

# Curriculum Vitae

## LUTGARDE RASKIN

### Address

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University of Michigan  
Department of Civil and Environmental Engineering  
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### Education

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1988-1993 Ph.D. in Environmental Engineering in Civil Engineering, University of Illinois at Urbana-Champaign (UIUC).  
1984-1986 Licentiate Economic Sciences (B.S.+M.S.), Distinction, University of Leuven  
1987-1988 (KU Leuven), Belgium.  
1982-1987 Bioscience Engineering (Environmental Biotechnology) (B.S.+ M.S.), Great Distinction, Katholieke Universiteit Leuven, Belgium.

### Positions Held

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2014-present Graduate Chair, Department of CEE, University of Michigan.  
2013-present Altarum/ERIM Russell O'Neal Professor of Engineering, University of Michigan.  
2005-present Professor, Dept. of Civil and Environmental Engineering, University of Michigan.  
2003-2005 Professor, Dept. of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign (UIUC).  
2004-2005 Professor, Institute for Genomic Biology (IGB), UIUC.  
2000-2005 Professor-Associate Professor, Beckman Institute, Institute Affiliate, UIUC.  
2002-2003 Visiting Research Professor, Laboratory for Microbial Ecology and Technology (LabMET), University of Gent, Belgium.  
1999-2003 Associate Professor, Dept. of Civil and Environmental Engineering, UIUC.  
1993-1999 Assistant Professor, Dept. of Civil and Environmental Engineering, UIUC.  
1996-1997 Fellow Center for Advanced Study, UIUC.  
1988-1993 Graduate Research Assistant, Dept. of Civil Engineering and Dept. of Veterinary Pathobiology, UIUC.

### Program Affiliations at University of Michigan

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Dow Distinguished Faculty Fellows in Sustainability Program  
Faculty Affiliate Graham Sustainability Institute  
Faculty Affiliate Energy Institute  
Faculty Affiliate Center for Molecular and Clinical Epidemiology of Infectious Diseases (MAC-EPID)  
Faculty Affiliate Center for Microbial Systems  
Integrated Training in Microbial Systems (ITiMS) Faculty Advisor

### Research Statement

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I am inspired by the complexity of the microbial world and the astonishing progress we have made in the field of microbial ecology over the past few decades. This progress continuously motivates me to rethink engineered systems so we can better harness the power of microorganisms to treat water and recover resources from waste stream. Most of the research projects my team and I work on strive to understand and improve various aspects of the engineered water cycle microbiome to improve human health using sustainable design approaches. We especially focus on (i) water and energy recovery from waste streams and energy crops, and (ii) drinking water systems including biofiltration, disinfection, distribution and premise plumbing.

## Awards and Honors

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| 2017      | Rackham Distinguished Graduate Mentor Award, UM.   |
| 2017      | Jack A. Borchardt Award, This award is in recognition and appreciation of individual contributions toward the continuing education of drinking water and clean water operators, engineers, and public officials, Michigan Section of the American Water Works Association.   |
| 2016      | ISME (International Society for Microbial Ecology)-IWA (International Water Association) BioCluster Award 2016 (Grand Prize). This prize rewards interdisciplinary research of unusual merit at the interface of microbial ecology and water/wastewater treatment.   |
| 2016      | Associate Editor <i>Environmental Science &amp; Technology</i>   |
| 2014      | Dow Distinguished Faculty Fellow in Sustainability, UM   |
| 2013      | Altarum/ERIM Russell O'Neal Professor of Engineering, UM   |
| 2013      | Monroe-Brown Foundation Research Excellence Award, College of Engineering, UM  |
| 2012      | Elected Fellow Water Environment Federation  |
| 2009      | Elected Fellow American Academy of Microbiology  |
| 2007      | Association of Environmental Engineering and Science Professors (AEESP) Frontier Award in Research for advancing the environmental engineering and science field through recognized research leadership and pioneering efforts in a new and innovative research area.  |
| 2006      | American Society of Civil Engineers Walter L. Huber Civil Engineering Research Prize for pioneering the application of molecular biology techniques in wastewater treatment to study complex microbial communities, the development of advanced microbial monitoring techniques, and microbial control strategies for wastewater treatment problems. |
| 2005      | Incomplete List of Teachers Ranked as Excellent by Their Students, UIUC.   |
| 2004      | Incomplete List of Teachers Ranked as Excellent by Their Students, UIUC.   |
| 2003      | Illinois Consortium for Food and Agricultural Research (C-FAR) Donald A. Holt Achievement Award, received as a member of the Livestock and Urban Waste Recycling Research Team.  |
| 2002-2003 | Flemish Science Foundation Fellowship (Fonds voor Wetenschappelijk Onderzoek, FWO, Vlaanderen).  |
| 2002      | Paul L. Busch Award, Water Environment Research Foundation Endowment for Innovation in Applied Water Quality Research in recognition for contributions to research in water quality and the practical application of research in the water environment.  |
| 2002      | Association of Environmental Engineering and Science Professors (AEESP) Distinguished Service Award.   |
| 2002      | Xerox Award for Faculty Research, College of Engineering, UIUC.  |
| 1998-2005 | Narbey Khachaturian Faculty Scholar, Dept. of Civil and Environmental Engineering, UIUC.   |
| 1998      | Invited Committee Member for Water Environment Research Foundation Workshop - Biotechnology/Industrial Ecology - A Look into the Future for Wastewater Treatment, Sept. 12-14.   |
| 1997      | National Science Foundation Faculty Early Career Development Program (CAREER) Award.   |
| 1997      | Xerox Award for Faculty Research, College of Engineering, UIUC.  |
| 1997      | Incomplete List of Teachers Ranked as Excellent by Their Students, UIUC.   |
| 1996-1997 | Fellow, Center for Advanced Study, UIUC.   |
| 1994      | National Science Foundation Research Initiation Award.   |
| 1987      | Graduated with Great Distinction, Katholieke University Leuven.  |
| 1987      | Laureate W.E.L. (Water, Energie, Leefmilieu) for M.S. thesis.  |

## Awards and Honors Graduate and Undergraduate Students and Postdocs

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| 2017 | Dow Sustainability Master's Fellowship, UM, Grace Rodriguez  |
| 2016 | International Institute Individual Fellowship, UM, Grace Rodriguez   |
| 2016 | Walter Weber Student Award, University of Michigan   |
| 2016 | Alfred P. Sloan Foundation, Microbiology of the Built Environment Postdoctoral Fellowship, Yun Shen.   |
| 2016 | U.S. National Science Foundation Graduate Research Fellowship, Emily Crossette   |
| 2016 | Integrated Training in Microbial Systems (ITiMS) Fellowship, UM, Caroline Van Steendam.  |
| 2015 | Scholarship to attend the course "Microbial Ecology of Anaerobic Digestion: Application to the hot topic of low-temperature AD" 14th World Congress on Anaerobic Digestion  Viña del Mar, Chile, Xavier Fonoll |
| 2015 | Rackham Summer Award, UM, Xunchang Fei   |

- 2015 CTAHR MS Student Oral Presentation Award of Merit, University of Hawaii at Manoa, Shilva Shrestha
- 2015 U.S. National Science Foundation Graduate Research Fellowship, Nicole Rockey
- 2015 Admission to the Microbial Diversity Course at Marine Biological Laboratory (Woods Hole), Caroline Van Steendam
- 2015 American Society for Microbiology Travel Grant, Nadine Kotlarz.
- 2015 Dow Sustainability Postdoctoral Fellow, Sarah Haig.
- 2015 Integrated Training in Microbial Systems (ITiMS) Fellowship, UM, Nadine Kotlarz.
- 2015 Dow Sustainability Master's Fellowship, UM, Sean Murphy
- 2014 U.S. EPA STAR Fellowship, Nadine Kotlarz.
- 2014 Alfred P. Sloan Foundation, Microbiology of the Built Environment Postdoctoral Fellowship, Sarah Haig.
- 2014 International Institute Individual Fellowship, UM, Raghav Reddy
- 2014 Dow Sustainability Fellowship, UM, Elizabeth Grobbel
- 2013-15 Environmental Research and Education Foundation (EREF) Scholarships (3), Xunchang Fei
- 2013 John P. Hennessey Scholarship Michigan Water Environment Association, Anton Dapcic.
- 2013 Graham Environmental Sustainability Institute Dow Fellowship, Nadine Kotlarz.
- 2013 Admission to the Microbial Diversity Course at Marine Biological Laboratory (Woods Hole), Nadine Kotlarz
- 2012 21st Annual Michigan Section American Water Works Association/Michigan Water Environment Association Joint Exposition, Lansing, MI, Feb. 2012, Fresh Idea Poster Competition Award, Nadine Kotlarz and Giridhar Upadhyaya.
- 2012-13 U.S. Student Fulbright award to work with Professor Moses Musaaazi on a biosand water filter research project in Uganda, including laboratory research and work with a local community, Andrea Trese.
- 2012 National Security Education Program (NSEP) David L. Boren Fellowship, to support a four month stay in Tanzania to study Swahili and take part in an internship with the Zanzibar Water Authority focused on improving water supply for local citizens, Andrea Trese.
- 2012 Center for the Education of Women Menakka and Essel Bailey Graduate Fellowship, Tara Clancy.
- 2012 U.S. Department of State Critical Language Scholarship for participation in the Bangla/Bengali intensive summer language institute (Bengali-Intermediate), Tara Clancy.
- 2011 1<sup>st</sup> place in Geosyntec Consultants Paper Competition, Adam Smith
- 2011 Raoul Wallenberg International Summer Travel Fellowship, Tara Clancy
- 2011 U.S. National Science Foundation Graduate Research Fellowship, Ashley Hammerbeck
- 2011 U.S. National Science Foundation Graduate Research Fellowship, Tara Clancy
- 2011 U.S. EPA STAR Fellowship, Tara Clancy (declined due to NSF fellowship award)
- 2011 U.S. Department of State Critical Language Scholarship for participation in the Bangla/Bengali intensive summer language institute (Bengali-Beginner), Tara Clancy.
- 2011 Twentieth Annual Michigan Section American Water Works Association/Michigan Water Environment Association Joint Exposition, Lansing, MI, Feb. 2-3. Fresh Idea Poster Competition Award, Tzu-Hsin Chiao and Ameet Pinto.
- 2011 Michigan Section AWWA Fellowship for Water Quality and Treatment Study, Tara Clancy.
- 2011 Graham Environmental Sustainability Institute Fellowship, Tara Clancy.
- 2010 ISME travel awards for young scientists, Dongjuan Dai
- 2010 University of Michigan Rackham one-term dissertation fellowship, Donguan Dai
- 2010 Association of Environmental Engineering and Science Professors, Ph.D. Dissertation Award, David Berry.
- 2010 American Water Works Association's Annual Conference and Exhibition Young Professionals Poster Competition (second place), Chicago, IL, June 20-24, 2010, Tara Clancy, Giridhar Upadhyaya, Pranab Ghosh, and Jeff Jackson
- 2010 Antenore "Butch" Davanzo Scholarship Michigan Water Environment Association, Mark Poll.
- 2010 John P. Hennessey Scholarship Michigan Water Environment Association, Adam Smith.
- 2010 Nineteenth Annual Michigan Section American Water Works Association/Michigan Water Environment Association Joint Exposition, Lansing, MI, Feb. 2-3. Fresh Idea Poster Competition Award, Tara Clancy, Giridhar Upadhyaya, and Jeff Jackson.
- 2009 AEESP Grand Challenge Student Paper Award, David Berry (with co-authors M. Horn, M. Wagner, C. Xi, and L. Raskin (2010), Infectivity and intracellular survival of *Mycobacterium*

- avium* in environmental *Acanthamoeba* strains and dynamics of inactivation with monochloramine, *Applied and Environmental Microbiology*, **76** (19): 6685-6688.).
- 2009 Admission to the Microbial Diversity Course at Marine Biological Laboratory (Woods Hole),  
Monisha Brown
- 2009 Michigan Section AWWA Fellowship for Water Quality and Treatment Study, Giridhar  
Upadhyaya.
- 2008 Graham Environmental Sustainability Institute Fellowship, Giridhar Upadhyaya.
- 2008 U.S. EPA STAR Fellowship, David Berry.
- 2008 Antenore "Butch" Davanzo Scholarship Michigan Water Environment Association, Giridhar  
Upadhyaya.
- 2008 Admission to the Microbial Diversity Course at Marine Biological Laboratory (Woods Hole),  
Dongjuan Dai
- 2008 University of Michigan Rackham graduate student research grant, Dongjuan Dai
- 2007 11<sup>th</sup> World Congress on Anaerobic Digestion, Brisbane, Australia, Sept. 23-27, 2007. Best  
Presentation Award (Sudini Padmasiri, with co-authors P. Tontcheva, M. Fitch, M.N. Pons, B.  
Norddahl, E. Morgenroth, and L. Raskin).
- 2007 GEM Ph.D. Engineering Fellowship, Advisor for Tara Jackson
- 2007 Graham Environmental Sustainability Institute Fellowship, David Berry
- 2007 Sixteenth Annual Michigan Section American Water Works Association/Michigan Water  
Environment Association Joint Exposition, Lansing, MI, Feb. 6-7. Fresh Idea Poster  
Competition Award, Xu Li and Giridhar Upadhyaya.
- 2007 Michigan Section AWWA Fellowship for Water Quality and Treatment Study, Xu Li.
- 2007 Admission to the Microbial Diversity Course at Marine Biological Laboratory (Woods Hole),  
David Berry
- 2006 University of Michigan Rackham international student fellowship, Dongjuan Dai
- 2006 Great Lakes International Imaging and Flow Cytometry Association Annual Conference, Best  
Poster Award, Diane Holder (co-author with D. Berry, D. Dai, L. Raskin, and C. Xi).
- 2006 Association of Environmental Engineering and Science Professors, Ph.D. Dissertation Award,  
Dominic Frigon.
- 2006 Universities Council on Water Resources (UCOWR), Ph.D. Dissertation Award, Dominic  
Frigon.
- 2006 Michigan Section AWWA Fellowship for Water Quality and Treatment Study, David Berry.
- 2005 First International Workshop on the Anaerobic Digestion Model No. 1, Sept. 4-6, Lyngby,  
Denmark. First Prize for Poster Presentation, Toshio Shimada.
- 2005 American Water Works Association Illinois Section. First Prize for Poster Presentation in  
Young Professional Section, Xu Li and Young Chul Choi.
- 1999 Montgomery Watson and Association of Environmental Engineering and Science Professors  
M.S. Thesis Award, First Place, Daniel Oerther.
- 1999 Water Environment Federation, First Place in Student Paper Competition, Ph.D. Category,  
Francis de los Reyes.
- 1998 Illinois Water Environment Association, Best Student Paper Award, Francis de los Reyes.
- 1997 Montgomery Watson and Association of Environmental Engineering Professors, M.S. Thesis  
Award, Second Place, Matthew Griffin.

### **Membership in Professional Organizations**

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American Chemical Society  
 American Society for Microbiology  
 American Water Works Association  
 Association of Environmental Engineering and Science Professors  
 International Water Association  
 Water Environment Federation

### **Invited Seminars and Lectures**

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1. The need for Biofilm-Enhanced Anaerobic Membrane Bioreactors, January 18, 2017, Peking University, Beijing, China
2. The Drinking Water Microbiome, ACS Publications Microbiome Webinar Series, Part I, The Microbiome and the Environment, July 26, 2016

3. Leveraging the Benefits of Microbes in Drinking Water Systems, Departmental Seminar, Department of Civil and Environmental Engineering, University of Pittsburgh, October 14, 2015.
4. Leveraging the Benefits of Microbes in Drinking Water Systems, 2015 Clifford W. Randall Distinguished Lecture, The Charles E. Via, Jr. Department of Civil and Environmental Engineering, Virginia Tech, September 18, 2015.
5. Dow Distinguished Faculty and Postdoctoral Researchers Dinner Lecture, Improving the sustainability of the urban water cycle through environmental biotechnology research, University of Michigan, March 24, 2015.
6. Energy Recovery from Domestic Wastewater Using Anaerobic Membrane Bioreactor Treatment, College of Agriculture, Forestry and Natural Resource Management, University of Hawaii at Hilo, Hilo, HI, April 7, 2015.
7. Graduate Studies at the University of Michigan, University of Hawaii at Manoa, Manoa, HI, April 6, 2015.
8. Energy Recovery from Domestic Wastewater using Anaerobic Membrane Bioreactor Treatment, Department of Civil and Environmental Engineering, Northwestern University, November 7, 2014
9. Energy Recovery from Domestic Wastewater using Anaerobic Membrane Bioreactor Treatment, Ecology and Evolutionary Biology 466 Lecture, University of Michigan, November 6, 2014
10. Leveraging the Benefits of Microbes in Drinking Water Systems, Belgian Nuclear Research Centre, (SCK-CEN), Mol, Belgium, August 12, 2014
11. Leveraging Microbes in Drinking Water Systems to Benefit Consumers, Swiss Federal Institute for Water Research (EAWAG), Dübendorf, Switzerland, May 9, 2014
12. Energy Recovery from Domestic Wastewater using Anaerobic Membrane Bioreactor Treatment, Department of Chemical Engineering, Katholieke Universiteit Leuven, Leuven, Belgium, May 5, 2014
13. Energy Recovery from Domestic Wastewater Using Anaerobic Membrane Bioreactor Treatment, Dept. of Molecular Biosciences and Bioengineering, University of Hawaii at Manoa, Manoa, HI, April 10, 2014
14. Leveraging Microbes in Drinking Water Systems to Benefit Consumers, University of Toronto, January 6, 2014
15. Leveraging Microbes in Drinking Water Systems to Benefit Consumers, Department of Civil and Environmental Engineering, University of California, Los Angeles, Los Angeles, CA, November 7, 2013
16. Biological Drinking Water Treatment – Opportunities and Challenges, Department of Civil and Environmental Engineering, Distinguished Lecture Series, University of Houston, Houston, TX March 4, 2013
17. Biological Drinking Water Treatment – Opportunities and Challenges, Engineering Research Center for Re-inventing the Nation's Urban Water Infrastructure (ReNUWIt) Distinguished Lecture Series, Colorado School of Mines, Golden, CO, Nov. 7, 2012
18. Biological Drinking Water Treatment – Opportunities and Challenges, Warren Lecture Series, Department of Civil Engineering, University of Minnesota, Minneapolis, MN, Sept. 14, 2012
19. Bacterial Seeding in Drinking Water Treatment and Distribution Systems, Department of Microbiology and Immunology (Microbiome Group), Medical School, University of Michigan, March 7, 2012
20. Energy Recovery from Domestic Wastewater using Anaerobic Membrane Bioreactors and Molecular Biology Methods in Environmental Engineering, Doosan Hydro Technology, Inc., Tampa, FL, March 15, 2011
21. Energy Recovery from Domestic Wastewater using Anaerobic Membrane Bioreactors, Carollo Engineers, Inc., Sarasota, FL, March 16, 2011
22. Upadhyaya, G., J. Jackson, T. Clancy, J. Brown, K. F. Hayes, and L. Raskin, "Anaerobic fixed-bed bioreactor system used for simultaneous removal of nitrate and arsenic from drinking water", 9 April, 2010, University of Ghent, Belgium
23. Diversity and dynamics of microbial communities in anaerobic bioreactors and their implications for process stability, University of Notre Dame, May 8, 2008.
24. Antimicrobials and Antimicrobial Resistance in Anaerobic Bioreactors, Michigan State University, April 17, 2008.
25. Antimicrobials and Antimicrobial Resistance in Agriculture – Anaerobic Bioreactor Performance and Swine Waste, University of Vienna, Austria, Aug. 9, 2007.
26. Beating Microbial Pathogens in Drinking Water Distribution Systems Requires an Understanding of the Mechanisms of Bacterial Resistance to Disinfection, Ohio State University, May 31, 2007.

27. Survival Mechanisms of Bacterial Pathogens in Drinking Water Distribution Systems/Anaerobic Membrane Bioreactors, Malcolm Pirnie, Columbus, OH, May 30, 2007.
28. Beating Microbial Pathogens in Drinking Water Distribution Systems Requires an Understanding of the Mechanisms of Bacterial Resistance to Disinfection, Yale University, April 18, 2007.
29. Diversity and dynamics of microbial communities in anaerobic bioreactors and their implications for process stability, University of California, Riverside, Feb. 23, 2007.
30. Molecular Tools and Wastewater Treatment: Science Research Yesterday, Process Investigations Today, Routine Analysis Tomorrow? John Hopkins University, Oct. 18, 2005.
31. Understanding microbial population dynamics at fine temporal and spatial resolutions may be important for microbial community engineering, Vistas in Microbial Ecology and Environmental Biotechnology, Arizona State University, April 20, 2005.
32. Mechanism Explaining Seasonal Biological Foaming in Activated Sludge, R&D Seminar, Cecil Lue-Hing Research Center, Stickney Water Reclamation Plant, Metropolitan Water Reclamation District of Greater Chicago, Stickney, IL, Feb. 25, 2005.
33. Activated Sludge Foaming, Mycolata, and Lipases – A Journey into the Ecophysiology of a Problem to develop Operating and Design Guidelines, University of Michigan, Ann Arbor, MI, Nov. 13, 2004.
34. Microbial Ecology of Waste and Drinking Water Treatment Systems, Wageningen Agricultural University, Wageningen, The Netherlands, July 1, 2003.
35. Guest Lecturer for course “Environmental Biotechnology”, Ghent University, Belgium, Fundamentals and Applications of Biofilm Systems, Nov. 27, 2002.
36. Quantification of Microbial Population Abundance and Activity in Wastewater Treatment Systems by Oligonucleotide Probe Hybridization, Cornell University, March 1, 2001.
37. Microbial Population Dynamics in a Novel Anaerobic Wastewater Treatment System, California Institute of Technology, Nov. 4, 1998.
38. Microbial Population Dynamics in Anaerobic Wastewater Treatment Systems, University of California Los Angeles, Nov. 3, 1998.
39. Microbial Population Dynamics in Wastewater Treatment Systems, Environmental Horizons 98, UIUC, April 21, 1998.
40. Microbial Phylogeny: Linkages to Processes and Biogeochemistry, The University of Tennessee, The Center for Environmental Biotechnology, Feb. 9, 1998.
41. Importance of Microbial Diversity in Anaerobic Waste Treatment Systems. XIV Turku Microbiology Symposium on Modern Methods for Microbial Detection and Identification, The University of Turku, Turku, Finland, Oct. 24, 1997.
42. Environmental Biotechnology at the University of Illinois, Molecular Techniques in Biological Waste Treatment Systems, CNRS-UIUC workshop, Paris, France, Sept. 9-10, 1997.
43. Livestock Waste Management, Role of Microbial Ecologists and Environmental Biotechnologists, Illinois House-Senate Joint Livestock Advisory Committee, July 10, 1997.
44. Microbial Population Dynamics in Anaerobic Bioreactors, 14th Industrial Microbiology Symposium – Fundamentals of Biodiversity, University of Puerto Rico, March 21, 1997.
45. Molecular Ecology of Gut Ecosystems, Department of Animal Sciences, UIUC, April 4, 1996.
46. Molecular Studies of Microbial Population Dynamics in Biological Treatment Systems, University of Iowa, March 29, 1996.

#### **Invited Conference/Symposium Presentations**

1. Raskin, L., The need for Biofilm-Enhanced Anaerobic Membrane Bioreactors, Workshop Aerobic and Anaerobic Membrane Bioreactors, November 25, 2016, University of Leuven, Leuven, Belgium
2. Raskin, L., Managing the Drinking Water Microbiome, Plenary Session The Urban Water Cycle Microbiome, ASM Microbe 2016, June 18, 2016, Boston, MA.
3. Raskin, L., M. Kaufman, B. Kerkez, C. Xi, and T.M. Olson, Can Real-Time Monitoring and Data Science Reduce the Public Health Impacts of Aging Water Infrastructure in Our Cities? 2016 UM-SJTU Research Symposium Data Sciences for Sustaining Critical Infrastructures for the Environment and Human Health, April 21, 2016, Ann Arbor, MI
4. Raskin, L., Microbial ecology and anaerobic digestion: the need for microbial resource management, Closing lecture in workshop “Microbial ecology of anaerobic digestion: Application to the hot topic of low-temperature AD”, Punta Arenas, Chile, November 11-14, 2015.
5. Raskin, L., Anaerobic membrane bioreactor treatment of domestic wastewater at psychrophilic temperatures, Invited contribution in workshop “Anaerobic Membrane Bio-Reactors (AnMBR) for

- Resource Recovery: Biosolids Avoidance and Energy Generation from Wastewater”, WEF/IWA Residuals and Biosolids Conference 2015: The Next Generation of Science, Technology, and Management, Washington, DC: June 7 – 10, 2015.
6. Raskin, L., Anaerobic membrane bioreactor research – from idea generation to technology implementation, Frontiers of Water Treatment Symposium, University of Minnesota, May 18 2015, Minneapolis, MN.
  7. Raskin, L., Managing microbial communities in anaerobic membrane bioreactors, Engineering and Control of Natural and Synthetic Microbial Communities, Isaac Newton Institute for Mathematical Sciences, Nov. 26-28, 2014, Cambridge, UK
  8. Raskin, L., A decade of anaerobic membrane bioreactor research – from ideas to implementation, Association of Environmental Engineering and Science Professors (AEESP) Luncheon Lecturer, WEFTEC 2014, Sept. 30, 2014, New Orleans, LA
  9. Pinto, A. and Raskin, L., Bacterial community dynamics in the drinking water microbiome, 15<sup>th</sup> International Symposium on Microbial Ecology (ISME), August, 24-29, 2014, Seoul, South Korea
  10. Raskin, L., Anaerobic biological treatment processes and environmental biotechnology, Workshop, WEFTEC 2013, Oct. 5-9, 2013, Chicago, IL, Mainstream Anaerobic and Nutrient Removal Systems for Energy Neutral Wastewater Management.
  11. Clancy, T.M., T. Chiao, A. Pinto, L. Raskin, Assessing the Role of Backwashing and Disinfection on Microbial Water Quality and Community Dynamics in Biofilters, AWWA 2013 Annual Conference and Exposition (ACE) in Denver, Colorado, June 9-13, 2013.
  12. Raskin, L., Role of microbial ecology in optimizing biofiltration for drinking water treatment. Keynote Lecture, 5<sup>th</sup> International Conference, Microbial Ecology and Water Engineering 2013 (MEWE 2013), Ann Arbor, Michigan, July 7 – 10, 2013.
  13. Raskin, L., Microbial Ecology of Engineering Anaerobic Bioreactor Systems, Plenary Lecture, 13th World Congress on Anaerobic Digestion: *Recovering (bio) Resources for the World*, Santiago de Compostela, Spain, June 25-28, 2013.
  14. Smith, A.L., and L. Raskin, Microbial diversity analysis: methods and tools. *Molecular Biology Tools (specialized short course for 13th World Congress on Anaerobic Digestion)*, University of Minho, Braga, Portugal, June 23-24, 2013.
  15. Raskin, L., Practicing microbial resource management in environmental biotechnology through application of molecular biology and ecology tools, WERF Paul Busch Awardee/AEESP Technical Session, *85th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC)*, New Orleans, LA, Sept. 29-Oct. 3, 2012.
  16. Raskin, L., Ohio-Kentucky-Indiana Regional Symposium on Applications of Bio-membranes in Science and Technology, Sept. 30, 2011, Cincinnati, Ohio.
  17. Raskin, L., Diversity and dynamics of microbial communities in anaerobic bioreactors and their implications for process optimization, International Conference on Biogas Microbiology, Helmholtz-Zentrum für Umweltforschung – UFZ, The German Biomass Research Centre (DBFZ), Sept. 14-16, 2011, Leipzig, Germany
  18. Brown, J.C., G. Upadhyaya, T. M. Clancy, K. F. Hayes, and L. Raskin, Simultaneous Removal of Multiple Contaminants from Drinking Water Using Fixed-bed Anaerobic Bioreactors, International Water Association Leading Edge Technology (LET) Conference, Amsterdam, The Netherlands, June 6-10, 2011.
  19. Giridhar Upadhyaya, Tara M. Clancy, Alyssa Jenkins, Kathryn Snyder, Jess C. Brown, Kim F. Hayes, and Lutgarde Raskin., Biologically Mediated Removal of Multiple Contaminants from Drinking Water Sources, MAC-EPID Pre-Symposium, School of Public Health, University of Michigan, March 31, 2011.
  20. Smith, A.L., H.J. Dorer, N.G. Love, S.J. Skerlos, and L. Raskin, Methane Production from Domestic Wastewater using Anaerobic Membrane Bioreactors, Presented at *Biogas Summit*, Flint, Michigan, October 29, 2010.
  21. Raskin, L., Does disinfection increase the virulence of bacteria? Association of Environmental Engineering and Science Professors (AEESP) 2009 Conference - Grand Challenges in Environmental Engineering and Science: Research and Education, July 26-29, 2009, Iowa City, Iowa
  22. Raskin, L., Antimicrobials, antimicrobial resistance, and the link with disinfectants, IWA Leading Edge Conference on Water and Wastewater Treatment Technologies, June 23-25, 2009, Singapore.
  23. Upadhyaya, G., J. Jackson, K. Hayes, J. Brown, and L. Raskin, Simultaneous Removal of Nitrate and Arsenic from Drinking Water Sources using Fixed-bed Biologically Active Carbon (BAC) Filters MI

- American Water Works Association's Research & Technical Practices (RTP) May Seminar, Lansing, MI, May 19, 2009.
24. Raskin, L., Survival Mechanisms of Bacterial Pathogens in Drinking Water Distribution Systems, Workshop on Biofilms in Engineered Water Systems: Safety, Treatment and Technology Innovation, Georgia Tech Global Learning and Conference Center, Atlanta, GA, Oct. 29-30, 2008.
  25. Raskin, L., Diversity and dynamics of microbial communities in anaerobic bioreactors and their implications for process stability, Anaerobic Treatment Short Course, Anaerobic Treatment of High-Strength Industrial and Agricultural Wastes, Marquette University, Milwaukee, Wisconsin, Sept. 18-19, 2008.
  26. Raskin, L., Does the use of antimicrobials in agriculture impact water quality?, MI American Water Works Association's Research & Technical Practices (RTP) May Seminar, Lansing, MI, May 20, 2008.
  27. Raskin, L., Survival Mechanisms of Bacterial Pathogens in Drinking Water Distribution Systems, MI American Water Works Association's Research & Technical Practices (RTP) May Seminar, Lansing, MI, May 15, 2007.
  28. Raskin, L., Population Dynamics of Syntropic Bacteria and Methanogens in Anaerobic Bioreactors, 104<sup>th</sup> American Society of Microbiology General Meeting, New Orleans, LA, May 23-27, 2004.
  29. Raskin, L. and E. Morgenroth, Opportunities for Nutrient Recovery from Animal Residues, University of Illinois Pork Industry Conference – Swine Odor and Manure Management, Champaign, IL, Dec. 11-12, 2003.
  30. Crawford-Simmons, J.J., S. Padmasiri, T. Duangmanee, S. Sung, and L. Raskin, Microbial Community Analysis in Hydrogen-Producing Continuous Flow Bioreactors, Society for Industrial Microbiology Annual Meeting 2003, Minneapolis, MN, Aug. 10-12, 2003.
  31. Raskin, L., Microbial ecology of anaerobic solid waste processing, EU Summer School "Biotechnology in organic waste management: from disposal to resource recovery", Wageningen, The Netherlands, June 29-July 4, 2003.
  32. Raskin, L., D. Frigon, H. Vervaeren, and W. Verstraete, Molecular tools in wastewater studies: Science research yesterday, process investigations today, routine analysis tomorrow? IWA Leading Edge Conference Series – Global Conference on Leading Edge Water and Wastewater Treatment Technologies, Noordwijk/Amsterdam, The Netherlands, May 26-28, 2003.
  33. Morgenroth, E., Y.C. Choi, and L. Raskin, Competition between perchlorate reducing bacteria and other heterotrophs under perchlorate limiting conditions, American Society for Microbiology, 103rd General Meeting, Washington D.C., May 18-22, 2003.
  34. Raskin, L., C. Xi, and D. Zheng, Use of molecular probes to study biofilm composition, Biofilms in Industry, Medicine and Environmental Biotechnology: The Science, Galway, Ireland, Aug. 24-29, 2002.
  35. Raskin, L., K.D. Rausch, M.E. Tumbleson, B.J. Daugherty, L.T. Angenent, R.M. Agbisit, and R.L. Belyea, Nutrient Recovery from Food Processing Industry Waste Streams, Corn Utilization & Technology Conference (CUTC), Kansas City, MO, June 3-5, 2002.
  36. Agbisit, R., M.B. Daugherty, K.D. Rausch, L. Raskin, R.L. Belyea, T. Clevenger and M. E. Tumbleson, The Routing of Nutrients in the Corn Wet Milling Process and Opportunities for Recovery and Recycling from Waste Streams Using Environmental Biotechnology, Engineering and Processing Division Symposium, American Association of Cereal Chemists Annual Meeting, Charlotte, NC, Oct. 14-17, 2001.
  37. Frigon D., D.B. Oerther, and L. Raskin, Oligonucleotide Probe Hybridization and Modeling Results Suggest that Populations Consuming Readily Degradable Substrate in Plug-flow Reactors Have High Cellular RNA Levels, Fifth Kollokollo Seminar on Activated Sludge Modelling, Kollokollo, Denmark, Sept. 10-12, 2001.
  38. Raskin, L., Molecular probes to understand anaerobic digestion, Anaerobic Digestion, World Congress, Antwerp, Belgium, Sept. 2-5, 2001.
  39. Raskin, L., Microbial Community Structure in Anaerobic Waste Treatment Systems, Ninth International Symposium on Microbial Ecology, Amsterdam, The Netherlands, August, 26-31, 2001.
  40. Raskin, L., Quantification of rRNA with molecular beacons in microfluidic channels and applications in environmental microbiology, Gordon Research Conference on Applied and Environmental Microbiology, Connecticut College, July 21-26, 2001.
  41. Raskin, L., Quantification of rRNA with Molecular Beacons in Microfluidic Channels, American Society for Microbiology, 101th General Meeting, Orlando, FL, May 20-24, 2001.



42. Raskin, L., Molecular microbial ecology of wastewater treatment systems, Gordon Research Conference on Environmental Sciences: Water, Environmental Pressures and Chemical Pathways from the Molecular to Ecosystem Scale, Holderness School, Plymouth, New Hampshire, June 25-30, 2000.
43. Raskin, L., Quantification of microbial population abundance and activity in bioreactors by oligonucleotide probe hybridization, American Society for Microbiology 100th General Meeting, Los Angeles, CA, May 21-25, 2000.
44. Raskin, L., Use of Molecular Tools to Quantify Microbial Populations and Specific Growth Rates in Mathematical Models of Biological Treatment Processes, Association of Environmental Engineering and Science Professors (AEESP) Research Frontiers Conference, University Park, PA, Aug. 1-3, 1999.
45. Oerther, D.B., J.R. Danalewich, and L. Raskin, Biological Nutrient Removal from Food Processing Waste Streams, 1998 Corn Utilization & Technology Conference, St. Louis, MO, June 1-3, 1998.
46. Oerther, D.B., F.L. de los Reyes, and L. Raskin, Interfacing Phylogenetic Oligonucleotide Probe Hybridizations with Representations of Microbial Populations and Specific Growth Rates in Mathematical Models of Activated Sludge Processes, Fourth Kollokollo Seminar on Activated Sludge Modelling, Modelling and Microbiology of Activated Sludge Processes, Kollokollo, Denmark, March 16-18, 1998.
47. Raskin, L., D. Zheng, M.E. Griffin, and F. de los Reyes, Molecular Studies of Microbial Population Dynamics in Biological Treatment Systems, 9th Forum for Applied Biotechnology, Ghent, Belgium, Sept. 27-29, 1995.
48. Raskin, L., M.E. Griffin, and D. Zheng, Use of Ribosomal RNA-Based Methods to Study Microbial Population Dynamics in Anaerobic Bioreactors, 1995 Society for Industrial Microbiology Annual Meeting, San José, CA, Aug. 6-11, 1995.
49. Raskin, L., D. Zheng, M.E. Griffin, P.G. Stroot, and P. Misra, Characterization of Microbial Communities in Anaerobic Bioreactors Using Molecular Probes, International Meeting on Anaerobic Processes for Bioenergy and Environment, Copenhagen, Denmark, Jan. 25-27, 1995.
50. Raskin, L., Use of Ribosomal RNA Based Molecular Probes for Characterization of Complex Microbial Communities During a Long-Term Study of Anaerobic Biofilm Reactors, International Research Seminar on Biological Degradation of Organic Chemical Pollutants in Biofilm Systems, Copenhagen, Denmark, May 19-21, 1994.
51. Raskin, L., Structural and Functional Analysis of Anaerobic Biofilm Communities Using Oligonucleotide Probe Hybridizations, Mini-Symposium, Environmental Chemistry and Chemical Ecology, Institute for Environmental Studies, University of Illinois, Urbana, IL, Aug. 26-27, 1993.

## TEACHING EXPERIENCE AND ACTIVITIES

### University of Michigan

| <i>Number</i>        | <i>Name</i>   | <i>Co-Taught With</i> | <i>Semester</i>   |
|----------------------|---|-----------------------|---|
| CEE 200              | Introduction to Civil and Environmental Engineering                   |                       | Winter 14<br>Fall 16<br>Winter 17   |
| CEE 365<br>(CEE 360) | Environmental Process Engineering                                     |                       | Winter 09<br>Winter 10<br>Fall 10   |
| CEE 366              | Environmental Engineering Laboratory                                  |                       | Winter 14   |
| CEE 592              | Biological Processes in Environmental Engineering                     |                       | Winter 06<br>Winter 07<br>Winter 08<br>Winter 13<br>Fall 13<br>Fall 14  |
| CEE 482/<br>CEE 582  | Environmental Microbiology  |                       | Fall 06<br>Fall 07<br>Fall 08<br>Fall 09<br>Fall 10<br>Fall 12  |
| CEE 880              | Seminar in Environmental and Water Resources Engineering              |                       | Fall 05<br>Winter 06<br>Fall 06<br>Winter 07<br>Fall 07<br>Winter 08<br>Winter 10<br>Winter 11<br>Winter 13<br>Winter 14<br>Winter 15<br>Winter 16<br>Winter 17 |
| CEE 881              | Civil and Environmental Engineering Seminar for New Graduate Students |                       | Fall 09<br>Fall 10<br>Fall 12<br>Fall 13<br>Fall 14<br>Fall 15<br>Fall 16   |

### University of Illinois at Urbana-Champaign

| <i>Number</i>        | <i>Name</i>                          | <i>Co-Taught With</i> | <i>Semester</i>   |
|----------------------|--------------------------------------|-----------------------|---|
| CEE 437<br>(CEE 342) | Water Quality Control Processes      |                       | Fall 97<br>Fal 98<br>Fall 99<br>Fall 00<br>Fall 01<br>Fall 04 |
| CEE 343              | Chemical Principles of Environmental |                       | Fall 93   |

## Engineering Processes

|                      |   |  |  |
|----------------------|---|--|--|
|                      |   |  | Fall 94<br>Fall 95<br>Spring 97  |
| CEE 346              | Biological Principles of Environmental Engineering Processes<br>The majority of this course (3/4) was taught by PhD student, Daniel Oerther, while I served as a mentor to provide guidance and feedback throughout the semester. | PhD Student Daniel Oerther and Assistant Professor Rob Sanford |  |
| CEE 538<br>(CEE 442) | Processes for Water Quality Control, II<br><br>This course was taught by postdoctoral research assistant, Lars Angenent, while I served as a mentor to provide guidance and feedback throughout the semester.                     | Lars Angenent  | Spring 01<br>Spring 02<br>Spring 94<br>Spring 95<br>Spring 96<br>Spring 97<br>Spring 98<br>Spring 99 |
| CEE 495 G            | Civil and Environmental Engineering Seminar   |  | Spring 00<br>Spring 04<br>Spring 05<br>Fall 99   |
| CEE 495 AG           | Civil and Environmental Engineering Seminar   |  | Spring 00<br>Spring 95<br>Fall 01<br>Spring 02   |

### Organization of Short Courses and Workshops

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Smith, A.L., D. Batstone, and L. Raskin, 2012. Workshop on Anaerobic Treatment of Low-Strength Wastewaters. *Leading Edge Technology (LET) Conference on Water and Wastewater Technologies*, June 3-7, Brisbane, Australia.

College of Engineering Responsible Conduct of Research and Scholarship workshop on "Reporting Research Results in Peer Reviewed Journals", May 3, 2011, University of Michigan.

Workshop, Fluorescence In Situ Hybridization, February 2005, Short course (2 ½ days) attended by a group of nine graduate students and post-docs from the University of Illinois, University of Texas at Austin, and University of Notre Dame.

Workshop, Quantitative Oligonucleotide Probe Hybridization, January/February 2004, UIUC. Short course (2 weeks) attended by a group of 11 graduate students and post-docs from the University of Illinois, Iowa State University, and University of Washington.

Biological Principles and Engineering of Water Quality Control, July 26, 2002, UIUC. Short course (3 hours) attended by a group of 20 students from Seoul National University, Korea.

Introduction to Molecular Microbial Ecology, February 1999, UIUC. Short course (4 weeks) attended by a group of 10 graduate students and post-docs from the Departments of Civil and Environmental Engineering and Animal Sciences, UIUC.

### Teaching Improvement Activities

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Participated in UM CRLT Workshop Best Practices for Running a Flipped Classroom: Roundtable Discussion for Engineering Faculty, May 28, 2014  
Participated in a semester-long teaching course (Teaching College), Fall 1994.

Participated in UIUC College of Engineering Seminars for Teaching Improvement and Graduate College Symposia:

The Feminization of Graduate Education: A Life-course View by Mary Ann Mason, Feb. 21, 2005;  
 Why Women Leave Engineering and What We Can Do About It by Elaine Seymour, April 9, 2004;  
 Effective, Efficient Teaching by Phillip C. Wankat, Jan. 28, 2004;  
 Lecturing Tips, Jan. 25, 1996;  
 Utilizing Teaching Assistants Wisely, Oct. 31, 1995;  
 The Seven Principles of Good Teaching, Oct. 11, 1994;  
 Asking and Answering Questions to Stimulate Classroom Discussion, Feb. 22, 1994;  
 The Relationship of Learning Styles to Effective College Teaching and Learning in Engineering Classes, Feb. 17, 1994;  
 Using Early Student Feedback for Improvement of Teaching, Jan. 25, 1994.

### Teaching Awards

Spring semesters 2005, 2004, 1997, and Fall 2004: "Incomplete List of Teachers Ranked as Excellent by Their Students".

### Ph.D. Students Graduated

| <i>Name</i>  | <i>Work Period</i> | <i>Dissertation Title</i>   | <i>Placement</i>  |
|--|--------------------|---|---|
| Xunchang Fei (co-<br>advised with D.<br>Zekkos)                                | 01/11-01/16        | Experimental assessment of coupled physical-biochemical-mechanical-hydraulic processes of municipal solid waste undergoing biodegradation                   | Postdoctoral Fellow, King Abdullah University of Science & Technology   |
| Tara Webster<br>(formerly Clancy) (co-<br>advised with K.<br>Hayes)            | 09/09-01/15        | Biogeochemical evaluation of disposal options for arsenic-bearing wastes generated during drinking water treatment  | Postdoctoral Associate, Soil and Crop Sciences, Cornell University  |
| Adam Smith (co-<br>advised with S.<br>Skerlos)                                 | 06/09-08/14        | Treatment of domestic wastewater with anaerobic membrane bioreactors  | Assistant Professor, Astani Department of Civil and Environmental Engineering University of Southern California |
| Monisha Brown (co-<br>advised with J. Diana)                                   | 01/08 – 05/13      | Microbial Resource Management in Indoor Recirculating Shrimp Aquaculture Systems  | Engineering Associate at Sanitation Districts of Los Angeles County   |
| Giridhar Upadhyaya<br>(co-advised with K.<br>Hayes)                            | 08/06-09/10        | Biologically-mediated, Simultaneous Removal of Nitrate and Arsenic from Drinking Water Sources  | Research Engineer, Carollo Engineers, Inc., Orange County, CA   |
| Dongjuan Dai (co-<br>advised with C. Xi)                                       | 07/05-09/10        | Development of mixed-species biofilms and genetic mechanisms of species interactions in biofilms  | Research Scientist, Dept. of CEE, Virginia Tech   |
| David Berry (co-<br>advised with C. Xi)  | 06/07-08/09        | Molecular and Ecological Mechanisms of Bacterial Response to the Drinking Water Disinfectant Monochloramine   | Associate Professor, Dept. of Microbial Ecology, University of Vienna   |
| Xu Li (co-advised with<br>E. Morgenroth)                                       | 08/03-09/08        | Biological Treatment of Perchlorate and Nitrate Contaminated Drinking Water – Optimization of System Performance Using Microbial Community Characterization | Associate Professor, University of Nebraska-Lincoln, Lincoln, NE  |
| Sudini Padmasiri (co-<br>advised with E.<br>Morgenroth)                        | 08/03-09/07        | Effect of high shear on anaerobic digestion in an anaerobic membrane bioreactor (ANMBR) treating high strength wastewater                                   | Technologist, Shell Projects and Technology, Utilities and Heat Transfer Group, Shell Oil Company, Houston, TX  |
| Toshio Shimada-<br>Beltran (co-advised<br>with J. Zilles and E.<br>Morgenroth) | 08/02-05/07        | Effects of macrolide antimicroials on anaerobic treatment systems   | Research Engineer, Carollo Engineers, Dallas, TX  |
| Zhi Zhou (co-advised<br>with J. Zilles)  | 08/02-05/07        | Evaluation of macrolide-lincosamide-streptogramin B (MLS <sub>B</sub> ) antimicrobial resistance at swine farms   | Assistant Professor of Civil Engineering and Environmental and Ecological Engineering, Purdue University        |
| Young Chul Choi (co-<br>advised with E.<br>Morgenroth)                         | 08/01-12/05        | Biological perchlorate removal from drinking water  | Director of Water Technology Energy Technology Division RTI International, Research Triangle Park, NC           |

|  |             |  |  |
|--|-------------|--|--|
| Dominic Frigon                           | 01/99-12/04 | Mechanism explaining seasonal biological foaming in activated sludge wastewater treatment systems: foam-causing bacteria specialize in consuming lipids                          | Associate Professor, McGill University, Montreal, Quebec   |
| Daniel Oerther                           | 08/98-06/02 | Using molecular signature methods to measure the in situ physiology of <i>Acinetobacter</i> spp. in enhanced biological phosphorus removal activated sludge wastewater treatment | Professor, John A. and Susan Mathes Chair of Environmental Engineering, Missouri University of Science and Technology, Rolla, MO |
| Jess Brown (co-advised with V. Snoeyink) | 01/99-01/02 | Abiotic and biotic perchlorate removal in an activated carbon filter   | Vice President, R&D Practice Director, Carollo Engineers, Inc., Orange County, CA  |
| Francis de los Reyes                     | 08/94-12/99 | Filamentous foaming in activated sludge systems: A study combining molecular and engineering approaches  | Professor, Dept. of Civil, Construction, and Environmental Engineering, North Carolina State University, Raleigh, NC             |
| Dandan Zheng                             | 08/95-03/99 | Evaluation of granulation processes in upflow anaerobic sludge blanket reactors using oligonucleotide probe hybridizations   | Director, Quality Operation, Grifols, Los Angeles, CA  |

### M.S. Students Graduated (With Thesis)

| Name  | Work Period | Thesis Title  | Placement  |
|---|-------------|---|--|
| Petia Tontcheva (co-advised with E. Morgenroth)         | 08/05-08/07 | Organic and inorganic membrane fouling mechanisms in anaerobic membrane bioreactors   | Senior Chemist, Nalco Water, Naperville, Illinois  |
| Shubhra Jain  | 08/04-10/06 | Filamentous foaming in activated sludge systems   | Independent Consultant, New Delhi, India   |
| Jiangzhao "Amily" Zhang (co-advised with E. Morgenroth) | 08/02-05/05 | Effect of shear on membrane fouling in anaerobic membrane bioreactors treating swine waste                                      | Project Engineer, Gannett Fleming, Woodbury, New York  |
| Nicole Monteith (co-advised with E. Morgenroth)         | 08/02-07/04 | Effect of erythromycin on nitrification   |  |
| Ning Tong (co-advised with B. Marinas)                  | 08/01-08/03 | Adaptive response in <i>Mycobacterium avium</i> when exposed to monochloramine  | Environmental Restoration Department, Battelle, Columbus, OH   |
| Sudini Padmasiri  | 08/01-08/03 | Microbial community characterization of biological hydrogen removal systems   | Technologist, Shell Projects and Technology, Utilities and Heat Transfer Group, Shell Oil Company, Houston, TX |
| Richard Lin (co-advised with E. Morgenroth)             | 07/01-08/03 | Bacterial Community Analysis and Optimization of Biologically Active Carbon Filters Used to Remove Perchlorate from Groundwater | Montgomery, Watson, Herza, Walnut Creek, CA  |
| Adam Klein  | 08/01-07/03 | Using Molecular Techniques to Assess the Role of Novel Organisms in Biological Foaming at Wastewater Treatment Plants           | Brown and Caldwell, Seattle, WA  |
| Becky Luna (formerly Daugherty)                         | 08/00-08/02 | Anaerobic treatment of high sulfate waste streams to allow for the subsequent recovery of sulfur                                | Vice President, Carollo Engineers, Denver, CO  |
| Archana Jindal  | 08/00-08/02 | Antimicrobial Resistance in Swine Waste Treatment Processes   | Carollo Engineers, Santa Ana, CA   |
| Eva Arnaiz  | 02/00-09/00 | Foaming potential of <i>Gordonia amarae</i> grown under different conditions. Is foaming linked to cell wall hydrophobicity?    | Infilco, Madrid, Spain   |
| Sandra Loor-Vela  | 08/98-08/00 | Anaerobic dissipation of 14C-acetochlor in flooded soil microcosms  | Executive Director CECIA (NGO), Quito, ECUADOR   |
| Peter Stroot  | 08/94-07/99 | Anaerobic co-digestion of municipal solid waste and biosolids under various mixing conditions                                   | Managing Member at HemaGnosis, Spokane, WA   |
| Daniel Oerther  | 08/95-08/98 | Application of molecular tools for the analysis of biological foaming in activated sludge                                       | Professor, Missouri University of Science and Technology, Rolla, MO  |
| James Danalewich  | 01/96-07/98 | Biological nutrient removal from domestic and milk processing wastewaters   | Malcolm Pirnie Inc., White Plains, NY  |
| Katherine McMahon (formerly Sauer)                      | 08/95-10/97 | Syntrophic and methanogenic population dynamics during the anaerobic codigestion of municipal solid                             | Professor, University of Wisconsin, Madison  |

|                               |             |   |   |
|-------------------------------|-------------|---|---|
| Ma. Fiorella de los Reyes     | 08/95-08/97 | waste and sewage sludge<br>Detection and quantification of <i>Gordona amarae</i> strains in foaming activated sludge systems using a phylogenetic approach                  | Manila Water Company, Balara, Quezon City, Philippines  |
| Ebru Dulekgurgen              | 01/95-02/97 | Microbial population dynamics in sequencing batch reactors for biological phosphorus removal using ribosomal RNA sequence analyses and oligonucleotide probe hybridizations | Assistant Professor, Istanbul Technical University, Environmental Engineering Department, Istanbul-Turkey |
| Theodore Papagiannis          | 01/95-08/96 | Biological nutrient removal from dairy processing wastewater  | Attorney, Knobbe Martens Olson & Bear LLP, Irvine, CA   |
| Evanthia Tor (formely Malkos) | 01/94-01/96 | Bioremediation of naphtalene in soils of varying textures, nutrient concentrations, and hydrocarbon content   | Massachusetts Department of Environmental Protection, Springfield, MA                                     |
| Dandan Zheng                  | 08/93-08/95 | Characterization of microbial communities in anaerobic bioreactors using oligonucleotide probe hybridizations   | Director, Quality operation at Grifols, Los Angeles, CA   |
| Matthew Griffin               | 01/94-08/95 | Use of molecular tools to enhance the evaluation of anaerobic co-digestion of the organic fraction of municipal solid waste and sewage sludge                               | Environmental Engineer, General Motors, MI  |

### Additional M.S. Students Graduated (research, but no thesis)

| Name  | Work Period | Placement  |
|---|-------------|--|
| James Yonts (research)  | 01/16-12/17 | Tetrattech, Ann Arbor, MI (Monitoring of corrosion and opportunistic bacterial pathogens in potable hot water pipe loop)   |
| Nigel Beaton (co-advised with N. Love) (research)               | 09/14-09/15 | Staff Professional Carollo Engineers, Inc., Portland, OR 97205 (Anaerobic Membrane Bioreactor Pilot-Scale System - worked through Jan. 2016)   |
| Sean Murphy (research)  | 09/14-12/15 | Environmental Engineer, US Indian Health Service, Sanitation Facilities Construction Program, Martin, SD (Waste Activated Sludge Anaerobic Contactor (WASAC))                              |
| Ben Kunstman (research)   | 01/15-05/16 | Staff Engineer, Environmental Integrity Project, Washington, DC, (Anaerobic digestion of lignocellulosics, research 01/15-08/15)   |
| Pedro Puente (research)   | 09/13-05/15 | Analyst, Ministerio Coordinador de Conocimiento y Talento Humano (MCCTH) Quito, Ecuador (Treatment of domestic wastewater with anaerobic membrane bioreactors)                             |
| Raghav Reddy (PhD track)  | 09/13-05/15 | PhD student UM (Stability of arsenic solids produced during arsenic removal from drinking water sources)   |
| Anton Dapcic (co-advised with N. Love) (research)               | 03/13-12/14 | Environmental Engineer, Carollo Engineers, Dallas (Waste Activated Sludge Anaerobic Contactor (WASAC))   |
| Elizabeth Grobbel (research)                                    | 09/13-12/14 | Residency in Social Enterprise Fellow, New Sector Alliance, Boston, MA (Sustainable Aquaculture)   |
| Ana Estrella You (research, co-advised with K. Hayes)           | 09/12-05/14 | Operations Assistant, Industrial Area, GRUNTEC Environmental Services, Ecuador (Chromium monitoring in drinking water treatment plants)  |
| Mark Poll   | 05/10-05/13 | Product Environmental Engineer at Ford Motor Company, Detroit area, Biologically mediated removal of arsenic, nitrate, and uranium (research spring/summer 2010),                          |
| Ashley Hammerbeck (research)                                    | 09/11-05/13 | Process Engineer, Donohue & Associates, Inc., St. Louis Park, MN (Anaerobic membrane bioreactors for domestic wastewater treatment)  |
| Kathryn Vanderweele Snyder (research, co-advised with K. Hayes) | 09/12-05/13 | Peace Corps volunteer, Panama (Arsenic removal from drinking water sources)  |
| Nadine Kotlarz (PhD track)                                      | 09/11-05/13 | PhD student, UM (Biological nitrate and perchlorate removal from drinking water using various electron donors)   |
| Tzu-Hsin Cindy Chiao (research)                                 | 09/09-05/12 | Dual degree MSE and MS in Sustainable Systems Engineering (Disinfection strategies for mixed microbial communities in drinking water systems), Water Resources Analyst, Otak, Seattle area |
| Andrea Trese (research)   | 09/11-05/12 | Associate Engineer at EOA, Inc., San Francisco Bay area (Monitoring drinking water distribution systems)   |
| Alyssa Mayer (formerly Jenkins) (research)                      | 09/10-12/11 | Assistant Engineer, Hazen and Sawyer, Cincinnati, OH (Biological removal of arsenic and nitrate from drinking water)   |
| Adam Smith (PhD track - co-advised with S. Skerlos)             | 06/09-05/11 | Assistant Professor, Astani Department of Civil and Environmental Engineering, University of Southern California (Anaerobic membrane bioreactors)  |
| Andrew Colby (research)   | 07/09-12/10 | Carollo Engineers, Denver, CO (sustainable aquaculture and stress in nitrification systems)  |

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|---|---------------|--|
| Tara Webster (formerly Clancy) (PhD track – co-advised with K. Hayes) | 09/09-12/10   | Postdoctoral Associate, Soil and Crop Sciences, Cornell University (Role of sulfate-reducing microbes in biologically mediated removal of arsenic from drinking water)             |
| Jeff Jackson (research)   | 09/08-05/10   | Arcadis, Denver, CO (Biological removal of arsenic and nitrate from drinking water)  |
| Tanna Borrell (research - co-advised with S. Skerlos)                 | 05/06 – 08/09 | Writer, homemaker (use of anaerobic membrane bioreactor for municipal wastewater treatment)  |
| Lynn Williams (research)  | 09/07-05/09   | Brown and Caldwell, Seattle, WA (disinfection of drinking water treated by biofiltration)  |
| Chikako Donahue (research)  | 09/06-12/08   | Stay at home mother  |
| Rohit Warriar   | 09/07-12/08   | Staff Scientist at Geosyntec Consultants, Raleigh, NC  |
| Wangki Yuen (research)  | 09/07-06/08   | PhD Candidate, Dept. of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign (Microbial community characterization of drinking water treatment Systems) |
| Monisha Brown (PhD track)   | 09/06 – 12/07 | Engineering Associate at Sanitation Districts of Los Angeles County (Sustainable aquaculture)  |
| Tara Jackson (research)   | 09/05 – 12/07 | Chevron, Houston, TX (Quantification of microbial populations in anaerobic membrane bioreactors using a phylogenetic microarray method)  |
| David Berry (PhD track)   | 09/05 – 05/07 | Associate Professor, Dept. of Microbial Ecology, University of Vienna  |
| Gregg Thompson  | 08/97-12/98   | CH2M-Hill, Corvallis, OR   |
| Florencio Ballesteros   | 08/96-12/97   | Instructor, University of the Philippines, Diliman, Quezon City, Philippines   |
| Eric Leveque  | 08/95-01/97   | Carollo Engineers, Las Vegas, NV   |
| Jose Barrios-Perez  | 08/94-08/96   | Ph.D. 2003, Asesor del C. Secretario, Secretaria del Medio Ambiente y Recursos Naturales, México, D.F., Mexico   |
| David Schumacher  | 08/94-08/96   | check  |
| Pavitra Misra   | 08/93-01/96   | NTH Consultants, Lansing, MI   |
| C. Eliana Brown   | 01/94-01/96   | Illinois EPA, Champaign, IL  |
| Jeffrey Ralson  | 08/93-10/95   | O'Brien & Gere Engineers, Inc., Novi, MI   |
| Tetsuo Wada   | 08/93-08/95   | Nihon Suido Consultants Co., Ltd., Tokyo, Japan  |
| Carlos Chavez-Gomez   | 08/93-05/95   | Black & Veach, Phoenix, AZ   |
| Louis le Roux   | 08/93-12/94   | President, BioAir Solutions, LLC, Voorhees, NJ   |

### Visiting Scholars Hosted

| <i>Name (University)</i>  | <i>Work Period</i> | <i>Research Topic</i>  | <i>Current Position</i>   |
|---|--------------------|--|---|
| Maja Nielsen  | 09/16-03/17        | Anaerobic digestion  | PhD student Aarhus University, Denmark                                    |
| Xavier Fonoll Almansa (University of Barcelona)                 | 05/14-04/15        | Anaerobic digestion of lignocellulosics                              | Postdoc University of Michigan  |
| Shilva Shresthra (University of Hawaii)                         | 05/14-12/14        | Anaerobic digestion of lignocellulosics                              | PhD student University of Michigan  |
| Christian Koch (University of Aachen)                           | 04/14-07/14        | Treatment of domestic wastewater with anaerobic membrane bioreactors | MS student ETH Zurich   |
| Jinju Geng (Nanjing University)                                 | 04/13-04/14        | Chromium removal from drinking water                                 | Associate Professor, School of the Environment, Nanjing University, China |
| S. Udin (AAN, Bangladesh)                                       | 02/14              | Stability of arsenic solids  | Asia Arsenic Network, Bangladesh  |
| A. Shamim Khan (AAN, Bangladesh)                                | 02/14              | Stability of arsenic solids  | Asia Arsenic Network, Bangladesh  |
| David Miklos (Technical Univ. of Berlin)                        | 05/13-08/13        | Stability of arsenic solids  | MS student, Technical University of Berlin                                |
| Roya Gitiafroz (Univ. of Toronto)                               | 01/07-12/10        | Anaerobic benzene degradation  | Technician, Dept. of Chemical Engineering, Univ. of Akron                 |
| Dr. Pranab Ghosh (IIT Guwahati, India)                          | 06/09-06/10        | Biologically mediated removal of uranium from drinking water         | Assistant Professor, Indian Institute of Technology Guwahati, India       |
| Dermot Hughes (National University of Ireland, Galway, Ireland) | 06/08-09/08        | Anaerobic membrane bioreactors                                       | Ph.D. Student, NUI  |
| Ebru Dulekgurgen (Istanbul)                                     | 02/04-07/04        | Granulation in sequencing batch reactors for                         | Assistant Professor,  |

|   |             |  |  |
|---|-------------|--|--|
| Technical University, Turkey)<br>(co-advised with E. Morgenroth)  |             | enhanced biological phosphorus removal   | Istanbul Technical University, Environmental Engineering Department, Istanbul-Turkey |
| Ku Yong Kim (KAIST, Korea)  | 03/04-02/05 | Biological hydrogen production   | Ph.D. Student, KAIST, Korea  |
| Dr. Mark Fitch (University of Missouri at Rola)                   | 08/03-05/04 | Anaerobic membrane bioreactors   | Associate Professor, Univ. of Missouri at Rola                                       |
| N. Amin (Isfahan, Iran) (co-advised with E. Morgenroth)           | 08/03-01/04 | Effect of erythromycin on anaerobic treatment of pharmaceutical wastewater                                   | Ph.D. student, Isfahan, Iran   |
| Dr. Usha George (Tocklai Experimental Station, India)             | 01/99-06/99 | Molecular microbial ecology of anaerobic bioreactors   | Tocklai Experimental Station, India  |
| Kaare Hansen (Technical University of Denmark)                    | 08/96-12/96 | Oligonucleotide probes for <i>Syntrophomonadaceae</i> to characterize anaerobic bioreactors                  | Novo Nordisk, Denmark  |
| Dagmar Rothauszky (Technical University of Braunschweig, Germany) | 01/96-05/96 | Oligonucleotide probes for <i>Microthrix parvicella</i> to characterize foaming in activated sludge          | Evotec Corp., Hamburg, Germany   |
| Wolfgang Ritter (Technical University of Munich, Germany)         | 01/95-08/95 | Oligonucleotide probes for mycolic acid containing actinomycetes to characterize foaming in activated sludge | Medical School, Germany  |

### Post-Doctoral Researchers Supervised

| Name                                      | Work Period   | Research Topic   | Placement   |
|---|---------------|--|---|
| Gamze Gulez                               | 05/13-07/13   | Linkages between drinking water and human microbiomes  | Postdoctoral Researcher<br>École polytechnique fédérale de Lausanne (EPFL), Switzerland |
| Ling Cao                                  | 01/12 – 07/13 | Life cycle assessment (LCA) of aquaculture systems   | Assistant Professor,<br>Shanghai Jiaotong University                                    |
| Ameet Pinto                               | 08/09 -06/12  | Microbial community analyses of drinking water treatment plants  | Assistant Professor,<br>Northeastern University   |
| Giridhar Upahyaya                         | 09/10 -08/12  | Microbiologically mediated removal of multiple contaminants from drinking water  | Research Engineer,<br>Carollo Engineers,<br>Sarasota, FL                                |
| Wendell Khunjar (co-advised with N. Love) | 12/09 -09/10  | Structural Diversity and Functional Resilience to Stress in Ammonia Oxidizers  | Research Engineer,<br>Hazen and Sawyer P.C., Fairfax, VA                                |
| Diane Holder                              | 12/05 -01/09  | Biofilms in drinking water distribution systems  | Researcher USDA   |
| Aurelio Briones                           | 06/02-12/08   | Anaerobic biological treatment of high sulfate waste streams – microbial ecology of rice paddies – Sustainable aquaculture | Assistant Professor,<br>University of Idaho   |
| Chuanwu Xi                                | 01/01-08/04   | Use of molecular beacons in microfluidic devices – biological perchlorate removal from drinking water                      | Associate Professor,<br>University of Michigan  |
| Jennifer Crawford Simmons                 | 01/97-01/04   | Herbicide fate in anaerobic soils – Biological hydrogen production   | High school science teacher   |
| Largus Angenent                           | 08/98-12/00   | Biological treatment of animal waste   | Humboldt Professor,<br>University of Tübingen,<br>Germany                               |
| Krassimira Hristova                       | 1/98-12/99    | Development of solution based hybridization techniques   | Assistant Professor,<br>Marquette University,<br>Milwaukee, WI                          |
| Margit Mau                                | 11/97-06/99   | Development of solution based hybridization techniques   | Assistant Professor,<br>Bergakademie<br>Freiberg, Germany                               |
| Elizabeth Wheeler-Alm                     | 08/94-06/96   | Molecular microbial ecology in soil environments   | Professor, Central<br>Michigan University   |

### M.S. Students Supervised at Present

| Name | Work Period | Research Topic |
|------|-------------|----------------|
|------|-------------|----------------|



|   |               |   |
|---|---------------|---|
| Tim Fairley (co-advised with S. Skerlos)                  | 09/16-present | Anaerobic MBR   |
| Grace van Velden (co-advised with K. Hayes)               | 01/16-present | Sustainability of arsenic removal processes in Bangladesh |
| Grace Rodriguez (co-advised with K. Hayes and A. Agrawal) | 01/16-present | Sustainability of arsenic removal processes in Bangladesh |
| Cindy Yao (co-advised with J. Diana)                      | 09/15-present | Recirculating shrimp aquaculture                          |

### Ph.D. Students Supervised at Present

| <i>Name</i>   | <i>Work Period</i> | <i>Research Topic</i>   |
|---|--------------------|---|
| Matthew Vedrin (co-advised with R. Hardin)                      | 01/17 -present     | WASH in Gabon   |
| Shilva Shrestha   | 09/16 -present     | Anaerobic co-digestion of lignocellulosics and other biomass streams  |
| Raghav Reddy (co-advised with A. Agrawal)                       | 01/16 -present     | Sustainability of arsenic removal processes in Bangladesh   |
| Nicole Rockey (co-advised with K. Wigginton)                    | 07/15 -present     | Monitoring of corrosion and opportunistic bacterial pathogens in potable hot water pipe loop/Norovirus monitoring |
| Emily Crosse (co-advised with K. Wigginton)                     | 07/15 -present     | Antibiotic resistance in anaerobic treatment processes  |
| Caroline Van Steendam (co-advised with S. Skerlos and I. Smets) | 08/14 -present     | Treatment of domestic wastewater with anaerobic membrane bioreactors  |
| Nadine Kotlarz (co-advised with J. LiPuma)                      | 09/11 -present     | Linkages between premise plumbing and respiratory tract microbiomes   |

### Post-Doctoral Researchers Supervised at Present

| <i>Name</i>                            | <i>Work Period</i> | <i>Research Topic</i>   |
|--|--------------------|---|
| Yun Shen                               | 09/16-present      | Opportunistic bacterial pathogens in premise plumbing             |
| Xavier Fonoll Almansa                  | 01/16-present      | Anaerobic digestion of lignocellulosics and other biomass streams |
| Sarah Haig (co-advised with J. LiPuma) | 10/14-present      | Linkages between drinking water and human microbiomes             |

### Visiting Scholars Hosted at Present

| <i>Name (University)</i> | <i>Work Period</i> | <i>Research Topic</i> |
|--------------------------|--------------------|-----------------------|
|--------------------------|--------------------|-----------------------|

### Ph.D. Committees – University of Illinois at Urbana-Champaign

Cunyet Feizoulof, Qualifying Exam (Snoeyink), Aug. 93, member.  
Daniel Noguera, Preliminary and Final Exams (Freedman), Nov. 93, Nov. 95, member.  
Matthew Verce, Qualifying and Preliminary Exams (Freedman), Aug. 94, July 96, member.  
Thomas Gillogly, Qualifying Exam (Snoeyink), Aug. 94, Jan. 95, member.  
Eric Seagren, Final Exam (Rittmann), March 94, member.  
Syed Hashsham, Preliminary and Final Exams (Freedman), Jan. 95, Sept. 96, member.  
Dandan Zheng, Qualifying, Preliminary, and Final Exams (Raskin), Aug. 95, Nov. 97, March 99, chair.  
Francis de los Reyes, Qualifying, Preliminary, and Final Exams (Raskin), Aug. 95, May 98, Nov. 99, chair.  
Hari Viswanathan, Qualifying Exam (Valocchi), Aug. 95, member.  
Robert Brent, Qualifying Exam (Herricks), Jan. 96, member.  
Sunji Oya, Preliminary and Final Exams (Valocchi), Nov. 96, March 98, member.  
Mary Jo Kirisits, Qualifying, Preliminary, and Final Exams (Snoeyink), Jan. 97, 98, May 00, member.  
Daniel Oerther, Qualifying, Preliminary, and Final Exams (Raskin), Aug. 97, May 99, April 01, chair.  
Jason Rennecker, Qualifying Exam (Marinas), Aug. 97, Jan. 98, member.  
Michelle Corley, Preliminary Exam, Dept. of Animal Sciences (Mackie/White), Aug. 97, Nov. 97, member.  
Joe Elarde, Qualifying Exam (Snoeyink/Marinas), Jan. 98, member.  
Qilin Li, Qualifying, Preliminary, and Final Exams (Snoeyink), Jan. 99, Dec. 00, July 02, member.  
Jess Brown, Qualifying, Preliminary, and Final Exams (Snoeyink/Raskin), Jan. 99, Sept. 00, Jan. 02, co-chair.  
Darren Lytle, Qualifying Exam (Snoeyink), Jan. 99, member.

Benito Corona-Vasquez, Qualifying Exam (Marinas), Aug. 99, member.  
Jae Hong Kim, Qualifying Exam (Marinas), Aug. 99, member.  
Dominic Frigon, Qualifying, Preliminary, and Final Exams (Raskin), Jan. 00, Aug. 01, Dec. 04, chair.  
Bo Zhang, Qualifying Exam (Raskin), Jan. 01, chair.  
Kyung Moon, Qualifying Exam (Sanford), Jan. 01, member.  
Young-Chul Choi, Qualifying Exam, Sept. 01, Jan. 02, Preliminary Exam, Jan. 05, and Final Exam, Oct. 05 (Morgenroth/Raskin), co-chair.  
Quian He, Qualifying, Preliminary, and Final Exams (Sanford), Sept. 01, Aug. 02, July 03 member.  
Roderick Agbisit, Preliminary Exam (Rausch), July 02, member.  
Sudini Padmasiri, Qualifying, Prelim, and Final Exams (Raskin/Morgenroth), Sept. 03, Nov. 05, Sept. 07 chair.  
Toshio Shimada-Beltran, Qual, Prelim, and Final Exams (Raskin/Zilles), Sept. 03, Sept. 05, May 07 chair.  
Zhi Zhou, Qualifying, Preliminary, and Final Exams (Zilles/Raskin), Sept. 03, Oct. 05, May 07 co-chair.  
Ning Tong, Qualifying Exam (Raskin), Jan. 04, chair.  
Jiangzhao Zhang, Qualifying Exam (Morgenroth/Raskin), Jan. 04, co-chair.  
Adrienne Minetti, Qualifying Exam (Morgenroth/Clark), Jan. 04, member.  
Kim Milferstedt, Qualifying Exam (Morgenroth), Jan. 04, member.  
Xu Li, Qualifying Exam (Raskin/Morgenroth), Sept. 04, chair.  
Martin Page, Qualifying Exam (Marinas), Jan. 05, member.

#### **Ph.D. Committees – University of Michigan**

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Xu Li, Preliminary and Final Exams (Raskin), Dec. 05, June 08 chair.  
Lisa Colosi, Preliminary and Final Exams (Weber), March 06, July 07 member.  
David Keeney, Qualifying Exam (Semrau), May 06, member.  
Thi Hoa Trinh, Qualifying Exam (Adriaens/Lastoskie), May 06, Sept. 06, member.  
Sharon Gourdji, Qualifying Exam (Michalak), Jan. 07, member.  
David Berry, Qualifying, Preliminary, and Final Exams (Raskin/Xi), Jan. 07, Nov. 07, July 09 chair.  
Tanna Borrell, Qualifying Exam (Raskin/Skerlos), May 07, co-chair.  
Trinh Tran, Qualifying Exam (Lastoskie), May 07, member.  
Giridhar Upadhyaya, Qualifying, Preliminary, and Final Exams (Raskin/Hayes), June 07, Sept. 08, Sept. 10 co-chair.  
Tara Jackson, Qualifying Exam (Raskin), Sept. 07, chair.  
Abhishek Chatterjee, Qualifying Exam (Michalak), January 08, member.  
Monisha Brown, Qualifying, Preliminary, and Final Exams (Raskin), May 08, June 10, May 13 chair.  
Jongdae Im, Qualifying Exam (Semrau), May 08, member.  
Meghan Milbrath (SPH), Preliminary Exam (Jolliet), May 08, member.  
Dongjuan Dai (SPH) Preliminary and Final Exams (Xi/Raskin), Aug. 08, Sept. 10, co-chair.  
Yu Chen (Chemical Engineering) Preliminary and Final Exams (Lin), Jan. 09, Sept. 12, member.  
Jeremy Guest, Qualifying, Preliminary, and Final Exams (Love/Skerlos), Jan. 09, Dec. 09, Dec. 11, member.  
Sherri Cook, Qualifying, Preliminary, and Final Exams (Love/Skerlose), May 10, Jan. 12, May 14, member.  
Daniel Obenour, Qualifying Exam (Michalak/Scavia), Jan. 10, member.  
Tara Clancy, Qualifying Exam (Raskin/Hayes), May 11, Preliminary Exam, May 12, Final Exam, Jan 15, co-chair.  
Adam Smith, Qualifying, Preliminary, and Final Exams (Raskin/Skerlos), May 11, May 12, Aug 14, co-chair.  
Xunchang Fei, Qualifying Exam (Zekkos/Raskin), June 11, Preliminary and Final Exams (Zekkos/Raskin), Sept. 11, Dec. 15, co-chair.  
Lauren Stadler, Qualifying, Preliminary, and Final Exams (Love), May 12, June 13, December 15 member.  
Jeseth Delgado Vela, Qualifying Exam (Love), May 13, member  
Nadine Kotlarz, Qualifying Exam (Raskin), May 13, Preliminary Exam (Raskin), Jan. 14, chair  
Ivan Jayawan, Qualifying Exam (Demond/Ellis), Jan 14, Feb 14, member.  
Chia-Chen Wu, Qualifying Exam (Olson/Love), July 14, member.  
Wenjia Fen, Qualifying Exam (Ellis), Sept 14, member.  
Yinyin Ye, Qualifying Exam (Wigginton), Nov 14, member.  
Mohit Nahata (Chemical Engineering), Preliminary Exam (Schwank), April 14, member.  
Caroline Van Steendam, Qualifying Exam (Raskin/Skerlos), April 14, Preliminary Exam (Raskin/Skerlos), August 16, co-chair.  
Joy Jeyaratnam, Qualifying Exam (Wigginton), Sept 15, member.  
Nicole Rockey, Preliminary Exam (Raskin/Wigginton), May 16, co-chair.

Emily Crossette, Preliminary Exam (Raskin/Wigginton), May 16, co-chair.  
Raghav Reddy, Preliminary Exam (Raskin), May 16, chair.  
Jubilee Adeoye, Preliminary Exam (Ellis), May 16, member.  
Sara Troutman, Preliminary Exam (Kerkez/Love), May 16, member.

### Other Contributions to Instructional Programs

Supervised research projects of several Civil and Environmental Engineering undergraduate students: Mike Mangini (Fall 93), Mark Mirek (Spring 94), Dave Schumacher (Fall 94), James Danalewich (Spring 95+Fall 95), Bradley Grens (Spring 95), Darci Black (Fall 95), Quiana Whittler (Fall 95+Spring 96), Mitch Mathews (Spring 96), Paul Ruscko (Spring 97, Fall 97, Spring 98), Heidi Mulderink (Fall 96, Spring 97), Sarah Keenan (Spring 98, Summer 98), Vicki Swidron (Summer 98, Fall 98), Martin Tower (Fall 98, Spring 99); Jeff Grubich (Fall 99, Spring 00); Yasuhiro Usui (Fall 99, Spring 00), Tim Grimm (Fall 00), Abigail Van Waning (Spring 01), Chad Gladfelter (Spring 02, Summer 02), Ka Wai Suzanne Huang (Spring 02, Summer 02), Wangki Yuen (Winter 07, Spring 07), Khadeejah Sani (Winter 07), Heather Dorer (Fall 09, Winter 10, Spring/summer 10, Fall 10, Winter 11), Andrea Trese (Spring/Summer 10, Spring/Summer 11), Zijia Li (Spring/summer 10, Fall 10, Winter 11), Maria Sevillano Rivera (Spring/Summer 10), Lauren Strahs (Fall 10, Winter 11, Fall 11, Winter 12), Kathryn Vanderweele (Winter 11, Spring/summer 11 (SURE), Fall 11, Winter 12), Christina Machak (Spring/Summer 11, Fall 11; dual degree Geology/Civil Engineering); Xinsheng Chu (Spring/summer 11, Fall 11), Amy Wells (Fall 12), Julia Pierce (Fall 12, Winter 13, Spring/summer 13, Fall 13), Sarah Halperin (Fall 12, Winter 13), James Tan (Spring/Summer 13 (UROP), Spring/summer 14 (SURE), Fall 14, Winter 15, Fall 15, Winter 16), James Yonts (Winter 14, Spring/Summer 14 (SURE), Fall 14, Winter 15, Spring/Summer 15 (SURE)), Susan Rusinowski (Fall 14), Bridget Vial (Fall 15, Winter 16, Fall 16, Winter 17), Margaret Houlihan (Winter 16, UROP), Alec Distel (Winter 17, Spring/summer 17 (SURE-UMEI), Juliana Huizenga (Winter 17)

Supervised research projects of two Microbiology undergraduate students, Jennifer Daley (Spring 97), Andrew White (Summer 2004, Fall 2005, Spring 2005), five Chemical Engineering undergraduate students, Davina Carson (Spring 97), Jarad Champion (Spring 01, Fall 01, Spring 02), Jennifer Drummon (Summer 02), Tara Jackson (Summer 04), Qaboos Imran (Fall 12, Winter 13, Spring/Summer 13, Fall 13, Winter 14, Spring/Summer 14, Fall 14), a Biochemistry undergraduate student, Matt Wagoner (Summer 02, Fall 02, Spring 03, Summer 03, Fall 03, Spring 04), a Molecular Biology undergraduate student, Mike Tenuto (Spring 05), an Agricultural Engineering undergraduate student, Richard Hussey (Summer 97, Fall 97, Spring 98), and two Chemistry undergraduate student, Adrianna Ivory (Fall 12, Winter 13). Guy Burke (Winter 16, Summer 16, Fall 16).

## PUBLICATIONS

### Book/Book Chapters

1. Hofman-Bang, J., D. Zheng, P. Westermann, B.K. Ahring, L. Raskin (2003), Molecular Ecology of Anaerobic Reactor Systems, B. K. Ahring (Ed.), Biomethanation, Advances in Biochemical Engineering/Biotechnology, Springer-Verlag, Inc., 81: 151-203.
2. Zhang, B., B. Marinas, L. Raskin (2003), Use of Molecular Probes to Study Biofilms, P. Lens, A.P. Moran, T. Mahony, P. Stoodley, V. O'Flaherty (Eds.), Biofilms in Medicine, Industry and Environmental Biotechnology, IWA Publishing, pp. 352-374.
3. Zheng, D., and L. Raskin (2002), Anaerobic Granules and Granulation Processes, G. Bitton (Ed.), Encyclopedia of Environmental Microbiology, John Wiley & Sons, Inc., New York.
4. Fry, N.K., L. Raskin, R. Sharp, E.W. Alm, B. Mobarry, D.A. Stahl (1997), In Situ Analysis of Microbial Populations with Molecular Probes: The Phylogenetic Dimension, J. Shapiro and M. Dworkin (Eds.), Bacteria as Multicellular Organisms, Oxford University Press.
5. Raskin, L., W.C. Capman, R. Sharp, L.K. Poulsen, and D.A. Stahl (1997), Molecular Ecology of Gastrointestinal Ecosystems, R.I. Mackie, B.A. White, and R.E. Isaacson (Eds.), *Ecology and Physiology of Gastrointestinal Microbes, Volume 2: Gastrointestinal Microbiology and Host Interactions*, Chapman and Hall, pp. 243-298.
6. Stahl, D.A., R.I. Amann, L.K. Poulsen, L. Raskin, and W.C. Capman (1995), The use of Fluorescent Probes for Determinative Microscopy, F.T. Robb, K.R. Sowers, S. DasSarma, A.R. Place, H.J.

Schreier, and E.M. Fleischmann (Eds.), *Archaea: A laboratory manual*, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY, pp. 111-121.

7. Rittmann, B.E., E.A. Seagren, B.A. Wrenn, A.J. Valocchi, C. Ray, and L. Raskin (1994), *In Situ Bioremediation*, 2nd Ed., Noyes Publications, Park Ridge, NJ, pp. 260.

### Journal Articles

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1. Shrestha, S., X. Fonoll, S. K. Khanal, L. Raskin, Strategies for enhanced hydrolysis of lignocellulosic biomass during anaerobic digestion: A review that links process engineering and microbiology, *Energy & Environmental Science*, submitted.
2. Dai, D., L. Raskin, and C. Xi, The effect of species interactions on biofilm formation diverged with culture conditions, *Journal of Applied Microbiology*, submitted.
3. Smith A.L., T. Shimada, L. Raskin (2017), A comparative evaluation of community structure in full-scale digesters indicates that two-phase digesters exhibit greater microbial diversity than single-phase digesters. *Environmental Science: Water Research & Technology*. 3, 304-311. DOI: 10.1039/c6ew00320f
4. Marcus, D.N., A. Pinto, K. Anantharaman, S.A. Ruberg, E.L. Kramer, L. Raskin, and G.J. Dick (2016), Diverse manganese (II)-oxidizing bacteria are prevalent in drinking water systems. *Environmental Microbiology Reports*. 2016 Dec 1
5. Kotlarz, N., G. Upadhyaya, P. Togna, L. Raskin (2016), Evaluation of electron donors for biological perchlorate removal highlights the importance of diverse perchlorate-reducing populations, *Environmental Science: Water Research & Technology*, 2(6):1049-63. DOI: 10.1039/C6EW00181E
6. Webster, T.M., R. R. Reddy, J. Y. Tan, J. D. Van Nostrandt, J. Zhou, K. F. Hayes, and L. Raskin (2016). *Anaerobic Disposal of Arsenic-Bearing Wastes Results in Low Microbially Mediated Arsenic Volatilization*, *Environmental Science & Technology, Environ. Sci. Technol.*, 50 (20):10951–10959, DOI: 10.1021/acs.est.6b02286
7. Fei, X., D. Zekkos, L. Raskin (2016), Quantification of parameters influencing methane generation due to biodegradation of municipal solid waste in landfills and laboratory experiments. *Waste Management*. 55:276-87.
8. Caverly LJ, Carmody LA, Haig SJ, Kotlarz N, Kalikin LM, Raskin L, LiPuma JJ (2016). Culture-Independent Identification of Nontuberculous Mycobacteria in Cystic Fibrosis Respiratory Samples. *PloS One*. Apr 19;11(4):e0153876.
9. Webster, T. M., A. L. Smith, R. Reddy, A. J. Pinto, K. F. Hayes and L. Raskin. (2016) Anaerobic microbial community response to methanogenic inhibitors 2-bromoethanesulfonate and propynoic acid. *Microbiology Open*, March 1.
10. Snyder, K. V., T. M. Webster, G. Upadhyaya, K. F. Hayes, and L. Raskin. (2016) Anaerobic biosand filter for the removal of arsenic and nitrate from groundwater. *Journal of Environmental Management*, 171, 21-28.
11. Pinto, A.J., D.N. Marcus, U.Z. Ijaz, Q. M. Bautista-de Iose Santos, G.J. Dick, L. Raskin (2016), Metagenomic Evidence for the Presence of Comammox *Nitrospira*-Like Bacteria in a Drinking Water System, *mSphere*, 1(1): :e00054-15.
12. Caverly L., T. Spilker, N. Kotlarz, S. Haig, L. Raskin, J.J. LiPuma (2015). Improving Nontuberculous Mycobacterial DNA Extraction From CF Respiratory Samples. *Pediatric Pulmonology*. Oct 1;50:331.
13. Clancy, T. M., K. V. Snyder, R. Reddy, A. Lanzirrotti, S. E. Amrose, L. Raskin and K. F. Hayes. (2015) Evaluating the cement stabilization of arsenic-bearing iron wastes from drinking water treatment. *Journal of Hazardous Materials*, 300(30), 522-529.
14. Delgado Vela, J., L. B. Stadler, K. J. Martin, L. Raskin, C. B. Bott, N. G. Love (2015), Prospects for biological nitrogen removal from anaerobic effluents during mainstream wastewater treatment: A Review, *ES&T Letters*, 2(9):234-44. **ES&T Letters Best Paper of 2015 Award.**
15. Upadhyaya, G., N. Kotlarz, P. Togna, and L. Raskin (2015), Carbohydrate-based electron donor for biological nitrate and perchlorate removal from drinking water, *J. AWWA*, 107(12): E674-E684.
16. Smith, A. L., Skerlos, S. J. and Raskin, L. (2015), Membrane biofilm development improves COD removal in anaerobic membrane bioreactor wastewater treatment. *Microbial Biotechnology*, 8(5): 883–894.
17. Smith, A.L., S.J. Skerlos, and L. Raskin (2015), Anaerobic membrane bioreactor treatment of domestic wastewater at psychrophilic temperatures ranging from 15°C to 3°C *Environmental*

18. Schroeder, J.L., M. Lunn, A.J. Pinto, L. Raskin, and W.T. Sloan (2015), Probabilistic Models to Describe the Dynamics of Migrating Microbial Communities. *PLoS ONE*. 10(3): e0117221. doi:10.1371/journal.pone.0117221
19. Fei, X., D. Zekkos, and L. Raskin (2015), Archaeal Community Structure in Leachate and Solid Waste is Correlated to Methane Generation and Volume Reduction during Biodegradation of Municipal Solid Waste, *Waste Management*, 36(2):184-190.
20. Fei, X., D. Zekkos, and L. Raskin (2014), An experimental setup for simultaneous physical, geotechnical, and biochemical characterization of municipal solid waste undergoing biodegradation in the laboratory. *ASTM Geotechnical Testing Journal*, 2014, 37(1): 1-12.
21. Pinto, A. J., J. Schroeder, M. Lunn, W. Sloan, , and L. Raskin (2014), Spatial-temporal survey and occupancy-abundance modeling to predict bacterial community dynamics in the drinking water microbiome, *mBio*, 5(3):e01135-14. DOI:10.1128/mBio.01135-14.
22. Smith, A. L., Stadler, L. B., Cao, L., Love, N. G., Raskin, L., and Skerlos, S. J. (2014), Navigating Wastewater Energy Recovery Strategies: A Life Cycle Comparison of Anaerobic Membrane Bioreactor and Conventional Treatment Systems with Anaerobic Digestion, *Environmental science & technology*, 48 (10): 5972-5981, DOI: 10.1021/es5006169
23. Luo, F., R. Gitiafroz, C. Devine, Y. Gong, L. Hug, L. Raskin, and E. Edwards (2014), Metatranscriptome of an Anaerobic Benzene-Degrading Nitrate-Reducing Enrichment Culture Reveals Role for Carboxylation in Benzene Ring Activation, *Applied and Environmental Microbiology*, 80(14): 4095-4107.
24. Chiao, T.-H., T. M. Clancy, A. Pinto, C. Xi, and L. Raskin (2014). Differential resistance of drinking water bacterial populations to monochloramine disinfection, *Environmental Science & Technology*, 48 (7): 4038-4047, DOI: 10.1021/es4055725
25. Holder D., D. Berry, D. Dai, L. Raskin, C. Xi (2013), A dynamic and complex monochloramine stress response in *Escherichia coli* revealed by transcriptome analysis. *Water Research*. 47(14):4978-85.
26. Smith A.L., S.J. Skerlos, L. Raskin (2013), Psychrophilic anaerobic membrane bioreactor treatment of domestic wastewater. *Water Research*. 47(4):1655-65.
27. Brown M.N., A. Briones, J. Diana, L. Raskin (2013), Ammonia-oxidizing archaea and nitrite-oxidizing nitrospiras in the biofilter of a shrimp recirculating aquaculture system. *FEMS Microbiology Ecology*. 83(1):17-25.
28. Clancy, T.M., K.F. Hayes, and L. Raskin (2013), Arsenic waste management: A critical review of testing and disposal of arsenic-bearing wastes generated during arsenic removal from drinking water. *Environmental Science & Technology*, 47 (19): 10799–10812, DOI: 10.1021/es401749b
29. Smith, A.L., L. B. Stadler, N.G. Love, S. J. Skerlos, and L. Raskin (2012), Perspectives on Anaerobic Membrane Bioreactor Treatment of Domestic Wastewater: A Critical Review, *Bioresource Technology*, 122, 149-159, doi: 10.1016/j.biortech.2012.04.055
30. Upadhyaya, G., T. M. Clancy, J. Brown, K. F. Hayes, and L. Raskin (2012), Optimization of Arsenic Removal Water Treatment System through Characterization of Terminal Electron Accepting Processes, *Environmental Science & Technology*, 46(12), 11702-11709, doi: 10.1021/es302145q.
31. Pinto, A. J., C. Xi, and L. Raskin (2012), Bacterial community structure in the drinking water microbiome is governed by filtration processes, *Environmental Science & Technology*, 46(16): 8851–8859, DOI: 10.1021/es302042t.
32. Pinto, A. J., and L. Raskin (2012), PCR biases distort bacterial and archaeal community structure in pyrosequencing datasets, *PLoS One*, 7(8), e43093, doi: 10.1371/journal.pone.0043093.
33. De Long, S. K., X. Li, S. Bae, J. C. Brown, L. Raskin, K.A. Kinney, and M. J. Kirisits (2012), Quantification of Genes and Gene Transcripts for Microbial Perchlorate Reduction in Fixed-Bed Bioreactors, *Journal of Applied Microbiology*, 112(3): 579-592, doi:10.1111/j.1365-2672.2011.05225.x.
34. Li, X., W. Yuen, E. Morgenroth, and L. Raskin (2012), Backwash Intensity and Frequency Impact the Microbial Community Structure and Function in a Fixed-Bed Biofilm Reactor, *Applied Microbiology and Biotechnology*, 96(3): 815-827, doi: 10.1007/s00253-011-3838-6
35. Upadhyaya, G., T. M. Clancy, K. V. Snyder, J. Brown, K. F. Hayes, and L. Raskin (2012), Effect of air-assisted backwashing on the performance of an anaerobic fixed-bed bioreactor that simultaneously removes nitrate and arsenic from drinking water sources, *Water Research*, 46(4): 1309-1317. doi:10.1016/j.watres.2011.12.034

36. Shimada, T., E. Morgenroth, M. Tandukar, S. G. Pavlostathis, A. Smith, L. Raskin, and R. E. Kilian (2011), Syntrophic Acetate Oxidation in Two-Phase (Acid-Methane) Anaerobic Digesters, *Water Science & Technology*, **64**:9,1812-20.
37. Dai, D., D. Holder, L. Raskin, and C. Xi (2011), Separation of the bacterial species, *Escherichia coli*, from Mixed-Species Microbial Communities for Transcriptome Analysis, *BMC Microbiology*, **11**:59, doi:10.1186/1471-2180-11-59
38. Shimada, T., X. Li, J. L. Zilles, E. Morgenroth, and L. Raskin (2011), Effects of the antimicrobial tylosin on the microbial community structure of an anaerobic sequencing batch reactor, *Biotechnology and Bioengineering*, **108** (2): 296-305, doi: 10.1002/bit.22934.
39. Li, X., G. Upadhyaya, W. Yuen, J. Brown, E. Morgenroth, and L. Raskin (2010), Changes in Microbial Community Structure and Function of Drinking Water Treatment Bioreactors Upon Phosphorus Addition, *Applied and Environmental Microbiology*, **76** (22):7473-81, doi:10.1128/AEM.01232-10.
40. Berry, D., M. Horn, M. Wagner, C. Xi, and L. Raskin (2010), *Mycobacterium avium* infections of *Acanthamoeba* strains: Host strain variability, grazing-acquired infections, and altered dynamics of inactivation with monochloramine, *Applied and Environmental Microbiology*, **76** (19): 6685-6688.
41. Upadhyaya, G., J. Jackson, T. M. Clancy, S. P. Hyun, J. Brown, K. F. Hayes, and L. Raskin (2010) Simultaneous removal of nitrate and arsenic from drinking water sources utilizing a fixed-bed bioreactor system, *Water Research*, **44**(17), 4958-4969.
42. Berry, D., D. Holder, C. Xi, and L. Raskin (2010). Comparative transcriptomics of the response of *Escherichia coli* to the disinfectant monochloramine and to growth conditions inducing monochloramine resistance. *Water Research*, **44**(17), 4924-4931.
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#### Papers in Conference Proceedings

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3. Haig, S.J., N. Kotlarz, N. Rockey, L.M. Kalikin, L.J. Caverly, J.J. LiPuma and L. Raskin, Respiratory Tract Opportunistic Bacterial Pathogens in Premise Plumbing and Distribution System Water Correlate with Stagnation Time and Chemical Parameters, Water Quality Technology Conference (WQTC), Indianapolis, IN, Nov. 13-17, 2016.
4. Fei, X., D. Zekkos and L. Raskin. Influential factors on methane generation and settlement of municipal solid waste during degradation - experiments and literature synthesis. *1<sup>st</sup> International Conference on Geo-Energy and Geo-Environment*, ISSMGE. Dec. 4-5, 2015, Hong Kong, China.
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5. Haig, S.J. N. Kotlarz, L.M. Kalikin, L. Caverly, J.J LiPuma, L. Raskin (2017). Searching for a Strain-Level Match: Is Drinking Water a Source of Clinically Relevant Cystic Fibrosis Opportunistic Bacterial Pathogens? AEESP Conference, Ann Arbor, Michigan. June 20-22.
6. Kotlarz, N., D. Berry, S.J. Haig, J.J LiPuma, L. Raskin (2017). Mycobacteria Upregulate Intracellular Parasitism Genes in Response to the Drinking Water Disinfectant Monochloramine. AEESP Conference, Ann Arbor, Michigan. June 20-22.
7. Shrestha, S., Fonoll, X., Mata-Alvarez, J., Dosta Parras, J., Khanal, S.K. & Raskin, L. (2017). Natural strategies for enhanced biogas production from anaerobic digestion of lignocellulosic biomass. To be presented at 3rd International Conference on Biogas Microbiology. Wageningen, The Netherlands, May 2017
8. Haig, S.J., N. Kotlarz, L.M. Kalikin, L. Caverly, J.J LiPuma, L. Raskin (2017). Are Opportunistic Pathogens in Premise Plumbing the Source of Infection in Children with Cystic Fibrosis? UNC Water Microbiology Conference, Chapel Hill, North Carolina, May 15-19.
9. Kotlarz, N., D. Berry, S.J. Haig, J.J LiPuma, L. Raskin (2017). Mycobacteria Upregulate Intracellular Parasitism Genes in Response to the Drinking Water Disinfectant Monochloramine. UNC Water Microbiology Conference, Chapel Hill, North Carolina, May 15-19.
10. Wax, M., D. Yeoman, Z. Hayes, J. Yonts, S.J. Haig, N. Rockey, G. Burke, K. Heidecorn, J. Abernethy, E. Schwartz, B. Ellis, M. Kaufman, L. Raskin and T. Olson (2017). Water quality characteristics before and after lead service line replacement in Flint, Michigan. To be presented at the AWWA International Symposium on Inorganics, Detroit, Michigan, March 21-22.
11. Yao, S., Raskin, L., Diana, J. (2017), Assessing nitrifying function and shrimp growth in an indoor brackish water recirculating aquaculture system. 24th Triennial Borchardt Conference, Ann Arbor, MI, February 21-22.
12. Van Steendam, C., T. Fairley, I. Smets, S. Skerlos, and L. Raskin (2017), Pilot-scale Anaerobic Membrane Bioreactor for Low Temperature Domestic Wastewater, 24th Triennial Borchardt Conference, Ann Arbor, MI, February 21-22.
13. Reddy, R.R., G. A. van Velden, G. D. Rodriguez, M. R. Karim, M. J. Abedin, T. M. Webster, A. Agrawal, K. F. Hayes, L. Raskin (2017). The sustainability of safe drinking water rural Bangladesh. 24th Triennial Borchardt Conference, Ann Arbor, MI, February 21-22.

14. Haig, S.J., N. Kotlarz, N. Rockey, L.M. Kalikin, L. Caverly, J.J LiPuma, L. Raskin (2017). Residence Time, Pipe Material and Chemical Parameters Impact the Occurrence of Opportunistic Pathogens and Antibiotic Resistance Genes in Drinking Water. 24th Triennial Borchardt Conference, Ann Arbor, MI, February 21-22.
15. Kotlarz, N., N. Rockey, T.M. Olson, S.J. Haig, L. Sanford, J.J LiPuma, L. Raskin (2017). Opportunistic Pathogenic Bacteria Survive Ozone Disinfection: Observations from a Full-Scale Drinking Water Treatment Plant. 24th Triennial Borchardt Conference, Ann Arbor, MI, February 21-22.
16. Burke, G., D. Yeoman, Z. Hayes, S.J. Haig, Y. Shen, J. Yonts, M. Wax, N. Rockey, M. Kaufman, L. Raskin, and T. Olsen (2017). Water quality characteristics before and after lead service line replacement in Flint, Michigan, 24th Triennial Borchardt Conference, Ann Arbor, MI, February 21-22.
17. Shrestha, S., X. Fonoll, M. Nielsen, L. Raskin (2017). Production of platform chemicals from organic waste streams using novel anaerobic systems with dynamic membranes. 24th Triennial Borchardt Conference, Ann Arbor, MI, February 21-22.
18. Fonoll, X., S. Shrestha, B. Kunstman, J. Mata-Alvarez, S. Khanal, L. Raskin (2017). Natural strategies for enhanced biogas production from anaerobic digestion of lignocellulosic biomass. 24th Triennial Borchardt Conference, Ann Arbor, MI, February 21-22.
19. Crossette, E., Raskin, L., Wigginton, K. (2017), Extra and intracellular antimicrobial resistance genes and their fate in dairy cow manure treatment structures. 24th Triennial Borchardt Conference, Ann Arbor, MI. February 21-22.
20. Fonoll, X., S. Shrestha, M. Nielsen, L. Raskin (2017). Production of platform chemicals from organic waste streams using novel anaerobic systems with dynamic membranes. Michigan University-wide Sustainability and Environment Conference (MUSE). Ann Arbor (USA), February 9-10.
21. Crossette, E., Raskin, L., Duhaime, M., Wigginton, K. (2017), Quantitative metagenomic approach for classifying environmental reservoirs of antimicrobial resistance, 2017 Water Microbiology Conference and the 19th IWA-HRWM Symposium. Chapel Hill, NC, May 15-19, 2017.
22. Van Steendam, C., A. Menefee, S. Skerlos, and L. Raskin (2016), Do Anaerobic Membrane Bioreactors Have a Sustainable Future for Low Temperature Domestic Wastewater Treatment? Michigan Meeting on Microbial Communities, Unseen Partners: Manipulating Microbial Communities that Support Life on Earth, Ann Arbor, MI, May 16-18.
23. Kotlarz N, Rockey N, Haig SJ, Olson TM, Sanford L, LiPuma JJ, Raskin L (2016). Inactivation of Bacterial Populations in a Full-scale Ozone Contactor at a Drinking Water Treatment Plant. Michigan Meeting on Microbial Communities. Unseen Partners: Manipulating Microbial Communities that Support Life on Earth, Ann Arbor, MI, May 16-18.
24. Crossette, E., Raskin, L., Aga, D., Wigginton, K. (2016), The forms and persistence of antimicrobial resistance genes (ARG) in dairy farm manure treatment processes. Gordon Research Conference, Environmental Sciences:Water. Holderness, NH, June 2016, **Honorable Mention in Student Poster Competition.**
25. Kotlarz, N., N. Rockey, T.M. Olson, S.J. Haig, J.J. LiPuma, and L. Raskin (2016), Bacteria Survive Ozone Disinfection: Observations from a Full-Scale Drinking Water Treatment Plant., Microbial Ecology and Water Engineering (MEWE) and Biofilms IWA Specialist Conference, Copenhagen, Denmark, Sept. 4-7.
26. Haig, S.-J., J. Yonts, N. Rockey, G. Burke, D. Yeoman, Z. Hayes, B. Eggleston, B. Warner, C. Wilhelm, B. Ellis, K. Wigginton, M. Kaufman, T. Olson, and L. Raskin, Linking opportunistic bacterial pathogens and metal levels in drinking water samples and corroded service lines in Flint, Michigan, USA, Microbial Ecology and Water Engineering (MEWE) and Biofilms IWA Specialist Conference, Copenhagen, Denmark, Sept. 4-7, 2016.
27. Haig, S.-J., N. Kotlarz, N. Rockey, L.M. Kalikin, L.J. Caverly, J.J. LiPuma and L. Raskin, Stagnation Time, Pipe Material and Chemical Parameters Impact the Occurrence of Opportunistic Respiratory Pathogens in Drinking Water, Microbial Ecology and Water Engineering (MEWE) and Biofilms IWA Specialist Conference, Copenhagen, Denmark, Sept. 4-7, 2016.
28. Crossette, E., D. Aga, L. Raskin, K. Wigginton (2016), The forms and persistence of antimicrobial resistance genes in dairy farm manure treatments, Environmental Sciences: Water, Gordon Research Conference, June 26-July 1.
29. Haig, S.-J., N. Kotlarz, N. Rockey, L.M. Kalikin, L.J. Caverly, J.J. LiPuma and L. Raskin (2016), Linking the prevalence of opportunistic respiratory pathogens to physical and chemical

- characteristics in drinking water systems. The 5th Annual Sloan Microbiology of the Built Environment Conference, The University of Colorado, Boulder, CO, June 1-3.
30. Rockey, N., J. Yonts, S.J. Haig, K. Wigginton, L. Raskin (2016), Abundance of Opportunistic Bacterial Pathogens in a Hot Water Pipe Loop System with Observed Changes in Water Quality, UNC Water Microbiology conference, Chapel Hill, NC, May 17-19.
  31. Kotlarz, N., G. Upadhyaya, P. Togna, L. Raskin (2016), Bacterial Communities in Perchlorate and Nitrate Reducing Bioreactors, AWWA International Symposium: Biological Treatment, Long Beach, Calif., January 27-28.
  32. Raskin, L., G. Upadhyaya, N. Kotlarz, A. Estrella-You, M. J. Kirisits, K. Hayes (2016), Hexavalent Chromium Removal From Drinking Water Sources Using Fixed-Bed Bioreactors, AWWA International Symposium: Biological Treatment, Long Beach, Calif., January 27-28.
  33. Caverly, L.J., T. Spilker, N. Kotlarz, S. Haig, L. Raskin, J.J. LiPuma (2015) Improving nontuberculous mycobacterial DNA extraction from CF sputum samples for culture-independent analyses, 29<sup>th</sup> Annual North American Cystic Fibrosis Conference, Oct. 8-10, Phoenix, AZ.
  34. Reddy, R., J. Tan, A. Kabir, S. Uddin, A. Shamim Khan, W. Ullah, A. Haqim, K. F. Hayes, L. Raskin, T.M. Clancy (2015), Safe handling and disposal of arsenic-bearing drinking water treatment wastes in Bangladesh, Fourth University of Oklahoma International WaTER Conference Sept. 21-23, Norman, Okla.
  35. Pinto, A.J., D.M. Marcus, U.Z. Ijaz, G. Dick, and L. Raskin (2015), Leveraging metagenomics to elucidate bacterial dynamics in drinking water systems, IWA Specialty Conference, Biofilms in Drinking Water Systems From Treatment to Tap, Arosa, Switzerland, Aug. 23-26.
  36. N. Kotlarz, S. J. Haig, J. R. Yonts, A. J. Pinto, J. LiPuma, L. Raskin (2015), Environmental Mycobacteria in Chloraminated Drinking Water, IWA Specialty Conference, Biofilms in Drinking Water Systems From Treatment to Tap, Arosa, Switzerland, Aug. 23-26.
  37. Delgado Vela, J., K. J. Martin, A. McFarland, N. Beaton, L. B. Stadler, S. J. Skerlos, L. Raskin, C. B. Bott, N. G. Love (2015), Removing Nitrogen from Effluents of Anaerobic Wastewater Treatment Processes: Understanding Control and Operation through Biofilm Modeling, 250<sup>th</sup> ACS National Meeting & Exposition, August 16-20, Boston, Massachusetts
  38. Haig, S.-J., N. Kotlarz, J. J. LiPuma, and L. Raskin (2015), From Source to Tap: Linking the Drinking Water Microbiome to Human Health, The 4th Annual Sloan Microbiology of the Built Environment Conference, The University of Colorado, Boulder, CO, July 15-18.
  39. Kotlarz, N., S. Haig, J. Yonts, J. LiPuma, L. Raskin (2015), Nucleic acid recovery of Mycobacterium spp. from drinking water, 2015 AEESP Research and Education Conference, New Haven, June 13-16.
  40. Delgado Vela, J., K. J. Martin, A. McFarland, N. Beaton, L. B. Stadler, C. B. Bott, L. Raskin, S. J. Skerlos, N. G. Love (2015), Removing Nitrogen and Dissolved Methane from Dilute Anaerobic Effluents, 2015 AEESP Research and Education Conference, New Haven, June 13-16.
  41. Kotlarz, N., S. Haig, J. LiPuma, L. Raskin (2015), Nucleic acid extractions from Mycobacteria in drinking water systems,. 115th American Society of Microbiology General Meeting, New Orleans, LA, May 30-June 2.
  42. Shrestha, S., Fonoll, X., Mata-Alvarez, J., Raskin, L., Khanal, S.K., Anaerobic digestion of lignocellulosic biomass using rumen contents for enhanced biogas production. Poster presentation at S-1041 Annual Meeting and Symposium, Ohio. Aug 2015
  43. Shrestha, S., Fonoll, X., Raskin, L., Khanal, S.K., Anaerobic digestion of lignocellulosic biomass using rumen contents for enhanced biogas production. Podium presentation at 24th Annual CTAHR Student Research Symposium, Honolulu, Hawaii. Apr 2015
  44. Grobbel, L., L. Raskin, J. Diana (2015), Urban Revitalization through Aquaculture: Detroit Shrimp, Aquaculture America 2015, New Orleans, LA, Feb. 21.
  45. Pinto, A.J., D. Marcus, G. Dick, L. Raskin (2014), Metagenomic Insights into Bacteria that Dominate Drinking Water Bacterial Communities. *Water quality and Technology Conference*. New Orleans, Louisiana, Nov. 16-20.
  46. Clancy, T.M., R. Reddy, J. Tan, K. F. Hayes, and L. Raskin (2014), Linking Microbial Activity with Arsenic Fate during Cow Dung Disposal of Arsenic-Bearing Wastes, AGU Fall Meeting, San Francisco, CA, Dec. 15-19.
  47. Kotlarz, N., D. Marcus, L. Kalikin, J. LiPuma, A. Pinto, L. Raskin (2014), Biogeography of drinking water bacteria along a premise plumbing flow path, International Symposium for Microbial Ecology (ISME). Seoul, South Korea, August 24-29.

48. Pinto, A. J., J. Schroeder, M. Lunn, W. Sloan, and L Raskin (2014), Predicting bacterial community dynamics in drinking water systems, International Symposium for Microbial Ecology (ISME). Seoul, South Korea, August 24-29.
49. Rausch-Williams, T., R. Reardon, N.G. Love, L. Raskin, A. Dapcic, S. Grandhi (2014), Carbon Management in BNR Wastewater Treatment to Improve Energy Self-sufficiency 11th IWA Leading Edge Conference on Water and Wastewater Technologies (LET 2014), Abu Dhabi (United Arab Emirates), May 26-29.
50. Stadler, L. B., Smith, A. L., Jain, A. K., Martin, K. J., Delgado Vela, J., Puente, P., Cao, L., Frenette, S., Bott, C. B., Rauch-Williams, T., Shimada, T., Salveson, A., Love, N. G., Raskin, L., and Skerlos, S. J. (2014), Integrating Life Cycle Assessment and Experimental Research: Evaluating Anaerobic Membrane Bioreactors in Domestic Wastewater Treatment for Energy Recovery. 23th Triennial Borchardt Conference, Ann Arbor, MI, Feb. 25 – 26.
51. Kabir, A., T. M. Clancy, S. Uddin, A. S. Khan, W. Ullah, K. F. Hayes, and L. Raskin (2014), Field assessment of arsenic-bearing waste treatment options in Bangladesh, 23th Triennial Borchardt Conference, Ann Arbor, MI, Feb 25-26.
52. Kotlarz, N., D. Marcus, J. Zhao, C. Xi, A. Pinto, J. LiPuma, L Raskin (2013), Biogeography of Cystic Fibrosis Opportunists in Drinking Water, UM MCubed Symposium. Ann Arbor, MI. Nov. 15.
53. Upadhyaya, G., N. Kotlarz, K. F. Hayes, L. Raskin, J. Brown (2013), Efficient Removal Of Multiple Contaminants Using Two-Stage Biologically Active Carbon Bioreactors, 2013 Water Quality Technology Conference, Long Beach, California, November 3-6.
54. Clancy, T.M., K. V. Snyder, K. F. Hayes, L. Raskin (2013), Assessing chemical and microbial processes affecting arsenic stability in concrete containing arsenic-bearing wastes from drinking water treatment, 246th American Chemical Society National Meeting, Indianapolis, IN, Sept. 8-12.
55. Stadler, L.B., A.L. Smith, L. Cao, N.G. Love, L. Raskin, and S.J. Skerlos (2013), Energy Recovery from Wastewater: Life Cycle Comparison of Carbon Removal Technologies Upstream of Autotrophic Nitrogen Removal. *WEF/IWA Nutrient Removal and Recovery 2013: Trends in Resource Recovery and Use*, Vancouver, British Columbia, Canada, July 28-31
56. Kotlarz, N., G. Upadhyaya, P. Togna, and L. Raskin (2013), Alternative Electron Donors for Simultaneous Removal of Perchlorate and Nitrate from Drinking Water Sources, 5<sup>th</sup> International Conference, Microbial Ecology and Water Engineering 2013 (MEWE 2013), Ann Arbor, Michigan, July 7 – 10.
57. Smith, A.L., T. Shimada, and L. Raskin, Syntrophic Interactions in Full-Scale Two-Phase Anaerobic Digesters Determined by Pyrosequencing, 5<sup>th</sup> International Conference, Microbial Ecology and Water Engineering 2013 (MEWE 2013), Ann Arbor, Michigan, July 7 – 10, 2013.
58. Clancy, T.M., K. V. Snyder, K. F. Hayes, L. Raskin, Microbial activity related to arsenic-bearing waste stability in disposal environments, 5<sup>th</sup> International Conference, Microbial Ecology and Water Engineering 2013 (MEWE 2013), Ann Arbor, Michigan, July 7 – 10, 2013.
59. Pinto, A.J., J. Schroeder, M. Lunn, W. Sloan, L. Raskin, Bacterial community dynamics in drinking water systems, 5<sup>th</sup> International Conference, Microbial Ecology and Water Engineering 2013 (MEWE 2013), Ann Arbor, Michigan, July 7 – 10, 2013.
60. Clancy, T.M., K. V. Snyder, K. F. Hayes, L. Raskin Evaluating the use of concrete stabilized arsenic-bearing waste, 2013 AEESP 50th Anniversary Conference, Environmental Engineers and Scientists of 2050: Education, Research, and Practice, July 14 - 16, 2013.
61. Stadler, L.B., A. L. Smith, L. Cao, N. G. Love, L. Raskin, and S. J. Skerlos, Life Cycle Comparison of Emerging and Established Wastewater Energy Recovery Systems, 2013 AEESP 50th Anniversary Conference, Environmental Engineers and Scientists of 2050: Education, Research, and Practice, July 14 - 16, 2013.
62. Fei, X., D. Zekkos and L. Raskin (2013), Current research on energy recovery from waste biodegradation and the impact on the waste's mechanical properties. 23<sup>rd</sup> Annual Solid Waste Technical Conference, Michigan Waste Industries Association. East Lansing, MI, April 16-17.
63. Clancy, T.M., T. Chiao, A. Pinto, C. Xi, and L. Raskin, "Differential disinfection resistance of bacterial populations in effluent from biologically active carbon (BAC) filter", American Water Works Association Biological Treatment Symposium, Denver, Colorado, Mar 28-29, 2013.
64. Upadhyaya, G., N, Kotlarz, K.F. Hayes, L. Raskin, and J. Brown "Fixed-Bed Biologically Active Carbon (BAC) Bioreactors Remove Multiple Contaminants Simultaneously", American Water Works Association Biological Treatment Symposium, Denver, Colorado, Mar 28-29, 2013.
65. Cao, L., L. Raskin, J. Diana, G. Keoleian, Farming Shrimp in the United States: Is Local Better?, World Aquaculture Society, Aquaculture 2013, Nashville, Tennessee, Feb. 21-25, 2013

66. Smith, A. L., L. B. Stadler, L. Raskin, and S. J. Skerlos (2012), Comparative LCA of Conventional and Novel Domestic Wastewater Treatment Schemes, University of Michigan LCA Symposium, Ann Arbor, MI, May 31.
67. Smith, A.L., N.G. Love, S.J. Skerlos, and L. Raskin (2012), Effects of Temperature and HRT on Performance and Environmental Impacts of Anaerobic Membrane Bioreactors for Domestic Wastewater: Treatment, International Water Association Leading Edge Technology (LET) Conference, Brisbane, Australia, June 3-7, 2012.
68. Raskin, L., K. Hayes, J. Brown, G. Upadhyaya, P. Ghosh, T. Clancy, J. Jackson, A. Jenkins, T. Chiao, M. Poll, A. Trese, K. Snyder, X. Chu, Biologically-Mediated, Simultaneous Removal of Nitrate and Arsenic from Drinking Water Sources – NSF Award CBET 0967707, NSF CBET PI Meeting, June 6-8, 2012.
69. Kotlarz, N., Upadhyaya, G., A. Hammerbeck, X. Chu, P. Togna, and L. Raskin, Alternate electron donors for biologically-mediated simultaneous removal of nitrate and perchlorate from drinking water sources, American Water Works Association Annual Conference & Exposition (ACE), Dallas, Texas, June 10-14, 2012.
70. Clancy, T., T.-H. Chiao, A. Pinto, C. Xi, L. Raskin, Tracking the survival of bacteria exposed to monochloramine disinfection in drinking water treated by a biologically active filter, ISME 14, Copenhagen, Denmark, August 19-24, 2012.
71. Schroeder, J., A. Pinto, M. Lunn, L. Raskin, and W. Sloan, Theoretical models for bacterial communities in drinking water as they travel and evolve through drinking water distribution systems, ISME 14, Copenhagen, Denmark, August 19-24, 2012.
72. Pinto, A., J. Schroeder, M. Lunn, W. Sloan, and L. Raskin, Evaluating process-related and seasonal changes in bacterial community in drinking water treatment and distribution systems, ISME 14, Copenhagen, Denmark, August 19-24, 2012.
73. Upadhyaya, G., N, Kotlarz, A. Hammerbeck, X. Chu, P. Togna, and L. Raskin, Alternate electron donors for biologically-mediated simultaneous removal of nitrate and perchlorate from drinking water sources, Michigan Section AWWA Annual Conference, Bellaire, Michigan, September 11-14, 2012.
74. Upadhyaya, G., P.K. Ghosh, K. F. Hayes, and L. Raskin, Drinking Water Production Using An Anaerobic Fixed-Bed Bioreactor From Water Sources Contaminated With Nitrate And Uranium, Water Quality Technology Conference & Exposition, Toronto, Ontario, Canada, Nov. 4-8, 2012.
75. Upadhyaya, G., N, Kotlarz, A. Hammerbeck, X. Chu, P. Togna, and L. Raskin, Alternate electron donors for biologically-mediated simultaneous removal of nitrate and perchlorate from drinking water sources, Water Quality Technology Conference & Exposition, Toronto, Ontario, Canada, Nov. 4-8, 2012.
76. Ghosh, P.K., G. Upadhyaya, L. Raskin, and K. F. Hayes, Comparison of uranium and nitrate removal from simulated groundwater using mixed microbial consortia in the presence and absence of iron, International Water Association, Conference on Microbes in Wastewater and Waste Treatment, Bioremediation, and Energy Production, BITS – Pilani, Goa campus, Goa, India, January 24 – 27, 2011.
77. Chiao, T.-H., A. Pinto, C. Xi, and L. Raskin, A Culture-Independent Method to Assess Inactivation Kinetics of Drinking Water, Michigan AWWA & MWEA Joint Expo, Lansing, MI, Feb. 8, 2011.
78. Upadhyaya, G., T.M. Clancy, J.C. Brown, K.F. Hayes, and L. Raskin, Simultaneous Removal of Nitrate and Arsenic from Drinking Water Using Fixed-bed Anaerobic Bioreactor System, 22<sup>nd</sup> Triennial Borchardt Conference, Ann Arbor, MI, Feb. 23-24, 2011.
79. Smith, A.L., H. Dorer, N.G. Love, S.J. Skerlos, and L. Raskin, Energy Recovery from Domestic Wastewater using Anaerobic Membrane Bioreactors, 22<sup>nd</sup> Triennial Borchardt Conference, Ann Arbor, MI, Feb. 23-24, 2011.
80. Brown, J.C., G. Upadhyaya, T. M. Clancy, K. F. Hayes, and L. Raskin, Simultaneous Removal of Multiple Contaminants from Drinking Water Using Fixed-bed Anaerobic Bioreactors, International Water Association Leading Edge Technology (LET) Conference, Amsterdam, The Netherlands, June 6-10, 2011.
81. Pinto, A.J., T.C. Chiao, C. Xi, and L. Raskin, Seeding mechanisms for bacterial and archaeal populations in a drinking water distribution system: a year-long microbial and chemical inventory, International Water Association Leading Edge Technology (LET) Conference, Amsterdam, The Netherlands, June 6-10, 2011.

82. Chiao, T.H., A.J. Pinto, C. Xi, and L. Raskin, A Culture-Independent Method to Assess Inactivation Kinetics of Drinking Water, American Water Works Association Annual Conference & Exposition (ACE) , Washington, D.C., June 12 -16, 2011.
83. Upadhyaya, G., T. M. Clancy, A. Jenkins, K. V. Snyder, J. C. Brown, K. F. Hayes, and L. Raskin, Point-of-use anaerobic biofilter for arsenic and nitrate removal from drinking water sources, American Water Works Association Annual Conference & Exposition (ACE), Washington D.C., Jun 12-16, 2011
84. Herbert, E.N., G. Upadhyaya, L. Raskin, K.F. Hayes, and V.C. Li, Development of Bacterially-Mediated Self-Healing in Engineered Cementitious Composites, 3<sup>rd</sup> International Conference on Self-Healing Materials, Bath, UK. 27-29 June 2011
85. Pinto, A.J., T.-H. Chiao, C. Xi, L. Raskin, Bacterial Infiltration and Survival in Drinking Water Distribution Systems, Association of Environmental Engineering and Science Professors (AEESP) Education and Research Conference, Tampa, Florida, July 10-12, 2011.
86. Smith, A.L., H. Dorer, N.G. Love, S.J. Skerlos, and L. Raskin, Psychrophilic Anaerobic Membrane Bioreactor for Domestic Wastewater Treatment, Association of Environmental Engineering and Science Professors (AEESP) Education and Research Conference, Tampa, Florida, July 10-12, 2011.
87. Colby, A., Khunjar, W., Pinto, A., Ghosh, S., Raskin, L., Love, N. (2011), Impact of Copper Stress on Nitrification Performance and the Ammonia Oxidizer Community Structure in Activated Sludge, Association of Environmental Engineering and Science Professors (AEESP) Education and Research Conference, Tampa, FL. July 10-12.
88. Fei, X., D. Zekkos and L. Raskin (2011). Characterization of biodegradation processes in municipal solid waste landfills for long-term performance prediction. 2011 AEESP Education and Research Conference, Association of Environmental Engineering and Science Professors. Tampa, FL, July 10-12.
89. Colby, A., Khunjar, W., Pinto, A., Ghosh, S., Raskin, L., Love, N. Effect of Copper Stress on Ammonia Oxidizer Community Structure and Nitrification Performance in a Nitrifying Activated Sludge Wastewater Treatment Process, 2<sup>nd</sup> International Conference on Nitrification, Nijmegen, The Netherlands. July 1-7, 2011.
90. Smith, A.L., N.G. Love, S.J. Skerlos, and L. Raskin, Analysis of Microbial Communities in an Anaerobic Membrane Bioreactor for Domestic Wastewater Treatment at Psychrophilic Conditions, International Conference on Biogas Microbiology, Helmholtz-Zentrum für Umweltforschung – UFZ, The German Biomass Research Centre (DBFZ), Sept. 14-16, 2011, Leipzig, Germany.
91. Clancy, T., T.-H. Chiao, G. Upadhyaya, A. Pinto, J. C. Brown, K. F. Hayes, C. Xi, and L. Raskin (2011), Evaluating backwashing and disinfection to ensure optimal chemical and microbiological effluent quality from a fixed-bed bioreactor designed for simultaneous removal of nitrate, sulfate, and arsenate from groundwater, Water Quality Technology Conference & Exposition, Phoenix, Arizona, Nov. 14-17, 2011
92. Pinto, A.J., T.-H. Chiao, C. Xi, L. Raskin, Influence of microbial immigration on the bulk water microbiota in a drinking water distribution system, Water Quality Technology Conference & Exposition, Phoenix, Arizona, Nov. 14-17, 2011.
93. Giridhar Upadhyaya, Jeff Jackson, Kim F. Hayes, Jess Brown, and Lutgarde Raskin, “Application of a Fixed-Bed Bioreactor System to Achieve the Simultaneous Removal of Arsenic and Nitrate from Water”, Inorganic Contaminants Workshop, Feb 28 - Mar 2, 2010, Denver, Colorado
94. Giridhar Upadhyaya, Jeff Jackson, Tara Clancy, Jess Brown, Kim F. Hayes, and Lutgarde Raskin, “Microbial Community in a Fixed-bed Bioreactor System used for Simultaneous Removal of Nitrate and Arsenic from Drinking Water”, submitted to IWA Water Research Conference, 11 – 14 April 2010, Marriott Lisbon, Portugal
95. David Berry, Chuanwu Xi, Lutgarde Raskin, Revealing biological complexity in drinking water treatment through transcriptional profiling of model bacteria: the role of non-specific and conserved stress responses submitted to IWA Water Research Conference, 11 – 14 April 2010, Marriott Lisbon, Portugal
96. Tara Clancy, Giridhar Upadhyaya, Pranab Ghosh, Jeff Jackson, Kim Hayes and Lutgarde Raskin, Biologically Active Carbon Reactors for the Removal of Arsenic and Uranium from Drinking Water, ACE10, American Water Works Association, Chicago, IL, June 20-24, 2010
97. Upadhyaya, G., J. Jackson, T. Clancy, J. Brown, K. F. Hayes, and L. Raskin Effect of Backwashing on Nitrate and Arsenic Removal from Drinking Water using Fixed-bed Biologically Active Carbon Reactors ACE10, American Water Works Association, Chicago, IL, June 20-24, 2010

98. Brown, M.N., A. Briones, J. Diana, L. Raskin, Ammonia Oxidizing Archaea and *Nitrospira*-like Bacteria in the Biofilter of a Marine Shrimp Recirculating Aquaculture System, ISME 13, August 22-27, 2010, Seattle, WA.
99. Ameet Pinto, Tzu-Hsin Chiao, Chuanwu Xi, and Lutgarde Raskin, Assessing the microbial dynamics of a drinking water treatment system to enhance biological drinking water treatment potential and water quality, ISME 13, August 22-27, 2010, Seattle, WA.
100. Dongjuan Dai, Lutgarde Raskin, Chuanwu Xi, The involvement of gene *fliA* in the interaction of *Escherichia coli* with *Stenotrophomonas* sp. in dual species biofilms, ISME 13, August 22-27, 2010, Seattle, WA.
101. Giridhar Upadhyaya, Tara Clancy, Jeff Jackson, Jess Brown, Kim Hayes, and Lutgarde Raskin, Spatial Distribution of Arsenate and Sulfate Reducing Bacteria and their Activities in a Biofilm Reactor that Simultaneously Removes Nitrate, Arsenic, and Sulfate from Drinking Water, ISME 13, August 22-27, 2010, Seattle, WA.
102. Roya Gitiafroz, Cheryl E. Devine, Laura Hug, Lutgarde Raskin, Elizabeth A. Edwards, Bacteria Involved in Benzene Biodegradation under Nitrate-Reducing Conditions, ISME 13, August 22-27, 2010, Seattle, WA.
103. Smith, A.L., H.J. Dorer, N.G. Love, S.J. Skerlos, and L. Raskin (2010), Methane Production from Domestic Wastewater using Anaerobic Membrane Bioreactors, Presented at *Biogas Summit*, Flint, Michigan, October 29.
104. Tzu-Hsin Chiao, Ameet Pinto, Chuanwu Xi, and Lutgarde Raskin, A Culture Independent Alternative to Determine Inactivation Kinetics of Mixed Microbial Communities in Drinking Water Systems, Water Quality Technology Conference & Exposition, Nov 14-18, 2010, Savannah, Georgia
105. Brown, M., A. Briones, J. Diana, and L. Raskin, Microbial Dynamics in Recirculating Systems, Aquaculture in the New Michigan Economy, Michigan Aquaculture Association Meeting, Ann Arbor, MI, February 24-25, 2009.
106. Brown, M., A. Briones, J. Diana, and L. Raskin, Niche Differentiation of Ammonia Oxidizing *Archaea* and Ammonia Oxidizing *Bacteria* in Shrimp Aquaculture Systems, IWA ASPD5, Specialised Conference on Microbial Population Dynamics in Biological Wastewater Treatment Aalborg, Denmark, May 24-27, 2009.
107. Malaisamy, R., D. Berry, L. Raskin, D. Holder, and K. Jones. 2009. Studies On Anti-Biofouling and Anti-Bacterial Microfiltration Membranes by Membrane Surface Modification Using UV Grafting. 13th IACIS International Conference on Surface and Colloid Science and 83rd ACS Colloid and Surface Science Symposium. New York, NY. June 14-19.
108. Berry, D., M. Horn, M. Wagner, C. Xi, and L. Raskin. 2009. Interactions of the bacterial pathogen *Mycobacterium avium* with amoebae. National Science Foundation Engineering Education Programs Awardees Conference. Reston, VA. Feb 1-3.
109. Upadhyaya G., T. P. Yavaraski, K. F. Hayes, and L. Raskin (2009), "Optimization of an IC/ICP-MS Method for Arsenic Species in Complex Sample Matrices", Pittcon 2009, Mar 8-13, 2009, McCormick Place, Chicago, Illinois
110. Upadhyaya, G., J. Jackson, J. Brown, K. F. Hayes, and L. Raskin, Simultaneous Removal of Nitrate and Arsenic from Drinking Water Sources using Fixed-Bed Biologically Active Carbon (BAC) Filters, Association of Environmental Engineering and Science Professors (AEESP) 2009 Conference - Grand Challenges in Environmental Engineering and Science: Research and Education, , Iowa City, IA, July 26-29, 2009
111. Dai, D., L. Raskin and C. Xi, Effect of Bacterial Interactions on the Fate of Pathogens in Biofilms, Association of Environmental Engineering and Science Professors (AEESP) 2009 Conference - Grand Challenges in Environmental Engineering and Science: Research and Education, , Iowa City, IA, July 26-29, 2009
112. Berry, D., M. Horn, M. Wagner, C. Xi, and L. Raskin, Student Award: Infectivity and intracellular survival of *Mycobacterium avium* in environmental *Acanthamoeba* strains and dynamics of inactivation by monochloramine, Association of Environmental Engineering and Science Professors (AEESP) 2009 Conference - Grand Challenges in Environmental Engineering and Science: Research and Education, , Iowa City, IA, July 26-29, 2009
113. Upadhyaya, G., J. Jackson, J. Brown, K. F. Hayes, and L. Raskin, Biologically mediated simultaneous removal of nitrate and arsenic from drinking water sources, Water Quality Technology Conference & Exposition, Nov 15-19, 2009, Seattle, Washington

114. Li, X., G. Upadhyaya, W. Yuen, E. Morgenroth, J. Brown, and L. Raskin, "Changes in Microbial Community Structure and Function of Drinking Water Treatment Bioreactors Upon Phosphorus Addition", Water Quality Technology Conference & Exposition, Nov 15-19, 2009, Seattle, Washington
115. Williams, L., X. Li, C. Xi, and L. Raskin, "Disinfection of a Biologically Treated Drinking Water using Monochloramine", Water Quality Technology Conference & Exposition, Nov 15-19, 2009, Seattle, Washington
116. Dai, D., L. Raskin, C. Xi. Identifying *Escherichia coli* genes involved in interactions with *Pseudomonas aeruginosa* in dual-species biofilms using cDNA microarray. 5th ASM conference on biofilms. Nov. 15-19, 2009, Mexico.
117. Dai, D., D. Holder, D. Berry, L. Williams, L. Raskin, and C. Xi (2008), Effects of culture conditions on mixed species biofilm development, 21<sup>st</sup> Triennial Borchardt Conference, Ann Arbor, MI, Feb. 27-28.
118. Gitiafroz, R., C.E. Washer, M. Nandi, A. Ulrich, L. Raskin, and E.A. Edwards (2008), Microorganisms responsible for anaerobic biodegradation of benzene under nitrate-reducing conditions, 21<sup>st</sup> Triennial Borchardt Conference, Ann Arbor, MI, Feb. 27-28.
119. Borrell, T.B., C. Donahue, J.C. Cho, E. Morgenroth, J. Kim, L. Raskin, and S. Skerlos (2008), Anaerobic membrane bioreactors of treatment of domestic wastewater: Fouling and fouling control, 21<sup>st</sup> Triennial Borchardt Conference, Ann Arbor, MI, Feb. 27-28.
120. Williams, L., D. Berry, D. Dai, D. Holder, C. Xi, and L. Raskin (2008), Microbial community analysis of biofilms in drinking water distribution systems, 21<sup>st</sup> Triennial Borchardt Conference, Ann Arbor, MI, Feb. 27-28.
121. Yuen, W., X. Li, J. Brown, E. Morgenroth, and L. Raskin (2008), Effects of phosphorus addition on microbial communities in biologically active carbon reactors, 21<sup>st</sup> Triennial Borchardt Conference, Ann Arbor, MI, Feb. 27-28.
122. Brown, M., A. Briones, J. Diana, and L. Raskin (2008), Detection of ammonia-oxidizing bacteria and archaea in a recirculating shrimp aquaculture system biofilter, 21<sup>st</sup> Triennial Borchardt Conference, Ann Arbor, MI, Feb. 27-28.
123. Upadhyaya, G., K. Hayes, and L. Raskin (2008), Biologically mediated simultaneous removal of arsenic, perchlorate, and nitrate from drinking water, 21<sup>st</sup> Triennial Borchardt Conference, Ann Arbor, MI, Feb. 27-28.
124. Xi, C., L. Raskin, and N. Love (2008), Antibiotic resistance in the water environment, Graham Environmental Sustainability Institute (GESI), Water, Health, + the Environment Conference, Establishing the Research Agenda, Ann Arbor, MI, March 26-27.
125. Malaisamy, R., D. Berry, D. Holder, L. Raskin, L. Lepak, and K.L. Jones (2008), Modification of Microfiltration Membranes: Implications for Biofouling, Flux Recovery and Antibacterial Properties, International Conference on Membranes and Membrane processes, ICOM-2008, Honolulu, HI, July 12-18.
126. Berry, D., M. Herzberg, A.M. Briones Jr., M. Elimelech, and L. Raskin (2008), Prefiltration of influent does not alter the bacterial community structure of biofilms on reverse osmosis membranes, American Chemical Society 235th National Meeting & Exposition, New Orleans, LA, April 6-10.
127. Herzberg, M., D. Berry, A.M. Briones Jr., L. Raskin, M. Elimelech (2008), Impact of microfiltration on biofouling of reverse osmosis membranes, American Chemical Society 235th National Meeting & Exposition, New Orleans, LA, April 6-10.
128. Herzberg, M. D. Berry, A.M. Briones Jr., L. Raskin, and M. Elimelech (2008), Impact of microfiltration on biofouling of reverse osmosis membranes. The Annual Conference of the Israeli Society for Microbiology, Rehovot, Israel, April, 2008.
129. Borrell, T.B., C. Donahue, J.C. Cho, E. Morgenroth, J. Kim, L. Raskin, and S.J. Skerlos (2008), Evaluation of fouling constituents in membrane bioreactors: Extracellular polymeric substances and inorganic precipitation, American Chemical Society 235th National Meeting & Exposition, New Orleans, LA, April 6-10.
130. Malaisamy, R., D. Berry, T.B. Borrell, D. Holder, L. Raskin, and K.L. Jones (2008), Surface modification of microfiltration membranes to decrease biofouling, American Chemical Society 235th National Meeting & Exposition, New Orleans, LA, April 6-10.
131. Tontcheva, P.T., A. Asatekin, A.M. Mayes, S.I. Padmasiri, L. Raskin, and E. Morgenroth (2008), Evaluation of antifouling ultrafiltration membranes containing PAN-g-PEO additive in anaerobic membrane bioreactors, American Chemical Society 235th National Meeting & Exposition, New



- Orleans, LA, April 6-10.
132. Li, X., G. Upadhyaya, W. Yuen, J. Brown, E. Morgenroth, and L. Raskin (2008), Optimizing a biologically active carbon (BAC) reactor for nitrate and perchlorate removal using biological activity and GAC adsorption capacity, American Chemical Society 235th National Meeting & Exposition, New Orleans, LA, April 6-10.
  133. Dai, D., D. Holder, D. Berry, L. Williams, L. Raskin, and C. Xi (2008), Separation of *Escherichia coli* from Dual-Species Biofilms for DNA Microarray Study Using Immuno-Magnetic Separation, American Society for Microbiology, 108<sup>th</sup> General Meeting, Boston, MA, June 1-5.
  134. Gitiafroz, R., C. Washer, L. Raskin, and E. Edwards (2008), Molecular Characterization of Cultures Capable of Anaerobic Biodegradation of Benzene under Nitrate-Reducing Conditions, American Society for Microbiology, 108<sup>th</sup> General Meeting, Boston, MA, June 1-5.
  135. Holder, D., D. Berry, D. Dai, L. Williams, L. Raskin, and C. Xi (2008), Study of Molecular Mechanisms of *Escherichia coli* Response to Monochloramine using Flow cytometry and Inactivation Experiments, American Society for Microbiology, 108<sup>th</sup> General Meeting, Boston, MA, June 1-5.
  136. Berry, D., D. Holder, D. Dai, C. Xi, and L. Raskin (2008), Bacterial gene expression during disinfection with monochloramine, 5th International Water Association Leading-Edge Conference & Exhibition on Water & Wastewater Technologies, Zurich, Switzerland, June 1-4.
  137. Dai, D., D. Holder, D. Berry, L. Williams, L. Raskin and C. Xi (2008), Separation of *Escherichia coli* from dual-species biofilms for DNA microarray study using fluorescence activated cell sorting, XXIV International Congress of the International Society for Analytical Cytometry (ISAC), Budapest, Hungary, May 17-21.
  138. Li, X., G. Upadhyaya, J. Brown, E. Morgenroth, and L. Raskin (2008), Inorganic Contaminants Workshop, American Water Works Association, Biological Removal of Perchlorate from Drinking Water – A study to design and optimize a system for sustained biological perchlorate removal, Albuquerque, NM, Jan. 27-29.
  139. Berry, D., D. Holder, D. Dai, C. Xi, and L. Raskin (2007), Does the specific growth rate of bacteria affect their susceptibility to monochloramine? AWWA/MWEA Joint Expo 2007, Lansing, MI, Feb. 6-7.
  140. Li, X., G. Upadhyaya, J. Brown, E. Morgenroth, and L. Raskin (2007), Start-up of a biologically active carbon (BAC) reactor to treat perchlorate and nitrate contaminated drinking water. Sixteenth Annual Michigan Section, AWWA/MWEA (American Water Works Association and Michigan Water Environment Association) Joint Exposition, Lansing, MI, Feb. 6-7.
  141. Berry, D., D. Holder, D. Dai, C. Xi, and L. Raskin (2007), Effect of bacterial specific growth rate and growth in biofilms on kinetics of inactivation with monochloramine, 233<sup>rd</sup> American Chemical Society National Meeting, Chicago, IL, March 25-29.
  142. Padmasiri, S.I., P. Tontcheva, M. Fitch, M.N. Pons, B. Norddahl, E. Morgenroth, and L. Raskin (2007), Influence of high shear on microbial community activity and structure in an anaerobic membrane bioreactor, 233<sup>rd</sup> American Chemical Society National Meeting. Chicago, IL, March 25-29.
  143. Tontcheva, P., S.I. Padmasiri, B. Norddahl, L. Raskin, and E. Morgenroth (2007), Organic and inorganic fouling mechanisms in anaerobic membrane bioreactors, 233<sup>rd</sup> American Chemical Society National Meeting, Chicago, IL, March 25-29.
  144. Dai, D., D. Holder, D. Berry, L. Raskin, and C. Xi (2007), Separation of Bacterial Strains from Mixed-Species Biofilms Using Immuno-Magnetic Separation and Fluorescence Activated Cell Sorting in Preparation for DNA Microarray Studies, 4th ASM Conference on Biofilms Quebec City, Quebec, Canada, March 25-29.
  145. Li, X., Y.C. Choi, E. Morgenroth, and L. Raskin (2007), Optimization of Backwash Strategy to Maintain Continuous Perchlorate Reduction with a Fixed Bed Biofilm Reactor, 4th ASM Conference on Biofilms, Quebec City, Canada, March 25-29.
  146. Berry, D., D. Holder, D. Dai, C. Xi, and L. Raskin (2007), Effect of growth in biofilms, specific growth rate and growth temperature on kinetics of inactivation with monochloramine, 4th ASM Conference on Biofilms Quebec City, Quebec, Canada, March 25-29.
  147. Holder, D.J., D.M. Berry, D. Dai, L. Raskin, and C. Xi (2007), Analysis of the Mechanisms of *Escherichia coli* Response to Monochloramine By Flow Cytometry, 107<sup>th</sup> American Society of Microbiology General Meeting, Toronto, Canada, May 21-25.
  148. Li, X., E. Morgenroth, and L. Raskin (2007), Solution-Based Hybridization Assay using Peptide Nucleic Acid Molecular Beacons (PNA MBs) to Quantify rRNA of Specific Microbial Groups, 107<sup>th</sup>

- American Society of Microbiology General Meeting, Toronto, Canada, May 21-25.
149. Zhou, Z., L. Raskin, J. Zilles (2007), Cumulative Effects of Land Application of Manure on Levels of Antimicrobials and Antimicrobial Resistant Bacteria in Soils, 107<sup>th</sup> American Society of Microbiology General Meeting, Toronto, Canada, May 21-25.
  150. Borrell, T., T. Jackson, S. Padmasiri, C. Plugge, E. Morgenroth, S. Skerlos, and L. Raskin (2007), Environmentally sustainable treatment of domestic wastewater using anaerobic membrane bioreactors, Association of Environmental Engineering and Science Professors (AEESP) Conference – Interactions at the Interface, Blacksburg, VA, July 28-Aug. 1.
  151. Li, X., G. Upadhyaya, J. Brown, E. Morgenroth, and L. Raskin (2007), Biological treatment of perchlorate-contaminated drinking water – Scale-up study to evaluate backwash strategies, Association of Environmental Engineering and Science Professors (AEESP) Conference – Interactions at the Interface, Blacksburg, VA, July 28-Aug. 1.
  152. Berry, D., D. Holder, D. Dai, C. Xi, and L. Raskin (2007), Elucidating the Molecular Mechanisms of Bacterial Resistance to Disinfection with Monochloramine, Association of Environmental Engineering and Science Professors (AEESP) Conference – Interactions at the Interface, Blacksburg, VA, July 28-Aug. 1.
  153. Li, X., G. Upadhyaya, J. Brown, E. Morgenroth, and L. Raskin (2007), Start-up of a biologically active carbon (BAC) reactor to treat perchlorate and nitrate contaminated drinking water. AWWA Annual Conference and Exposition, Toronto, Canada, April 24-28.
  154. Malaisamy, R., D. Berry, L. Raskin, and K.L. Jones (2007), Development of Novel Hydrophilic Bactericidal Membranes. 2007 AIChE Annual Meeting, Salt Lake City, UT, November, 5-9.
  155. Zhou, Z., M. Robert, L. Raskin, J. Zilles (2006), Quantification of MLS<sub>B</sub> antimicrobial resistance in soil amended with swine waste, 106<sup>th</sup> American Society of Microbiology General Meeting, Orlando, FL, May 21-25.
  156. Tontcheva, P., J. Zhang, S.I. Padmasiri, M. Fitch, B. Norddahl, L. Raskin, and E. Morgenroth (2006), Membrane Fouling and Membrane Cleaning in Anaerobic Membrane Bioreactors. Materials Research Society General Meeting, Symposium on Materials Science of Water Purification, San Francisco, CA, April 18-19.
  157. Padmasiri, S.I., P. Tontcheva, M. Fitch, M.N. Pons, B. Norddahl, E. Morgenroth, and L. Raskin (2006), Influence of Shear on the Microbial Community in an Anaerobic Membrane Bioreactor (AnMBR) Treating High Strength Wastewater. 11<sup>th</sup> International Symposium on Microbial Ecology (ISME-11), Vienna, Austria, Aug. 20-25.
  158. Briones, A.M., J. Shililu, J. Githure, I. Kakoma, R. Novak, and L. Raskin (2006), Bacteria as Food and Larvicide: Combining Microbial Ecology and Biotechnology to Control Mosquitoes in Kenyan Rice Paddies. 11<sup>th</sup> International Symposium on Microbial Ecology (ISME-11), Vienna, Austria, Aug. 20-25.
  159. Berry, D., D. Holder, C. Xi, and L. Raskin (2006), Survival Mechanisms of Bacterial Pathogens in Drinking Water Distribution Systems. MI AWWA Annual Conference, Gaylord, MI, Sept. 12-15.
  160. Holder, D., D. Berry, D. Dai, L. Raskin, C. Xi (2006), Study of Molecular Mechanisms of *Escherichia coli* Response to Monochloramine Using DNA Microarray Technology and Flow Cytometry, Great Lakes International Imaging and Flow Cytometry Association Annual Meeting (GLIFCA 15), Pittsburgh, PA, Sept. 29-Oct. 1.
  161. Raskin, L., E. Morgenroth, S. Padmasiri, J. Zhang, M. Fitch, and B. Norddahl (2005), Anaerobic Membrane Bioreactors for the Production of Reusable Water and Energy from High Strength Waste, Annual WaterCAMPWS symposium, Atlanta, GA, April 13-15.
  162. Morgenroth, E., C. Criddle, L. Raskin, A. Spormann, D. Yeh, M. Fitch, R. Hickey, Y. Lee, B. Norddahl, S. Padmasiri, P. Wong, C.H. Yeung, G. Wells, J. Zhang, and A. Ng (2005), "Water Reuse through Membrane Biotechnology as a New Source of Drinking Water," *WaterCAMPWS 2<sup>nd</sup> Annual Symposium*, Atlanta, GA, April 13-15.
  163. Li, X., C. Xi, Y.C. Choi, E. Morgenroth, and L. Raskin (2005), High-Throughput Solution Based rRNA and Whole Cell Quantification Method using Peptide Nucleic Acid Molecular Beacons, 105<sup>th</sup> American Society of Microbiology General Meeting, Atlanta, GA, June 5-9.
  164. Padmasiri, S.I., A. Zhang, M. Fitch, E. Morgenroth, and L. Raskin (2005), Microbial Community Characterization during Startup of an Anaerobic Membrane Bioreactor (AnMBR) Treating Swine Waste. 105<sup>th</sup> American Society of Microbiology General Meeting, Atlanta, GA, June 5-9.
  165. Zhou, Z., A. Jindal, M. Robert, L. Raskin, and J. Zilles (2005), MLS<sub>B</sub> Resistance Levels Vary Greatly for Different Populations in Swine Waste Samples. Joint Meeting of the 3 Divisions of the International Union of Microbiological Societies, San Francisco, CA, July 23-28.

166. Zhou, Z., M.N. Pons, L. Raskin, and J. Zilles (2005), Automated Image Analysis for Quantitative Fluorescence In Situ Hybridization in Environmental Samples, 105<sup>th</sup> American Society of Microbiology General Meeting, Atlanta, GA, June 5-9.
167. Choi, Y.C., X. Li, L. Raskin, and E. Morgenroth (2005), Effect of oxygen and backwash on biological perchlorate removal from drinking water using a biologically active carbon (BAC) fixed bed reactor, AWWA IL Section 2005 Conference, Springfield, IL, March 22-24.
168. Zhou, Z., A. Jindal, M. Robert, L. Raskin, J. Zilles (2004), FISH analysis of MLS<sub>B</sub> antimicrobial resistance in swine waste, 104<sup>th</sup> American Society of Microbiology General Meeting, New Orleans, LA, May 23-27.
169. Xi, C., R. Lin, X. Li, Y.C. Choi, E. Morgenroth, and L. Raskin (2004), Using T-RFLP and FISH to characterize perchlorate-reducing bacteria in biological activated carbon (BAC) for perchlorate removal, 104<sup>th</sup> American Society of Microbiology General Meeting, New Orleans, LA, May 23-27.
170. Choi, Y.C., C. Xi, X. Li, L. Raskin, and E. Morgenroth (2004) Interrelationship between dissolved oxygen levels and growth patterns of biofilms and their effects on perchlorate removal from drinking water using biofilm reactors, Tenth International Symposium on Microbial Ecology (ISME), Cancun, Mexico, Aug. 22-27.
171. A. Briones, B.J. Daugherty, L.T. Angenent, K. Rausch, M. Tumbleson, and L. Raskin (2004) Microbial community diversity, dynamics, and interactions in anaerobic bioreactors treating sulfate-rich waste streams, Tenth International Symposium on Microbial Ecology (ISME), Cancun, Mexico, Aug. 22-27.
172. Choi, Y.C., C. Xi, X. Li, L. Raskin, and E. Morgenroth (2004), Short-term and long-term effects of oxygen on biological perchlorate reduction in biofilm reactors, IWA International Conference, Biofilms 2004: Structure and Activity of Biofilms, Las Vegas, NV, Oct. 24-26.
173. Choi, Y.C., C. Xi, X. Li, L. Raskin, and E. Morgenroth (2004), Biofilm growth patterns in a biologically activate carbon (BAC) filter and their effects on perchlorate removal efficiency, 2004 Water Quality Conference, Ontario, CA, Oct. 27-29.
174. Xi, C., L. Raskin, and S. Boppart (2003), Detection and quantification of specific bacterial populations using PNA molecular beacons in an integrated microfluidic system, 225th American Chemical Society National Meeting, New Orleans, LA, March 23-28.
175. Frigon D., A. Klein, R. Lin, R. Sanford, and L. Raskin (2003), Statistical Method to Combine Information from Fragments Generated by Various Restriction Enzymes during T-RFLP, 103<sup>rd</sup> American Society of Microbiology General Meeting, Washington D.C., May 18-22.
176. Klein, A.N., D. Frigon, R. Lin, S. Padmasiri, and L. Raskin (2003), Using T-RFLP to Generate Microbial Community Profiles from Complex Environments, 103<sup>rd</sup> American Society of Microbiology General Meeting, Washington D.C., May 18-22.
177. Xi, C., S. Boppart, and L. Raskin (2003), Development of an integrated microfluidic biosensor for detection of bacteria. ASM Conference on Bio-, Micro-, and Nanosystems, New York, NY, July 7-10.
178. Padmasiri, S., J.J. Simmons, T. Duangmanee, S. Sung, and L. Raskin (2003), Microbial Community Analysis in Hydrogen Producing Continuous Flow Bioreactors, 103<sup>rd</sup> American Society of Microbiology General Meeting, Washington D.C., May 18-22.
179. Raskin, L., D. Frigon, H. Vervaeren, and W. Verstraete (2003), Molecular tools in wastewater studies: Science research yesterday, process investigations today, routine analysis tomorrow? IWA Leading Edge Conference Series – Global Conference on Leading Edge Water and Wastewater Treatment Technologies, Noordwijk/Amsterdam, The Netherlands, May 26-28.
180. Crawford-Simmons, J.J., S. Padmasiri, T. Duangmanee, S. Sung, and L. Raskin (2003), Microbial Community Analysis in Hydrogen-Producing Continuous Flow Bioreactors, Society for Industrial Microbiology Annual Meeting 2003, Minneapolis, MN, Aug. 10-12.
181. Frigon, D., and L. Raskin (2003), Seasonal biological foaming at a full-scale wastewater treatment plant: mining operational data. Frontiers in Assessment Methods for the Environment (FAME) symposium, Minneapolis, MN, Aug. 10-13.
182. Briones, A.M., B.J. Daugherty, L.T. Angenent, K. Rausch, M. Tumbleson and L. Raskin (2003), Evaluation of microbial community structure of granules in multi-compartment and single-compartment anaerobic bioreactors processing high-sulfate wastewater helps explain functional performance. American Society for Microbiology Conference on Biofilms 2003, Victoria, Canada, Nov. 1-6.
183. Boppart, S., and L. Raskin (2002), Integrated Optical Coherence Tomography and Multi-Photon Microscopy for Microfluidic System Analysis and Molecular Beacon Monitoring, DARPA PI Meeting,

- Tissue Based Biosensors (TBB), Activity Detection Technologies (ADT), Advanced Diagnostics (AD), Miami Beach, FL, Feb. 18-20.
184. Jindal, A., M. Robert, J. Zahn, L. Angenent, R. Aminov, T. Funk, R. Mackie, and L. Raskin (2002), Antimicrobials and Antimicrobial Resistance in Swine Waste Treatment Processes, 102<sup>nd</sup> American Society of Microbiology General Meeting, Salt Lake City, UT, May 19-23.
  185. Boppart, S., A. Zysk, J. Reynolds, D. Marks, C. Xi, and L. Raskin (2002), Optical diagnostic imaging of molecular beacon hybridization in microfluidic bioMEMS devices. *OSA Annual meeting & Exhibit 2002: Laser Science XVIII*, Orlando, FL, Sept. 29-Oct. 3.
  186. Boppart, S., C. Xi, J. Reynolds, A. Zysk, D. Marks, and L. Raskin (2002), Multimodality Optical Imaging of Structure and Function in Microfluidic Mixers. In the abstract book of *Gordon Research Conference, Lasers in Medicine and Biology*, Meriden, NH, July 14-19.
  187. Frigon, D., P. Dutilleul, T.C. Charles, A.C. Lo, and L. Raskin (2001), Studying population dynamics using oligonucleotide probe hybridization: defining the scale paradigm, 221<sup>st</sup> American Chemical Society National Meeting, San Diego, CA, April 1-5.
  188. Zhang, B., B.J. Mariñas, E.W. Rice, and L. Raskin (2001), Detection of *Aeromonas hydrophila* and *Mycobacterium avium* in Biofilms Developed in Drinking Water Distribution Systems, 101<sup>th</sup> American Society of Microbiology General Meeting, Orlando, FL, May 20-24.
  189. Frigon, D., E. Arnaiz, and L. Raskin (2001), Biodegradation kinetics: culture-independent functional classification of bacterial populations in activated sludge systems, 9<sup>th</sup> International Symposium on Microbial Ecology, Amsterdam, The Netherlands, Aug. 26-31.
  190. Agbisit, R.M., B. Daugherty, K.D. Rausch, L. Raskin, R.L. Belyea, T. Clevenger, and M.E. Tumbleson (2001), The Routing of Nutrients in the Corn Wet Milling Process and Opportunities for Recovery and Recycling from Waste Streams Using Environmental Biotechnology, Symposium on Environmental Issues regarding waste water and solids in grain processing, American Association of Cereal Chemists Annual Meeting, Charlotte, NC, Oct. 14-17.
  191. Agbisit, R.M., B. Daugherty, R.L. Belyea, L. Angenent, L. Raskin, K.D. Rausch, and M.E. Tumbleson (2001), Recovery of Nutrients in the Corn Wet Milling Process Engineering and Processing Division Symposium, American Association of Cereal Chemists Annual Meeting, Charlotte, NC, Oct. 14-17.
  192. Belyea, R.L., L.M. Raskin, M.E. Tumbleson, V. Singh, and K.D. Rausch (2001), The Role of Phosphorus in Value of Coproducts from Corn Processing, American Association of Cereal Chemists Annual Meeting, Charlotte, NC, Oct. 14-17.
  193. Balberg, M., M. Mau, D. Frigon, K. Hristova, H.C. Zeringue, D. Brady, D. Beebe, and L. Raskin (2000), "Multi-Color Fluorescence Detection of Ribosomal RNA in Micro-Channels", SPIE BiOS 2000, International Symposium on Biomedical Optics, paper BO 3912-05, San-Jose, CA, Jan. 22.
  194. Frigon, D., L. Angenent, L. Raskin (2000), Filamentous Bacteria Grow in Upflow Anaerobic Sludge Blanket Reactors at high Loading Rates, 100<sup>th</sup> American Society of Microbiology General Meeting, Los Angeles, CA, May 21-25.
  195. Hristova, K., M. Balberg, D. Frigon, M. Mau, D. Brady, D. Beebe, and L. Raskin (2000), Quantification of rRNA with Molecular Beacons in Microfluidic Channels, 100<sup>th</sup> American Society of Microbiology General Meeting, Los Angeles, CA, May 21-25.
  196. Oh, S., J. Kim, N. Adrian, L. Raskin, and R. Sanford (2000), The Impact of TNT Loading on Microbial Community Structure in an Anaerobic Fluidized-bed Bioreactor Designed to Treat Pink Water, 100<sup>th</sup> American Society of Microbiology General Meeting, Los Angeles, CA, May 21-25.
  197. Rausch K.D., C.I. Thompson, R.L. Belyea, H. Plata, L.T. Angenent, and L. Raskin (2000), Variation in composition of coproducts and wastewater from a commercial wet milling facility, 2000 Corn Utilization and Technology Conference, St. Paul, MN, June 5-7. Corn Refiners Association and National Corn Growers Association, St. Louis, MO.
  198. Balberg, M., K. Hristova, H.C. Zeringue, D.J. Brady, D.J. Beebe, and L. Raskin (2000), Microfluidic Devices for Detecting Hybridization of Molecular Beacons in Solution, BioMEMS and Biomedical Nanotechnology World 2000 Conference, Columbus, OH, Sept. 23-26.
  199. Oerther, D.B., J. Pernthaler, A. Schramm, R. Amann, and L. Raskin (1999), Monitoring *In Situ* Activity of *Acinetobacter* spp. in Activated Sludge Wastewater Treatment Systems Using Oligonucleotide Probes Targeting Precursor-rRNA, 99th American Society of Microbiology General Meeting, Chicago, IL, May 30-June 3.
  200. Mau, M., L.T. Angenent, and L. Raskin (1999), Culture-Independent Monitoring of Changes in Translation-Antibiotics Resistance During Swine Waste Treatment Using Oligonucleotide Probes

- Targeting the Functional Region of 23S rRNA, 99th American Society of Microbiology General Meeting, pp. 584-585, Chicago, IL, May 30-June 3.
201. Mau, M., K. Hristova, D. Zheng, R. Aminov, R. Mackie, H.R. Gaskins, and L. Raskin (1999), Optimizing the Application of Molecular Beacons for Quantitative Analysis of rRNA Extracts from Environmental Samples, 99th American Society of Microbiology General Meeting, Chicago, IL, May 30-June 3.
  202. Bichat, F., S. Meintser, B. Marinas, V. Snoeyink, E. Rice, and L. Raskin (1999), Characterization of Biofilms in a Simulated Drinking Water Distribution Systems Constructed from Corroded Steel Pipe Coupons, 99th American Society of Microbiology General Meeting, Chicago, IL, May 30-June 3.
  203. Hristova, K., D. Zheng, M. Mau, R. Aminov, R. Mackie, L. Raskin, and H.R. Gaskins (1999), Quantification of *Desulfotomaculum* Species in Bioreactors, Soil, and Intestinal Samples Using Small Subunit rRNA Hybridization Probes, 99th American Society of Microbiology General Meeting, Chicago, IL, May 30-June 3.
  204. Crawford, J., F.W. Simmons, and L. Raskin (1999), Anaerobic Microbial Response to the Herbicide <sup>14</sup>C-Dimethenamid in a Flooded Soil, 99th American Society of Microbiology General Meeting, Chicago, IL, May 30-June 3.
  205. DePlancke B., K. Hristova, R.I. Aminov, V.J. McCracken, L. Raskin, and H.R. Gaskins (1999), Design and Validation of a Metabolic Molecular Ecology Strategy for Functional Analysis of Intestinal Sulfidogens, 99th American Society of Microbiology General Meeting, Chicago, IL, May 30-June 3.
  206. Oerther, D.B., L. Raskin (1999), In situ growth physiology of *Acinetobacter* spp. in wastewater treatment systems, p.41, ASM Conference on Microbial Biodiversity, Chicago, IL, Aug. 5-8.
  207. de los Reyes, F.L., D. Rothauszky, and L. Raskin (1998), From *Nocardia* to *Gordona*: Combining Molecular and Engineering Approaches to Study Filamentous Foaming in Activated Sludge, 19<sup>th</sup> Annual Illinois Water Environment Association Meeting, Rockford, IL, March 24-26.
  208. Danalewich, J.R., M.E. Tumbleson, and L. Raskin (1998), Biological Nutrient Removal from Domestic and Industrial Wastewaters: Microbial Population Dynamics Linked to Reactor Performance, 19<sup>th</sup> Annual Illinois Water Environment Association Meeting, Rockford, IL, March 24-26.
  209. Oerther, D., A. Schramm, R. Amann, and L. Raskin (1998), Monitoring Abundance and Growth in Activated Sludge with rRNA and Pre-rRNA Targeted Oligonucleotide Probes, Eight International Symposium on Microbial Ecology, Halifax, Canada, Aug. 9-14.
  210. Zheng, D., L. Angenent, S. Sung, and L. Raskin. (1998), Microbial Community Structure in Anaerobic Migrating Blanket Reactor, Eight International Symposium on Microbial Ecology, Halifax, Canada, Aug. 9-14.
  211. Rothauszky, D., F. de los Reyes, and L. Raskin (1998), Simultaneous In Situ Detection and Quantification of Two Filamentous Foam-Formers in Activated Sludge, Eight International Symposium on Microbial Ecology, Halifax, Canada, Aug. 9-14.
  212. Crawford, J.J., F.W. Simmons, and L. Raskin (1998), Microbiological Evaluation of the Anaerobic Aquatic Metabolism Protocol Required for Herbicide Registration, Eight International Symposium on Microbial Ecology, Halifax, Canada, Aug. 9-14.
  213. Mau, M., K. Hristova, D. Zheng, R. Aminov, R. Gaskins, R. Mackie, and L. Raskin (1998), Quantification of Sulfate-Reducing Bacteria Using Oligonucleotides and Fluorescence Energy Transfer (FRET), Eight International Symposium on Microbial Ecology, Halifax, Canada, Aug. 9-14.
  214. Hristova, K., M. Mau, D. Zheng, R. Aminov, R. Mackie, L. Raskin, and R. Gaskins (1998), Ecology of Sulfate-Reducing Bacteria in Mammalian Intestine, Eight International Symposium on Microbial Ecology, Halifax, Canada, Aug. 9-14.
  215. de los Reyes, M.F., M. Hernandez, and L. Raskin (1997), Are *Gordona amarae* Strains Abundant in Activated Sludge Foams? An Assesment Using Oligonucleotide Probe Hybridizations, 97th American Society of Microbiology General Meeting, Miami Beach, FL, May 4-8.
  216. Zheng, D. and L. Raskin (1997), Development of Genus- and Species-Specific Hybridization Probes for *Methanosaeta* spp. and *Methanobrevibacter* spp. to Determine the Microbial Composition of Anaerobic Granular Sludge, 97th American Society of Microbiology General Meeting, Miami Beach, FL, May 4-8.
  217. Sauer, K.D., and L. Raskin (1997), Study of Population Dynamics of Syntrophic Bacteria in Anaerobic Systems using Native and In Vitro Transcribed rRNA, 97th American Society of Microbiology General Meeting, Miami Beach, FL, May 4-8.

218. Dulekgurgen, E., D.B. Oerther, J. Danalewich, and L. Raskin (1997), Design and Characterization of Oligonucleotide Hybridization Probes to Evaluate the Competitiveness of *Acinetobacter* spp. in Activated Sludge Systems after Bioaugmentation, 97th American Society of Microbiology General Meeting, Miami Beach, FL, May 4-8.
219. Kuhner, C.H., H.L. Drake, E.W. Alm, and L. Raskin (1996), Methane Production and Oxidation by Soils from Acidic Forest Wetlands of East-Central Germany, 96th American Society of Microbiology General Meeting, New Orleans, LA, May 19-23.
220. Alm, E.W., D.B. Oerther, N. Larsen, L. Raskin, and D.A. Stahl (1996), The Oligonucleotide Database, 96th American Society of Microbiology General Meeting, New Orleans, LA, May 19-23.
221. Oerther, D.B. and L. Raskin (1996), Use of 5-Nitroindole in Universal Oligonucleotide Probe Design for Quantitative Molecular Microbial Ecology Studies, 96th American Society of Microbiology General Meeting, New Orleans, LA, May 19-23.
222. de los Reyes, F.L., W. Ritter, L. Raskin, and R.I. Amann (1996), Group-Specific Small Subunit rRNA Hybridization Probes to Characterize Filamentous Foaming in Activated Sludge Systems, 96th American Society of Microbiology General Meeting, New Orleans, LA, May 19-23.
223. Zheng, D., L. Raskin, E.W. Alm, and D.A. Stahl (1996), Characterization of Small Subunit rRNA Universal Probes for Quantitative Molecular Microbial Ecology Studies, 96th American Society of Microbiology General Meeting, New Orleans, LA, May 19-23.
224. Malkos, E.V., D.K. Mann, G.K. Sims, and L. Raskin (1995), Factors Controlling Bioremediation of Petroleum Hydrocarbons in Soil, 1995 American Society of Agronomy, Crop Science Society of America, Soil Science Society of America Annual Meetings, St. Louis, MO, Oct. 29-Nov. 3.
225. Zheng, D., M.E. Griffin, P.G. Stroot, P. Misra, and L. Raskin (1995), Quantification of Microbial Groups in Anaerobic Sludge Digesters by Oligonucleotide Probe Hybridization, 95th American Society of Microbiology General Meeting, Washington, D.C., May 21-25.
226. Griffin, M.E., T. Wada, L. Raskin, R.I. Mackie, and B.A. White (1995), Evaluation of Anaerobic Co-Digestion of Municipal Solid Waste and Sewage Sludge Using Molecular Tools, OSWR Solid Waste Research Symposium, Rosemont, IL, March 28-29.
227. Raskin, L., B.E. Rittmann, and D.A. Stahl (1994), Molecular Studies Suggest Direct Competition Between *Desulfovibrio* and *Methanobacteriales* During a Long-Term Study of Anaerobic Biofilm Reactors, 94th American Society of Microbiology General Meeting, Las Vegas, NV, May 23-29.
228. Stahl, D.A., W. Capman, L. Raskin, E. Alm, N. Fry, and L. Poulsen (1993), Molecular Studies of Microbial Community Population Ecology and Response to Perturbation, Abstracts of the European Community Meeting on Biosafety and Microbial Ecology, Granada, Spain, Oct. 24-27.
229. Stahl, D.A., W. Capman, L. Poulsen, L. Raskin, and J. Risatti (1993), Overview of Nucleic Acid-Based Molecular Probes, Abstracts of the NATO Advanced Research Workshop on Structure, Development and Environmental Significance of Microbial Mats, Arcachon, France, Sept. 27-Oct 1.
230. Kane, M.D., L. Raskin, and D.A. Stahl (1992), Quantitative Aspects of Using Ribosomal RNA-Targeted Hybridization Probes for Studies in Microbial Ecology, p. 345, 92nd American Society of Microbiology General Meeting, New Orleans, LA, May 26 - 30.
231. Raskin, L., A. Teske, S. Toze, J. Regan, D.A. Stahl, and B.E. Rittmann (1992), A molecular Framework for the Study of Competition Between Heterotrophs and Nitrifying Autotrophs, Troisième Congrès de la Société Française de Microbiologie, Lyon, France, April 21-24.
232. Stahl, D.A., M.D. Kane, R.I. Amann, L. Raskin, R. Key, and J.M. Stromley (1991), Use of Phylogenetic Probes to Study the Relationship Between Methanogens and Sulfidogens in Multispecies Biofilms, Annual Scientific Meeting of the Australian Society for Microbiology, Gold Coast, Australia.
233. Raskin, L., D.A. Stahl, and B.E. Rittmann (1991), Mathematical Modeling of Anaerobic Biofilm Reactors, The University of Illinois Allerton Research Conference, Urbana, IL, Oct. 26-27.
234. Kane, M.D., J.M. Stromley, L. Raskin, and D.A. Stahl (1991), Molecular Analysis of the Phylogenetic Diversity and Ecology of Sulfidogenic and Methanogenic Biofilm Communities, p. 309, 91st American Society of Microbiology General Meeting, Dallas, TX, May 5-9.

#### Other Publications

1. Raskin, L., Hayes, K.F., Brown, J.C., Upadhyaya, G., Clancy, T. M., Snyder, K.V. (2014). Nitrate and Arsenic Removal from Drinking Water with a Fixed-Bed Bioreactor, Water Research Foundation, Report 4293, Denver, CO, pp. 37.

2. Lauderdale, C., Scheitlin, P., Nyffenegger, J., Upadhyaya, G., Brown, J., Raskin, L., Chiao, T., Pinto, A.J. (2014) Optimizing Engineered Filtration. Water Research Foundation, Denver, CO, pp. 247.
3. Skerlos, S.J., L. Raskin, N.G. Love, A.L. Smith, L.B. Stadler, and L. Cao, 2013. Challenge Projects on Low Energy Treatment Schemes for Water Reuse, Phase 1 (WateReuse-10-06D). WateReuse Research Foundation, Alexandria, Virginia.
4. Raskin, L., S. Skerlos, N.G. Love, A.L. Smith (2012), Anaerobic Membrane Bioreactors for Sustainable Wastewater Treatment, Water Environment Research Foundation Final Report UN4R08, IWA Publishing, London, United Kingdom.
5. Raskin, L., Hayes, K.F., Brown, J.C., Upadhyaya, G., Clancy, T. M., Jenkins, A., Snyder, K.V., Chu, X. and Hammerbeck, A. (2011). Development and optimization of a fixed-bed bioreactor system for the simultaneous removal of nitrate and arsenic from drinking water. *Drinking Water Research*, 21(4), 14-15.
6. Brown, Jess, Chance Lauderdale, Gregorio Estavo, Axel Etori, Winnie Shih, Sean Poust, Steven Walker, Lutgarde Raskin, Giridhar Upadhyaya, Xu Li, Eberhard Morgenroth (2008), Direct Fixed-Bed Biological Perchlorate Destruction Demonstration, ESTCP Project ER-0544
7. Lutgarde Raskin, Giridhar Upadhyaya, Kim Hayes, Jess Brown, System and Method for Simultaneous Biologically Mediated Removal of Contaminants from Contaminated Water, US Patent US 2011/0017663, Published on Jan. 27, 2011.
8. M. Fitch, A. Zhang, S. Padmasiri, L. Raskin, and E. Morgenroth, "Measuring Shear in Real Systems" Presented to the Graduate Environmental Engineering Seminar Series at the University of Missouri-Rolla, Rolla, MO, Jan. 30, 2004.
9. The article "Turning manure to fuel is making a comeback" published in Illinois Agrinews, Sept. 10, 1999, p. A6, described my research on anaerobic treatment of animal waste.
10. The article "Microbiologists Explore Life's Rich, Hidden Kingdoms" by Robert F. Service, published in *Science*, Vol. 275, March 21, 1997, 1740-1742, featured a section describing my research.
11. System Removes Nutrients from Food Processing Wastewater, *Industrial Bioprocessing*, Vol. 18, No. 8, 7-8, 1996 (L. Raskin, L. Vriens, and L. Ceyskens).

## CONSULTING

Digested Organics, LLC

Design and startup evaluation of anaerobic digestion system for dairy waste treatment, 2015.

Technical Advisory Committee, Water Research Foundation Project 4459 Development of a Biofiltration Knowledge Base, 2013.

Carollo Engineers, Dallas, TX

Microbiological analyses of manganese oxidizing biological filtration systems, 2011.

Doosan Hydro Technology, Inc., Tampa, FL

Anaerobic membrane bioreactor development, March 2011.

Carollo Engineers, Dallas, TX

Microbiological analyses of anaerobic digester samples, 2010.

Carollo Engineers, Sarasota, FL

Microbiological analyses of drinking water samples and samples from BAC bioreactors, 2004, 2007.

City of Detroit Wastewater Treatment Plant, Detroit, MI 48209

Microscopic analysis of activated sludge samples, 2001, 2003, 2004.

Abbott Laboratories, Puerto Rico

Filament identification and quantification in foam samples from wastewater treatment plant, 2000.

Abbott Laboratories, North Chicago, IL 60064-4000

Filament identification and quantification in foam samples from wastewater treatment plant, 2000.

Seghers Better Technology, Wespelaar, Belgium

Evaluation of fermentation wastewater characteristics and potential for biological treatment, 1996.  
Biodegradability test for biological wastewater treatment of malt wastewater, 1997.

Aurora International, Inc., Deerfield Beach, FL 33442

Bioaugmentation and biological wastewater treatment, 1994-1995.

N.V. Recyclage Gielen, Kortesseem, Belgium

Use of newsprint waste as cattle bedding and soil additive, 1994.

## SERVICE AND OUTREACH

### Public Service and Outreach

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- I organized Environmental Engineering recruitment day for four high school students, March 25, 2016; met with prospective CoE students and parents, April 2016.
  - I organized (with colleagues Ellis, Kerkez, McCormick, Wigginton, and graduate students) *The 2<sup>nd</sup> Annual Civil and Environmental Engineering High School Career Internship Program* for rising 11th and 12th grade high school student, June 20-24, 2016.
  - I developed and organized (with colleagues Athanasopoulos-Zekkos, El-Tawil, Kerkez, McCormick, Wigginton, Zekkos, and graduate students) *The 1<sup>st</sup> Annual Civil and Environmental Engineering High School Career Internship Program* for rising 11th and 12th grade high school student (June 22-26, 2015) – 16 participants.
  - Faculty advisor for Xplore Engineering Camp *Bateria Run the World*, a Workshop for alumni and their children entering 4<sup>th</sup> through 7<sup>th</sup> grade, to get hands-on experience in engineering. August 9, 2013; June 26-27, 2014; June 25-26, 2015.
  - A collaboration with an NGO in Bangladesh (Asia Arsenic Network - AAN) has been supported through a NSF-USAID PEER grant awarded to AAN. Ph.D. student Tara Clancy and I developed this grant with our collaborators at AAN. Tara Clancy and Raghav Reddy have continued to work closely with researchers from AAN to oversee the research. Two of AAN's scientists, S. Udin and A. Shamim Khan spent a month in our laboratories to learn methods relevant for the work in Bangladesh.
  - With graduate students Roya Gitiafroz, Adam Smith, and Dongjuan Dai, Dr. Raskin organized participation in "World Water Monitoring Day (WWMD)" for 50 elementary school children (grades 3-4) in Ann Arbor, MI, June 2009. The students learned about the importance of water quality for all and sampled and analyzed Huron river water on a field trip. They submitted their data and a report to the WWMD website (<http://www.worldwatermonitoringday.org/>).
  - Dr. Raskin developed and delivered, with help from graduate student Lynn Williams, two 90-min science lessons (wastewater treatment and drinking water treatment) for two groups of 25 elementary school children (grades 3-4) in Ann Arbor, MI, April 2009. The students subsequently made a field trip to local wastewater and drinking water treatment plants.
  - Presented two seminars for approx. 500 water and wastewater treatment plant operators on "Pharmaceutical and Personal Care Products (PPCPs) in Drinking Water and Wastewater Treatment", MI American Water Works Association/MI Water Environment Association Joint Expo, Operator Day, Lansing, MI, Feb. 3, 2009.
  - In cooperation with the Eastern Michigan University GEAR UP project (<http://emugearup.org/>), Dr. Raskin presented "on being an environmental engineer" to three groups of approx. 15 middle school students, June 26, 2007.
  - Dr. Raskin developed and delivered, with help from Diane Holder, David Berry, and a teacher, seven science lessons around water issues for two groups of 15 elementary school children (grades K-2 and 3-5) in Ann Arbor, MI, Jan. and Feb. 2006. The topics of the lessons were: Preventing Disease - students learned how illness-causing bacteria and viruses are spread; Amazing Water - students learned how actions in the home and yard affect water quality; Sum of the Parts - students learned about pollution of a river and how it can be reduced; Poison Pump - students discovered that (polluted) water can also produce negative effects for people; Water in Motion - students learned to appreciate the movement and sound of water in their environment; The Pucker Effect - students



observed how ground water transports pollutants and discovered the source of contamination; Reaching Your Limits - students experienced the effort involved in meeting drinking-water quality standards.

Panel Discussion Participant, Emerging Trends in Corn Industry - Environmental Issues, Corn Utilization & Technology Conference, St. Louis, MO, June 1-3, 1998.

Seminar/Discussion, Livestock Waste Management, Role of Microbial Ecologists and Environmental Biotechnologists, Illinois House-Senate Joint Livestock Advisory Committee, July 10, 1997.

## Professional Service

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### Editorial Boards and Editorships of Scientific Journals

Associate Editor, *Environmental Science & Technology*, 2016-present

Member, Editorial Board, *mSphere*, 2015-present.

Member, Editorial Board, *npj Biofilms and Microbiomes*, 2015-present

Member, Editorial Advisory Board *Environmental Science: Water Research & Technology*, 2016-present

Member, Editorial Board *Environmental Science: Water Research & Technology*, 2014-2016

Guest Editor for Themed Issue Drinking Water Exposome *Environmental Science: Water Research & Technology* with Peter Vikesland, 2015-2016.

Member, Editorial Board *Microbial Biotechnology*, 2011-present

Member, Editorial Board *Frontiers in Microbiology, Antimicrobials, Resistance, and Chemotherapy*, 2011-2015

Member, Editorial Board *Biodegradation*, 1997-present

Associate Editor, *Water Research*, 2001-2006

Member, Editorial Board *Archives of Microbiology*, 2001-2004

Member, Editorial Board *FEMS Microbiology Letters*, 1997-2000

### Water Environment Federation (WEF) and Water Environment Research Foundation (WERF)

Co-organizer, Workshop, WEFTEC 2013, Oct. 5-9, 2013, Chicago, IL, Mainstream Anaerobic and Nutrient Removal Systems for Energy Neutral Wastewater Management.

Member, WERF Paul L. Busch Awardee Selection Committee, 2013-present

Member, WEF Fellow Program Selection Committee, 2011, 2013-present.

Member, WEF Fellows Task Force, Fall 2009-Fall 2010.

Member, WEF Academic Relations Advisory Committee, Fall 2008-present.

Session Co-Chair (Anaerobic Treatment), 67th, 68th, 69th Annual Conference Water Environment Federation, Oct. 1994, Oct. 1995, Oct 1996.

Project Subcommittee Member, WERF - Evaluate Feasibility of Methods to Minimize Biomass Production from Biotreatment, 1999-2005.

Committee Member, WERF Workshop - Biotechnology/Industrial Ecology - A Look into the Future for Wastewater Treatment, Sept. 12-14, 1998.

### International Water Association (IWA)

Member Scientific Committees, 15<sup>th</sup> IWA World Congress on Anaerobic Digestion (AD-15), Beijing, China, Oct 17-20, 2017.

Member Program and Organizing Committee – Microbial Ecology and Water Engineering (MEWE) and Biofilms IWA Specialist Conference, Copenhagen, Denmark, Sept. 4-7, 2016.

Member IWA Specialist Group Leadership Committee on Anaerobic Digestion (AD), 2015-present.

Member International Program and Scientific Expert Committees, 14<sup>th</sup> IWA World Congress on Anaerobic Digestion, Anaerobic Digestion: Closing cycles for sustainability, Viña del Mar, Chile, Nov. 10-13, 2015.

Member Scientific Committees, IWA Specialty Conference, Biofilms in Drinking Water Systems From Treatment to Tap, Arosa, Switzerland, Aug. 23-26, 2015.

Member Program Committee – 10<sup>th</sup> IWA Leading Edge Technology (LET) Conference, June 3-6, 2013, Bordeaux, France.

Member Program and Organizing Committee – IWA SG Conference, Microbial Ecology and Water Engineering, June 2013, Ann Arbor, MI.

Member Program Committee – 9<sup>th</sup> IWA Leading Edge Technology (LET) Conference, June 3-7, 2012, Brisbane, Australia.

Co-chair Workshop Anaerobic Treatment of Low-Strength Wastewaters (with Adam Smith and Damien Batstone), 9<sup>th</sup> IWA Leading Edge Technology (LET) Conference, June 3-7, 2012, Brisbane, Australia.

Member Program Committee – IWA Leading Edge Technology (LET) Conference, May 31-June 30, 2011, Amsterdam, The Netherlands.

Chair Symposium Biological Drinking Water Treatment, IWA Leading Edge Technology (LET) Conference, May 31-June 30, 2011, Amsterdam, The Netherlands.

Member Program Committee – IWA The Water Research Conference, 11 – 14 April 2010, Lisbon, Portugal.

Member Program Committee – IWA Leading Edge Technology (LET) Conference, June 2-4, 2010, Phoenix, Arizona.

Chair Workshop Biological Drinking Water Treatment, IWA Leading Edge Technology (LET) Conference, June 2-4, 2010, Phoenix, Arizona.

Member International Program and Scientific Expert Committees, 11<sup>th</sup> World Congress on Anaerobic Digestion, Anaerobic Digestion 2007 – *Bio-energy for our Future*, Brisbane, Australia, Sept. 23-27, 2007.

Member Scientific Committee, 10<sup>th</sup> World Congress on Anaerobic Digestion, Anaerobic Digestion 2004 - *Anaerobic Bioconversion for Sustainability*, Montreal, Canada, Aug. 29-Sept. 2, 2004.

Session Chair, Anaerobic Digestion, World Congress, Montreal, Canada, Aug. 29-Sept. 2, 2004.

Session Chair, Anaerobic Digestion, World Congress, Antwerp, Belgium, Sept. 2-5, 2001.

#### **American Water Works Association (AWWA) and Water Research Foundation**

Member, Project Advisory Committee (PAC) “Biological Filtration: NDMA Control or Source of Precursors?”, Water Research Foundation, Feb. 2016-present.

Session Chair, AWWA International Symposium: Biological Treatment, Long Beach, Calif., January 27-28, 2016.

Session Chair, Microbiological Aspects of Biotreatment, Biological Treatment Symposium, AWWA, March 28-29, 2013, Denver, CO

Contributing Author, Research Needs for Opportunistic Pathogens in Premise Plumbing: Experimental Methodology, Microbial Ecology and Epidemiology, Project 4379 Water Research Foundation, 2011-2012.

Member, Project Advisory Committee (PAC) “Assessing Performance of Biofilm Sampling Approaches”, Water Research Foundation, Feb. 2011-April 2015.

Invited workshop participant, Biological Drinking Water Treatment, Water Research Foundation, Jan. 20-21, 2010, Denver, Colorado

Member, Biological Drinking Water Treatment Committee, Fall 2008 – present.

Member, Michigan AWWA, Research & Technical Practices (RTP) Committee, Fall 2007 – present.

#### **Association of Environmental Engineering and Science Professors (AEESP)**

Board of Directors (2016-present)

NSF CAREER Workshop, AEESP Conference – Interactions at the Interface, Blacksburg, VA, July 28-Aug. 1, 2007.

AEESP PhD dissertation committee (member, 2000-2001; chair 2002).

#### **National Science Foundation – review panels and workshops**

NSF Environmental Sustainability Program review panel, May 18-19, 2010.

NSF Environmental Engineering Program review panel, Feb. 5-6, 2008.

NSF Workshop on Frontier Research Directions in Civil and Environmental Engineering, Arlington, VA, June 4-5, 2007.

NSF Environmental Engineering Program review panel, Dec. 13-14, 2006.

NSF Biocomplexity Program (GEN-EN) review panel, May 7-8, 2002.

NSF Workshop, “Application of Molecular Biology Tools in Environmental Engineering,” Washington, D.C., April 25-26, 2002.

NSF Biocomplexity Program (IDEA) review panel, June 14-15, 2001.

#### **Other national and international service activities**

Invited Workshop Participant, ARPA-E Rewiring Anaerobic Digestion Workshop, Arlington, VA, October 27-28, 2016

Co-chair Plenary Session The Urban Water Cycle Microbiome, ASM Microbe 2016, June 18, 2016, Boston, MA.

Conference Co-Chair, 24th Triennial Borchardt Conference, Ann Arbor, MI, Feb. 21-22, 2017.

Invited Workshop Participant, Developing the Structure of a National Energy Positive Water Resource Recovery Facility Test Bed Network, June 20-21, 2016. Denver Metro Wastewater Reclamation District, 6450 York Street, Denver, CO 80229

Partnerships for Enhanced Engagement in Research (PEER), U.S. National Academy of Sciences (NAS) Review Panel, June 6, 2016

Invited participant, The 5th Annual Sloan Microbiology of the Built Environment Conference, University of Colorado, Boulder, CO, June 1-3, 2016.

Reviewer for Department of Energy, Bioenergy Technologies Office (BETO) FY17 proposals (May-June, 2016).

Co-Chair Plenary Session The Urban Water Cycle Microbiome, ASM Microbe 2016, June 18, 2016, Boston, MA.

Reviewer for Department of Energy, SBIR/STTR FY 2016 Phase I, December 2015.

Invited Colloquium participant, FAQ: Microbiology of Built Environments, American Academy of Microbiology, Washington, DC, September 9, 2015

Invited participant, The 4<sup>th</sup> Annual Sloan Microbiology of the Built Environment Conference, July 15-18, 2015, University of Colorado Boulder

Invited NSF Workshop Participant, Closing the Human Phosphorus Loop, June 8-9, 2015, Arlington Virginia

Invited Workshop Participant, Hydrogen, Hydrocarbons, and Bioproduct Precursors from Wastewaters, National Renewable Energy Laboratory Offices, Washington DC, March 18-19, 2015

External Committee Member for Ph.D. student Qirong Dong, Department of Civil and Environmental Engineering, University of Waterloo, Waterloo, Ontario, Canada, Feb. 3, 2015.

Invited Workshop Participant, Sustainable and Resilient Water Solutions for Rural Communities, University of Glasgow, April 29-May 2, 2014

Conference Committee Member, 23rd Triennial Borchardt Conference, Ann Arbor, MI, Feb., 2014.

External Committee Member for Ph.D. student Alexandru Dumitrache, Department of Chemical Engineering, University of Toronto, Canada, January 20, 2014.

Member of Committee on Elections of the American Academy of Microbiology, July 1 2013-present.

Invited Colloquium participant, Microbes in Pipes: The Microbiology of the Water Distribution System, American Academy of Microbiology, Boulder, Colorado April, 2012

Science Foundation Ireland, Research Frontiers Programme, Ecology, Evolutionary, Environmental and Organismal Biology (EOB) review panel, December 2010.

Conference Committee Member, 22<sup>nd</sup> Triennial Borchardt Conference, Ann Arbor, MI, Feb., 2011.

Academic mentor for Assistant Professor April Gu, Department of Civil and Environmental Engineering, Northeastern University, 2009-2013

External member of Environmental Biotechnology Faculty Search Committee, Tampere University, Finland, Jan. 2009-March 2009.

Chair of Faculty Interview Committee, King Abdullah University of Science and Technology (KAUST), Fall 2008.

Michigan Economic Development Corporation (MEDC), Water Technologies Cluster, Winter 2008-2010.

NIH Microbiology and Infectious Diseases Research (MID) Proposal Review Committee, June 12, 2008

Participant in Discussions Sessions: (i) Sustainable Control of Water-Associated Diseases: A Systems Approach, (ii) Spread of Antibiotic Resistance in Water Environments and Impacts on Human Health, and (iii) Global Sustainable Water Systems: Acknowledging Wastewater as a Resource, Graham Environmental Sustainability Institute (GESI), Water, Health, + the Environment Conference, Establishing the Research Agenda, Ann Arbor, MI, March 26-27, 2008.

Committee Member for Ph.D. student Roya Gitiafroz, Department of Chemical Engineering, University of Toronto, Canada, March 17, 2008, March 10, 2009.

Conference Committee Member, 21<sup>st</sup> Triennial Borchardt Conference, Ann Arbor, MI, Feb. 27-28, 2008.

Member Scientific Advisory Board of research program '*Genomics Applications for Water Management*', Institute for Inland Water Management and Waste Water Treatment RIZA, The Netherlands, Jan.-May 2007.

Member Programme Progress Assessment, Science Foundation Ireland, National University of Ireland, Galway, Oct. 25-26, 2007.

Workshop "Bridging the gap in engineered biological treatment systems – putting research into practice," Bowmore, Islay, Scotland, Oct. 3-4, 2006.

Metropolitan Water Reclamation District of Greater Chicago, examiner, civil service exams for Research Scientist II and III, Chicago, IL, June 10-11, 2005.

Workshop "Vistas in Microbial Ecology and Environmental Biotechnology," Arizona State University, April 20-21, 2005.

NASA Microbial Biology Review Panel, "Biological and Fluid Physics Research for Human Support Technology," Jan. 13-14, 2005.

Session Co-Chair, Mathematical modeling of community interactions, 103<sup>rd</sup> American Society of Microbiology General Meeting, Washington D.C., May 18-22, 2003.

External Examiner for Ph.D. of Annette Muttray, Department of Microbiology, University of British Columbia, Vancouver, Canada, Dec. 2000.

Member, Committee on Environmental Remediation at Naval Facilities, National Research Council, Water Science and Technology Board, 1997.

Invited Censor for Ph.D. of Anders Hay Sørensen, Institute of Environmental Science and Engineering, Technical University of Denmark, April 1996.

Session Chair (Molecular Tools in Environmental Biotechnology), 9th Forum for Applied Biotechnology, Gent, Belgium, Sept. 27-29, 1995.

#### **Ad-hoc reviewer for journals**

*Anaerobe, Applied and Environmental Microbiology, ASCE Journal of Environmental Engineering, Biodegradation, Bioremediation Journal, Biotechnology and Bioengineering, BioTechniques, Biotechnology Progress, Chemosphere, Environmental Microbiology, Environmental Science and Technology, Environmental Toxicology and Chemistry, FEMS Microbiology Letters, FEMS Microbiology Ecology, ISME Journal, Journal of Industrial Microbiology and Biotechnology, Microbiology, Microbial Biotechnology, PLOS One, Water Research, Waste Management, Water Environment Research.*

#### **Ad-hoc reviewer for research proposals**

Illinois-Indiana Sea Grant Program; Institute of Water Resources, The University of Connecticut; Natural Environment Research Council (U.K.); Natural Sciences and Engineering Research Council of Canada, NSF Division of International Programs; NSF Microbial Genetics Program; NSF Environmental Engineering Program; NSF Life in Extreme Environments (LEn), NSF Systematic Biology Program, UIUC Research Board, UIUC Critical Research Initiative, USDA NRI Value-Added Products Program, Strategic Environmental Research and Development Program (DoD), Research Council K.U.Leuven (Leuven, Belgium).

#### **Service University of Michigan**

##### Department of Civil and Environmental Engineering

Member, Ad Hoc One-Year M.S. Committee, 2015 – present.

Member, CEE Executive Committee, Fall 2013-Summer 2015, Winter 2016-present.

EWRE Program Advisor, Winter 2016-present.

GSI OET North Campus, May 5, 2015.

Chair, Casebook Committee for Krista Wigginton reappointment committee, 2015-2016

Member, Casebook Committee for Glen Daigger's candidacy as Professor of Practice, 2014-2015

Chair, Graduate Committee, Fall 2014-present

Member, LAUNCH Mentoring Committee Brian Ellis, Sept 2014-May 2015.

Member, LAUNCH Mentoring Committee Krista Wigginton, Jan 2013-May 2014.

Chair, Faculty Search Committee Water-Geo-Energy Search, Fall 2013-Winter 2014.

Member, Promotion Casebook Review Committee (promotion to Professor), Dr. Jerry Lynch, Summer 2013-Fall 2013.

Member, Space Committee, Fall 2012-Summer 2013.

Master's Chair, Graduate Committee, Fall 2012-Winter 2014.  
Member, Research/Equipment Committee, Fall 2010-Winter 2011.  
Chair, Graduate Committee, Winter-Summer 2010  
Faculty advisor for MI WEA/AWWA UM student group, Winter 2009-present.  
Faculty advisor for GrEENPEAS UM student group, Fall 2009-present.  
Program Director, Environmental and Water Resources Engineering (EWRE) Program, Fall 2007-Summer 2011.  
Member, Students Elements Committee, 2009  
Member, CEE Executive Committee, Fall 2007-Summer 09.  
Chair, Honors & Awards Committee, Fall 2008-Summer 12.  
Member, Curriculum Committee, Fall 2005-Summer 08.  
Member, Safety Committee, Fall 2005-Summer 07.  
Chair, EWRE graduate admissions committee, Fall 2005-Winter 2006, Fall 2007-Winter 2008.  
Chair, Reappointment Casebook Review Committee, Dr. Anna Michalak, Winter 2007.  
Member, Promotion and Tenure Casebook Review Committee (promotion to Associate Professor), Dr. Aline Cotel, Fall 2006.

#### College of Engineering

Faculty Reviewer, 2015 NextProf Workshop.  
Member, Promotion and Tenure Casebook Review Committee (promotion to Associate Professor), Dr. Xiaoxia (Nina) Lin, Summer 2013-Fall 2013.  
Member, CEE Dept. Chair Search Committee, Summer 2011-Fall 2012.  
Member, CoE Responsible Conduct of Research and Scholarship Task Force, Winter 2010-Summer 2012.  
Member, Selection Committee Weber Award in Environmental and Energy Sustainability, Winter 2010.  
Member, Reappointment Casebook Review Committee, Dr. Xiaoxia (Nina) Lin, Winter 2010.  
Member, CEE Internal Review Committee, Winter 2008-Fall 2008.  
Member, Faculty Discipline Committee, Fall 2005-Winter 2006.  
Presentation for National Advisory Committee "Global Water Sustainability", April 7, 2006.  
Chair, CEE Dept. Chair Search Committee, Winter 2006-Winter 2007.

#### University

Reviewer, External Dow Postdoctoral Fellowship applications, Graham Environmental Sustainability Institute, 2015  
Member, Program Advisory Committee, Integrated Training in Microbiol Systems (ITiMS), Fall 2014-present.  
Member, LAUNCH Mentoring Committee Rose Cory, Fall 2013-Winter 2014.  
Reviewer, International Institute Individual Fellowship, University of Michigan, March 2014  
Reviewer, Dow PhD Fellowship applications, Graham Environmental Sustainability Institute, 2013  
Reviewer, UROP Fellowship applications, Summer 2013.  
Member, Biomedical Research Council (BMRC), Summer 2011-Summer 2012.  
Member, Advisory Board, MAC-EPID, Fall 2008-present.  
Member, Microbial Ecology Cluster Hire Search and Mentoring Committee, Winter 2008-present.  
Member, Executive Committee for the Graham Environmental Sustainability Institute, Winter 06-Summer 08.  
Promotion casebook reader, Office of the Provost, Winter 2008-Winter 2009.  
Co-leader Water Quality Sector, National Summit on Coping with Climate Change, University of Michigan, May 8-10, 2007.

#### Graduate Student Recruitment

Seminar Graduate Studies at the University of Michigan, University of Hawaii at Manoa, Manoa, HI, April 6, 2015.  
Seminar Graduate Studies Information, CEE 200, Department of Civil and Environmental Engineering, UM, April 15, 2015.

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#### **Service University of Illinois at Urbana-Champaign**

### Department of Civil and Environmental Engineering

#### Organized Symposium:

Applications of Molecular Techniques in Environmental Engineering: A Symposium in Honor of Richard S. Engelbrecht, March 17-18, 1994 (with D.L. Freedman).

Faculty mentor, Eberhard Morgenroth, Fall 2000-present.

Faculty mentor, Tami Bond, Spring 2004-present.

Esmilla Award Committee, 2003-present.

Langelier Scholarship Award Committee, 1997-2005.

Faculty member responsible for EE&S Laboratories, Fall 1998-Summer 2002.

Faculty member responsible for EE&S Computer Lab, Fall 1993-Summer 1998.

#### Faculty Search Committees:

Ad-hoc EE&S, chair, Fall 2003-Spring 2004.

Environmental Council, Dept. of CEE, Dept. of Animal Sciences, Fall 1998-Spring 2000.

Department of CEE, Spring-Summer 1994, Spring 1995-Spring 1996.

Promotions & Tenure Committee, Spring 2004-Spring 2005.

Advisory Committee, Fall 1998-Spring 1999.

Student Awards Committee, Fall 1994-Spring 1997.

Curriculum Committee, Fall 1994-Spring 1996.

### College of Engineering

College of Engineering Task Force on Biotechnology, Fall 1998-Spring 1999.

Organized environmental engineering demos for the "1994 Take Your Daughter to Work Day".

### Campus

#### Faculty Search Committees

Department of Microbiology, chair, Fall 2004-Spring 2005.

WaterCAMPWS, chair, Fall 2004-Spring 2005.

Department of Agricultural Engineering, Fall 1998-Spring 1999.

Critical Research Initiative (CRI) Review Committee, Fall 2000-Spring 2002.

Udall Scholarship Review Committee, Spring 2001.

Cross-Campus Initiatives Retreat: Positioning the Campus for the Future. Feb. 27, 2002.

College of ACES Committee on UIUC Farms Waste Handling, Fall 1998-Spring 2000.

CNRS-UIUC workshop, Environmental Biotechnology at the University of Illinois, Paris, France, Sept. 9-10, 1997.

Interview Committee for FIPSE (Funding Improvement of Post Secondary Education) program to select UIUC awardees (International Programs and Studies), Spring 1994.