

PROMOTION RECOMMENDATION
The University of Michigan
College of Literature, Science, and the Arts

Rose Cory, associate professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts, and associate professor of environment, without tenure, School for Environment and Sustainability and College of Literature, Science, and the Arts, is recommended for promotion to professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts, and professor of environment, without tenure, School for Environment and Sustainability and College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	2006	University of Colorado, Boulder
M.S.	2001	Michigan Technological University
B.S.	1998	Michigan State University

Professional Record:

2021–Present	Associate Chair for Curriculum and Undergraduate Studies
2017–Present	Associate Professor, Department of Earth and Environmental Sciences and Program in the Environment, University of Michigan
2013–2017	Assistant Professor, Department of Earth and Environmental Sciences and Program in the Environment, University of Michigan
2009–2013	Assistant Professor, Department of Environmental Sciences and Engineering, University of North Carolina Chapel Hill
2008–2009	Director’s Post-doctoral Fellow, Los Alamos National Laboratory
2006–2007	Post-doctoral Fellow, Departments of Chemistry and Ecology, Evolution and Biology, University of Minnesota Twin Cities

Summary of Evaluation:

Teaching: Professor Cory is a popular and effective instructor known for her thoughtful pedagogical approaches that empower students to gain a deep understanding of the principles of chemistry and its use for mitigating the negative environmental consequences of anthropogenic pollution. Professor Cory has demonstrated successful mentorship of several graduate and undergraduate students, with a dedication to recruiting and mentoring students from historically underrepresented groups. She demonstrates her passion for engaging students via traditional lectures and hands-on field and lab activities scaffolded around real-world examples that allow students from all backgrounds to connect successfully with the content. Professor Cory is committed to continual revision of her courses to increase their attractiveness to all students. She effectively listens and learns from her students and draws upon best practices to create an equitable and supportive learning environment. It is clear that Professor Cory is sincerely dedicated to exploring new teaching paradigms and promoting an inclusive classroom.

Research: Professor Cory leads an original and impactful research program that focuses on the role of both photochemical and dark reactions in the degradation of organic carbon in Arctic soils and wetlands. Her work is notable for the use of innovative analytical methods to identify controls on the processes that convert organic matter to atmospheric CO₂ in the rapidly warming Arctic environment—a process that may pose a major positive feedback on climate change. Her work has demonstrated the important roles of iron, and of microbial community history. She also works on the

dynamics of harmful algal blooms in Lake Erie, leading investigation into the photochemical production of reactive oxygen species that stress aquatic organisms. One of the great strengths of Professor Cory's research is her integration of a wide range of specialized techniques; this is possible through collaborations with experts in multiple sub-disciplines.

Recent and Significant Publications:

- Bowen, J.C., Ward, C.P., Kling, G.W., & Cory, R. M. (2020). Arctic amplification of global warming strengthened by sunlight oxidation of permafrost carbon to CO₂. *Geophysical Research Letters*, 47(12), e2020GL087085. doi: 10.1029/2020GL087085
- Ward, C.P. and Cory, R.M. (2020). Assessing the prevalence, products, and pathways of dissolved organic matter partial photo-oxidation in arctic surface waters. *Environmental Science: Processes & Impacts*, 22(5), 1214-1223. doi: 10.1039/C9EM00504H
- Trusiak, A., Treibergs, L. A., Kling, G. W., & Cory, R. M. (2018). The role of iron and reactive oxygen species in the production of CO₂ in arctic soil waters. *Geochimica et Cosmochimica Acta*, 224, 80-95. doi.org/10.1016/j.gca.2017.12.022
- Ward, C. P., Nalven, S.A., Crump, B.C., Kling, G.W., & Cory, R.M. (2017). Photochemical alteration of dissolved organic carbon draining permafrost soils shifts microbial metabolic pathways and stimulates respiration. *Nature Communications*, 8(1), 1-8. doi:10.1038/s41467-017-00759-2

Service: Professor Cory's service extends from her academic home departments through to professional and stakeholder communities at the national and international levels. The leadership aspect of her service increased in fall 2021 as she has taken on the position of associate chair for curriculum. Overall, her service roles are expanding, with leadership in the department, editorial positions, and at a Department of Energy (DOE) National Laboratory user facility. These service roles confirm that Professor Cory is respected among the relevant communities, and that her service is at a level that would be appropriate for a full professor.

External Reviewers:

Reviewer (A): "[Professor Cory] is completing some of the best work that I know of today that targets the important question of rates and mechanisms of organic matter degradation in freshwater systems."

Reviewer (B): "Prof. Cory is a leading scholar in her general field and a pioneer in the specific (and important) area of natural organic matter decomposition, particularly in Arctic environments. Based on her record of achievement, I have no doubt she would be promoted to Professor in my department at [my institution]. As such, I give her my strongest recommendation for promotion."

Reviewer (C): "Professor Cory has an impressive academic record that includes an excellent research portfolio, a range of national service including high visibility editorial roles, and what appears (from an external perspective) to be a serious and very high quality approach to teaching and mentoring. Taken as a whole, this record would place Prof. Cory in the leading ranks of researchers in her field and is at or above a level for promotion to Professor at a leading R1 university."

Reviewer (D): "Dr. Cory has a highly impressive record for her career stage. She is involved with some of the most significant research questions of this era including mechanisms of Arctic carbon cycling, in particular carbon transported through aquatic ecosystems with the potential to contribute to the warming climate."

Reviewer (E): “Dr. Cory’s research is focused on carbon cycling in soils and water, with particular emphasis on how integrated chemical, photochemical, and biological processes impact the conversion of natural organic matter to carbon dioxide. Her research is very interdisciplinary, involving collaborations with microbiologists, hydrologists, and remote sensing specialists, yet she has been able to carve out a niche area where she is clearly a leading player.”

Reviewer (F): “With this outstanding record of research, impact, leadership and mentoring, Rose Cory could be promoted to the Professor level at most top research universities, including [my previous institution] where I served on the Committee for Promotion and Tenure.”

Summary of Recommendation:

Professor Cory has selected interesting and important research projects, carried them out using innovative techniques and theories, and has integrated students and postdocs effectively into her research. Professor Cory is applauded for her efforts to make chemistry relevant for EES majors and to use her courses as vehicles to educate students about the historic and current inequalities that plague society. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Associate Professor Rose Cory be promoted to the rank of professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts, and professor, without tenure, in Program in the Environment, School for Environment and Sustainability and College of Literature, Science, and the Arts.



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