, life sciences, epidemiological or policy approaches; earth system sciences frameworks; social/behavioral approaches; computational methods; and/or other innovative approaches. Through this work, students will gain hands-on experience in study design, research methods, data analysis and/or science communication across varying FEW disciplines. The final project deliverable due at the end of this MIEH 691 course will be a grant proposal, a manuscript, an Op-Ed, an extension/outreach package, or another actionable type of science/policy writing.

The final written project deliverable will be worth 100 points. 75% of these points will be a group grade based on the quality of the final deliverable. A rubric will be provided. 25% of these points will be based on a peer evaluation from other members of your group. There will also be a group project presentation on December 7<sup>th</sup> that is worth 50 points. 75% of these points will be a group grade based on the quality of the final presentation. 25% of these points will be based on a peer evaluation from your classmates. The interdisciplinary team project written deliverable and the oral presentation are worth 40% and 10% of your final grade, respectively.

Project peer review: Groups will be given two opportunities to submit drafts of their written deliverable for review by the instructor and their classmates. Draft 1 will be due on October 12 and draft 2 will be due on November 16. These drafts will not be graded as part of your project grade, and are simply an opportunity for you to improve your written deliverable before the final due date. However, each student will receive a grade for the peer review that they provide. See assignment 4 for further details.

#### 2.) FEW Nexus in the news assignment:

Students will choose a current news article from the popular media related to a FEW nexus issue. The article should be **current** (published no more than one year prior to the assignment due date). Each week during the class session, one student will provide a summary of their selected news article, and lead a 10-minute class discussion. As part of the summary, students should provide a minimum of two discussion questions that will be used during the class discussion of the news article. The article must be posted to Canvas by the Monday before your presentation date by 9am so that your classmates have enough time to read the article before class on Wednesday. Students will sign up for a news article presentation date after the first class. Your news article presentation date is also the date that your summary is due on Canvas by 1pm. Presentations will begin on September 14<sup>th</sup> and continue every week until November 30<sup>th</sup>. Rubrics for both the written summary and the presentation/discussion will be posted on Canvas.

3.) <u>FEW Nexus Factsheet or Op-Ed</u>: Students will choose a current issue\* at the Food-Energy-Water nexus to present in either a factsheet or an Op-Ed that is written for a non-scientific audience. If you choose do create a factsheet, then it must be written in the style of Extension factsheets. Examples can be found here: <u>https://extension.umd.edu/resources</u>. You are also welcome to use another resource as your factsheet example, as long as it conforms to a similar format as UMD Extension. If you choose to write an Op-Ed, please be sure to follow the guidelines provided by Dr. Linda Macri in the Summer Boost (slides can be found in our shared Google Drive folder).

Students will also give a 5-minute lightning round presentation of their factsheet or Op-Ed for a non-scientific audience. Rubrics for both the Factsheet/Op-Ed deliverable and the lightning round presentation will be posted on Canvas. You must submit your Factsheet or Op-Ed topic and a brief outline to Canvas 3 weeks before the assignment due date.

\***Note**: Your fact sheet/Op-Ed topic must be distinct from the topic of your Interdisciplinary FEW systems group project.

- <u>4.</u>) <u>Peer Review:</u> Each group project will undergo two rounds of peer reviews by the instructor and classmates with the purpose of giving the groups feedback to improve their final product. Draft 1 will be submitted for peer review on October 12 and draft 2 will be submitted for peer review on November 16. While the drafts will undergo peer review, they will not be graded, and the results of the peer review will not impact the group project final grade. However, students will receive a grade for submitting their peer review of the group projects. The peer reviews will be worth 10% of your final grade (5% for each round of reviews). Students will not peer review their own group project draft. The instructor will assign each student with two group projects that they must review. A rubric will be provided for each project type before the drafts are submitted. Reviewers will use this rubric to conduct their peer review.
- 5.) Participation and engagement: Attendance and active engagement during every class session is expected. Students will be given a grade for participation at the end of the semester that is worth 10% of your final grade. Participation involves more than just showing up for class, it also includes actively engaging in class discussions, asking thoughtful questions, and answering questions posed by the instructor and your classmates. If you expect that you may be absent from a class session due to illness, attending a conference, etc., you must email the instructor before the absence occurs. Participation points missed due to absence from a class cannot be made up.

## Grading Procedures: Assignment Weights

Assignment	Percentage
FEW Nexus in the news (written article summary and presentation &	10%
discussion)	
Factsheet or Op-Ed (deliverable and lightning round presentation)	20%
Peer Review 1 and 2	10%
Participation & Active Engagement	10%
Interdisciplinary Team Project Written Deliverable	40%
Interdisciplinary Team Project Oral Presentation	10%
Total	100%

### Grade Allocation

Grade number (%)	Grade Letter
96-100	A+
93-95	А
90-92	A-
86-89	B+
83-85	В
80-82	В-
76-79	C+
73-75	С
70-72	C-
66-69	D+
63-65	D
60-62	D-
<60	F

**Academic Integrity:** The University of Maryland <u>defines academic dishonesty</u> as committing or facilitating cheating, fabrication, plagiarism, or self-plagiarism. Academic integrity is expected and students who do not uphold the UMD Code of Academic Integrity will be referred to the Office of Student Conduct.

**Use of Course Assistance Websites and Online Group Forums:** Course assistance websites, such as CourseHero and others, are not permitted resources for SPH courses, unless the professor explicitly gives permission for you to use one of these sites. <u>Material pulled from these sites can be deemed</u> <u>unauthorized material and a violation of academic integrity</u>. These sites offer information that might not be accurate and more generally stifle the learning process. In addition, it is understandable that students may use one of a variety of online or virtual forums for course-wide discussion (e.g., WhatsApp, Slack, Discord, GroupME, WeChat, etc.). Collaboration in this way regarding concepts discussed in this course is permissible. However, collaboration on individually graded assignments is strictly prohibited. Examples include: asking classmates for answers on quizzes or exams, copying classmates written assignments, etc. Additional information on academic integrity is found in **University Course Related Policies**, below.

## **University Course Related Policies:**

<u>All University of Maryland-approved graduate course policies are provided here:</u> https://gradschool.umd.edu/course-related-policies

Policy descriptions, resources, and links to official policy documents are provided for:

- Academic Integrity: What is cheating? <u>What is plagiarism?</u> What is the Honor Pledge?
- Code of Student Conduct: What behavior is prohibited?
- Sexual Misconduct: What to do in case of sexual harassment or sexual assault.
- **Non-Discrimination:** Procedures to prohibit discrimination, complaints about discrimination, harassment, and retaliation.

- Accessibility: Information about disability support services (DSS) and accommodations.
- Attendance, Absences, or Missed Assignments: The student must notify the instructor in a timely manner (typically first week of class). Read this prior to Schedule Adjustment date.
- Course and Credit Changes and Withdrawals
- Reasonable Expectations of Faculty in Conducting Academic Courses
- **Official UMD Communication:** Use of email, communication with faculty, communication about cancelled class meetings, and weather-related or other urgent notifications.
- Arbitrary and Capricious Grading Policy
- Incomplete Grades
- Good Standing and Academic Probation and Dismissal
- Leave of Absence Policies
- Graduate Student Rights and Responsibilities
- Grievance Procedure
- **Other Resources:** Ombuds Office, counseling, learning workshops, tutoring, writing help, questions about graduation, etc.

## **Course Procedures and Policies:**

Late work and Missed Exams / Assignments:

All work is due when assigned. Any work not completed and handed in by the **<u>BEGINNING</u>** of a session (1:00pm) on the due date will receive a reduction of one letter grade (*if handed in at 1:01pm or later, it is late!*). Work not handed in by 1pm the following day will receive <u>an additional letter grade</u> <u>reduction</u>. Work will not be accepted beyond this point except in extreme circumstances approved by your instructor. You must prearrange with the instructor to miss a class deadline.

Missed classes (in the absence of a documented medical, personal or family emergency) where you were scheduled to provide the pitch of your interdisciplinary FEW systems project may not be made up.

## Inclement Weather / University Closings / Emergency Procedures:

In the event that the University has a delayed opening or is closed for an emergency or extended period of time, the instructor will communicate to students regarding schedule adjustments, including rescheduling of examinations and assignments due to inclement weather and campus emergencies.

## Names/Pronouns and Self-Identifications:

The University of Maryland recognizes the importance of a diverse student body, and we are committed to fostering inclusive and equitable classroom environments. We invite you, if you wish, to tell us how you want to be referred to both in terms of your name and your pronouns (he/him, she/her, they/them, etc.). The pronouns someone indicates are not necessarily indicative of their gender identity. Visit trans.umd.edu to learn more. The instructor identifies as she/her/hers. Using the Namecoach feature on ELMS is encouraged help the instructor and your classmates to use your correct name and proper pronunciation.

Additionally, how you identify in terms of your gender, race, class, sexuality, religion, and disability, among all aspects of your identity, is your choice whether to disclose (e.g., should it come up in classroom conversation about our experiences and perspectives) and should be self-identified, not

presumed or imposed. We will do our best to address and refer to all students accordingly, and we ask you to do the same for all of your fellow Terps.

# Communication:

This class will include a considerable amount of in-class discussion. With a diversity of perspectives and experience, we may find ourselves in disagreement and/or debate with one another. As such, it is important that we agree to conduct ourselves in a professional manner and that we work together to foster and preserve a classroom environment in which we can respectfully discuss and deliberate controversial questions. Any behavior (including harassment, sexual harassment, and racially and/or culturally derogatory language) that threatens this atmosphere will not be tolerated. Please alert the instructor immediately if you feel threatened, dismissed, or silenced at any point during our semester together and/or if your engagement in discussion has been in some way hindered by the learning environment.

Course Schedule Summary				
Session	Date	Topic & Activity	Assignment due	
# 1	August 31	Course and Syllabus Overview Interdisciplinary group project updates: 10- minute lightning rounds	Group Lightning round slides	
# 2	Sept 7	No class due to field trip to Baltimore Compost Collective on Thurs Sept. 8 *Groups are encouraged to still meet during the regular class time and use this time to work on projects*	Read about to Baltimore Compost Collective: <u>https://baltimorecompostcollec</u> <u>tive.org/</u>	
# 3	Sept 14	Library Science Research Guest Speaker: Isabella Baxter, AGNR Librarian	Readings as assigned *FEW Nexus in the News presentations begin today and continue weekly in class*	
# 4	Sept 21	Transboundary Water Management Guest Speaker: Dr. Clive Lipchin	Readings as assigned	
# 5	Sept 28	Creating effective Factsheets	Readings as assigned	
# 6	Oct 5	Life Cycle Analysis Guest speaker: Dr. Stephanie Lansing	Readings as assigned	
# 7	Oct 12	Effective Peer Reviews Guest Speaker: Dr. Linda Macri	<ul> <li>Group project draft #1 due</li> <li>Topic and outline due for Factsheet or Op-Ed</li> </ul>	
# 8	Oct 19	Data Visualization Guest Speaker: Jessica <u>Uwoghiren</u>	Peer Reviews of Group project draft #1 due	
# 9	Oct 26	"Inclusive listening" Guest Speaker - Erricka Bridgeford	Readings as assigned	

# 10	Nov 2	Lightning round presentations for Factsheet or Op-Eds	Factsheet or Op-Ed due, along with slides for lightning round presentation by 1pm	
# 11	Nov 9	Effective Visualization Techniques for Presentations and Posters Guest Speaker: Dr. Amro Hassanein		
# 12	Nov 16	Effective PowerPoint presentations, with an emphasis on tables and figures Guest Speaker: Dr. Amy Sapkota	<ul> <li>Group project draft #2 due</li> <li>Each student should be prepared to present and discuss a table or figure either from their group project or their own research in class</li> </ul>	
# 13	Nov 23	No Class – Happy Thanksgiving!		
# 14	Nov 30	The FEW Nexus from a Nonprofit Perspective Guest Speaker: Dr. Rachel Melnick	Peer Reviews of Group project draft #2 due	
# 15	Dec 7	Interdisciplinary FEW Systems Group Project Presentations	Group project presentation slides should be posted to Canvas by 1pm	
**Final group project deliverable is due on Canvas Wednesday December 14 <sup>th</sup> by 5pm**				

**Basic Needs Security:** If you have difficulty affording groceries or accessing sufficient food to eat every day, or lack a safe and stable place to live and believe this may affect your performance in this course, please visit <u>http://go.umd.edu/basic-needs</u> for information about resources the campus offers you and let me know if I can help in any way.

Student Name Change in ELMS-Canvas: <a href="https://go.umd.edu/change\_name\_in\_ELMS\_Canvas">https://go.umd.edu/change\_name\_in\_ELMS\_Canvas</a>

**Campus Building Amenities:** <u>https://maps.umd.edu/map/</u> (follow the prompts below and amenities will populate on the interactive campus map)

All Gender Restrooms: Click: Layers, Building Amenities; Select All Gender or Gender Inclusive Restrooms

Family Restrooms: Click: Layers, Building Amenities; Select All Gender or Gender Inclusive Restrooms

Lactation/Feeding Room Locations: Click: Layers, Building Amenities; Select Lactation/Feeding Rooms

Land Acknowledgment: Every community owes its existence and strength to the generations before them, around the world, who contributed their hopes, dreams, and energy into making the history that led to this moment. Some were brought here against their will, some were drawn to migrate from their

homes in hope of a better life, and some have lived on this land for more generations than can be counted. Truth and acknowledgment are critical in building mutual respect and connections across all barriers of heritage and difference.

In the Global STEWARDS Program, we believe it is important to create dialogue to honor those that have been historically and systemically disenfranchised. So, we acknowledge the truth that is often buried: We are on the ancestral lands of the Piscataway People, who were among the first in the Western Hemisphere. We are on indigenous land that was stolen from the Piscataway People by European colonists. We pay respects to Piscataway elders and ancestors. Please take a moment to consider the many legacies of violence, displacement, migration, and settlement that bring us together here today. Learn more here: <a href="https://diversity.umd.edu/resources/land-acknowledgment">https://diversity.umd.edu/resources/land-acknowledgment</a>

For more information on indigenous peoples, events, and studies at UMD, visit the <u>UMD Office of</u> <u>Multicultural Involvement and Community Advocacy</u>.

The American Library Association has compiled a list of resources for learning more about our local Maryland tribes. Follow the links below for more resources:

- Indigenous Tribes of Washington, D.C.
- Piscataway Conoy Tribe
- <u>Cedarville Band of Piscataway Indians</u>
- <u>Native Land Digital</u>