Sherri M. Cook

Curriculum Vitae

Assistant Professor
Department of Civil, Environmental, & Architectural Engineering, University of Colorado-Boulder
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RESEARCH EMPHASIS

Resource Recovery, Sustainability Assessments, Systems-Level Analyses, Environmental Biotechnology
Specific interests include examining and improving the sustainability of wastewater and drinking water systems, recovering energy and nutrients from waste, investigating the operational limits of biological treatment systems, and integrating environmental and economic factors into decision-making.

EDUCATION

Ph.D. *University of Michigan*, Ann Arbor, MI
August 2014 Environmental Engineering
Co-Advisors: Nancy Love and Steven Skerlos
Dissertation: Analysis-Driven Sustainable Design of Waste Management Systems for Unused Medications & Organic Wastes

M.S.E. *University of Michigan*, Ann Arbor, MI
December 2009 Environmental Engineering

B.S. *Virginia Tech*, Blacksburg, VA
May 2008 Civil Engineering

AWARDS & HONORS

2013-2014 Rackham Predoctoral Fellow
2010-2013 Graham Sustainability Institute Doctoral Fellow
2009-2012 National Science Foundation Graduate Research Fellow
2008-2009 Phi Kappa Phi Honor Society National Fellow
2008 Virginia Tech College of Engineering Outstanding Senior
2007 Marshall Scholarship Interviewee
2007, 2006 Morris K. Udall Scholar

PUBLICATIONS

Peer-Reviewed Journal Article (Published)

Cook, S.M.; VanDuinen, B.J.; Love, N.G.; Skerlos, S.J. Life cycle comparison of environmental emissions from three disposal options for unused pharmaceuticals. *Environmental Science & Technology* **2012**, *46* (10), 5535-5541.

Correspondence (Published)

Cook, S.M.; Love, N.G.; Skerlos, S.J. Response to "Comment on 'Life cycle comparison of environmental emissions from three disposal options for unused pharmaceuticals'". *Environmental Science & Technology* **2012**, *46* (15), 8521–8522.

Anticipated Peer-Reviewed Journal Articles (Work in Progress)

Cook, S.M.; Skerlos, S.J.; Love, N.G. Modeling the impact of influent composition on the functional operating space of an anaerobic digester. Plan to submit to *Water Research*.

CONFERENCE PROCEEDINGS

Guest, J.S.; **Cook, S.M.**; Skerlos, S.J.; Love, N.G. A methodology to assess the environmental impacts of upgrading wastewater infrastructure: A case study to evaluate energy recovery from black water. *Proceedings of the 82nd Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC)*, Orlando, Florida, October 10-14, **2009**.

Cook, S.M.; Guest, J.S.; Skerlos, S.J.; Love, N.G. Environmental characteristics of different energy recovery systems from the management of sewage sludge and food waste. *Proceedings of the 12th International Water Association Sludge Conference*, Harbin, China, August 8-11, **2009**.

GRANTS & PROPOSALS

Design of Risk---reducing, Innovative---implementable Small---system Knowledge (DeRISK) Center. Submitted to the *U.S. Environmental Protection Agency National Center for Innovation in Small Drinking Water Systems,* Lead PI: Scott Summers. 2014-2017, *Funded.* (**$4,099,973**);
Role: Investigator on *Project 1: New Strategies for Technology Assessment and Implementation*, ($208,332).

Development of a Low-Maintenance Anaerobic Biogas System for Use in Developing Countries. Submitted to the *U.S. Environmental Protection Agency People, Prosperity and the Planet (P3) Student Design Competition for Sustainability*, PI: Steven J. Skerlos
Phase I, 2010-2011, *Funded.* ($10,000); **Phase II, 2011,** *Honorable Mention***.**
Role: Wrote 10% of proposals and supervised undergraduates writing.

CONFERENCE PRESENTATIONS & POSTERS

Oral Presentations (Presenter underlined)

Cook, S.M.; VanDuinen, B.J.; Skerlos, S.J.; Love, N.G. Life cycle comparison of environmental impacts from alternative pharmaceutical disposal methods. *Environmental and Water Resources Engineering Seminar*. University of Michigan, February 3, **2011**.

Cook, S.M.; Love, N.G. A regional strategy for managing food processing and septage waste: The Grand Traverse region collaboration. *Biogas Summit*, Flint, MI, October 29, **2010**.

Cook, S.M.; Guest, J.S.; Christianson, M.G.; Love, N.G.; Skerlos, S.J. Energy recovery from wastewater: Evaluation of resource management alternatives for appropriate and environmentally sustainable energy production. *Engineering Sustainability Conference*, Pittsburgh, PA, April 21, **2009**.

Cook, S.M.; Jaradat, A.Q.; Grimberg, S.J.; Holsen, T.M. Sustainable stormwater treatment: Colloid concentration effect on natural media filtration efficiency. *American Society of Civil Engineers' 2008 Virginias' Student Conference*, Summersville, WV, April 18, **2008**. *(Received First Place)*

Cook, S.M.; Novak, J.T. Sustainable wastewater treatment: Investigation of chemical, enzymatic, and/or biological agents as additives to enhance anaerobic digestion and reduce biosolids cake odor. *2nd Annual ACC Undergraduate Research Conference*, Charlottesville, VA, April 13, **2007**.

Poster Presentations (Presenter underlined)

Cook, S.M.; Skerlos, S.J.; Love, N.G. A design-oriented stability analysis of anaerobic codigestion using ADM1. *International Water Association Wastewater Treatment Modeling (WWTmod)*, Spa, Belgium, March 30 – April 2, **2014**.

Cook, S.M.; Skerlos, S.J.; Love, N.G. Modeling anaerobic codigestion performance and reliability under varying influent compositions. *Association of Environmental Engineering and Science Professors (AEESP) Education and Research Conference*, Golden, CO, July 14-16, **2013**.

Cook, S.M.; Delgado Vela, J.; Stadler, L.G. Modeling advancing the success of engineering service projects from the classroom to the field. Association of Environmental Engineering and Science *Professors (AEESP) Education and Research Conference*, Golden, CO, July 14-16, **2013**.

Cook, S.M.; VanDuinen, B.J.; Skerlos, S.J.; Love, N.G. Life cycle comparison of environmental impacts from alternative pharmaceutical disposal methods. *Association of Environmental Engineering and Science Professors (AEESP) Education and Research Conference*, Tampa, FL, July 10-12, **2011**.

Cook, S.M.; Love, N.G. Two-phase anaerobic codigestion of septage and food processing waste: Designing a reliable, regional waste management strategy. *8th International Water Association Leading-Edge Conference on Water and Wastewater Technologies (LET)*, Amsterdam, the Netherlands, June 6-10, **2011**.

Dorer, H.; Hwang, J.; Li, Z.; Twill, K.; Coir, E.; Gupta, A.; Frederick, T.; Schulman, B.; Collins, M.; Nagel, A.; McCleary, E.; Bhandari, A.; Kaniz, N.; Sung, C.; **Cook, S.M.** (Graduate Advisor); Skerlos, S.J. (Faculty Advisor). Development of a robust anaerobic biogas system for use in developing countries. *National Sustainable Design Exposition*, Washington, D.C., April 15-17, **2011**.

Cook, S.M.; VanDuinen, B.J.; Skerlos, S.J.; Love, N.G. Life cycle comparison of environmental impacts from alternative pharmaceutical disposal methods. *Engineering Sustainability Conference*, Pittsburgh, PA, April 11, **2011**.

RESEARCH EXPERIENCE

Technical and Environmental Characteristics of Anaerobic Codigestion
2010-2014

Project: The stability and sustainability of anaerobic codigestion systems managing municipal wastewater solids and industrial wastes
(PIs: Nancy Love, Steven Skerlos; University of Michigan)

Description: Examined the impact of various types of waste on the functional operating space of an anaerobic digester receiving steady-state influent loads. Evaluated the reliability of anaerobic codigestion by modeling reactor performance and developing a stability assessment.

Environmental Impacts of Pharmaceutical Disposal
2009-2012

Project: Life cycle comparison of environmental emissions from three disposal options for unused pharmaceuticals
(PIs: Nancy Love, Steven Skerlos; University of Michigan)

Description: Modeled the fate and transport of active pharmaceutical ingredients in and through a wastewater treatment plant, landfill, and incinerator. Quantified and compared life cycle environmental emissions associated with each disposal option for unused medications.

Anaerobic Digesters in Developing Communities
2008-2011

Project: Development of a low-maintenance anaerobic biogas system for use in developing countries (PI: Steven Skerlos; University of Michigan)

Description: Investigated previous failures and new designs of anaerobic digesters and societal traits during service-learning trip to Nicaragua.

Undergraduate Research *Clarkson University (2007)*	Filtration Efficiency: Impact of colloids on the natural media filtration of PCB-contaminated stormwater (PIs: Stefan Grimberg, Thomas Holsen);
Virginia Tech (2005-2006)	Biosolids Odor: Impact of biological, chemical, and/or enzymatic agents on anaerobic digestion and biosolids odor (PI: John Novak)

TEACHING & MENTORING EXPERIENCE

Teaching

Course: Sustainable Design of Technology Systems, ME 589
Univ. of Michigan, Fall 2012, Instructor: Steven Skerlos

Contribution: Assisted with the development of a case-study based upon my research. Facilitated "flipped classroom" lectures that included activities where students took on the role of stakeholders.

Course: Biological Processes in Environmental Engineering, CEE 592
Univ. of Michigan, Winter 2012, Instructors: Nancy Love, Sherri Cook

Contribution: Presented lectures on biological process modeling, biological nutrient removal, solids management, and anaerobic processes that included "think-pair-share" and "collaborative group" activities. Prepared the mid-term exam, the reading quizzes, and a homework assignment.

Course: Biogas Multidisciplinary Design Project I & II, ENGR 355 & 455
Univ. of Michigan, Fall 2009 & Winter 2010, Instructor: Steven Skerlos

Contribution: Coordinated international service-learning trip. Contributed to course development (including content, schedule, and deliverables). Worked with students and larger project group outside of the classroom.

Graduate Mentoring

Peer Mentor: Served as a Network for Women in Civil & Environmental Engineering mentor for Ph.D. students. (2012-2013)

Peer Advisor: Advised a Ph.D. student pursuing research on the ecotoxicological impacts of pharmaceuticals and personal care products. (2010-2011)

Undergraduate Mentoring

Research Advisor: Advised two undergraduate research assistants. Taught experimental design, model development, and data analysis. Supervised experimental and modeling work as well as writing and presentations. (2009-2011)

Technical Advisor: Facilitated meetings for design approach, brainstorming, and problem-solving for a Mechanical Engineering (ME 450) senior design team. Advised on conceptual and physical designs, goal setting, and presentations. (Winter 2010)

Outreach & Service

Scholarship Advisor: Reviewed draft applications for the Morris K. Udall and Stewart L. Udall Foundation National Scholarship. Mentored undergraduates by providing detailed feedback during application process. (2010 - present)

Activity Leader: Taught water quality testing methods and data analysis to middle school students for the Detroit Area Pre-College Engineering Program. Designed and led hands-on activities for data collection. (Winter 2009 and 2010)

UNIVERSITY SERVICE & ACTIVITIES

University of Colorado-Boulder

CEAE Curriculum Committee—Member (2014-present)
CEAE Graduate Committee—Member (2014-present)
EVEN Curriculum Committee—Member (2014-present)
Faculty Student Mentor Program—Mentor (2014 – present)

University of Michigan

Campus Committee on Safe Drug Disposal—Member (2012-2014)
Department Workshop for Graduate Students on Goal Setting—Co-facilitator (2012)
Michigan Water Environment Association—Student liaison (2009-2011)
Graduate Environmental Engineering Network of Professionals, Educators, and Students—Vice President (2009-2010)
Out in Science, Technology, Engineering, and Mathematics—LGBTQ Ally Certification (2010), Graduate Relations Officer (2009)
Department Workshop for Staff on Excel—Co-facilitator (2009)
College of Engineering Recruitment—"Lunch with a Graduate Student" Mentor (2010), "Recruit at Home" Recruiter (2009), Symposium Panelist (2008)
Sustainable Energy Fellowship Conference—Student Organizer (2008-2009)

Virginia Tech

Society of Environmentally Focused Students—President (2006-2008)
Udall Scholarship Nomination Committee—Member (2008)
CEE April 16 Tributes Committee—Undergraduate Representative (2007-2008)

Community Outreach

Anaerobic Digester Installations; Potreritos & Bramadero, Nicaragua; University of Michigan, Multidisciplinary Design Project (2009) - *trip leader*
Water Distribution, Storage, & Security; Our Lady of Bella Vista School, Belize; Virginia Tech, Senior Design Course (2008)

PROFESSIONAL SERVICE & ACTIVITIES

Professional Service

Scientific Committee (Young Professional) Wastewater Treatment Modeling (2014)
Wastewater Treatment Modeling conference Workshop – Energy Modeling (2014)
Environmental Science & Technology, Research Article Reviewer (2012)
Water Environment Federation Technical Practice Update Reviewer (2010)
Dewberry Student Advisory Board (2008)
Pearson's Student Advisory Board (2007-2008)

Community Outreach

Rain Garden Project, Water Environment Federation; Chicago, IL (2008)
Hurricane Katrina Relief; Gulfport, MS (2006) and New Orleans, LA (2007)

Membership

Association of Environmental Engineering and Science Professors
Society of Women Engineers
International Water Association
Water Environment Federation
Michigan Water Environment Association
Tau Beta Pi National Engineering Honors Society