

# HEIDI L GOUGH, PE

## *Curriculum Vitae*

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University of Washington  
Civil and Environmental Engineering  
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USA

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## EDUCATIONAL HISTORY AND CERTIFICATIONS

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PhD, environmental engineering Northwestern University; Evanston, Illinois, USA Dissertation: "The impact of metal contamination on anaerobic freshwater sediment microbial populations: community structure and function." David A. Stahl, advisor	December 2004
MS, environmental engineering, with emphasis in natural systems Northwestern University; Evanston, Illinois, USA	December 1998
BS, environmental engineering Northwestern University; Evanston, Illinois, USA	June 1993
Professional Engineering License Number 062054481, State of Illinois.	2001 to present

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## EMPLOYMENT HISTORY

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University of Washington Research Assistant Professor	Seattle, Washington, USA 2011 - present
University of Washington Research Associate (John Ferguson, advisor)	Seattle, Washington, USA 2004-2011
Northwestern University Graduate Research Assistant	Evanston, Illinois, USA 1997-2004
Terracon Environmental, Inc. Environmental Engineer	Naperville, Illinois, USA 1993-1997

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## AWARDS AND HONORS

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### **Fellowships:**

1. Select Profession Dissertation Fellowship, 2004, American Association of University Women
2. Associated Western Universities Fellowship, 1999, Pacific Northwest National Laboratories
3. Murphy Fellowship, 1997, Northwestern University Technological Institute

### **Travel Grants and Other:**

1. Invited summit participant and travel grant recipient, 2011, Women's International Research Engineering Summit (WIRES).
2. Undergraduate Research Mentor Award Nominee. 2008. University of Washington Undergraduate Research Symposium.
3. Travel Grant Recipient, 2005. Association of Environmental Engineering and Science Professors.
4. Student Travel Grant Awardee, 2003, American Society for Microbiology.
5. Varsity Letter Earned, Fencing, 1991, Northwestern University.

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## AFFILIATIONS AND OTHER APPOINTMENTS

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Adjunct Assistant Professor, (2006 – 2008) Civil and Environmental Engineering, Seattle University,  
Seattle, Washington, USA

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## PUBLICATIONS

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### Refereed archival journal publications

1. Zhou, N.A., A.C. Lutovsky, G.L. Andaker, J.F. Ferguson, and **H.L. Gough** (submitted) Degradation kinetics modeling to assess the potential of bioaugmentation for enhanced pharmaceutical and personal care products removal during wastewater treatment. *Bioresource Technology*.  
*Journal impact factor 5.172*
2. Ziels, R.M., M.J. Lust, **H.L. Gough**, S.E. Strand, H.D. Stensel (accepted 2014) Influence of Kinetic and Metabolic Selection on 17 $\alpha$ -ethinylestradiol Biodegradation in Activated Sludge Wastewater Treatment Systems. *Environmental Science and Technology*.  
*Journal impact factor 5.257*
3. Chien, I.C., J.S. Meschke, **H.L. Gough**, and J.F. Ferguson (2013) Characterization of persistent virus-like particles in two acetate-fed methanogenic reactors. *PLoSOne* 8(11): e81040.  
*Journal impact factor 3.730*
4. Kang, Sanghoon, J. Van Nostrand, **H.L. Gough**, Z. He, T. Hazen, D.A. Stahl, J. Zhou (2013) Functional gene array-based analysis of microbial communities in heavy metals contaminated lake sediments, *FEMS Microbiology Ecology* 86(2): 200-214.  
*Citations: 1 (Google Scholar); Journal impact factor 3.563*
5. **Gough, H.L.**, D. Nelsen, C. Muller and J.F. Ferguson (2013) Enhanced methane generation during thermophilic co-digestion of municipal wastewater sludge with confectionary waste and grease trap fats and oils. *Water Environment Research* 85(2):175-183.  
*Citations: 1 (Google Scholar); Journal impact factor 0.89*
6. Zhou, N.A., A.C. Lutovsky, G.L. Andaker, **H.L. Gough** and J.F. Ferguson (2013) Cultivation and characterization of bacterial isolates capable of degrading pharmaceutical and personal care products for improved removal in activated sludge wastewater treatment, *Biodegradation* 24(6): 813-827.  
*Citations: 1 (Google Scholar); Journal impact factor 2.173*
7. **Gough, H.L.**, and D.A. Stahl (2011) Microbial community structures in anoxic freshwater lake sediments along a metal contamination gradient. *ISME Journal* 5(3):543-558.  
*Citations: 11 (web of science); Journal impact factor 7.375.*
8. **Gough, H. L.**, A. L. Dahl, E. Tribou, P. A. Noble, J. F. Gaillard, and D. A. Stahl (2008) Elevated sulfate reduction in metal-contaminated freshwater lake sediments. *Journal of Geophysical Research - Biogeosciences*. 113(G4): p. G04037.  
*Citations: 4 (web of science); Journal impact factor 3.021*
9. Xin, G., **H. L. Gough**, and H. D. Stensel (2008) Effect of anoxic selector configuration on sludge volume index control and bacterial population fingerprinting. *Water Environment Research*. 80: p. 2228-2240.  
*Citations: 8 (web of science); Journal impact factor 0.89*
10. **Gough, H.L.**, A.L. Dahl, M.A. Nolan, J.F. Gaillard and D.A. Stahl (2008) Metal impacts on microbial biomass in the anoxic sediments of a contaminated lake. *Journal of Geophysical Research - Biogeosciences*, 113: G020217.  
*Citations: 7 (web of science); Journal impact factor 3.021*
11. Fishbain, S., J. Dillon, **H.L. Gough** and D. Stahl (2003) High rates of sulfate reduction in Yellowstone hot springs linked to unique genotypes in the dissimulatory pathway for sulfate respiration. *Applied and Environmental Microbiology*. 69(6):3663-3667.  
*Citations: 38 (web of science); Journal impact factor 4.453*

12. **Gough, H.L.** and D. A. Stahl (2003) Optimization of direct cell counting in sediments. *Journal of Microbiological Methods*. 52:39-46.  
*Citations: 23 (web of science); Journal impact factor 2.544*

*In review or in preparation*

13. Kjeldal, H., Lolas, I.B., Almeida, B., Stensballe, A., **Gough, H.L.**, and Nielsen, J.L. (in revision) Induction of an efflux system in triclosan degrading strain *Sphingopyxis* sp. TrD1 by exposure to triclosan. *Microbiology Journal*.  
*Journal impact factor 2.853*
14. Pease, S.W., I.C. Chieh, **H.L. Gough**, J.F. Ferguson, D.A.C. Beck, and J.S. Meschke. (in revision) An analysis of viral methagenomics in acetoclastic enriched methanogenic reactors. *Environmental Microbiology*.  
*Journal impact factor 5.756*.
15. Lust, M., R.M. Ziels, S.E. Strand, **H.L. Gough**, and H.D. Stensel (in preparation) Effect of activated sludge population selection on estrogen degradation kinetics. *Water Research*  
*Journal impact factor 5.315*.
16. Kjeldal, H., Zhou N.A., Wissenbach, D.K., von Bergen, M, Gough, H.L., and Nielsen, J.L. (in preparation) Proteomic analysis of *Bacillus* sp. strain GeD10 protein expression during gemfibrozil degradation

**Conference proceedings, book sections, and other non-refereed articles**

1. Tchobanoglous, G., F.L. Burton and H.D. Stensel. *Wastewater Engineering: Treatment and Reuse*, 5<sup>th</sup> edition (2013). **H.L Gough**, contributor to the section "Microbial and Molecular Methods".
2. Muller, CD, **HL Gough**, D Nelson, J Ferguson, HD Stensel, P Randolph (2009) Investigating the Process Constraints of the Addition of Codigestion Substrates to Temperature Phased Anaerobic Digestion. *Proceedings of the Water Environment Federation* (11), 4810-4825.  
*Citations: 2 (Google Scholar)*
3. Gall, D.L., **H.L Gough**, H.D. Stensel, and J.F. Ferguson. (2008). Anaerobic co-digestion of municipal sludge and biodiesel fuel production by-products. *Proceedings of the Water Environment Federation* (9), 6704-6723.  
*Citations: 1 (Google Scholar)*
4. Xin, G., **H.L. Gough**, and H.D. Stensel. (October 2007). Effect of anoxic selector configuration on SVI control and bacterial population fingerprinting. Platform presentation. *Proceedings for the Water Environment Federation Technical Exhibition and Conference*. SanDiego, California, USA.

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PRESENTATIONS AND OTHER SCHOLARLY ACTIVITY

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**Invited lectures and seminars.**

1. Invited key speaker. Water Summit 2014; Port Orchard, Washington. *Modeling bioaugmentation for enhanced removal of emerging trace-level contaminants*. (planned April 2014)
2. Invited speaker. Community College Master Teacher Institute, sponsored by the Jackson School of International Studies, University of Washington. July 12, 2013 Institute Theme: Climate Change, Environment, and Social Justice. "*Water Resources and Treatment in Jordan, an example for arid climate engineering*"
3. Invited seminar. Jordan University for Science and Technology; Irbid, Hashemite Kingdom of Jordan. *Bioenergy from Waste: Methane Generation during Thermophilic Co-digestion*. (May 2012).
4. Invited key speaker. Water Summit 2011; Port Orchard, Washington. *Identifying bacteria for biotreatment and bioremediation of emerging trace-level contaminants*. (August 2011)
5. Invited speaker. Solid Waste Association of North America (SWANA) Evergreen Chapter workshop on Organic Waste Management: The nexus of waste management, renewable energy and climate

- change. *From waste to power: Methane generation from co-digestion of food wastes.* (March 2009)
6. Invited seminar. Seattle University, Department of Civil and Environmental Engineering. *Bio-energy from Waste: Assessing Methane Generation During Co-digestion.* (April 2009)

**Presentations given at conferences (bold indicates the presenting author).**

1. Zhou, N.A., A.C. Lutovsky, **H.L. Gough**. "Modeling bioaugmentation potential for enhanced bisphenol A removal during wastewater treatment" *Water Environment Federation Technical Exhibition and Conference*. New Orleans, Louisiana USA. (October 20014)
2. **Zhou, N.A.**, H. Kjeldal, H.L. Gough, J.L. Nielsen. "Proteomic analysis of *Sphingobium* sp. strain BiD32 protein expression during bisphenol A degradation" *American Society of Microbiology General Meeting*. Boston, Massachusetts (May 2014)
3. **Chien, I.C.**, J. S. Meschke, D.A C. Beck, H.L. Gough and J.F. Ferguson. "Study of the interaction between viruses and hosts in *Methanosaeta* dominated reactors by CRISPR" *Microbial Ecology and Water Engineering (MEWE)* (July 2013).
4. **Zhou, N.A.**, A.C. Lutovsky, G.L.Andaker, H.L. Gough, and J.F. Ferguson. "Potential for bioaugmentation of activated sludge with bacterial isolates capable of degrading pharmaceutical and personal care products". Platform presentation. *Micropol & Ecohazard*. Zurich, Switzerland (June 2013).
5. **Barkley, J.** , H.L Gough, and S.K Davidson. "Vermi-remediation of Crude Oil Contaminated Sandy Loam Soil" *2nd Annual Bioremediation and Sustainable Environmental Technologies Symposium (a Battelle Conference)*. Jacksonville, Florida, USA (June 2013).
6. **Gough, H.L** and M. Abu-Dalo. "Study abroad as a learning tool for engineering students: Case Study for the program 'Water in an Arid Land'." Platform presentation. *World Environmental and Water Resources Congress; Environmental and Water Resources Institute (EWRI), American Society of Civil Engineering (ASCE)*. Cincinnati, Ohio, USA (May 2013)
7. **Zhou, N.A.**, A.C. Lutovsky, G.L.Andaker, H.L. Gough, and J.F. Ferguson "Isolation of Sphingomonads that Degrade Triclosan, Bisphenol-A, Ibuprofen, 17 $\beta$ -Estradiol and Gemfibrozil with Potential Implications for Wastewater Bioaugmentation" *American Society for Microbiology General Meeting*. San Francisco, California, USA (June 2012)
8. **Chien, I.C.**, H.L. Gough, J.S. Meschke, J.F. Ferguson. "Presence of Stable Virus-like Particle Populations in Acetate-fed Methanogenic Enrichment Reactors." *American Society for Microbiology General Meeting*. San Francisco, California, USA (June 2012)
9. **Pease, S.**, I.C. Chien, H.L. Gough, J.S. Meschke, J.F. Ferguson. "An Analysis of Viral Metagenomes in Acetate-fed Anaerobic Reactors" *American Society for Microbiology General Meeting*. San Francisco, California, USA (June 2012)
10. **Gough, H.L.**, A. Tenney, W. McNeal Jr., G.L. Andaker, J.F. Ferguson. "Triclosan degradation by a *Sphingomonas* sp. isolated from activated sludge." *International Society for Microbial Ecology (ISME) Conference*. Seattle, Washington, USA, (August 2010).
11. **Gough, H.L.**, D. Nelsen, C. Muller and J.F. Ferguson. "Methane potential during co-digestion of food industry wastes." *Association of Environmental Engineering and Science Professors*. University of Iowa, Cedar Rapids, Iowa, USA, (July 2009)
12. **D. Nelsen**, J.F. Ferguson and Gough, H.L. "Microbial community dynamics during co-digestion of food industry wastes." *Association of Environmental Engineering and Science Professors*. University of Iowa, Cedar Rapids, Iowa, USA, (July 2009)
13. **Gall, D.L.**, H.L Gough, H.D. Stensel, and J.F. Ferguson. "Mesophilic anaerobic co-digestion of biodiesel production by-products and municipal wastewater sludges." *Water Environment Federation*

- Technical Exhibition and Conference*. Chicago, Illinois USA. (October 2008)
14. **Kang, S.,** H.L. Gough, J. Von Nostrand, Z. He, L. Wu, D.A. Stahl, T.C. Hazen and J. Zhou. "Microbial communities at the metal contaminated lake sediment." *American Society of Microbiology General Meeting*. Boston, Massachusetts USA. (May 2008)
  15. **Xin, G.,** H.L. Gough, and H.D. Stensel. "Effect of anoxic selector configuration on SVI control and bacterial population fingerprinting." Platform presentation. *Water Environment Federation Technical Exhibition and Conference*. San Diego, California, USA. (October 2007)
  16. Nixon, T.P., J.F. Ferguson and **H.L. Gough**. "An activated-sludge enrichment growing on  $\mu\text{M}$  concentrations of triclosan as sole carbon source." *American Society of Microbiology*. Toronto, Ontario, Canada. (May 2007)
  17. **Salo-Zieman, V.,** H.L. Gough, J.S. Meschke, and J.F. Ferguson. "Abundance and Morphological Diversity of Virus-Like Particles in Anaerobic Wastewater Digesters and Acetate-Fed Enrichments." *American Society of Microbiology*. Toronto, Ontario, Canada. (May 2007)
  18. **Massingale, J.,** B. Jonsson, H.L. Gough, R.P. Herwig, and J.F. Ferguson. "The intrinsic capacity for biostimulation of chlorinated ethenes in marine sediments and the role of *Dehalococcoides*." *Remediation of Chlorinated and Recalcitrant Compounds: The Fifth International Conference*, Monterey, California, USA. (May 2006)
  19. **Gough, H.L.,** A.L. Dahl, E. Tribou, P.A. Nobel, J.F. Gaillard and D.A. Stahl. "Unusually high sulfate reduction rates in metal contaminated freshwater sediment." *American Society of Microbiology*, Washington, D.C., USA. (May 2003)
  20. **Gough, H.L.,** A.L. Dahl, M.A. Nolan, J.F. Gaillard and D.A. Stahl. "Impact of long-term heavy-metal stress on microbial biomass in anaerobic freshwater lake sediment. Platform presentation." *International Symposium on Environmental Biogeochemistry XV*; Wroclaw, Poland. (September 2001)
  21. **Gough, H.L.** and D. A. Stahl. "Bacterial masking while direct counting in sediments: the importance of dilution factors." *American Society of Microbiology*, Orlando, Florida, USA. (May 2001)
  22. **Gough, H.L.,** S. Webb, F. Brockman, J.F. Gaillard and D.A. Stahl. "The use of T-RFLP to infer microbial diversity in zinc-amended, anaerobic microcosms." Platform presentation. *Midwest Microbial Molecular Ecology (MMME)*, DeKalb, Illinois. (July 2000)
  23. **Gough, H.L.,** S. Webb, F. Brockman, J.F. Gaillard and D.A. Stahl. "Changes in Bacterial community structure in anaerobic microcosms following incremental zinc additions." *American Society of Microbiology*, Los Angeles, California, USA. (May 2000)
  24. **Gough, H.L.,** S. Webb, J.F. Gaillard and D.A. Stahl. "Variation of microbial biomass with metal concentration in anaerobic sediment from a contaminated, backwater lake." *International Symposium on Environmental Biogeochemistry XIV*, Huntsville, Ontario, Canada. (September 1999)

## Other

**Reviewer for:** *Water Research, FEMS Microbiology Ecology, PLoSOne, Environmental Engineering Science, Journal of Microbiological Methods, and Pedosphere*

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## FUNDING HISTORY

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### Funded Grants

Funding Agency	Title	Amount	Dates
King County	King County Graduate Student Fellowship Program; <i>PI Stensel</i>	\$430,000	Sep 2013 – Sep 2016
UW Provost Office	Provost Grant for UW-faculty led study abroad; <i>PI Gough</i>	\$5,000	Aug-Sept 2013
RRF	Assessing methanogenic diversity: isolation of psychrotolerant freshwater methanogens; <i>PI Gough</i>	\$38,205	Feb 2013 – Jun 2014
NSF	Advanced Studies Institute: Water in an Arid Land, the Engineered Water Cycle in Jordan; <i>PI Gough</i>	\$10,798	Jun 2012 – May 2013
NSF	Effect of activated sludge bioselector designs on estrogen-degradation kinetics; <i>PI: Stensel</i>	\$335,342	Sep 2011- Sep 2013
Chevron corporation	Vermi-remediation of soils contaminated by crude oil; <i>PI: Davidson</i>	\$750,000	Jan 2011 – Jun 2014
NSF	Viruses of acetoclastic methanogens in anaerobic digesters; <i>PI: Meschke</i>	\$371,370	Oct 2009 – Sep 2011
NSF	Heterotrophic degradation of and bioaugmentation for emerging trace contaminants in wastewater; <i>PI: Ferguson</i>	\$350,000	Oct 2008 – Sep 2011
Murdock Foundation	Advanced laboratory equipment for trace-contaminant monitoring; <i>PI: Benjamin</i>	\$780,000	2006-2007

### Pending and Planned Proposals

Funding Agency	Title	Amount	Dates
NSF-CBET	Bioaugmentation for enhanced biological trace-level contaminant removal (EBTCR) during wastewater treatment and the role of bacterial protection ( <i>PI Gough</i> )	\$350,000	Submitted Feb 2014
NSF -GEO	Psychrotolerant and acidophilic acetoclastic methanogens in temperate wetlands ( <i>PI Gough</i> )	\$300,000	planned submission Jul 2014

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## STUDENTS AND TEACHING

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### PhD students:

- Nicolette (Corbin) Zhou. –PhD student (anticipated Spring 2015, University of Washington, Department of Civil and Environmental Engineering). Bioaugmentation for the treatment of trace-level organic contaminants in wastewater treatment. **Valle Scholar 2012-13**, American Society of Microbiology Student Travel Grant 2014
- I-Chieh Chien – PhD 2013 (University of Washington, Department of Civil and Environmental Engineering, co-advised with J.S. Meschke). Archaeophage in Anaerobic Digestion.

### Graduate students co-advised prior to appointment to the Graduate School in Fall 2011:

- April Tenney. Adjunct Master's Thesis committee member (Summer 2011, University of Washington, Department of Civil and Environmental Engineering). Characterization of microbes degrading bis-phenol A.

2. Greta Andaker. Adjunct Master's Thesis committee member (Fall 2010), University of Washington, Department of Civil and Environmental Engineering. Characterization of microbes degrading triclosan and ibuprofen.
3. Diane Nelson. Master's Thesis committee member (Spring 2009, University of Washington, College of Forestry). Impacts of co-digester food wastes on the microbial diversity of anaerobic digester communities.
4. Sanaz Farajollahi, visiting Ph.D. student (Spring 2007 to Fall 2007, University of Washington). Advised Dr. Farajollahi during her dissertation studies regarding preparation and monitoring of anaerobic and aerobic enrichment cultures for the degradation of cellulose and nitrocellulose plastic films, including application of TRFLP to monitor enrichment of cultures and sequence analysis for identification.

### **Thesis Committee Member**

1. Scott Pease (MS 2012, Environmental Health)
2. Ryan Ziels (MS 2013, CEE)
3. Mariko Lust (PhD 2014, CEE)
4. Bryce Fidore (PhD student in progress).

**Undergraduate researchers supervised:** 1. *Nate Cross*, Civil and Environmental Engineering Major (Fall 2005), 2. *Tuyet-Hanh Nguyen Hoang*, Biochemistry major (Summer 2005 to Spring 2007); 3. *Tate Pak Nixon*, Civil and Environmental Engineering Major (Spring 2006 to Fall 2007, **Mary Gates Fellowship** recipient for undergraduate research, **Hawkins Award** recipient for leadership); 4. *Fan Lee*, Bioengineering major (Summer 2006 to Fall 2007); 5. *Vu-Hoang Tsung Nguyen*, Civil and Environmental Engineering major (Fall 2006 to Winter 2007); 6. *Wes Tang*, Microbiology major (Winter 2007 to Spring 2009); 7. *Kristopher McArthur*, Civil and Environmental Engineering major (Winter and Spring 2007); 8. *Sarah Koser*, Chemical Engineering major (Summer 2007 to Spring 2009 recipient of the University of Washington **Dean of Engineering Undergraduate Research Award**); 9. *Candice Siu-Han Au-Yeung*, Civil and Environmental Engineering major (Fall 2007 to Winter 2008); 10. *Nan Pei*, international exchange student (Fall 2007 to Spring 2008), 11. *Wayne McNeal*, Civil and Environmental Engineering major (Summer 2008 to present, UW **IMSD Program** participant, **NASA Space Grant Scholar**, **McNair Scholar**, **REU Fellow**), 12. *Jiaru Wu*, Civil and Environmental Engineering major (Fall 2008 and Winter 2009), 13. *Alana Koser*, bioengineering major (Winter 2009 to Winter 2010), 14. *Cheng Zhang*, international exchange student (Fall 2009 to Spring 2010), 15. *Alex Lamb*, Civil and Environmental Engineering major (Spring 2011, Spring 2012), 16. *Koffi-Noel Fadonougbo*, Civil and Environmental Engineering major (Spring 2013 - present), 17. *Daisy Manivong*, **Sally Casanova Scholarship** recipient (Summer 2013), 18. *Kathryn DeBenedetto*, Civil and Environmental Engineering major, **Mary Gates Fellowship** (Fall 2013-Spring 2014), 19. *Charlton Callender*, civil and environmental engineering major (Spring 2014-present), 20. *Janessa Cordeiro*, pre-engineering major (Spring 2014-present).

### **Teaching Training Workshops**

- “Take ACTION: Practicing Critical Pedagogies”, Faculty Learning Group sponsored by Center for Instructional Development and Research. University of Washington, Spring 2014.
- “Pedagogy of Study Abroad”, Workshop sponsored by Center for Instructional Development and Research. University of Washington, Spring 2012.
- “Creating Effective Learning Groups and Teams”, Workshop sponsored by Center for Instructional Development and Research. University of Washington, Fall 2007.

“Mentoring Undergraduate Researchers”, Workshop sponsored by the Undergraduate Research Program. University of Washington, Winter 2007.

“Leading Effective Discussions”, Workshop sponsored by Center for Instructional Development and Research. University of Washington, Summer 2005.

“Redesigning Course Syllabus”, Workshop sponsored by Center for Instructional Development and Research. University of Washington, Summer 2004.

### **Classroom Teaching**

*Hazardous Waste Engineering*, University of Washington **CEE 488**, Spring 2013, Spring 2014.

3 credit hour, senior and graduate student elective, 37 students.

*Water in an Arid Land: the Engineered Water Cycle in Jordan*, University of Washington **CEE 497/597**,

Early fall 2012, 2013, 2014. 5 credit hours, study abroad elective with 8-15 students, taught in partnership with the Jordan University of Science and Technology.

*Environmental and Occupational Sampling and Analysis III*, University of Washington **ENVH 433**, Spring 2007 and 2008. 3 credit-hour senior laboratory class in microbiological techniques for assessing wastewater and drinking water – required course for Environmental Health Bachelor’s degree. class of 17 students

*Microbial Processes Fundamentals*, University of Washington **CEE 540**, Fall 2007.

3 credit-hour graduate elective in environmental engineering, class of 15 students

*Hazardous Waste Management*, Seattle University **CEEGR 475**, Spring 2006.

3 credit hour with weekly laboratory session or field trip, senior elective, 15 students

*Wastewater Treatment and Reuse*, University of Washington **CEE 482**, Fall 2004, 2005 and 2006. 3 credit hour, senior elective, 16-27 students.

### **Guest Lectures**

#### 2013-2014 academic year

*Environmental Pollution*. University of Washington **CEE 250**, Fall 2013 Lecture title, (1) “Mass balance in environmental engineering: PPCP is wastewater treatment” (2) “Water Balance in the Dead Sea”

*Water Security in the Middle East*. University of Washington **SISME 490**, Fall 2013 Lecture title: “Engineering Case Studies in the Jordan Basin: Azraq Oasis Reclamation” (*presented by at CEE 497 student, with instructor supervision*)

*Wastewater Treatment and Reuse*. University of Washington **CEE 482**, Fall 2013 Lecture title, “Wastewater Treatment in the Hashemite Kingdom of Jordan”, including *presentation by a CEE 598 student, with instructor supervision* “Wastewater Treatment in the Za’atari Refugee Camp”

*Chemical Fate and Transport*. University of Washington **CEE 498**, Fall 2013 (December 2013) Lecture title, “Introduction to Subsurface Transport in Remediation Design”

#### 2012-2013 academic year

*Environmental Pollution*. University of Washington **CEE 250**, Fall 2012 Lecture title, (1) “Mass balance in environmental engineering: PPCP is wastewater treatment” (2) “the Red-Dead Sea conveyance project.”

*Water Security in the Middle East*. University of Washington **SISME 490**, Fall 2012 Lecture title: “Engineering Case Studies in the Jordan Basin: Azraq Oasis Reclamation, DISI Aquifer Project and the Red-Dead Conveyance Project”

*On-Site Wastewater Management*. University of Washington **CEE 484**, Fall 2012 Lecture titles, (1) “Introduction to Biotreatment”, (2) “Reclaimed Water: Washington State Regulations, and Research for Decentralized Treatment in Rural Jordan.”



*Environmental Pollution/Disturbances*. Huxley College of the Environment on the Peninsulas **ESCI 302**.  
Winter 2013: “Environmental bioremediation – current research trends.”

2011-2012 academic year and earlier

*Biological Treatment Processes*. University of Washington **CEE 541**, Winter 2011: Lecture title:  
“Introduction to anaerobic processes.”

*Introduction to Hydrology*. University of Washington **CEE 345**, Fall 2009, Winter 2010: Lecture title,  
“Contamination transport in groundwater.”

*Microbial Ecology*. Northwestern University **CEE D98**, Winter 1999. Lecture title, “Methods of Biomass  
Measurement in Microbial Ecology”

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## SERVICE

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**Founding Committee Member; Women’s Water Nexus**, a task committee of the Environmental and  
Water Resources Institute, a branch of ASCE

**Lead, Established Corporate-sponsored scholarship fund for the “Global Water Engineering  
Scholarship”, University of Washington**. This scholarship is intended to increase participation in  
the course CEE 497/597 Engineering Jordan, and to encourage students who are considering  
international careers in the water engineering fields.

**Lead, Feasibility study for a B.S. Degree in Environmental Engineering, University of Washington**  
2013; gathering information and formulating tentative plans for establishing a new B.S. degree in the  
University of Washington CEE department, at the direction of the department chair and the  
Environmental Engineering Area group.

**Research Mentor, Sally Casanova Scholarship** Summer 2013. **McNair Scholars Program** 2009-2010  
academic year; **NASA Space Grant Program** Summer 2009, and **Initiatives for Maximizing  
Student Diversity (IMSD) Program**. Summer 2008 – directed and advised underrepresented  
undergraduate student during their research experiences.

**Reviewer, University of Washington RRF grant program** (2013)

**Technical Advisor, Mt. Everest Biogas Project**. <http://mteverestbiogasproject.org/>  
The Mt. Everest Biogas Group is a Seattle-based all-volunteer group tasked with bringing biogas  
digester technology to the cold climate of Mt. Everest in Nepal.

**Panelist, Center for Workforce Development Event on Postdocs, University of Washington**. October  
2006 – served on a panel describing postdoctoral experiences to graduate students.

**Mentor, SWE “Shadow a Female Engineer Day”**. 2006 – Spent the day with an undergraduate  
engineering student who is considering an academic career path.

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## PROFESSIONAL SOCIETY MEMBERSHIPS

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Women’s Water Nexus, a sub-committee of the ASCE, founding member (2013)

Environmental and Water Resources Institute (2013)

American Society of Microbiology (2000-present)

International Society for Microbial Ecology (2010-2012)

Association of Environmental Engineering and Science Professors (2005-2009)