

SUMA PS5701: WATER GOVERNANCE

Fall 2023 Syllabus (Sept. 20th version)

Location: 415 Schapiro [SCEP]

Time: Wednesday 6:10 to 8:00 pm

Instructor Information

Dr. Michael J. Puma

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Office Hours: By appointment for meeting over Zoom

Accessibility: Please contact me by email.

Teaching Assistant (TA): Luciana Vazquez

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Course Overview

Water is widely recognized as the most essential natural resource for both society and Earth's ecosystems. Yet the relationship between society and water is complex. While water is critical for livelihoods, it is also frequently a hazard. Floods, droughts, and contaminated water are formidable threats to human well-being. To deal with this dual nature of water, people have long modified the water cycle through engineering schemes like dams, reservoirs, irrigation systems, and interbasin transfer systems as well as through land use and land-cover change.

We need more than just technical solutions. Society needs a clear and robust plan to manage and govern water given its intertwined relationship with this critical resource. In "Water Governance", we will explore the *political, social, economic, and administrative systems that affect the use, development, and management of water resources*. You will be introduced to current themes that influence water governance including sustainable development, integrated water resource management, water rights and pricing, corruption, and equity for marginal groups. These themes will be explored at the local, national, and international levels to provide you with a broad understanding of water governance issues.

Learning Objectives

The objective of this course is for you to understand the present-day challenges to effective governance and management of water resources. You will gain experience in discussing and crafting solutions to these challenges by assessing the needs of multiple stakeholders and analyzing water resources from a multi-sectoral perspective. When you complete this course, you will have gained experience in:

- Interdisciplinary research related to water, linking together information from various disciplines and sources;
- Clear and succinct communication of ideas and findings; and

- Debating water-governance issues at the local, national, and international levels.

Course structure

Each session is focused on a small number of key questions that are identified in the syllabus. Readings will be assigned for each session that exposes you to various theories and practical examples related to these questions. Class will begin with a lecture, which will be followed by an extended discussion, led and facilitated by different groups of students each week. The lectures, together with interactive discussions, will develop both your understanding of the specified topics and your communication skills. Lastly, the term paper and presentation will help you hone your interdisciplinary research skills and provide you with experience in succinct communication of ideas and results.

Prerequisites

You should have familiarity with the fundamental concepts of the hydrological cycle and general environmental policy. Please contact me to discuss if you are unsure, and we can determine if this is the right course for you. You should also be able to write clearly and effectively as most of the assignments involve essay writing.

Course Content

The course includes thirteen sessions; each session is 1 hour 50 minutes. They are listed below with reading but **always check on Canvas for updates.**

1. Course Overview and Expectations: September 6, 2023

Background readings:

The Water Governance Facility (WGF) is a partnership between the United Nations Development Programme (UNDP) and the Stockholm International Water Institute (SIWI). Familiarize yourself with their views on water governance on the WGF website: [What is Water Governance?](#)

Belo Monte Dam readings:

- *Leveraging Hydropower for Peace*. August 24, 2022, Emilie Broek & Kyungmee Kim.
- *Satellites over the Amazon capture the choking of the 'house of God' by the Belo Monte Dam – they can help find solutions, too*. July 18, 2022 Pritam Das et al.

Other readings:

- *Hydrology*: Having a background in the physical processes will help you in this course, especially when discussing sustainable solutions. A good entry-level book on hydrology is Tim Davie's *Fundamentals of Hydrology*. However, a free, online alternative is available at the USGS website: <https://www.usgs.gov/special-topic/water-science-school> (Links to an external site.).
- *Water & Society*: In terms of understanding the interactions between people and water, a good read is Fred Pearce's "When the Rivers Run Dry, Fully

Revised and Updated Edition: Water-The Defining Crisis of the Twenty-First Century".

- *Environmental Policy*: For fundamental issues in environmental policy, I recommend "Green Planet Blues: Four Decades of Global Environmental Politics" by Ken Conca and Geoffrey D. Dabelko.

2. Understanding the Water Governance Landscape: *September 13, 2023*

Required readings:

Managing Water under Uncertainty and Risk, The United Nations World Water Development Report 4 (2012), Volume 1, Chapter 1, pp 22-42.

Håkan Tropp (2007), Water governance: trends and needs for new capacity development, *Water Policy* 9 Supplement 2 19–30.

Bebbington, A., Chicchon, A., Cuba, N., Greenspan, E., Hecht, S., Bebbington, D. H., ... & Sauls, L. (2020). Opinion: Priorities for governing large-scale infrastructure in the tropics. *Proceedings of the National Academy of Sciences*.

Recommended readings:

Hoekstra, A.Y. (2011), The Global Dimension of Water Governance: Why the River Basin Approach Is No Longer Sufficient and Why Cooperative Action at Global Level Is Needed, *Water*, 3, 21-46; doi:10.3390/w3010021.

Lall U., T. Heikkila, C. Brown and T. Siegfried (2008), Water in the 21st century: Defining the elements of global crises and potential solutions, *Journal of International Affairs*, 61(2), 1-17.

3. Exploring IWRM & Alternative Water Resource Management Strategies: *September 20, 2023*

Required readings

Engle, N. L., Johns, O. R., Lemos, M. C., & Nelson, D. R. (2011). Integrated and adaptive management of water resources: tensions, legacies, and the next best thing. *Ecology and society*, 16(1), 19.

Hering, J. G., & Ingold, K. M. (2012). Water resources management: what should be integrated?. *Science*, 336(6086), 1234-1235.

Rhett Larson (2011). Panacea or Platitide: Integrated Water Resource Management – Conceptually Sound But Fundamentally Flawed, *The Sustainability Review*, Issue One, Volume 3.

Loucks, D. P. (2022). Meeting Climate Change Challenges: Searching for More Adaptive and Innovative Decisions. *Water Resources Management*, 1-11.

Recommended readings

Giordano, M., & Shah, T. (2014). From IWRM back to integrated water resources management. *International Journal of Water Resources Development*, 30(3), 364-376.

UNEP (2014). *Towards Integrated Water Resources Management: International Experience in Development of River Basin Organisations*. United Nations Environment Programme.

4. Understanding Water Institutions: September 27, 2023

This week, we will define and discuss *water institutions*. We rely on institutions to create and enforce law (i.e., the system of rules) to regulate behavior.

As an example, in the water context, the Clean Water Act (CWA, <https://www.epa.gov/laws-regulations/history-clean-water-act>) is federal legislation, enacted by Congress, to protect the waters of the United States. The US Environmental Protection Agency (EPA) is the *institution* tasked with administering the CWA.

Required readings:

WWDR (2012) *The United Nations World Water Development Report 4: Managing Water under Uncertainty and Risk Volume 1, Chapter 5*, pp 141-156. Note: pp. 138-141 discuss IWRM and AM from last class.

Meinzen-Dick, R. (2007). Beyond panaceas in water institutions. *Proceedings of the National Academy of Sciences*, 104(39), 15200-15205.

Keiser, D. A., & Shapiro, J. S. (2019). Consequences of the Clean Water Act and the demand for water quality. *The Quarterly Journal of Economics*, 134(1), 349-396. *READ ONLY pp. 349 to 360.*

Recommended readings:

Saleth, R. M., & Dinar, A. (2005). Water institutional reforms: theory and practice. *Water Policy*, 7, 1-19.

Megdal, S. B., Gerlak, A. K., Varady, R. G., & Huang, L. Y. (2014). Groundwater Governance in the United States: Common Priorities and Challenges. *Groundwater*. (Water Institutions should address GW governance?)

MacDonnell, L. J., Getches, D. H., & Hugenberg Jr, W. C. (1995). The law of the Colorado River: coping with severe sustained drought. *JAWRA Journal of the American Water Resources Association*, 31(5), 825-836.

Ken Conca, 2006. "Transnational Dimensions of Freshwater Ecosystem Governance," in A.R. Turton, J. Hattingh, G.A. Maree, D.J. Roux, M. Claassen, and W.F. Strydom, eds., *Governance as a Trialogue: Government-Society-Science in Transition*. Berlin: Springer-Verlag.

5. Understanding Water Rights: October 4, 2023

Required readings:

Hodgson, S. (2006). *Modern water rights: Theory and practice* (Vol. 92). Food & Agriculture Organization. pp. 1 to 30.

Sophocleous, M. (2012). *Conserving and Extending the Useful Life of the Largest Aquifer in North America: The Future of the High Plains / Ogallala Aquifer*.

Miller, J. (2014). California's sweeping new groundwater regulations (Same as it ever was?). *High Country News*.

Christian-Smith, J., & Abhold, K. (2015). *Measuring What Matters: Setting Measurable Objectives to Achieve Sustainable Groundwater Management in California* (Executive Summary (pg. 1-5)). Union of Concerned Scientists.

Recommended:

Robison, J., & Kenney, D. (2012). Equity and the Colorado River Compact. *Environmental Law*, 42.

6. Water Pricing and Markets: October 11, 2023

Required readings:

Walton, 2019. *Price of Water 2019: Even Without Federal Infrastructure Deal, Cities Continue to Invest*, Circle of Blue.

<https://www.circleofblue.org/2019/world/2019-price-of-water/>

Lam, 2015. *Finding the Right Price for Water*, The Atlantic.

<https://www.theatlantic.com/business/archive/2015/03/finding-the-right-price-for-water/388246/>

Schwartz, 2015. *Pricing in Two Thirsty Cities: In One, Guzzlers Pay More, and Use Less*. NYTT.

Grafton, R. Q., Libecap, G. D., Edwards, E. C., O'Brien, R. J., & Landry, C. (2012). Comparative assessment of water markets: insights from the Murray Darling Basin of Australia and the Western USA. *Water Policy*, 14(2), 17

Recommended:

Olmstead, S. M., & Stavins, R. N. (2007). *Managing Water Demand: Price vs. Non-Price Conservation Programs*. Pioneer Institute White Paper, (39).

Easter, K. W., Rosegrant, M. W., & Dinar, A. (1999). Formal and informal markets for water: institutions, performance, and constraints. *The World Bank Research Observer*, 14(1), 99-116.

7. Water Privatization: October 18, 2023

Required readings:

Finnegan, W. (2002). "Leasing the Rain" *The New Yorker*, 78(7): 43-53, April 2002.

Shultz, J. (2009). The Cochabamba water revolt and its aftermath. *Dignity and Defiance: Stories from Bolivia's Challenge to Globalization*. U. of California, Berkeley, 9-34

Bakker, K. (2013). Neoliberal Versus Postneoliberal Water: Geographies of Privatization and Resistance. *Annals of the Association of American Geographers*, 103(2), 253-260

Hauter, W (2012). Are We Better Off Privatizing Water? *Wall Street Journal*. 8 October 2012.

Recommended:

Helm, D. (2020). Thirty years after water privatization—is the English model the envy of the world? *Oxford Review of Economic Policy*, 36(1), 69-85.

8. Tackling Corruption and Promoting Good Governance: October 25, 2023

Required readings:

Davis, J. (2004). Corruption in public service delivery: experience from South Asia's water and sanitation sector. *World Development*, 32(1), 53-71

Klopp, J. M., & Sang, J. K. (2011). Maps, Powers, and the Destruction of the Mau Forest in Kenya. *Geo. J. Int'l Aff.*, 12, 125.

Recommended readings:

WGF (2011). *Training Manual on Water Integrity*. Focus on Modules 2 – 4 and 7.

Stålgren, P. (2006). Corruption in the water sector: Causes, consequences and potential reform. *Swedish Water House Policy Brief*, 4.

9. From Theory to Reality: Water Governance in the Mekong and Indus Basins: November 1, 2023

Required readings:

Hoffman, S. J., Baral, P., Rogers Van Katwyk, S., Sritharan, L., Hughsam, M., Randhawa, H., ... & Poirier, M. J. (2022). International treaties have mostly failed to produce their intended effects. *Proceedings of the National Academy of Sciences*, 119(32), e2122854119.

Bagla, P. (2010). Along the Indus River, saber rattling over water security. *Science*, 328(5983), 1226-1227.

Briscoe, J. (2010). Troubled waters: Can a bridge be built over the Indus. *Economic and Political Weekly, Bombay*, 45(50), 28-32.

Recommended:

Dore, J., Lebel, L., & Molle, F. (2012). A framework for analyzing transboundary water governance complexes, illustrated in the Mekong Region. *Journal of Hydrology*, 466, 23-36.

Abas, N., Khan, N., Saleem, M. S., & Raza, M. H. (2019). Indus Water Treaty in the doldrums due to water–power nexus. *European Journal for Security Research*, 4(2), 201-242.

Hecht, J. S., Lacombe, G., Arias, M. E., Dang, T. D., & Piman, T. (2019). Hydropower dams of the Mekong River basin: A review of their hydrological impacts. *Journal of Hydrology*, 568, 285-300.

10. The Water-Energy-Food Nexus: November 8, 2023

Required readings:

Energy: [Opperman](#), J. J., J. Royte, J. Banks, L. R. Day, and C. Apse. 2011. The Penobscot River, Maine, USA: a basin-scale approach to balancing power generation and ecosystem restoration. *Ecology and Society* 16(3):7.

Food: [Allan](#), J. A. (2003). Virtual Water-the Water, Food, and Trade Nexus. Useful Concept or Misleading Metaphor? *Water International*, 28(1), 106-113.

Energy & Food: [Tilman](#), D., Socolow, R., Foley, J. A., Hill, J., Larson, E., Lynd, L., ... & Williams, R. (2009). Beneficial biofuels– the food, energy, and environment trilemma. *Science*, 325(5938), 270.

Recommended:

[D'Odorico](#), P., Davis, K. F., Rosa, L., Carr, J. A., Chiarelli, D., Dell'Angelo, J., ... & Rulli, M. C. (2018). The global food-energy-water nexus. *Reviews of Geophysics*, 56(3), 456-531.

11. Water Conflicts: Beyond the Headlines: November 15, 2023

Required readings:

Barnaby, W. (2009). Do nations go to war over water? *Nature*, 458(7236), 282-283.

Serageldin, I. (2009). Water: conflicts set to arise within as well as between states. *Nature*, 459(7244), 163-163.

Kelley, C. P., Mohtadi, S., Cane, M. A., Seager, R., & Kushnir, Y. (2015). Climate change in the Fertile Crescent and implications of the recent Syrian drought. *Proceedings of the National Academy of Sciences*, 112(11), 3241-3246.

Selby, J., Dahi, O. S., Fröhlich, C., & Hulme, M. (2017). Climate change and the Syrian civil war revisited. *Political Geography*, 60, 232-244.

Recommended readings:

Eyler, Brian and Weatherby, Courtney. "New Evidence: How China Turned off the Tap on the Mekong River". April 13, 2020. The Stimson Center: <https://www.stimson.org/2020/new-evidence-how-china-turned-off-the-mekong-tap/>

Rahaman, M. M. (2012). Water wars in 21st century: speculation or reality? *International Journal of Sustainable Society*, 4(1), 3-10.

12. Water Governance Ahead: November 29, 2023

Required readings:

Gupta, J., Akhmouch, A., Cosgrove, W., Hurwitz, Z., Maestu, J., & Ünver, O. (2013). Policymakers' Reflections on Water Governance Issues. *Ecology and Society*, 18(1), 35.

Gleick, P. H., & Palaniappan, M. (2010). Peak water limits to freshwater withdrawal and use. *Proceedings of the National Academy of Sciences*, 107(25), 11155-11162.

David Zetland, To centralize or not to centralize? Aguanomics blog, 11 April 2013, <http://www.aguanomics.com/2013/04/to-centralize-or-not-to-centralze.html>

13. Term-Project Presentations: December 6, 2023 (Location TBD)

You will prepare a 5-minute video describing your findings. Everyone in the class will watch each other's videos before the last session.

DUE DATE: Dec 1, 2023 at 11:59 pm.

During this last session, you will briefly introduce your findings and lead discussions on your research findings.

You should add 1-2 slides to our class Google slides file (LINK TO BE ADDED).

DUE DATE: Dec 5, 2023 at 12:00 pm (noon).

Textbook and Readings

All readings will be posted on Canvas in the “Syllabus” section. You do not need to purchase a textbook for this class, although some of the recommended readings will be from books that you might want to purchase. Each session will have its own page, so please be sure to check there before each class for relevant readings and other announcements. You should read this material before each class (i.e. the readings should be done by the start of the lecture that it is associated with).

Resources and Software Packages

Canvas will be used for communication of assignments, course material, and other information throughout the course. The Columbia University Libraries will be the primary resources for course material.

Academic Integrity

Columbia University expects its students to act with honesty and propriety at all times and to respect the rights of others. It is fundamental University policy that academic dishonesty in any guise or personal conduct of any sort that disrupts the life of the University or denigrates or endangers members of the University community is unacceptable and will be dealt with severely. It is essential to the academic integrity and vitality of this community that individuals do their own work and properly acknowledge the circumstances, ideas, sources, and assistance upon which that work is based. Academic honesty in class assignments and exams is expected of all students at all times. SPS holds each member of its community responsible for understanding and abiding by the SPS Academic Integrity and Community Standards posted at <http://sps.columbia.edu/student-life-and-alumni-relations/academic-integrity-and-community-standards>. You are required to read these standards within the first few days of class. Ignorance of the School's policy concerning academic dishonesty shall not be a defense in any disciplinary proceedings.

Accessibility

Columbia is committed to providing equal access to qualified students with documented disabilities. A student’s disability status and reasonable accommodations are individually determined based upon disability documentation and related information gathered through the intake process. For more information regarding this service, please visit the University's Health Services website: <http://health.columbia.edu/services/ods/support>.

Course Requirements and Evaluation

Attendance and Late Assignments

Students are expected to attend all class sessions and actively participate in class discussions. Attendance and participation count towards your final grade, as specified in the syllabus.

Assignments should be submitted by the stated deadlines to ensure that you can fully engage with the course material and benefit from feedback. Late assignments will incur a penalty of 10% per calendar day, starting immediately after the assignment deadline.

Extenuating circumstances, such as illness or family emergencies, should be brought to the attention of the Professor as soon as possible. These will be considered on a case-by-case basis, and documentation may be required.

Relative Contribution of Assignments and Final Grade

The relative contribution of each of the assignments to your total grade for the course is as follows:

Participation	= 10%
Short-answer essays	= 30%
Discussion lead and summary	= 15%
Term paper and presentation	= 45%

The final course grade will be computed using a weighted average of “participation”, “short-answer essays”, “discussion lead and summary”, and “term paper and presentation.” This grade will then be scaled into a letter grade scale from A+ to F.

All due dates will be posted on Canvas.

Participation (10%)

In-Class Participation

Your active involvement in lectures and discussions is crucial for a collaborative learning experience. While I may not keep a running tally of every contribution, I will be noting particularly insightful comments, questions, or engagement that enriches the class. If you have concerns about class participation, please consult me.

Alternative Forms of Participation

If you find it challenging to participate vocally, consider alternative methods of engagement. You might:

- Share related academic articles or resources in class or via Canvas.
- Provide written summaries or reflections on readings.
- Discuss ideas with peers or me after class or during office hours.

Canvas Discussions

Post relevant news articles about water governance under "Discussions" or "Chat" on Canvas. Comment on posts from classmates throughout the semester.

Participation Bins

To ease the grading process, participation will be assessed in 'bins':

1-3: Minimal or no participation

4-6: Occasional comments or Canvas posts

7-9: Regular contributions in class and on Canvas

10: Consistently insightful and engaged, both in class and online

Short-Answer Essays (30%)

Starting in Week 3, you will have the opportunity to complete a set of short essays. You must complete four sets of short-answer essays by the end of the course. You may submit up to five (5) sets; the highest 4 grades will count towards your final course grade. Each essay is due by 6:00 p.m. on the day of class.

Objective: The goal of this assignment is to encourage deep thinking and reasoned arguments related to the course readings.

Format: Each essay set will consist of three questions, and you should answer all three. Answers to each question should be approximately 300-400 words long, inclusive of all subparts (A, B, C, etc).

Grading: Each "Short-Answer Essay" will be graded on a scale from 1 (lowest) to 10 (highest), with criteria including originality, depth of understanding, real-world applicability, counter-arguments, and clarity. See the rubric below.

Criteria	1-3 (Poor)	4-6 (Average)	7-8 (Good)	9-10 (Excellent)
Originality	Lacks original thought; heavily relies on source material.	Some original insights but mostly rephrases the readings.	Original insights well-integrated with source material.	Highly original, insightful, and goes beyond the readings to offer new perspectives.
Depth of understanding	Shallow analysis, lacks complexity.	Moderate understanding of the topic with some depth.	Good depth and understanding of complexities.	Exceptional depth and nuanced understanding of the topic.
Real-World Applicability	No or irrelevant real-world examples.	Some real-world examples but lacks strong linkage to theory.	Good real-world examples that support the argument.	Excellent real-world examples that are well-integrated and enhance the argument.
Counter-Arguments	Fails to provide or poorly articulates counter-arguments.	Provides counter-arguments but lacks depth or full exploration.	Provides strong counter-arguments that are well explained.	Provides exceptionally well-crafted counter-arguments that enrich the discussion.
Clarity	Writing is unclear, with multiple errors.	Writing is mostly clear but may have some errors.	Writing is clear, organized, and mostly error-free.	Writing is exceptionally clear, well-organized, and free from errors.
Citation and	Fails to cite	Inconsistently	Consistently cites	Impeccably cites all

Academic Integrity	sources or violates academic integrity.	cites sources; minor errors in citation format.	sources; few to no errors in citation format.	sources, adhering strictly to academic integrity and citation guidelines.
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Citation Policy: Please carefully cite all sources you consult, including AI-generated content, to ensure academic integrity. For AI sources, please follow the MLA style guide <https://style.mla.org/citing-generative-ai/> or something similar.

Example Questions:

- 1) Engle et al. (2011) on Brazilian Water Management:
 - a) Part A: Discuss to what extent you agree or disagree with Engle et al.'s findings that centralized systems are more capable of rapid decision-making in response to surprises. Provide at least one counter-argument to your own position.
 - b) Part B: How do these findings inform your views on the ongoing debates about Integrated Water Resource Management (IWRM) and Adaptive Management?
 - c) Part C: Can you identify a real-world water governance example that either supports or challenges Engle et al.'s argument? Briefly describe the situation and its implications.
- 2) Larson's Prescriptions for IWRM in the Colorado Basin:
 - a) Part A: Assess the feasibility of Larson's four prescriptions to advance IWRM in the Colorado Basin.
 - b) Part B: Are there additional factors or challenges that Larson fails to address? Provide a counter-argument to one of Larson's prescriptions based on this.
 - c) Part C: Could Larson's prescriptions be applied universally, or are they uniquely suited for the Colorado Basin? Provide examples to support your argument.
- 3) Hering & Ingold (2012) on Setting Boundaries for IWRM:
 - a) Part A: Explain why Hering & Ingold believe that "setting appropriate bounds for integration could facilitate the implementation of the principles of IWRM."
 - b) Part B: How do Hering & Ingold suggest that this bounding should be done?
 - c) Part C: Can you relate Hering & Ingold's ideas to a real-world example where setting or failing to set appropriate boundaries had significant implications? Describe the situation and its impact.

Discussion Lead and Summary Form (15%)

General Overview: There are TWO parts to this assignment aimed at fostering thoughtful discussion and engagement with weekly readings. A group of 2-3 students will lead the discussion each week, starting from Class 3. The sign-up sheet is available here (access using your Columbia email):

https://docs.google.com/spreadsheets/d/1NMmgb0rp12N-9K_q23JhZn2DiwfQSNXPB2QCxY21YGs/edit?usp=sharing

PART 1: Discussion Lead

Responsibility: Your group is responsible for guiding a focused discussion on a specific dimension of that week's readings.

Role Allocation: Within your group, designate one or more facilitators to guide the discussion and another member to document key points and contributions.

Time Allocation: Plan to use approximately 30 minutes for the discussion segment during class.

Methods: PowerPoint slides are discouraged. Instead, consider using creative methods like role-playing, debates, or online tools (e.g., Kahoot) to engage your classmates.

Best Practices: Use open-ended questions to provoke thought and guide the discussion effectively.

Evaluation Criteria: Your group's performance will be assessed based on how well you integrate ideas from the readings and foster active participation.

PART 2: Google Forms Summary

Submission: Before leading the discussion, fill out the Google Form to summarize your discussion plan.

Deadline: Submit your slide at least 48 hours before your scheduled discussion lead session.

Grades: Graded on a scale from 1 (lowest, if submitted) to 10 (highest) according to the following rubric.

Criteria	Poor (1-2)	Satisfactory (3-4)	Good (5-6)	Excellent (7-10)
Engagement with Readings	Minimal reference to readings	Some references, not well-integrated	Good integration into discussion	Excellent, adds depth to discussion

Facilitation and Methodology	Ineffective facilitation and uncreative methods	Moderate facilitation, some creativity	Good facilitation and creative methods	Outstanding facilitation and creativity
Clarity and Organization	Unclear, disorganized in both discussion and slide	Moderately clear and organized	Clear and well-organized	Exceptionally clear and organized
Coverage of Key Components	Misses many elements in discussion and slide	Covers some, lacks depth	Good coverage, meets all requirements	Comprehensive, insightful coverage
Goals, Outcomes, and Depth	Unclear goals, shallow depth	Somewhat clear goals, moderate depth	Clear goals, good depth	Exceptionally clear goals, deep insights

Term Paper and Presentation (45%)

The term paper is a semester-long project focused on a case study in water governance. The aim is to select a topic that is not only academically engaging but also career-enriching. The term paper should be approximately 2,500–3,000 words, not including figures, tables, and references.

Milestones

Frequent check-ins with TA and professor are highly encouraged. Below are some important milestones:

- Class 4 (Sept. 27): Thesis statement due
- Class 8 (Oct. 25): First draft due for peer review
- Class 12 (Nov. 29): Final draft due for TA/professor comments
- Final paper (Dec 20, 2023 at 11:59 p.m.)

Video and Presentation:

- 1) Submit a 5-minute video summarizing your findings by Friday, December 1, 2023 at 11:59 p.m., so that your classmates can view your video prior to the final class session.
- 2) During the final class, present a brief summary and lead a discussion on your research findings. You should add 1-2 slides to our class Google slides file (to be added) by Tuesday, December 5, 2023 at 12:00 p.m. (noon).

Example Topics: Please refer to the course materials for sample topics. You are encouraged to consult with the TA or professor to refine your chosen topic.

Grading: A detailed grading rubric is provided below.

Criteria	Poor (F-D)	Satisfactory (C-B)	Excellent (A-A+)
Thesis & Argument Structure	Lacking cohesion and focus	Mostly coherent but could be more focused	Highly coherent and persuasive
Evidence and Analysis	Sparse or irrelevant data	Adequate evidence but lacking in-depth analysis	Comprehensive and insightful analysis
Clarity and Organization	Disorganized and unclear	Well-organized but some sections unclear	Exceptionally organized and easy to follow
Originality & Relevance	Topic or argument lacks originality or relevance	Topic or argument has some originality or relevance	Topic or argument is highly original and relevant
Integration of Class Concepts	No or limited integration of class concepts	Some integration but not comprehensive	Seamless integration of class concepts into the paper
Solutions to Governance Challenges	No or superficial solutions presented	Solutions presented but lack depth or feasibility	Thoughtful, feasible solutions backed by evidence
Presentation	Incoherent, rushed or disengaging	Clear but lacks engagement or is not comprehensive	Engaging, comprehensive, and clear

Policies and Expectations from SPS Sustainability Management

Accessibility Statement – Contact disability@columbia.edu for learning accommodations.

Names/Pronouns – You deserve to be addressed in a manner that reflects your identity. You are welcome to tell me your pronoun(s) and/or name (if different from University records) at any time, either in person or via email.

Discrimination – We embrace the diversity of gender, gender identity & expression, sex, sexual orientation, race, ethnicity, national origin, age, religion, disability status, family status, socioeconomic background, and other visible and non-visible identities. Columbia University does not tolerate unlawful discrimination, discriminatory harassment, sexual assault, domestic violence, dating violence, stalking, or sexual exploitation and all such conduct is forbidden by Columbia University Policy.

Duty to Report – You deserve a University community free from discrimination, harassment, and gender-based misconduct including sexual harassment, sexual assault, domestic and dating violence, stalking, and sexual exploitation. It is therefore University policy to require Columbia faculty and staff to report to EOAA any instance or allegation of prohibited conduct involving any undergraduate or any graduate student that is disclosed to, observed by, or otherwise known to that employee. This requirement to report is in place to help ensure that students are provided appropriate resources and to allow the University to mitigate harm to our community.

Confidential Resources - There are confidential resources on campus who do not have a Duty to Report, including:

- Sexual Violence Response & Rape Crisis/Anti-Violence Support Center (SVR)
- Ombuds Office
- Medical Services
- University Counseling and Psychological Services
- University Pastoral Counseling
- Columbia Office of Disability Services

University employees working in a confidential capacity will not report information shared with them.

Inclusion - In the M.S. in Sustainability Management program, faculty, and staff are committed to the creation and maintenance of “inclusive learning” spaces – classrooms and other places of learning where you will be treated with respect and dignity, and where all individuals are provided an equitable opportunity to participate, contribute, and succeed.

In this classroom, all students are welcome regardless of race/ethnicity, gender identities, gender expressions, sexual orientation, socio-economic status, age, disabilities, religion, regional background, Veteran status, citizenship status, nationality, and other diverse identities that we each bring to class.