

Master of Science in Sustainability Management

SUMA PS5169 Sustainability Metrics: Driving Urban and Corporate Change

Mondays, 6:10-8:00 p.m.

Credits: 3

Quantitative Analysis

Instructor:	Adam Freed af2701@columbia.edu afreed@bloomberg.org
Office Hours:	Mondays 5-6 pm, 8-9 p.m., and by appointment. Please schedule all meetings in advance
Response Policy:	[Include a brief statement about your preferred means of communication and when students should expect a response from you. Will you be available 24/7 or during the workweek only? Will you generally respond within 12 or 24 hours?]
Teaching Assistant:	TBD
Office Hours:	TBD
Response Policy:	TBD

Course Overview

Over the past two decades, public and private institutions have set clear targets for environmental, economic, and social performance and they are increasingly using analytical tools to assess problems and measure progress. The advent of “Big Data” has accelerated this work – and opened up new possibilities and challenges. This course will examine the use of data and metrics to shape and implement sustainability policies and programs and to assess and communicate their outcomes.

The course will survey a range of real-world sustainability challenges and evaluate the choices confronting public officials, private companies, NGO’s, advocates, and citizens – and the data that can be used to diagnose problems, develop solutions, and measure success. Particular focus will be given to urban sustainability efforts and corporate sustainability. We will explore how data can be used and misused in each of these domains. Throughout we will emphasize the importance of context, comparability, and completeness of information.

Students will be required to critically evaluate what they read and hear. In addition, the course will give students an opportunity to learn how to express their ideas verbally and in written form and conduct a critical analysis of how environmental data is used to develop and implement public policy. Assignments will give students the opportunity to use their technical and analytical skills while understanding the real-world applications that will be important to their future work as planners, policymakers, advocates, architects, environmentalists, or other professions. The course will feature guest lectures from speakers who are leaders in their fields. Lecture topics may be moved to accommodate speaker travel and availability. Notice will be provided to students in advance of any schedule changes.

This course satisfies the M.S. in Sustainability Management's quantitative analysis requirement.

Learning Objectives

[Graduate-level learning objectives encompass learning outcomes that require higher-level functioning, critical analysis, and application to professional fields. Such learning objectives will include observable and actionable verbs such as **analyze, critique, design, apply, evaluate**, etc. Most SPS courses define 4-6 objectives. Consult a [one-page primer](#) from Columbia's Mailman School. [See an example of an SPS graduate course syllabus here.](#) SPS Instructional Design team members can also help you with writing objectives aligned with program goals. Please contact the Senior Director of Instructional Design and Curriculum Support, Ariel Fleurimond, af2830@columbia.edu.

These course-level learning objectives should align with programmatic objectives and be:

- observable and measurable
- designed for the level and purpose of the course
- be focused on the what the learner will do (not what the instructor will teach)
- labeled L1, L2, etc. and linked to assignments and activities in the appropriate section.]

What do we want students to know and or value at the end of the course?

Through the readings, lectures, in-class discussions, assignments and guest speakers, students will gain an understanding of how data can be used to identify the root causes of sustainability challenges, create targeted strategies to address them, engage stakeholders and build political coalitions, and track and communicate progress. Students will gain the skills to develop clear metrics and programmatic goals and critically evaluate the goals and measurements used by others. At the end of the course, students will understand how data can be used and misused, its power and 2 shortcomings in communicating complex sustainability issues, and how to use data and analysis to solve complicated sustainability challenges.

What will students be able to do at the end of the course?

By the end of this course students should be able to:

- Understand the use and development of metrics at the city, national, and corporate levels to track progress toward sustainability goals
- Evaluate the transparency and effectiveness of sustainability programs
- Analyze and evaluate demographic, environmental, operational, and performance data to develop sustainability indicators
- Understand that addressing complex environmental challenges involves making trade-offs and that choices are made based on the perspective and interests of the decision-makers

What big questions/issues are dealt with in the course?

- How do you define and measure complex issues like sustainability and resilience?
- What makes a city or corporation “sustainable”?
- What is the role of data in program development and management?
- How do you identify the trade-offs in policy decisions and gather and use data to make more informed decisions?

How do these big questions/issues inform our teaching and assessment approach?

The class will provide a set of fundamental skills that students may apply in professional settings, with an emphasis on developing an analytic framework for sustainability and developing and monitoring solutions. The professor and guest lecturers will draw on their professional experiences to ground all topics and discussions in “real world” examples that go beyond academic studies.

Readings

A textbook will not be required for this course, although some articles and case studies may require purchase from online resources such as Harvard Business School Case Studies. All readings are listed in the Course Schedule section of this syllabus and will be posted to Courseworks.

“Required” readings are to be read BEFORE coming to class. “Supplemental” readings will also be provided throughout the class. While they are not required, they will provide additional information that will enhance your knowledge of the course subject matter.

- IPCC, 2023. “Summary for Policymakers. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.” [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34. Available at https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf
- Sachs, Jeffery, “Why the Sustainable Development Goals Matter.” Project Syndicate, March 30, 2015. Available at <http://www.project-syndicate.org/commentary/sustainable-development-goalsshift-by-jeffrey-d-sachs-2015-03>
- McArthur, John, “Own the Goals: What the Millennium Development Goals Have Accomplished.” Brookings Institute, February 21, 2013. Available at <https://www.brookings.edu/articles/own-the-goals-what-the-millennium-development-goals-have-accomplished/>
- United Nations, “The Sustainable Development Goals Report 2023”. 2023 (skim). Available at <https://unstats.un.org/sdgs/report/2023/>
- Global Protocol for Community Scale Greenhouse Gas Inventories Executive Summary. Available at <http://www.ghgprotocol.org/greenhouse-gas-protocol-accounting-reporting-standardcities>
- World Resources Institute and World Business Council for Sustainable Development, “Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition.” WRI, 2015. (pages 6-33) Available at <http://www.ghgprotocol.org/corporate-standard>
- Gelles, David and Brad Plumer, Jim Tankerley, and Jack Ewing. “The Clean Energy Future Is Arriving Faster Than You Think.” New York Times, New York, August 17, 2023. Available at <https://www.nytimes.com/interactive/2023/08/12/climate/clean-energy-us-fossil-fuels.html>
- McKinsey Center for Business and Environment, “Focused acceleration: A strategic approach to climate action in cities to 2030.” November 2017. Available at <https://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/ourinsights/a-strategic-approach-to-climate-action-in-cities-focused-acceleration>
- City of New York, “New York City Household Consumption-Based Emissions Inventory: 2019 Base Year.” February 2023. Accessible at: <https://climate.cityofnewyork.us/wpcontent/uploads/2023/04/NYC-Household-Consumption-GHG-Emissions-Inventory.pdf>
- City of New York, “City of New York Inventory of New York City’s Greenhouse Gas Emissions, February 2019.” Mayor’s Office of Sustainability, New York, 2019. Available at https://climate.cityofnewyork.us/wp-content/uploads/2022/10/NYC_GHG_Inventory_2017.pdf
- Rajanasakul, Mira and Christopher Flavell, Blanche Migliozi, Elia Murray, “America is Using Up Its Groundwater Like There’s No Tomorrow.” New York Times, NY, August 28, 2023. Available at <https://www.nytimes.com/interactive/2023/08/28/climate/groundwater-drying-climate-change.html>

- McDonald, R.I and D. Shemie, “Urban Water Blueprint: Mapping conservation solutions to the global water challenge.” 2014, The Nature Conservancy, Washington, D.C. Available at <http://water.nature.org/waterblueprint/////about.html>
- Boccaletti, G. “Framing water problems with global statistics is both powerful and misleading.” *Nat Water* 1, 660–661 (2023). Accessible at <https://www.nature.com/articles/s44221-023-00115-3>
- Asian Development Bank, “Asian Water Development Outlook 2013.” ADB, 2013. (Part 1 only) Available at <https://www.adb.org/sites/default/files/publication/30190/asian-water-developmentoutlook-2013.pdf>
- Coca-Cola 2030 Water Security Strategy (website). Available at <https://www.cocacola.com/news/2030-water-security-strategy>
- Winston, Andrew, “Coca-Cola Met Its Water Goals Early. Were They Too Easy?” *Harvard Business Review*, September 9, 2015. Available at <https://hbr.org/2015/09/coca-cola-met-itswater-goals-early-were-they-too-easy>
- The Economist, “Food Sustainability Index 2021: Methodology Paper.” The Economist Group, London, um, 2021. (Pages 1-34) Available at <https://impact.economist.com/projects/foodsustainability/fsi/2021-methodology-paper/>
- City of New York, “Five Borough Food Flow: 2016 New York City Food Distribution & Resiliency Study Results.” New York, NY, 2016. Accessible at <https://www.nycdc.com/resource/fiveborough-food-flow>
- City of New York, “2021 Food Metrics Report.” New York, NY, 2021. Accessible at <https://www.nyc.gov/assets/foodpolicy/downloads/pdf/Food-Metrics-Report-2021.pdf>
- Johnson, Renee and Nyah Stewart, “Defining Low-Income, Low-Access Food Areas.” Congressional Research Services, Washington, DC, 2021. Available at <https://crsreports.congress.gov/product/pdf/IF/IF118418>
- General Mills, “Global Responsibility 2023.” General Mills, Hidden Valley, MN, 2023. (Pages 4 – 53). Accessible at <https://globalresponsibility.generalmills.com/HTML1/tiles.htm>
- Health Effects Institute, “State of Global Air 2020.” Boston, MA, Health Effects Institute, 2020. Accessible at <https://www.stateofglobalair.org>
- World Health Organization. “Ambient (outdoor) air quality and health”. Fact sheet. WHO, 2018. Available at [https://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-andhealth](https://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-andhealth)
- India State-Level Disease Burden Initiative Air Pollution Collaborators. “Health and economic impact of air pollution in the states of India: The Global Burden of Disease Study 2019.” *Lancet Planet Health*, 2021. Available at <https://www.thelancet.com/action/showPdf?pii=S25425196%2820%2930298-9>
- Bourzac, Katherine, “A local look at air pollution highlights inequalities within cities.” *Chemical and Engineering News*, June 20, 2021. Available at <https://cen.acs.org/environment/pollution/local-airquality-monitoring-inequalities/99/i23>

- City of New York, The New York City Community Air Survey, 2008-2014. New York City Department of Mental Health and Hygiene. April 2016. Available at:
<https://www1.nyc.gov/assets/doh/downloads/pdf/environmental/comm-air-survey-08-14.pdf>
- New York City Department of Sanitation, “2017 NYC Curbside Waste Characterization Study.” City of New York, New York, NY, 2017. (pages 1-38) Accessible at
<https://dsny.cityofnewyork.us/wp-content/uploads/2018/04/2017-Waste-CharacterizationStudy.pdf>
- General Motors, “The Business Case for Zero Waste.” General Motors, Detroit, MI. Accessible at
https://www.generalmotors.green/dld/content/product/public/us/en/GMGreen/factsheets/_jcr_content/par/download_0/file.res/GM's%20landfill-free%20blueprint_%202018%20Update.pdf
- Waste Management 2022 Sustainability Report. Accessible at
https://sustainability.wm.com/downloads/WM_2022_SR.pdf (pages 1-24) • McKinsey and Company, “Mapping the benefits of a circular economy” McKinsey Quarterly, New York, NY, June 2017. Available at
<http://www.mckinsey.com/business-functions/sustainabilityand-resource-productivity/our-insights/mapping-the-benefits-of-a-circular-economy>
- Global Reporting Initiative, “Consolidated Set of GRI Sustainability Reporting Standards 2020,” GRI, Amsterdam, The Netherlands, 2020 (pages 1-31). Available at
<https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-english-language/>
- Task Force on Climate-Related Disclosure. “Task Force on Climate-related Financial Disclosures: Overview.” TCFD, December 2022. Available at
<https://assets.bbhub.io/company/sites/60/2022/12/tcf-2022-overview-booklet.pdf>
- World Economic Forum, “White Paper on Business Sustainability: What it is and why it matters,” World Economic Forum, 2014. Accessible at
http://www3.weforum.org/docs/GAC/2014/WEF_GAC_HumanRights_BusinessSustainability_WhitePaper_2014.pdf
- Citigroup. “2022 Environmental, Social and Governance Report.” Citigroup, New York, 2022. Available at
<https://www.citigroup.com/rcs/citigpa/storage/public/Global-ESG-Report-2022.pdf> (pages 1-11)
- Pivot Goals website (skim) <https://pivotgoals.com/>
- Tullis, Paul, “Bloomberg’s Push for Corporate Sustainability.” Fast Company, April 2011. Available at
<http://www.fastcompany.com/1739782/bloombergs-push-corporate-sustainability>
- “Kering Environmental Profit and Loss.” Available at
<https://www.kering.com/en/sustainability/measuring-our-impact/our-ep-l/methodology/>
- KPMG International, “The KPMG Survey of Corporate Responsibility Reporting 2022.” KPMG, 2022. Available at
<https://assets.kpmg.com/content/dam/kpmg/se/pdf/komm/2022/Global-Surveyof-Sustainability-Reporting-2022.pdf>

- Richard V. Reeves and Eleanor Krause, “Raj Chetty in 14 charts: Big findings on opportunity and mobility we should all know.” Brookings Institute, January 11, 2018. Accessible at <https://www.brookings.edu/blog/social-mobility-memos/2018/01/11/raj-chetty-in-14-charts-bigfindings-on-opportunity-and-mobility-we-should-know/>
- Raj Chetty, Nathaniel Hendren, Maggie Jones, and Sonya R. Porter, “Race and Economic Opportunity in the United States: Executive Summary.” The Economic Opportunity Project. March 2018. Accessible at http://www.equality-of-opportunity.org/assets/documents/race_summary.pdf
- Black Wealth Data Center, skim website and read methodology. Available at <https://blackwealthdata.org/about-us/data-methodology>
- Frank, Adam, “What Does It Take To See Gentrification Before It Happens?” National Public Radio, Washington, DC, August 29, 2017. Accessible at https://www.npr.org/sections/13.7/2017/08/29/546980178/what-does-it-take-to-see-gentrification-before-it-happens?cid=social_20170901_73865167&adbid=903584140624199680&adbpl=tw&adbpr=727%20524717121409024
- Solomon Greene and Kathryn L.S. Pettit, “What if Cities Used Data to Drive Inclusive Neighborhood Change?” Urban Institute, Washington, DC, June 2016. Accessible at <http://www.urban.org/research/publication/what-if-cities-used-data-drive-inclusive-neighborhoodchange>

Supplemental Readings

- Barrett, Brendan F.D. and Andrew DeWit, “This is why we cannot rely on cities alone to tackle climate change.” The Conversation, September 3, 2017. Accessible at <https://theconversation.com/this-is-why-we-cannot-rely-on-cities-alone-to-tackle-climate-change82375>
- Science Based Targets Network, “Science-Based Climate Targets: A Guide for Cities.” November 2020. Available at <https://sciencebasedtargetsnetwork.org/wp-content/uploads/2021/04/SBTs-forcities-guide.pdf>
- World Resources Institute, “Sample Corporate Standard Reporting Template.” Available at http://www.ghgprotocol.org/sites/default/files/ghgp/standards_supporting/GHG-ProtocolReporting-Template.docx
- Derik Broekhoff, Peter Erickson, and Georgia Piggot, “Estimating consumption-based greenhouse gas emissions at the city scale: A guide for local governments.” Stockholm 7 Environmental Institute. February 2019. Available at <https://cdn.sei.org/wpcontent/uploads/2019/03/estimating-consumption-based-greenhouse-gas-emissions.pdf>
- Pike, Cara, “Smart Shift: Communicating About Sustainable Consumption.” Climate Access, January 2019. Available at https://assets.websitefiles.com/5c2fc177b900bd7b4ed5adfb/5c4ddc34a29a8fe117efb755_smart-shift.pdf
- 2030 Water Resources Group, “Charting Our Water Future: Economic Frameworks to Inform Decision-Making.” 2009 (just the Executive Summary, Introduction). Available at http://www.mckinsey.com/client_service/sustainability/latest_thinking/charting_our_water_future
- Robert I. McDonald, et al, “Water on an urban planet: Urbanization and the reach of urban water infrastructure,” Global Environmental Change, July 2014. <http://www.sciencedirect.com/science/article/pii/S0959378014000880>

- World Resource Institute’s “Aqueduct Water Risk Mapping Tool”: <http://aqueduct.wri.org/>
- Corinna Hawkes and Jess Halliday, “What Makes Urban Food Policy Happen?” International Panel of Experts on Sustainable Food Systems, 2017. Accessible at <http://www.ipesfood.org/new-report-what-makes-urban-food-policy-happen>
- Detroit Food and Fitness Collaborative, “Economic Analysis of Detroit’s Food System.” W.K. Kellogg Foundation, 2014. Accessible at https://dkmedia.s3.amazonaws.com/AA/AY/pittsburghfoodpolicy/downloads/298058/Economic_Analysis_of_Detroit_s_Food_System.pdf
- Kheirbek, Iyad, Jay Haney, Sharon Douglas, Kazuhiko Ito, Steven Caputo, Jr., and Thomas Matte, “The Public Health Benefits of Reducing Fine Particulate Matter through Conversion to 9 Cleaner Heating Fuels in New York City.” Environmental Science and Technology. Volume 48, Issue 23. December 2014. Available at <https://pubs.acs.org/doi/10.1021/es503587p>
- Air Pollution Monitoring – US EPA website: <https://www3.epa.gov/airquality/montring.html>
- Bloomberg LP, “Impact Report 2022.” Bloomberg LP, New York, NY, 2023. Available at <https://www.bloomberg.com/company/press/bloomberg-publishes-2022-impact-report/> 10
- Walmart, “2022 ESG Summary.” Walmart, 2022. Available at https://corporate.walmart.com/esgreport/media-library/document/walmart-fy2022-esgsummary/_proxyDocument?id=00000182-21ec-d591-afe2-2bfc4df0000
- <http://www.urbandisplacement.org/policy-tools-2> (skim website)
- The Equality of Opportunity Project website - <http://www.equality-of-opportunity.org/> (skim) 11
- Washington, DC, “Sustainability DC,” Washington, DC, 2009. (Introduction and Equity & Diversity sections only). Available at http://sustainable.dc.gov/sites/default/files/dc/sites/sustainable/page_content/attachments/DCS008%20Report%20508.3j.pdf
- Task Force on Climate-Related Disclosure. “Task Force on Climate-related Financial Disclosures Guidance on Metrics, Targets, and Transition Plans.” TCFD, 2021. Available at https://assets.bbhub.io/company/sites/60/2021/07/2021-Metrics_Targets_Guidance-1.pdf
- Bloomberg LP, “Impact Report 2022.” Bloomberg LP, New York, NY, 2023. Available at <https://www.bloomberg.com/company/press/bloomberg-publishes-2022-impact-report/>
- Walmart, “2022 ESG Summary.” Walmart, 2022. Available at https://corporate.walmart.com/esgreport/media-library/document/walmart-fy2022-esgsummary/_proxyDocument?id=00000182-21ec-d591-afe2-2bfc4df0000

Assignments and Assessments

• Metric memo (10%) – Columbia University recently launched Plan 2030, a ten-year strategic plan that outlines sustainability goals for Columbia’s New York campuses to achieve net zero emissions by 2050. Your task is to recommend an additional non-GHG goal to be included in the plan to address a critical social, economic, or environmental issue of your choice.

Memos must include:

- a clear and measurable goal for 2030
 - a persuasive argument as to why your goal is important and material for Columbia
 - a pressure, state, and response indicator (3 in total) to track progress toward your goal.
- Case study (20%) - Students will individually complete a case write-up, which are expected to be 2-3 pages and will be discussed in class on the date they are due. Specific questions to be answered will be provided in class
- Problem set (20%) - Students will be provided with a problem set and relevant information/sources to quantify the economic, social and environmental costs and benefits of a specified sustainability solution and will be asked to recommend an optimal implementation strategy weighing the relative costs and benefits. Students should individually complete the problem sets.
- Final project (35%) - Students will work as teams to propose a set of sustainability goals and indicators for a specific corporation (to be approved by the instructor) or for a city of their choice (to be approved by the instructor). Each project team will present their initial recommendations in class on Dec 4 and Dec 11, with an accompanying paper no longer than 8-10 pages due on Dec 22. Presentations should be no longer than 15 minutes and will be followed by 5 minutes of Q&A.
- Class participation (15%) - Class participation will be evaluated on a scale of 0-100. All students are expected to contribute to the classroom discussion throughout the course, including the inclass presentations and discussions with guest speakers. While classes will generally feature lectures on the specified topics each week, active discussion is encouraged to bring in students’ experiences and knowledge. Students should probe concepts introduced in the class and in readings and look for innovative solutions to challenges identified in the materials. On-time attendance at each class meeting is expected. Partial attendance, i.e. lateness or early departure, if not excused in advance, will impact the “Participation” component of the course grade. If you need to miss a class for any reason, please email the instructors in advance.

Grading

The final grade will be calculated as described below:

FINAL GRADING SCALE

Grade	Percentage
A+	98–100 %
A	93–97.9 %
A-	90–92.9 %

B+	87–89.9 %
B	83–86.9 %
B-	80–82.9 %
C+	77–79.9 %
C	73–76.9 %
C-	70–72.9 %
D	60–69.9 %
F	59.9% and below

Assignment/Assessment	% Weight	Individual or Group/Team Grade
Metric Memo	10	Individual
Case Study	20	Individual
Problem Set	20	Individual
Final Project	35	Group/Team
Class Participation	15	Individual

Course Schedule/Course Calendar

Date	Topics and Activities	Readings (due on this day)	Assignments (due on this date)
9/11	Sustainability Metrics Overview		
9/18	Greenhouse Gas Emissions		
9/25	NO CLASS		
10/2	Water		
10/9	Food		
10/16	Climate Resilience		
10/23	Air Quality		
10/30	Waste		
11/13	Case Study / Corporate Sustainability		
11/20	Corporate Sustainability / ESG		
11/27	Equity		
12/06	Presentations		
12/13	Presentations		

Course Policies

Participation and Attendance

You are expected to do all assigned readings, attend all class sessions, and engage with others in class discussions. If you need to miss a class for any reason, please discuss the absence with the instructors in advance.

Late work

Papers and projects are due by the beginning of class on the date that they are due. All assignments must be handed in on time. Any late submissions, unless pre-approved by the professor, will receive an automatic reduction of one letter grade.

Citation & Submission

[All written assignments must use standard citation format (e.g., MLA, APA, Chicago), cite sources, and be submitted to the course website (not via email).]

School and University Policies and Resources

Copyright Policy

Please note—Due to copyright restrictions, online access to this material is limited to instructors and students currently registered for this course. Please be advised that by clicking the link to the electronic materials in this course, you have read and accept the following:

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted materials. Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the photocopy or reproduction is not to be "used for any purpose other than private study, scholarship, or research." If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement.

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 <https://sps.columbia.edu/students/student-support/academic-integrity-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.

Diversity Statement

It is our intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that the students bring to this class be viewed as a resource, strength and benefit. It is our intent to present materials and activities that are respectful of diversity: gender identity, sexuality, disability, age, socioeconomic status, ethnicity, race, nationality, religion, and culture.

Artificial Intelligence

Students are expected to adhere to the principles of honesty and authenticity. While using generative AI tools to assist in class work, students must clearly indicate which portions of their work were generated by AI, giving proper credit to the tool. The use of generative AI tools should not compromise the originality of the work. Assignments, projects, and assessments should primarily reflect the student's own understanding, research, and creativity. The use of generative AI tools should align with the learning objectives of the course. Students are encouraged to engage with the technology to enhance their understanding and explore new avenues of learning, rather than as a means to bypass critical thinking and research. Students are responsible for adhering to intellectual property rights. The use of copyrighted materials in AI-generated work should comply with fair use policies and properly attribute the source.

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: <https://health.columbia.edu/content/disability-services>.

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 genderbased 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 equitable opportunity to participate, contribute, and succeed. In our Sustainability Management K4100 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.

Class Recordings

All or portions of the class may be recorded at the discretion of the Instructor to support your learning. At any point, the Instructor has the right to discontinue the recording if it is deemed to be obstructive to the learning process.

If the recording is posted, it is confidential and it is prohibited to share the recording outside of the class.

SPS Academic Resources

The Division of Student Affairs provides students with academic counseling and support services such as online tutoring and career coaching: <https://sps.columbia.edu/students/student-support/student-support-resources>.

Columbia University Information Technology

[Columbia University Information Technology](#) (CUIT) provides Columbia University students, faculty and staff with central computing and communications services. Students, faculty and staff may access [University-provided and discounted software downloads](#).

Columbia University Library

[Columbia's extensive library system](#) ranks in the top five academic libraries in the nation, with many of its services and resources available online.

The Writing Center

The Writing Center provides writing support to undergraduate and graduate students through one-on-one consultations and workshops. They provide support at every stage of your writing, from brainstorming to final drafts. If you would like writing support, please visit the following site to learn about services offered and steps for scheduling an appointment. This resource is open to Columbia graduate students at no additional charge. Visit <http://www.college.columbia.edu/core/uwp/writing-center>.

Career Design Lab

The Career Design Lab supports current students and alumni with individualized career coaching including career assessment, resume & cover letter writing, agile internship job search strategy, personal branding, interview skills, career transitions, salary negotiations, and much more. Wherever you are in your career journey, the Career Design Lab team is here to support you. Link to <https://careerdesignlab.sps.columbia.edu/>

Resources

- GHG Protocol Calculation Tools - <http://www.ghgprotocol.org/calculation-tools/faq>
- Environmental Performance Index - <http://epi.yale.edu/>
- C40 Cities Climate Leadership Group - <http://www.c40.org/>
- Social Vulnerability Index - <http://artsandsciences.sc.edu/geog/hvri/sovi%C2%AE-0>

- US EPA Green Communities - <https://www.epa.gov/smartgrowth/tools-and-resourcesustainable-communities>
- Pivot Goals - <http://www.pivotgoals.com/>
- CDP - <https://www.cdp.net/en-US/Pages/HomePage.aspx>
- Global Reporting Initiative - <https://www.globalreporting.org/Pages/default.aspx>
- Dow Jones Sustainability Index - <http://www.sustainability-indices.com/>
- National Equity Atlas – <http://www.nationalequityatlas.org>
- Project Drawdown - <https://www.drawdown.org/solutions>
- Bill Gates, “How to Avoid a Climate Disaster” - <https://www.amazon.com/How-Avoid-ClimateDisaster-Breakthroughs/dp/059321577X>
- Hans Rosling, “Factfulness: Ten Reasons We're Wrong About the World--and Why Things Are Better Than You Think” - <https://www.amazon.com/Factfulness-Reasons-World-ThingsBetter/dp/1250107814>