Deborah Sills

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EDUCATION

Ph.D, Environmental Engineering, 2011, Cornell University, Ithaca, NY.
Dissertation: *Enzymatic hydrolysis of alkaline pretreated biomasses: Assessment of hemicellulase mixtures and the use of FTIR to predict saccharification*
Advisor: James M. Gossett

M.S., Environmental Engineering, 2005, Cornell University, Ithaca, NY.
Thesis: *Search for vinyl chloride degrading organisms at Moody Air Force Base*
Advisor: James M. Gossett

B.S. (Hons), Civil Engineering, 2001, Montana State University–Bozeman
Area of emphasis: Bio-resources

PROFESSIONAL EXPERIENCE

Assistant Professor, Department of Civil and Environmental Engineering, Bucknell University, Lewisburg, PA [8/2013 to present]

Postdoctoral Associate, Cornell Energy Institute, Cornell University, Ithaca, NY (Advisors: Jefferson W. Tester & Charles H. Green) [9/2011 to 7/2013]

Graduate Research Assistant, Biofuels Research Laboratory, Cornell University, Ithaca, NY (Advisor: James M. Gossett) [2005 to 2011]

Graduate Research Assistant, School of Civil and Environmental Engineering, Cornell University, Ithaca NY (Advisor: James M. Gossett) [2002 to 2004]

TEACHING & MENTORING

Instructor, Department of Earth and Atmospheric Sciences, Cornell University, August 2010 to December 2012

Sustainable Earth Energy and Environmental Systems—EAS 1420
Freshman writing seminar that focuses on the intertwined challenges of energy and the environment

Instructor, School of Civil and Environmental Engineering, Cornell University, August 2009 to May 2010

Environmental Quality Engineering—CEE 3510
Sophomore-level course that introduced students to physical and chemical principles that govern the fate and transport of pollutants in the environment.

Laboratory Studies in Environmental Engineering—CEE 4530

Senior-level course that introduced students to standard laboratory methods in environmental engineering; included included capstone research/design project.

Mentored students: T. M. Akabas, M. A. Chabaneix (Meng students from Cornell), P. Tembhekar (undergraduate student from Cornell University, helped her secure the ELI Undergraduate Research Award), C. Li (undergraduate student from Cornell University)

HONORS AND AWARDS

Second Place, Oral Presentation Competition, Cornell University, School of Civil and Environmental Engineering, 3rd Graduate Research Symposium (January 28, 2011, Ithaca, NY).

Graduate Teaching Fellowship—National Science Foundation (2003 to 2004)

GAANN Fellowship, focused on computational aspects of in situ bioremediation for the detoxification of groundwater (2001 to 2003)

Highest Grade Point Average, Bio-resources Concentration, Civil Engineering, Montana State University (May 2001)

Best Student All-Around, Bio-resources Concentration, Civil Engineering, Montana State University (May 2001)

PROFESSIONAL SERVICES and MEMBERSHIPS

Ad-hoc reviewer for: *Environmental Science & Technology, Biotechnology & Bioengineering, Bioresource Technology, Applied Spectroscopy, Environment Development & Sustainability*

Co-reviewer (with advisor) for: *Biomass & Bioenergy, Environmental Research Letters, Industrial & Engineering Chemistry Research*

World Congress on Industrial Biotechnology and Bioprocessing
- Advances in Bioprocessing track recorder, 2007
- Bioprocessing of Agricultural Feedstocks track recorder, 2008

Member: American Society of Engineering Education, Association of Environmental Engineering and Science Professors

LANGUAGE & PROGRAMMING SKILLS

Language Skills: English (native speaker) and Hebrew (native speaker)
Programming Skills: R, Matlab, LaTeX

PEER REVIEWED PUBLICATIONS

D. L. Sills, C. Pritchard, J. W. Tester, and L. Agenent, "Life cycle assessment of n-caproate production", In preparation.

D. L. Sills, V. Paramita, M. J. Franke, M. C. Johnson, T. M. Akabas, C. H. Greene, and J. W. Tester, "Quantitative uncertainty analysis of life cycle assessment for algal biofuel production", *Environmental Science & Technology*, vol. 47, pp. 687-694, 2013.

D. L. Sills and J. M. Gossett, "Using FTIR spectroscopy to model alkaline pretreatment and enzymatic saccharification of six lignocellulosic biomasses", *Biotechnology & Bioengineering*, vol. 109, pp. 894-903, 2012.

D. L. Sills and J. M. Gossett, "Using FTIR to predict saccharification from enzymatic hydrolysis of alkali-pretreated biomasses", *Biotechnology & Bioengineering*, vol. 109, pp. 353-362, 2012.

D. L. Sills and J. M. Gossett,"Assessment of commercial hemicellulases for saccharification of alkaline pretreated perennial biomass", *Bioresource Technology*, vol. 102, pp. 1389-1398, 2011.

OTHER PUBLICATIONS

Gossett, J. M., T. E. Mattes, **D. L. Sills**, J. C. Spain, S. F. Nishino, and N. V. Coleman, *Characterization of the Aerobic Oxidation of cis-Dichloroethene and Vinyl Chloride in Support of Bioremediation of Chloroethene-Contaminated Sites, Final Technical Report, CU 1168.* Strategic Environmental Research and Development Program, Washington D.C. 143 pp. November 5, 2004.

CONFERENCE PRESENTATIONS & POSTERS

D. L. Sills, L. Gerber, C. H. Greene, and J. W. Tester, "Uncertainty of economics and environmental impacts for algal biofuel production", *DOE — Biomass 2013*, Washington, DC, July 2013.

D. L. Sills, V. Paramita, M. J. Franke, M. C. Johnson, T. M. Akabas, C. H. Greene, and J. W. Tester, "Uncertainty of life cycle cssessment for algal biofuel", *The Third International Conference on Biomass, Biofuel and Bioproducts*, Toronto, Canada, June 2013.

D. L. Sills, "Is algal biofuel sustainable?", Invited talk: *Bioenergy & Bioproducts Education Programs*, Boyce Thompson Institute, Ithaca, NY, July 2012.

D. L. Sills, "Sustainable bioenergy production", Invited lecture: Climate Change Senior Seminar class, Cornell University, Ithaca, NY, April 2012.

D. L. Sills, "Using FTIR to model pretreatment and enzymatic hydrolysis of lignocellulosic biomass", Invited talk: Environmental Engineering Seminar Series, Cornell University, Ithaca, NY, March 2012.

D. L. Sills, "Life cycle assessment of algal biofuels," Invited lecture: Biofuels Module class, Cornell University, Ithaca, NY, February 2012.

D. L. Sills and J. M. Gossett, "Assessment of commercial hemicellulases for saccharification of alkaline pretreated perennial biomass", *Northeast Sungrant Regional Conference*, Syracuse, NY, June, 2010.

D. L. Sills and J. M. Gossett, "Effect of hemicellulase addition during hydrolysis of pretreated switchgrass and mixed prairie biomass", Invited talk: *Sungrant Renewable Energy Conference*, Washington, DC, 2009.

D. L. Sills and J. M. Gossett, "Pretreatment and enzymatic hydrolysis of switchgrass and mixed prairie biomass", Invited talk: *Northeast Renewable Energy Conference*, State College, PA, 2008.