

# Claudia K. Gunsch, Ph.D.

Department of Civil and Environmental Engineering  
Duke University, Box 90287, Durham, NC 27708-0287  
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## EDUCATION:

- Ph.D., Civil Engineering** 05/04  
*University of Texas, Austin, TX*  
Dissertation: Linking Gene Expression to Performance in a Fungal Biofilter Treating Ethylbenzene
- M.S., Environmental Engineering and Science** 05/00  
*Clemson University, Clemson, SC*  
Thesis: Aerobic Cometabolism of Chlorinated Ethylenes by a Bacterial Isolate that Uses Vinyl Chloride as Primary Substrate
- B.S., Civil Engineering** 05/98  
*Purdue University, West Lafayette, IN*

## ACADEMIC EMPLOYMENT HISTORY:

- Faculty Member, Center for Biomolecular and Tissue Engineering** 05/05 - present  
*Duke University, Durham, NC*
- Assistant Professor, Civil and Environmental Engineering** 08/04 - present  
*Duke University, Durham, NC*
- Research Assistant/Teaching Assistant** 08/00-05/04  
*University of Texas, Austin, TX*
- Graduate Technical Writing Consultant** 08/01-12/01  
*University of Texas, Austin, TX*
- Research Assistant/Teaching Assistant** 08/98-05/00  
*Clemson University, Clemson, SC*
- Research Assistant** 08/97-12/97  
*Purdue University, West Lafayette, IN*

## NON-ACADEMIC EMPLOYMENT HISTORY:

- Environmental Engineer** 05/00-06/00  
*RMT, Inc, Greenville, SC*
- Environmental Engineer** 05/98-08/98  
*RMT, Inc, Greenville, SC*

<b>Environmental Engineer</b> <i>General Motors - Allison Transmission Division, Indianapolis, IN</i>	05/97-08/97
<b>Environmental Engineer</b> <i>General Motors - Powertrain Division, Bedford, IN</i>	05/96-08/96
<b>Environmental Engineer</b> <i>General Motors - Midsize Car Division, Kansas City, KS</i>	01/96-05/96
<b>Environmental Engineer</b> <i>General Motors - Environmental and Energy Staff, Detroit, MI</i>	05/95-08/95

#### **HONORS AND AWARDS:**

Advisor to Eric Pas Award Winner (L.M. Pearson), Most Outstanding Undergraduate Independent Study Project in Civil and Env. Eng. Dept.	2008
Advisor to Senol Utku Award Runner-up (S. Wang), Best published Pre-Doctoral Peer-Reviewed Paper in Civil and Env. Eng. Dept.	2008
Fellowship to attend NSF Workshop at AEESP Conference, Virginia Tech University	2007
Fellowship to attend CAREER Workshop at AEESP Conference, Clarkson University	2005
Fellowship to attend "Nanotechnology, Biotechnology, and Green Manufacturing for Creating Sustainable Technologies" Short Course, Northwestern University	2005
Duke University Nominee for the Oak Ridge Associated Universities Faculty Enhancement Award	2005
National Science Foundation Graduate Fellowship	1999-2004
University of Texas THRUST 2000 Fellowship	2000-2004
University of Texas Bruton Fellowship	2000-2004
University of Texas Env. Eng. Departmental Fellowship	2001
Environmental Protection Agency STAR Masters Student Graduate Fellowship (Declined, Accepted the National Science Foundation Fellowship)	1999
Clemson University Environmental Eng. and Sci. Departmental Fellowship	1999
Clemson University Alumni Fellowship	1998
General Motors Scholarship	1998
Purdue Engineering Student Council Scholarship	1996 and 1997
Society of Women in Engineering Scholarship	1995

#### **PROFESSIONAL MEMBERSHIPS:**

American Society of Microbiology	1999-Current
American Chemical Society	1999-Current
Association of Environmental Eng. and Sci. Professors	1999-Current
International Society for Microbial Ecology	2007-Current

#### **PEER-REVIEWED PUBLICATIONS:**

1. S.-R. Chae, S. Wang, Z.D. Hendren, M.R. Wiesner, Y. Watanabe and **C.K. Gunsch**, "Effects of Fullerene C<sub>60</sub> Nanoparticles on the Attachment of *Escherichia coli* K12 to Microfiltration Membrane Surfaces and Respiratory Activity in Aqueous Suspension", In Press, *Journal of Membrane Science*.

2. R. Pei and **C.K. Gunsch**, “Plasmid conjugation in a mixed activated sludge microbial community”, In Press, *Environmental Engineering Science*.
3. H.M. Stapleton, S. Kelly, R. Pei, R.J. Lechter and **C.K. Gunsch**, “Metabolism of Polybrominated Diphenyl Ethers (PBDEs) by Human Hepatocytes In Vitro”, In Press, *Environmental Health Perspectives*. (doi:10.1289/ehp.11807)
4. S. Wang, R. Holzem and **C.K. Gunsch**, “Effects of Pharmaceutically Active Compounds on a Mixed Microbial Community Originating from a Municipal Wastewater Treatment Plant”, *Environmental Science and Technology*, 2008, 42(4):1091-1095.
5. **C.K. Gunsch**, K.A. Kinney, P.J. Szaniszlo and C.P. Whitman, “Relative Gene Expression Quantification in a Fungal Gas-Phase Biofilter”. *Bioengineering and Biotechnology*. 2007. 98(1):101-111.
6. **C.K. Gunsch**, K.A. Kinney, P.J. Szaniszlo and C.P. Whitman, “Quantification of Homogentisate-1,2-Dioxygenase Expression in the Fungus *Exophiala lecanii-corni*”. *Journal of Microbiological Methods*. 2006. 67(2):257-265.
7. **C.K. Gunsch**, Q. Cheng, K.A. Kinney, P.J. Szaniszlo and C.P. Whitman, “Identification of a Homogentisate-1,2-Dioxygenase Gene in the Fungus *Exophiala lecanii-corni*: Analysis and Implications”. *Applied Microbiology and Biotechnology*. 2005. 68(3):405-411.
8. M.F. Verce, **C.K. Gunsch**, A.S. Danko, D.L. Freedman, “Cometabolism of *cis*-1,2-Dichloroethene by Aerobic Cultures Grown on Vinyl Chloride as the Primary Substrate”. *Environmental Science and Technology*. 2002. 36(10):2171-2177.

#### POSTER PRESENTATIONS:

1. H.S. Kim, R. Pei, **C.K. Gunsch**, M. McGehee, J. Gellner, P. Boltz, B. Freudenberg and A.J. Schuler\*, “Nitrifier Population Structure and Function in Attached and Suspended Biomass: Investigation of Pilot Scale IFAS and Non-IFAS Systems”, Accepted for presentation at the International Water Association ASPD5 Specialized Conference Microbial Population Dynamics in Biological Wastewater Treatment, Aalborg, Denmark (24-27 May, 2009).
2. S.J. Morey\* and **C.K. Gunsch**, “Gene Silencing for Water Purification”, Entrepreneur Week, Duke University, Durham, NC (November 18, 2008).
3. H.M. Stapleton, S.M. Kelly, R. Pei, **C.K. Gunsch**, C.L. Mitchelmore. “In Vitro Metabolism of Polybrominated Diphenyl Ethers (PBDEs) by Human and Fish Liver Cells”, Environmental Sciences Core, NIEHS, Philadelphia, PA (October 20-21, 2008).
4. S.J. Morey\* and **C.K. Gunsch**, “Gene Silencing of Catechol-2,3-Dioxygenase in *Pichia pastoris* and *Pseudomonas putida*”, Abstracts from the 108<sup>th</sup> General Meeting of the American Society for Microbiology, Boston, MA (June 1-5, 2008).
5. K. Ikuma\*, R. Pei and **C.K. Gunsch**, “Characterization of Toluene Biodegradation Following a Horizontal Gene Transfer Event in *Escherichia coli* DH5 $\alpha$ ”, Abstracts from the 108<sup>th</sup> General Meeting of the American Society for Microbiology, Boston, MA (June 1-5, 2008).

6. R. Pei\* and **C.K. Gunsch**, “Horizontal Gene Transfer Occurrences in a Mixed Microbial Community”, Abstracts from the 108<sup>th</sup> General Meeting of the American Society for Microbiology, Boston, MA (June 1-5, 2008).
4. S. Wang\* and **C.K. Gunsch**, “Effects of pharmaceutically active compounds on a mixed microbial community under different organic loadings”, Abstracts from the 108<sup>th</sup> General Meeting of the American Society for Microbiology, Boston, MA (June 1-5, 2008).
5. S.J. Morey\* and **C.K. Gunsch**, “Effect of ssDNA Concentration on Catechol-2,3-Dioxygenase Activity in *Pichia pastoris* DO2-1”, Institute of Biological Engineering 2008 Annual Conference, Chapel Hill, NC (March 6-9, 2008).
6. S. Wang\* and **C.K. Gunsch**, “Antisense DNA: A Novel Gene Silencing Method”. Association of Environmental Engineering and Science Professors Meeting, Blacksburg, Virginia (July 28-August 1, 2007).
7. A. Chen\*, R. Pei and **C.K. Gunsch**, “Identification of an *E. coli* Conjugate That Can Degrade Toluene”, Howard Hughes Precollege Program Presentation, Duke University, Durham, NC (July 28, 2007).
8. S. Wang\* and **C.K. Gunsch**, “Impact of Antisense Target DNA Length on Gene Silencing in *Pseudomonas putida* F1”. Abstracts from the 107<sup>th</sup> General Meeting of the American Society for Microbiology, Toronto, Canada (May 21-26, 2007).
9. R. Pei, S.Wang and **C.K. Gunsch\***, “Effects of Pharmaceutically Active Compounds on Activated Sludge Microorganisms”. Abstracts from the 107<sup>th</sup> General Meeting of the American Society for Microbiology, Toronto, Canada (May 21-26, 2007).
10. L.M. Pearson\* and **C.K. Gunsch**, “Mycotoxins in Indoor Air Environments”. Pratt Up Close, Duke University, Durham, NC (April 16, 2007).
11. S. Wang\* and **C.K. Gunsch**, “Inhibitory Effect of Four Pharmaceutical Compounds on Microbial Growth”. Abstracts from the 106<sup>th</sup> General Meeting of the American Society for Microbiology, Orlando, Florida (May 21-25, 2006).
12. **C.K. Gunsch\***, K.A. Kinney, C.P. Whitman and P.J. Szaniszlo, “Nitrogen Regulated Gene Expression in the Fungus *Exophiala lecanii-corni*”. Abstracts from the 105<sup>th</sup> General Meeting of the American Society for Microbiology, Atlanta, Georgia (June 5-9, 2005).
13. **C.K. Gunsch\***, Q. Cheng, K.A. Kinney, C.P. Whitman and P.J. Szaniszlo, “Metabolic Regulation of Ethylbenzene Degradation in the Fungus *Exophiala lecanii-corni*”. Abstracts from the 104<sup>th</sup> General Meeting of the American Society for Microbiology, New Orleans, Louisiana (May 24-27, 2004).
14. **C.K. Gunsch\***, Q.Cheng, E.A. Burkes, K.A. Kinney, P.J. Szaniszlo and C.P. Whitman, “Investigation of Ethylbenzene Biodegradation Pathway in *Exophiala lecanii-corni*”. Abstracts from the 103<sup>rd</sup> General Meeting of the American Society for Microbiology, Washington, District of Columbia. (May 18-22, 2003).

15. Q.Cheng\*, S. Wang, **C.K. Gunsch**, K.A. Kinney, C.P. Whitman and P.J. Szaniszlo, "Bacterial Catechol-2,3-Dioxygenase Gene Expression in Fungi". Abstracts from the 103<sup>rd</sup> General Meeting of the American Society for Microbiology, Washington, District of Columbia. (May 18-22, 2003).
16. **C.K. Gunsch**\*, J.R. Woertz, K.A. Kinney and P.J. Szaniszlo, "Growth Phase Control of *Exophiala lecanii-corni* using Farnesol". Abstracts from the 102<sup>nd</sup> General Meeting of the American Society for Microbiology, Salt Lake City, Utah. (May 19-23, 2002).
17. **C.K. Gunsch**\*, M.F. Verce and D. L. Freedman. "Aerobic Cometabolism of dichloroethylenes and trichloroethylene by an isolate grown on vinyl chloride", Abstracts from the 6<sup>th</sup> In situ and On-Site Bioremediation Symposia. A. Leeson, P. Johnson, R.E. Hinchee, L. Semprini and V.S. Magar (Eds.), Battelle Press, Columbus, Ohio (2001).
18. D.L. Freedman\*, J. Cox, L. Baiden, K. Carvalho, **C.K. Gunsch**, J. Hunt and R. Brigmon. "Potential for Bioremediation of Groundwater Contaminated with Landfill Leachate," pp. 109-116, in: Anaerobic Degradation of Chlorinated Solvents, Magar, V. S., Fennell, D. E., Morse, J. J., Alleman, B. C. and Leeson, A. (eds.), Battelle Press, Columbus, Ohio (2001).
19. J.R. Woertz, **C.K. Gunsch**\*, R.M. Czerwinski, K.A. Kinney, P.J. Szaniszlo and C.P. Whitman. "Toluene and Ethylbenzene Biodegradation by *Exophiala lecanii-corni* in Biofilters". Abstracts from the 101<sup>st</sup> General Meeting of the American Society for Microbiology, Orlando, Florida. (May 20-24, 2001).

#### **ORAL PRESENTATIONS:**

1. S.J. Morey\* and **C.K. Gunsch**, "Gene Silencing for Water Purification", Entrepreneur Week, Duke University, Durham, NC (November 18, 2008).
2. L. Pearson\* and **C.K. Gunsch**, "Towards a Life Cycle Assessment of Algal Biodiesel as a Transportation Fuel Stock", Pratt Fellows Forum, Duke University, Durham, NC (March 27, 2008).
3. **C.K. Gunsch**\*, "Mechanisms of Genetic Adaptation Following Exposure to Anthropogenic Contaminants", University of Nebraska, Lincoln, NE (March 10, 2008).
7. K. Ikuma\*, R. Pei and **C.K. Gunsch**, "Effect of Substrate Type on Toluene Biodegradation Following a Horizontal Gene Transfer Event in *Escherichia coli* DH5 $\alpha$ ", Institute of Biological Engineering 2008 Annual Conference, Chapel Hill, NC (March 6-9, 2008).
8. **C.K. Gunsch**\*, "Bacterial Conjugation in Aquatic Environments and its Relevance to Bioremediation", Clemson University, Clemson, SC (October 19, 2007).
9. R.B. Fair\*, A. Khlystov, **C.K. Gunsch**, R.D. Evans, N. Jokerst\*, V. Srinivasan, V. Pamula, M.G. Pollack, P.B. Griffin and J. Zhou. "Chemical and Biological Pathogen Detection in a Digital Microfluidic Platform", DARPA Workshop. (October 4, 2006).
10. **C.K. Gunsch**\*, "Molecular Tools for Vapor-Phase Biofiltration", North Carolina State University, Raleigh, NC. (October 2, 2006).

11. R. Holzem\* and **C.K. Gunsch**, “The Effect of Pharmaceutically Active Compounds on Microbial Activity”, NSF REU Fellows Forum, Duke University, Durham, NC (July 27, 2006).
12. J. Sommer\* and **C.K. Gunsch**. “Developing a New Paradigm for Evaluating the Health Risks of Mold Exposure”, Visible Thinking Research Forum, Duke University, Durham, NC (April 18, 2006).
13. **C.K. Gunsch\***. “Utilizing Molecular Biotechnology to Optimize Biological Treatment Performance”, The University of Illinois, Urbana, IL. (April 7, 2006)
14. **C.K. Gunsch\***. “Molecular Biotechnology and Environmental Engineering”, Nanotechnology and Biotechnology Symposium, Duke University, Durham, NC. (March 30, 2006)
15. **C.K. Gunsch\***. “Linking Gene Expression to Performance in Biofiltration”. Environmental Protection Agency, Research Triangle Park, NC. (February 28, 2005)
16. **C.K. Gunsch\***. “Linking Gene Expression to Performance in Biofiltration”. Savannah River Site, Aiken, SC. (November 30, 2004)
17. **C.K. Gunsch\***. “Linking Gene Expression to Performance in Biofiltration”. Duke University, Durham, NC. (August 25, 2004)
18. **C.K. Gunsch\***. “Linking Gene Expression to Performance in a Fungal Vapor-Phase Biofilter”. ExxonMobil, Upstream Division, Houston, Texas. (April 5, 2004)
19. **C.K. Gunsch\***. “Linking Gene Expression to Performance in a Fungal Vapor-Phase Biofilter”. The University of Iowa, Iowa City, Iowa. (April 2, 2004)
20. **C.K. Gunsch\***. “Linking Gene Expression to Performance in a Fungal Vapor-Phase Biofilter”. The University of Missouri, Columbia, Missouri. (March 5, 2004)
21. **C.K. Gunsch\***. “Linking Gene Expression to Performance in a Fungal Vapor-Phase Biofilter”. The University of California, Los Angeles, California. (March 1, 2004)
22. **C.K. Gunsch\***. “Linking Gene Expression to Performance in a Fungal Vapor-Phase Biofilter”. Duke University, Durham, North Carolina. (February 3, 2004)
23. **C.K. Gunsch\***. “Monitoring Ethylbenzene Degradation by Quantitative Real-Time PCR”. Environmental and Water Resources Engineering Departmental Seminar, The University of Texas, Austin, Texas. (September 18, 2003)
24. **C.K. Gunsch\***. “Determining Gene Sequences by Gene Walking”. Environmental and Water Resources Engineering Departmental Seminar, The University of Texas, Austin, Texas. (September 12, 2002)
25. **C.K. Gunsch\***. “Methods for Pathway Determination”. Environmental and Water Resources Engineering Departmental Seminar, The University of Texas, Austin, Texas. (September 29, 2001)

26. **C.K. Gunsch\***, M.F. Verce and D. L. Freedman. Modeling cometabolism of *cis*-dichloroethene by an isolate that uses Vinyl Chloride as a growth substrate. Quadrangle Conference in Atlanta, Georgia. (March 2000)

**RADIO ADDRESS:**

- “Drug Compounds in Wastewater Treatment”, MicrobeWorld, January 3, 2008. Educational broadcast disseminated to 90 public and commercial radio stations in the United States and in more than 100 countries via Armed Forces Radio.
- “Possible New Approach to Purifying Water”, Our World, June 14, 2008. Weekly examination of developments in science, technology, health, medicine, space, and the environment, plus the Website of the Week broadcasted through Voice of America Internet Radio.

**MEDIA COVERAGE:**

- “Possible New Approach to Purifying Water”, June 3 and 4, 2008. News story featured on physorg.com, eurekaalert.org, sciencedaily.com, huliq.com, wateronline.com, watertechonline.com, linuxinsider.com, indiaenews.com, esciencenews.com, topnews.in, thaindian.com, bottledwaterweb.com, virtualmedicalcentre.com, keralanext.com, bio-medicine.org, inboxrobot.com, asianage.com, in.news.yahoo.com, tiede.fi, iconocast.com, voanews.com, intertwined.com, medicalnewstoday.com, labspaces.net, waterandwastewater.com, wikio.co.uk, indiaedunews.net, mangalorean.com, medstore.biz, rdmag.com, technologyreview.com, tcetoday.com, keralanext.com, pennet.com, news-medical.net, chinawater.net, crmbuyer.com, khoahoc.com.vn, kisti.re.kr, thedocisin.net, stage7.prestoday.com, mediainindonesia.com, newkerala.com, google-sina.com, arte.tv/fr.
- “Genetic tool may make water safer”, June 8, 2008. *Herald Sun*, Durham, NC.
- “Retuning Bacteria: Gene-silencing techniques for bacteria could mean more-efficient biofuel production”, June 12, 2008. *Technology Review*.
- “A la Claire Fontaine”, June 12, 2008. *Le Point*.

**PAST AND CURRENT FUNDING:**

**National Science Foundation:** CAREER: Genetic Adaptation in Soils Resulting from Microbial Exposure to Anthropogenic Contaminants, \$400,035 (02/01/2009-01/31/2014) [PI: Gunsch\*]

**National Science Foundation and Environmental Protection Agency:** Center for the Environmental Implications of Nanotechnology – Theme 3: Properties and Impacts of Nanoparticles on Microbial Communities, \$447,062 (09/01/2008-08/31/2013) [PI: Gunsch\*]

**Lord Foundation of North Carolina:** WERC Design Contest, \$11,240 (06/01/2008-05/31/2009) [PIs: Gunsch\* and Schaad]

**Howard Hughes Foundation.** Precollege Program Research Stipend. \$1,000 (06/01/2008-07/31/2008) [Funding obtained through D. Wahl, Duke University]

**North Carolina Biotechnology Center:** Integrated Fixed Film Activated Sludge Research For Biological Wastewater Treatment in North Carolina, \$80,000 (09/01/2008-08/31/2009) [PI: Gunsch\* in collaboration with Entex Inc.]

**CH2M Hill:** Integrated Fixed Film Activated Sludge Research For Biological Wastewater Treatment in North Carolina, \$15,000 (09/01/2007-08/31/2008) [PIs: Gunsch\* and Schuler]

**Hazen and Sawyer:** Integrated Fixed Film Activated Sludge Research For Biological Wastewater Treatment in North Carolina, \$15,000 (09/01/2007-08/31/2008) [PIs: Gunsch\* and Schuler]

**National Institute for Environmental Health and Safety, Center for Comparative Biology of Vulnerable Populations:** Human Gene Expression Analysis Following a Mycotoxin Exposure Event, \$15,000 (09/01/2007-08/31/2008) [PIs: Gunsch\*, Khlystov and Schell]

**Lord Foundation of North Carolina:** WERC Design Contest, \$10,000 (06/01/2007-05/31/2008) [PIs: Gunsch\* and Schaad]

**Howard Hughes Foundation.** Precollege Program Research Stipend. \$1,000 (05/01/2007-07/31/2007) [Funding obtained through D. Wahl, Duke University]

**Lord Foundation of North Carolina and Pratt School of Engineering:** Design/Build/Operate Sensing Labs Using Sensors, Sensor Circuits, Sensor Communications, Sensor/Analyte Interfaces, \$60,000, (06/01/2007-05/31/2008) [PIs: Jokerst\*, Brooke, Gunsch, Khlystov and Fair]

**Lord Foundation of North Carolina:** Studying Exposure to Fungal Indoor Air Contaminants in North Carolina: An Interactive Research Project for Undergraduate Environmental Engineering Students, \$17,500 (06/01/2006-05/31/2007) [PIs: Gunsch\* and Khlystov]

**National Science Foundation.** REU Program Research Stipend. \$1,000 (05/01/2006-07/31/2006) [Funding obtained through Martha Absher, Duke University]

**National Institute for Environmental Health and Safety, Center for Comparative Biology of Vulnerable Populations:** Investigating Deiodinased Catalyzed Biotransformation of Brominated Flame Retardants in Fish and Human Cell Lines: Implications for Neurotoxicity in Children, \$44,575 (04/01/2006-03/31/2007) [PIs: Stapleton\* and Gunsch]

#### **TEACHING ACTIVITIES:**

**Sustainable Site Design (ENV99FCS),** Guest Lecturer, Duke University, Fall 2008.

**Biological Processes in Environmental Engineering (CE124L),** Lead Instructor, Duke University, Fall 2007.

**Introduction to Environmental Engineering (CE24L),** Lead Instructor, Duke University, Fall 2006; Guest Lecturer, Fall 2008.

**Environmental Microbiology (CE250),** Lead Instructor, Duke University, Fall 2005, 2007 and 2008.

**Environmental Molecular Biotechnology (CE239L/BME240L),** Lead Instructor, Duke University, Spring 2005, 2006 and 2008.

**Introduction to Engineering (EGR10),** Guest Lecturer, Duke University, Fall 2004, 2005 and 2006.

**Chemistry and Microbiology for Environmental Engineers (CE120L),** Guest Lecturer, Duke University, Fall 2004 and 2005.

**Environmental Engineering (CE124L),** Guest Lecturer, Duke University, Fall 2004 and Fall 2006.

**Engineering Microbiology (CE390J)**, Teaching Assistant, The University of Texas, Fall 2003.

**Introduction to Environmental Engineering and Science (EE&S401)**, Teaching Assistant, Clemson University, Spring 1999.

**Introduction to Environmental Science (ENSP200)**, Teaching Assistant, Clemson University, Fall 1998.

**PROFESSIONAL COMMUNITY SERVICE:**

Invited Participant in the Research Triangle Environmental Health Collaborative (Nov. 10-11, 2008) – Environmental Health Summit to explore the research needs and possible health consequences of contaminants in our water supply from the use of pharmaceutical products.

AEESP Education Committee, Member (Fall 2006-Current)

**UNIVERSITY SERVICE:**

Responsible Research Conduct Training for Graduate Students (Fall 2006)

Civil and Environmental Engineering Departmental Review Committee (Fall 2005-Current)

Faculty Representative for Duke Seniors Open Day (September 2005)

Auditor for Undergraduate Team Submission to the Water Environment Research Council Competition (Spring 2005, 2007 and 2008)

Pratt School of Engineering Infrastructure Planning Committee (Spring 2005)

Judge for Graduating Senior Civil and Environmental Engineering Eric Pas Outstanding Student Award Presentations (April 2005 and 2006)

Civil and Environmental Engineering Undergraduate Curriculum Revision Committee (May 2005-Current)

Civil and Environmental Engineering Graduate Student Core Class Requirement Committee (January 2005-Current)

**OTHER SERVICE:**

Volunteer for Duke-Durham School Days, Outreach Program for Local Gifted Students in 8<sup>th</sup> Grade (October 23, 2008)

Volunteer for *FEMMES*, Outreach Program for Local Female Students in 4-6<sup>th</sup> Grades (March 1, 2008)

Speaker for *Techtronics*, Science Camp for Middle School Female Students (Summer 2007)

Volunteer for *Women in Math Mentoring*, Outreach Program for Middle School Female Students in Durham and Wake Counties (Fall 2004-Spring 2006)

**RECENT COLLABORATORS:**

Doris Betancourt (United States Environmental Protection Agency), Joshua Boltz (CH2M Hill), Timothy Dean (United States Environmental Protection Agency), Wayne Flournoy (Entex Inc.), Bob Freudenberg (Entex Inc.), James Gellner (Hazen and Sawyer), Mike McGehee (Hazen and Sawyer), Sarah Hubbard (Entex Inc.), Helen Hsu-Kim (Duke University, Department of Civil and Environmental Engineering), Andrey Khlystov (Duke University, Department of Civil and Environmental Engineering), Joel Meyer (Duke University, Nicholas School of the Environment), Wiley Schell (Duke University, School of Medicine), Andrew Schuler (University of New Mexico, Department of Civil Engineering), Heather Stapleton (Duke University, Nicholas School of the Environment), Wayne Thomann (Duke University, School of Medicine), Marsha Ward (United States Environmental Protection Agency), Mark Wiesner (Duke University, Department of Civil and Environmental Engineering)

**PROPOSAL REVIEWER:**

National Science Foundation (*ad hoc* Reviewer for BIO division: Spring 2005 and 2006, Panel Reviewer for CBET division: Spring and Summer 2007)

United States Civilian Research and Development Foundation (Spring 2007)

**JOURNAL REVIEWER:**

ASCE Journal of Environmental Engineering, Biomarker Insights, Biotechnology and Bioengineering, Chemosphere, Environmental Health Perspectives, Environmental Progress, Environmental Science and Technology, Journal of Environmental Informatics, Mycological Research, Journal of Membrane Science

**BOOK REVIEWER:**

John Wiley & Sons

**POSTDOCTORAL ASSOCIATE SUPERVISION:**

1. Hyun-su Kim, Postdoctoral Associate co-advised with Schuler (Ph.D., *Princeton University*) (Sept 2007 – Current), Project: “Integrated Fixed Film Activated Sludge Research For Biological Wastewater Treatment in North Carolina”
2. Ruoting Pei, Postdoctoral Associate (Ph.D., *Colorado State University*) (Sept. 2006-Current), Projects: “Investigating the Prevalence of Sterigmatocystin and Tricothecene Mycotoxins in Indoor Environments in North Carolina using ELISAs” and “Bacterial Genetic Mutations Resulting from Exposure to Toluene in Aquatic Environments”

**GRADUATE STUDENT SUPERVISION:**

1. Jennifer Shore, M.S. Student co-advised with Marc Deshusses [B.S. University of the Pacific] (Aug. 2008-Current)
2. Christina Arnaout, M.S. Student [B.S. University of Texas] (Aug. 2008-Current)
3. Kaoru Ikuma, Ph.D. Student [B.S. and M.S. *Virginia Tech*] (Aug. 2007-Current)
4. Sara Morey, M.S. Student [B.S., *Cornell University*] (July 2007-Current)
5. Shuyi Wang, Ph.D. Candidate [B.S. and M.S., *Tsinghua University, China*], Ph.D. Dissertation Topic: “Pharmaceutically Active Compounds in Aquatic Environments”, (August 2005-Current)

**UNDERGRADUATE STUDENT SUPERVISION:**

1. Trisha Lowe, Environmental Eng. Undergraduate Student (August 2008-Current), Project: “Development of Bioreactors for Enhanced Biodiesel Production from Algae”.
2. Lee Pearson, Undergraduate Pratt Fellow, Environmental Engineering Student, (January 2007-Spring 2008), Projects: “Life Cycle Analysis of Algal Biodiesel Production” and “Investigating the Prevalence of Sterigmatocystin and Tricothecene Mycotoxins in Indoor Environments in North Carolina using ELISAs”
3. Aaron Lee, Environmental Eng. Undergraduate Student and Pratt Fellow (May 2006-Current), Projects: “Development of Bioreactors for Enhanced Biodiesel Production from Algae”, “Effect of Pharmaceutically Active Compounds on Microbial Growth” and “Bacterial Genetic Mutations Resulting from Exposure to Toluene in Aquatic Environments”.
4. Nicholas Millar, Undergraduate Environmental Engineering Student, (September 2006-May 2007), Project: “Investigating the Prevalence of Sterigmatocystin and Tricothecene Mycotoxins in Indoor Environments in North Carolina using ELISAs”
5. Hannah Freedman, Undergraduate Student, (September 2006-February 2007), Project: “Bacterial Genetic Mutations Resulting from Exposure to Toluene in Aquatic Environments”.
6. Ryan Holzem, REU Environmental Engineering Student, University of Wisconsin at Platteville (May-July 2006), Project: “Effect of Pharmaceutically Active Compounds on Microbial Growth”.

7. Pallavi Kansal, Biomedical Eng. Undergraduate Student (August 2005-May 2006), Project: "Bacterial Genetic Mutations Resulting from Exposure to Toluene in Aquatic Environments".
8. Joshua Sommer, Environmental Eng. Undergraduate Student (August 2005-Current), "Investigating the Prevalence of Sterigmatocystin and Tricothecene Mycotoxins in Indoor Environments in North Carolina using ELISAs".
9. Peter Perez, Biomedical Eng. Undergraduate Student (August 2005-May 2006), "Effect of Pharmaceutically Active Compounds on Microbial Growth".
10. Todd Cobb, Environmental Eng. Undergraduate Student (August 2005-December 2005), "Effect of Pharmaceutically Active Compounds on Microbial Growth".
11. Tse-Hwa Yin, Biomedical Eng. Undergraduate Student (January 2005-July 2005), "Effect of Pharmaceutically Active Compounds on Microbial Growth".
12. Christian Agudelo, Biomedical Eng. Undergraduate Student (January 2005-May 2005), "Effect of Pharmaceutical on Microbial Growth".

#### **HIGH SCHOOL STUDENT SUPERVISION:**

1. Anna Ruth Halberstadt (Carolina Friends School, Durham, NC), Howard Hughes Scholar (June 2008-August 2008), Project: "Investigating the role of G/C content on conjugation rates in aquatic environments"
2. Annie Chen (East Chapel Hill High School, Chapel Hill, NC), Howard Hughes Scholar (June 2007-August 2007), Project: "Investigating the role of anthropogenic compounds on microbial adaptation in aquatic environments".

#### **GRADUATE STUDENT COMMITTEES:**

1. Johnnie Chamberlin, M.S. Degree, Graduation Date: May 2005 (Main Advisor: Schuler, Civil and Environmental Engineering)
2. Hoon Jang, Ph.D. Degree, Graduation Date: May 2006 (Main Advisor: Schuler, Civil and Environmental Engineering)
3. Michael Watts, Ph.D. Degree, Graduation Date: May 2008 (Main Advisor: Linden, Civil and Environmental Engineering, University of Colorado)
4. Dave Sebba, Ph.D. Degree, Graduation Date: August 2008 (Main Advisor: Lazarides, Mechanical Engineering and Material Sciences)
5. Changlong Wu, Ph.D. Degree, Graduation Date: August 2008 (Main Advisor: Linden, Civil and Environmental Engineering, University of Colorado)
6. Ernest Hotze, Ph.D. Candidate, Expected Graduation Date: December 2008 (Main Advisor: Wiesner, Civil and Environmental Engineering)
7. Jeffrey Bandy, Ph.D. Candidate, Expected Graduation Date: May 2009 (Main Advisor: Linden, Civil and Environmental Engineering, University of Colorado)
8. Anne Eischeid, Ph.D. Candidate, Expected Graduation Date: August 2009 (Main Advisor: Linden, Civil and Environmental Engineering, University of Colorado)
9. Si-Yi (Jenny) Wang, Ph.D. Candidate, Expected Graduation Date: May 2011 (Main Advisor: Wright, Biology)
10. Arnak Aleksanyan, Ph.D. Candidate, Expected Graduation Date: May 2011 (Main Advisor: Brooke, Electrical and Computer Engineering)
11. Elizabeth Davis, Ph.D. Student, Expected Graduation Date: May 2011 (Main Advisor: Heather Stapleton, Nicholas School of the Environment)

#### **UNDERGRADUATE STUDENT COMMITTEES:**

1. Jialing Kim Png, Graduation with Distinction Committee, Graduation Date: May 2006 (Main Advisor: Chilkoti, Biomedical Engineering)

**THESIS ADVISORS:**

M.S. Thesis Advisor: David L. Freedman, Clemson University, Dept. of Env. Eng. and Science

Ph.D. Thesis Advisor: Kerry A. Kinney, University of Texas, Dept. of Civil Engineering