

JULIA A. MARESCA
University of Delaware
Department of Civil and Environmental Engineering
344B DuPont Hall Newark, DE 19716
e-mail: jmaresca@udel.edu
phone: 302-831-4391

• **Curriculum vitae** •

EDUCATION

- 2001-2007 **Ph.D., Biochemistry, Microbiology, and Molecular Biology**
The Pennsylvania State University, University Park, PA
Ph.D. dissertation: The genetic basis for pigment variation among green sulfur
bacteria.
- 1995-1999 **B.A., Biology**
University of Chicago, Chicago, IL

PROFESSIONAL APPOINTMENTS AND EXPERIENCE

- 2017-present **Associate Professor**
Department of Civil and Environmental Engineering, University of Delaware
- 2011-2017 **Assistant Professor**
Department of Civil and Environmental Engineering, University of Delaware.
- 2011-present **Joint appointment, Assistant Professor**
School of Marine Science and Policy, University of Delaware
- 2012-present **Joint appointment, Assistant Professor**
Department of Biology, University of Delaware
- 2007-2010 **Post-doctoral Associate**
Department of Civil and Environmental Engineering, Massachusetts Institute
of Technology.
Advisor: Dr. Edward F. DeLong
- 2003-2007 **Graduate Research Assistant**
Department of Biochemistry and Molecular Biology, The Pennsylvania State
University.
Advisor: Dr. Donald A. Bryant
- 2001-2002 **Graduate Teaching Assistant**
Department of Biochemistry and Molecular Biology, The Pennsylvania State
University.
Advisor: Dr. Donald A. Bryant
- 2000-2001 **IRTA Post-Baccalaureate Fellow**
Lab of Viral Diseases, National Institute on Allergy and Infectious Disease.

Advisor: Dr. Alison McBride

- 1999-2000 **IRTA Post-Baccalaureate Fellow**
Lab of Auditory Mechanics, National Institute on Deafness and
Communicative Diseases
Advisor: Dr. Richard Chadwick
- 1998-1999 **Undergraduate Research Assistant**
Department of Organismal Biology and Anatomy, University of Chicago
Advisor: Dr. Martin Feder
- 1998 **Summer REU Fellow**
Department of Biomedical Engineering, Duke University
Advisor: Dr. Fan Yuan

PROFESSIONAL DEVELOPMENT

- 2016 PRIMER-E Statistics Workshop, North Carolina State University, Raleigh, NC
- 2014 Faculty Success Program, National Center for Faculty Development and Diversity
- 2013 Problem-Based Learning Workshop, University of Delaware, Newark DE
- 2011 ExCEED Teaching Workshop, US Military Academy, West Point, NY
- 2010 Field Workshop on Anaerobic Phototrophic Ecosystems, Syracuse, NY
- 2002 Microbial Diversity Course, Marine Biological Laboratory, Woods Hole, MA

Professional Society Memberships

American Society of Microbiology

International Society for Microbial Ecology

1. RESEARCH AND SCHOLARLY ACTIVITY

1.1 Refereed publications

Cumulative h-index: 17; h-index since 2012: 14. Total citations: 2189; Citations since 2012: 1126 (calculated by Google Scholar; <http://www.udel.edu/003287>)

¹University of Delaware undergraduate student. ²University of Delaware graduate student.

³University of Delaware postdoctoral scientist.

*Corresponding author. Please note that I am generally listed last on publications for which *students or postdocs under my direction* are first authors.

Publications above the line were published after my start date at the University of Delaware.

1. M. Yao², C. Henny, **J.A. Maresca***. Freshwater bacteria release methane as a byproduct of phosphorus acquisition and oxidation. 82: 6994-7003. *Applied and Environmental*

Microbiology. doi:10.1128/AEM.02399-16

- This article was featured in the *Applied and Environmental Microbiology* “Spotlight” (<http://aem.asm.org/content/82/23/6809.full>) and in the “Editors’ Choice” feature of *Science* (<http://science.sciencemag.org/content/354/6313/twil>), which highlight articles that have been deemed of significant interest by the editors.
2. **J.A. Maresca***, P. Moser¹, T. Schumacher. Bacterial communities in and on concrete. 2017. *Materials and Structures* 50: 25. doi:10.1617/s11527-016-0929-y
 3. J. Tian²; V. (Beneski) Miller²; P.C. Chiu; **J.A. Maresca**; M. Guo, P.T. Imhoff*. 2016. Nutrient release and ammonium sorption of poultry litter and wood biochars in stormwater treatment. *Science of the Total Environment* 553: 596–606. doi:10.1016/j.scitotenv.2016.02.129
 4. **J.A. Maresca***, J.L. Keffer³, K.J. Miller². Biochemical analysis of microbial rhodopsins. *Current Protocols in Microbiology* 41:1F.4.1-1F.4.18. DOI:10.1002/cpmc.5
 5. M. Yao², F. Elling, CA. Jones, C.P. Long², S. Nomosatryo, S.A. Crowe, M.R. Antoniewicz, K.-U. Hinrichs, **J.A. Maresca***. 2016. Heterotrophic bacteria from an extremely phosphate-poor lake have conditionally reduced phosphorus demand and utilize diverse sources of phosphorus. *Environmental Microbiology*, 18(2): 656-667. doi:10.1111/1462-2920.13063
 6. J.L. Keffer³, M.W. Hahn, **J.A. Maresca***. 2015. Characterization of a novel freshwater rhodopsin from *Rhodoluna lacicola*. *Journal of Bacteriology*, 197(16): 2704-2712. doi: 10.1128/JB.00386-15
 7. J.L. Keffer³, C.R. Sabanayagam, M.E. Lee, E.F. DeLong, M.W. Hahn, **J.A. Maresca***. 2015. Identifying rhodopsin-containing cells using TIRF microscopy. *Applied and Environmental Microbiology*, 81 (10): 3442-3450. doi:10.1128/AEM.00230-15.
➤ This article was featured in the *Applied and Environmental Microbiology* “Spotlight,” which highlights articles that have been deemed of significant interest by the editors, and was recommended in the Faculty of 1000 as “being of special significance in its field” (<http://www.udel.edu/003349>).
 8. S.A. Crowe*, **J.A. Maresca**, CA. Jones, A.R. Sturm, S. Katsev, C. Henny, D.A. Fowle, R.P. Cox, E.F. DeLong, and D.E. Canfield. 2014. Deep-water anoxygenic photosynthesis in a ferruginous chemocline. *Geobiology*, 12: 322–339. doi: 10.1111/gbi.12089
 9. **J.A. Maresca**, S.A. Crowe, and J.L. Macalady*. 2012. Anaerobic photosynthetic ecosystems. *Geobiology*, 10: 193–195. doi: 10.1111/j.1472-4669.2012.00327.x
 10. A.L. Zerkle, K. Scheiderich, **J.A. Maresca**, L.J. Liermann, and S.L. Brantley*. 2011. Molybdenum isotope fractionation by cyanobacterial assimilation during nitrate utilization and N₂ fixation. *Geobiology*, 9(1):94-106. doi: 10.1111/j.1472-4669.2010.00262.x
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11. H. Kiss, M. Nett, N. Domin, K. Martin, **J.A. Maresca**, A. Copeland, A. Lapidus, S. Lucas, K. W. Berry, T. Glavina Del Rio, E. Dalin, H. Tice, S. Pitluck, P. Richardson, D. Bruce, L. Goodwin, C. Han, J. C. Detter, J. Schmutz, T. Brettin, F. Larimer, M. Land, L. Hauser, N. C. Kyrpides, N. Ivanova, M. Göker, T. Woyke, H.-P. Klenk, D.A. Bryant. 2011. Complete genome sequence of the filamentous gliding predatory bacterium *Herpetosiphon aurantiacus* type strain (114-95^T). *Standards in Genomic Sciences*, 5:3. doi: 10.4056/sigs.2194987
 12. **J.A. Maresca**, J.C. Braff, and E.F. DeLong*. 2009. Characterization of canthaxanthin biosynthesis genes from an uncultured marine bacterium. *Environmental Microbiology Reports*, 1: 524-534. doi: 10.1111/j.1758-2229.2009.00075.x
 13. **J.A. Maresca**, S.P. Romberger, and D.A. Bryant*. 2008. Isorenieratene biosynthesis in green sulfur bacteria requires the cooperative actions of two carotenoid cyclases. *Journal of Bacteriology*, 190: 6384-6391. doi: 10.1128/JB.00758-08
 14. **J.A. Maresca**, J.E. Graham, and D.A. Bryant*. 2008. The biochemical basis for structural diversity in the carotenoids of phototrophic bacteria. *Photosynthesis Research*, 97: 121-140. doi: 10.1007/s11120-008-9312-3
 15. **J.A. Maresca**, J.E. Graham, M. Wu, J. Eisen, and D.A. Bryant*. 2007. Identification of a

- new family of lycopene cyclases in photosynthetic bacteria. *Proceedings of the National Academy of Sciences*, 104: 11784-11789. doi: 10.1073/pnas.0702984104
16. Bryant, D. A.*, A.M. Garcia Costas, **J.A. Maresca**, A. Gomez Maqueo Chew, C.G. Klatt, M.M. Bateson, L.J. Tallon, J. Hostetler, W.C. Nelson, J.F. Heidelberg, and D.M. Ward. 2007. *Chloracidobacterium thermophilum*: an aerobic phototrophic acidobacterium. *Science*, 317: 523-526. DOI: 10.1126/science.1143236
 17. Kim, H., H. Li, **J.A. Maresca**, D.A. Bryant, and S. Savikhin*. 2007. Triplet exciton formation as a novel photoprotection mechanism in chlorosomes of *Chlorobium tepidum*. *Biophys. J.*, 93: 192-201. doi: [10.1529/biophysj.106.103556](https://doi.org/10.1529/biophysj.106.103556)
 18. **J.A. Maresca** and D.A. Bryant*. 2006. Identification of two genes encoding new carotenoid-modifying enzymes in the green sulfur bacterium *Chlorobium tepidum*. *Journal of Bacteriology*, 188: 6217-6223. doi: 10.1128/JB.00766-06
 19. R.E. Ley, J.K. Harris, J. Wilcox, J.R. Spear, S.R. Miller, B.M. Bebout, **J.A. Maresca**, D.A. Bryant, N.R. Pace*. 2006. Unprecedented bacterial community diversity and complexity in a hypersaline microbial mat. *Applied and Environmental Microbiology*, 72: 3685-3695. doi: 10.1128/AEM.72.5.3685-3695.2006
 20. A.R. Brannon, **J.A. Maresca**, J.D. Boeke, M.A. Basrai, and A.A. McBride*. 2005. Reconstitution of BPV E2-mediated plasmid segregation in yeast by the Brd4 bromodomain protein. *Proceedings of the National Academy of Sciences* 102 (8): 2998-3003. doi: [10.1073/pnas.0407818102](https://doi.org/10.1073/pnas.0407818102)
 21. N.-U. Frigaard, **J.A. Maresca**, C.E. Yunker, A.D. Jones, and D.A. Bryant*. 2004. Genetic manipulation of carotenoid biosynthesis in the green sulfur bacterium *Chlorobium tepidum*. *Journal of Bacteriology* 186: 5210-5220. doi: 10.1128/JB.186.16.5210-5220.2004
 22. **J.A. Maresca**, A. Gomez Maqueo Chew, M. Ros Ponsatí, N-U. Frigaard, J.G. Ormerod, and D.A. Bryant. 2004. The *bchU* gene of *Chlorobium tepidum* encodes the C-20 methyltransferase in bacteriochlorophyll *c* biosynthesis. *Journal of Bacteriology* 186 (9): 2558-2566. doi: 10.1128/JB.186.9.2558-2566.2004
 23. N-U Frigaard, A. Gomez Maqueo Chew, H. Li, **J.A. Maresca**, D.A. Bryant*. 2003. *Chlorobium tepidum*: Insights into the structure, physiology, and metabolism of a green sulfur bacterium derived from the complete genome sequence. *Photosynthesis Research* 78: 93-117.
 24. EK Dimitriadis, F. Horkay, **J. Maresca**, B. Kachar, RS Chadwick*. 2002. Determination of elastic moduli of soft, thin samples using the atomic force microscope. *Biophysical Journal* 82(5): 2798-810.
 25. A. Krol, **J. Maresca**, M. Dewhirst, F. Yuan*. 1999. Available volume fraction of macromolecules in the extravascular space of a fibrosarcoma: Implications for drug delivery. *Cancer Research* 59: 4136-4141.

1.2 Book Chapters and Conference Proceedings

26. Frigaard, N.-U., A. Gomez Maqueo Chew, **J.A. Maresca**, and D.A. Bryant. 2006. Bacteriochlorophyll biosynthesis in green bacteria. In: *Advances in Photosynthesis and Respiration*, Vol. 25, B. Grimm, R. Porra, W. Rüdiger, and H. Scheer (eds.), Chlorophylls and Bacteriochlorophylls: Biochemistry, Biophysics, Functions and Applications, pp. 201-221. Springer, Dordrecht, The Netherlands.
27. **J.A. Maresca**, N.-U. Frigaard, and D.A. Bryant. 2005. Identification of a novel class of lycopene cyclases in photosynthetic bacteria. In: *Photosynthesis: Fundamental Aspects to Global Perspectives*, Proceedings of the XIIIth International Congress on Photosynthesis, Montreal, A. van der Est and D. Bruce, eds., pp. 884-886. Allen Press, Lawrence, KS, USA.
28. D.A. Bryant, N.-U. Frigaard, **J.A. Maresca**, A. Gomez Maqueo Chew and T. Li. 2005. Chlorophyll and carotenoid biosynthesis in green sulfur bacteria: a genomic perspective. In:

Photosynthesis: Fundamental Aspects to Global Perspectives, Proceedings of the XIIIth International Congress on Photosynthesis, Montreal, A. van der Est and D. Bruce, eds., pp. 866-869. Allen Press, Lawrence, KS, USA.

1.3 Manuscripts in preparation

1. **J.A. Maresca***, K.J. Miller, J.L. Keffer, B.J. Campbell. Active light capture by microbial rhodopsins in the Chesapeake Bay.
2. **J.A. Maresca***, P. Hempel², O. Shevchenko, K.J. Miller², and M.W. Hahn. Genome sequence of an Actinobacterium that displays light-enhanced growth.

1.4 Professional and Scholarly Honors

1. 2011 ExCEED Teaching Fellow, American Society for Civil Engineers
2. 2007 Graduate School Alumni Association Dissertation Award, The Pennsylvania State University, for “The genetic basis for pigment variation in green sulfur bacteria”
3. 2005 International Travel Award, Biogeochemical Research Initiative for Education (NSF-IGERT) (Research at Ludwig-Maximilians University, Munich, Germany)
4. 2004-2006 NASA Space Grant Fellowship
5. 2004 Summer Research Fellowship, Center for Environmental Chemistry and Geochemistry, The Pennsylvania State University
6. 2003 Research Award, Biogeochemical Research Initiative for Education (NSF-IGERT)
7. 2002-2004 NASA Space Grant Fellowship
8. 2001-2002 University Graduate Fellowship, The Pennsylvania State University

1.5 Invited Seminars

Seminars above the line were given after my start date at the University of Delaware.

1. University of Delaware, Bioinformatics Seminar Series. November 7, 2016. *Cryptic light-enhanced growth in heterotrophic bacteria*. (Joint seminar with Priscilla Hempel, MS student.)
2. University of Delaware, Department of Civil and Environmental Engineering. May 13, 2016. *Civil microbiology: Bacteria in natural and engineered systems*.
3. Towson University, Department of Physics, Astronomy, and Geosciences, Towson, MD. April 8, 2016. *Hard Microbiology: Bacteria in concrete*.
4. Clemson University, Department of Biological Sciences, Clemson, SC. March 25, 2016. *Visualizing microbial rhodopsins in the Chesapeake Bay*.
5. MicroSeminar, an online seminar series on environmental microbiology. January 21, 2016. *Doing more with less: Physiological traits of heterotrophic bacteria from a phosphate-limited lake*. Archived talk at <https://www.youtube.com/watch?v=ptYvEsvakJ0>
6. Michigan State University, Department of Geological Sciences, East Lansing, MI. November 20, 2015. *Hard Microbiology: Bacteria in concrete*.
7. National Renewable Energy Laboratory, Golden, CO. November 9, 2015. *Cryptic light-enhanced growth in bacteria with rhodopsins*.
8. Wentworth Institute of Technology, Department of Civil Engineering and Technology. November 4, 2015. *Hard Microbiology: Bacteria in concrete*.
9. Villanova University, Department of Civil and Environmental Engineering. October 23, 2015. *Hard Microbiology: Bacteria in concrete*.
10. Rutgers University, Department of Biochemistry and Microbiology. September 18, 2015.

Visualizing microbial rhodopsins in the Chesapeake Bay.

11. University of Delaware, Department of Geography. May 15, 2015. *Microbes on the edge: Bacteria in an ultra-oligotrophic lake.*
12. University of Delaware, DENIN Environmental Frontier Grant Program. October 6, 2014. *Allies and enemies in the rhizosphere.*
13. University of Southern Denmark. August 16, 2012. *Microbe-manipulation: responses of natural photosynthetic populations to external stimulus.*
14. Johns Hopkins University, Department of Geography and Environmental Engineering. April 19, 2012. *Microbe-manipulation: responses of natural photosynthetic populations to external stimulus.*
15. University of Delaware, Department of Biology. February 29, 2012. *Microbe-manipulation: responses of natural photosynthetic populations to external stimulus.*
16. University of Delaware, Department of Plant & Soil Sciences. Nov. 11, 2011. *Microbe-manipulation: responses of natural photosynthetic populations to external stimulus.*
17. Delaware Biotechnology Institute and University of Delaware, Computational Biology Department. October 17, 2011. *Microbe-manipulation: responses of natural microbial populations to external stimulus.*
18. University of Delaware, School of Marine Science and Policy. *Microbe-manipulation: responses of natural microbial populations to external stimulus.*
19. University of Alberta, Cellular and Molecular Systems seminar series. September 9, 2011. *Microbe-manipulation: responses of natural microbial populations to external stimulus.*

20. University of Wisconsin-Madison, Department of Bacteriology. March 24, 2010. *Color and conversation: The (meta)genomics of bacterial pigmentation and biofilms.*
21. University of Delaware, Department of Civil and Environmental Engineering. March 17, 2010. *Color and conversation: The (meta)genomics of bacterial pigmentation and biofilms.*
22. University of Kansas, Department of Geology. September 10, 2009. *Making molecular fossils and microbial sunscreen: Carotenoid biosynthesis and microbial ecology.*
23. Microbial Systems Seminar, Massachusetts Institute of Technology, Department of Civil and Environmental Engineering. September 26, 2007. *The genetic basis of pigment variation among green sulfur bacteria.*
24. Harvard Medical School, Department of Microbiology and Molecular Genetics. May 12, 2006. *The genetic basis of pigment variation among green sulfur bacteria.*
25. Princeton University, Department of Molecular Biology. April 18, 2006. *The genetic basis of pigment variation among green sulfur bacteria.*
26. Delaware Biotechnology Institute. October 14, 2004. *Carrots, tomatoes, and Chlorobium tepidum: Carotenoid biosynthesis in green sulfur bacteria.*

1.6 Regional, national, and international conference presentations

¹University of Delaware undergraduate student, ²University of Delaware graduate student, ³University of Delaware postdoctoral associate, *presenting author.

Presentations above the line were given after my application for promotion to Associate Professor at the University of Delaware.

1. **J.A. Maresca***. Light capture by freshwater Actinobacteria. Applied and Environmental Microbiology Gordon Research Conference, July 2017. (Invited talk.)
2. **J.A. Maresca***. Urban geomicrobiology: Microbial communities in and on concrete. Geological Society of America Annual Meeting, September 2016. (Invited talk.)

3. **J.A. Maresca***, J.L. Keffer³, K.J. Miller¹, P. Hempel¹. Light capture and utilization by freshwater Actinobacteria. International Society of Microbial Ecology, August 2016. (Poster

- presentation)
4. **J.A. Maresca***, J.L. Keffer³. Microbial communities in concrete and their potential application in ASR-damaged concrete. Mid-Atlantic Transportation Sustainability Center – Region 3 University Transportation Center Annual Meeting, August 2016. (Poster presentation and invited talk.)
 5. A.K. Treglia^{1*}, J.L. Keffer³, **J.A. Maresca**. Using Microbial Populations in Concrete as Bio-Indicators of Alkali-Silica Reaction. American Society of Microbiology General Meeting/Microbe, June 2016. (Poster presentation)
 6. K.J. Miller^{2*}, J.L. Keffer³, **J.A. Maresca**. Visualization of rhodopsin-utilizing cells in the Chesapeake Bay. American Society of Microbiology General Meeting/Microbe, June 2016. (Poster presentation)
 7. M. Yao^{2*}, **J.A. Maresca**. Methylphosphonate degradation may contribute to methane production in the oxic water column of Lake Matano. American Society of Microbiology General Meeting/Microbe, June 2016. (Poster presentation)
 8. **J.A. Maresca***, K. Zhang¹, Thomas Schumacher. Naturally occurring bacterial communities in and on concrete. American Concrete Institute, Research In Progress session. November 2015. (Oral presentation.)
 9. P. Moser^{2*}, K. Zhang², T. Schumacher, **J.A. Maresca**. Microbially mediated detection of damaged concrete. International Conference on Ecology and Transportation, September 2015. (Poster presentation)
 10. K. Zhang^{2*}, **J.A. Maresca**. Microbial communities in concrete and their potential application in ASR-damaged concrete. Mid-Atlantic Transportation Sustainability Center – Region 3 University Transportation Center Annual Meeting, August 2015. (Poster presentation.)
 11. J.L. Keffer^{3*}, **J.A. Maresca**. Light utilization in freshwater *Actinobacteria*. Applied & Environmental Microbiology Gordon Research Conference, July 2015. (Poster presentation.)
 12. **J.A. Maresca***, K. Zhang¹, P. Moser², T. Schumacher. Hard microbiology: The bacteria in concrete. Applied & Environmental Microbiology Gordon Research Conference, July 2015. (Poster presentation.)
 13. **J.A. Maresca***, J.L. Keffer³. Visualizing and characterizing an unusual microbial rhodopsin. Eastern Regional Photosynthesis Conference, April 2015. (Oral presentation.)
 14. **J.A. Maresca***, K. Zhang¹. Hard microbiology: The bacteria in concrete. American Phytopathological Society, Potomac Chapter, March 2015. (Invited talk.)
 15. M. Yao^{1*}, C.A. Jones, S. Crowe, S. Nomosatryo, F. Elling, K.-U. Hinrichs, **J.A. Maresca**. Heterotrophic bacteria in a lake without phosphate. Northeast Geobiology Symposium, February 2015. (Poster presentation.)
 16. S.M. Yannarell^{2*}, J.L. Keffer, **J.A. Maresca**. Antifungal compounds produced by *Bacillus* spp. isolated from soil. UCMB Undergraduate Research Symposium, October 2014. (Poster presentation.)
 17. **J.A. Maresca***, K. Zhang¹, P. Moser², J. Moore, T. Schumacher. Bacterial indicators of ASR-induced damage. Corvallis Workshop on Cement-Based Materials, July 2014. (Invited talk)
 18. J.L. Keffer^{*}, C. Sabanayagam, **J.A. Maresca**. Characterization of a novel rhodopsin and identification of rhodopsin-containing cells by microscopy. 5th Biennial National IDEa Symposium of Biomedical Research Excellence, June 2014. (Poster presentation.)
 19. J.L. Keffer^{3*}, C. Sabanayagam, **J.A. Maresca**. Characterization of a novel rhodopsin and identification of rhodopsin-containing cells by microscopy. Delaware Membrane Protein Symposium, May 2014. (Poster presentation.)
 20. S.M. Yannarell^{2*}, J.L. Keffer, **J.A. Maresca**. Antifungal compounds produced by *Bacillus* spp. isolated from soil. Scientista symposium, April 2014. (Poster presentation.)
 21. J.L. Keffer^{*}, C. Sabanayagam, **J.A. Maresca**. Freshwater Actinobacteria have a conference in the sun. American Society of Microbiology General Meeting, May 2014. (Oral presentation.)
 22. **J.A. Maresca***, M. Yao¹, S.A. Crowe, E.F. DeLong, D.E. Canfield. Bacterial phosphate

- acquisition from minerals in ultra-oligotrophic, ferruginous environments. Goldschmidt Conference, August 2013. (Poster presentation.)
23. **J.A. Maresca**^{*}, P. Moser², J. Moore, T. Schumacher. Microbial inhabitants of damaged concrete. Applied and Environmental Microbiology Gordon Research Conference, July 2013. (Poster presentation.)
 24. J.L. Keffer^{*} and **J.A. Maresca**. Light-stimulated growth of an Actinobacterium encoding actinorhodopsin. Applied & Environmental Microbiology Gordon Research Conference, July 2013. (Poster presentation.)
 25. **J.A. Maresca**^{*}, P. Moser², M.K. Sutter², F. Rajabipour, T. Schumacher. Bio-indicators of ASR-induced damage. American Concrete Institute, Minneapolis MN, April 2013. (Oral presentation.)
 26. **J.A. Maresca**^{*}, M. Yao¹, S.A. Crowe, E.F. DeLong, D.E. Canfield. Metagenomic analysis of aerobic and anaerobic phototrophic communities in a stratified lake. International Society for Microbial Ecology, Copenhagen, August 2012. (Poster presentation.)
 27. **J.A. Maresca**^{*}, C.R. Young, E.F. DeLong. Transcriptional response of marine microbial biofilms to exogenous quorum sensing compounds. Center for Bioinformatics and Computational Biology Annual Symposium, May 2012. (Oral presentation.)
 28. **J.A. Maresca**^{*}, C.R. Young, E.F. DeLong. Transcriptional response of marine microbial biofilms to exogenous quorum sensing compounds. Metagenomics Workshop, UD Center for Environmental Genomics, December 2011. (Oral presentation.)
 29. **J.A. Maresca**^{*}, S.A. Crowe, A. Sturm, C.A. Jones, E.F. DeLong, D.E. Canfield. Metagenomic analysis of aerobic and anaerobic communities in a stratified lake. Applied & Environmental Microbiology Gordon Research Conference, July 2011. (Poster presentation.)

 30. **J.A. Maresca**^{*}, E.F. DeLong. The transcriptional response of coastal biofilms to exogenous autoinducer-2. 13th International Symposium on Microbial Ecology, August 2010. (Poster presentation.)
 31. **J.A. Maresca**^{*}, E.F. DeLong. Transcriptional response of microbes to exogenous AI-2. Applied & Environmental Microbiology Gordon Research Conference, July 2009. (Poster presentation.)
 32. **J.A. Maresca**^{*}, E.F. DeLong. Small molecules in the big ocean: secondary metabolites in marine bacteria. Boston Bacterial Meeting, July 2009. (Poster presentation.)
 33. **J.A. Maresca**^{*}, J.C. Braff, E.F. DeLong. Characterization of a carotenogenic gene cluster from a marine bacterium. American Society for Microbiology General Meeting, June 2008. (Poster presentation.)
 34. **J.A. Maresca**^{*}, T. Li, D.A. Bryant. Functional characterization of the genes required for brown pigmentation in green sulfur bacteria. International Symposium on Photosynthetic Prokaryotes, August 2006. (Oral presentation)
 35. **J.A. Maresca**^{*}, T. Li, D.A. Bryant. Identification of a gene cluster responsible for the brown phenotype in green sulfur bacteria. Eastern Regional Photosynthesis Conference, Woods Hole, MA., April 2006. (Oral presentation)
 36. **J.A. Maresca**^{*}, D.A. Bryant. Interspecies signal abduction: An archaeal protein that degrades homoserine lactones. Environmental Chemistry Student Symposium, March 2006. (Poster; Winner, Best Poster Award)
 37. C.M. Cress^{*}, **J.A. Maresca**, and D.A. Bryant. Characterization of the transcriptional regulator ModE in *Chlorobium tepidum*. Environmental Chemistry Student Symposium, March 2006. (Oral presentation; Winner, Best Undergraduate Student Presentation)
 38. **J.A. Maresca**^{*}, T. Li, D.A. Bryant. Using comparative genomics to identify unique genes in bacteriochlorophyll biosynthesis. Allegheny Branch of the American Society for Microbiology annual meeting, October 2005. (Oral presentation; Second Prize, Graduate Student Oral Presentations)
 39. H. Kim^{*}, H. Li, **J. A. Maresca**, D.A. Bryant, S. Savikhin. Novel photo-protection

mechanisms in chlorosomes from the green sulfur bacterium *Chlorobium tepidum*. Midwest Photosynthesis Conference, October 2006.

40. **J.A. Maresca**^{*}, T. Li, D.A. Bryant. Comparative genomics of nine species of green sulfur bacteria. Summer Symposium in Molecular Biology, July 2005. (Poster)
41. **J.A. Maresca**^{*}, D.A. Bryant. Genetic basis for pigment variation in green sulfur bacteria. American Society for Microbiology General Meeting, June 2005. (Poster)
42. **J.A. Maresca**^{*}, N.-U. Frigaard, D.A. Bryant. Identification of a novel family of lycopene cyclases in photosynthetic organisms. International Congress of Photosynthesis, August 2004. (Poster)
43. R.E. Ley^{*}, J. Wilcox, J.R. Spear, **J.A. Maresca**, D.A. Bryant, N.R. Pace. A molecular view into hypersaline microbial mat communities: Vast diversity, unexpected composition, discrete structure. American Society for Microbiology General Meeting, May 2004. (Poster)
44. **J.A. Maresca**^{*}, N-U. Frigaard, D.A. Bryant. Photosynthesis in the near-dark: Why BChl *c*-containing green sulfur bacteria predominate in low-light environments. Meeting of the Allegheny Branch of the American Society for Microbiology, Pittsburgh, PA. October 2003. (Oral presentation; First Prize, Graduate Student Oral Presentation)
45. **J.A. Maresca**^{*}, N-U. Frigaard, D.A. Bryant. A molecular explanation for the predominance of BChl *c*-containing green sulfur bacteria in low light environments. Environmental Chemistry Student Symposium, State College, PA. March 2003. (Oral presentation)
46. **J.A. Maresca**^{*}, A. Gomez, N-U. Frigaard, J.G. Ormerod, D.A. Bryant. *bchU* encodes the bacteriochlorophyllide *c* C-20 methyltransferase in *Chlorobium tepidum*. Midwest Photosynthesis Conference, Turkey Run, IN. October 2002. (Poster)

1.7 Student presentations at on-campus symposia (University of Delaware)

¹University of Delaware undergraduate student, ²University of Delaware graduate student, ³University of Delaware postdoctoral associate, *presenting author. Entries above the line were presented since submission of my application for promotion and tenure in September 2016.

1. P. Hempel^{2*}, J.L. Keffer³, **J.A. Maresca**. Transcriptomic analysis of Actinobacteria that display light-enhanced growth. Microbial Systems Symposium, February 2017. (Poster presentation)
2. E.A. Kiledal^{2*}, J.L. Keffer³, **J.A. Maresca**. The Concrete Microbiome. Microbial Systems Symposium, February 2017. (Poster presentation)

3. D. Kitt^{1*}, M. Yao², **J.A. Maresca**. Examining Alkaline Phosphatase Activity and Phosphate Starvation Induced Physical Changes in Bacteria Isolated from Ultra-Oligotrophic Lake Matano. NSF-EPSCOR site visit, September 2016. (Poster presentation.)
4. D. Kitt^{1*}, M. Yao², **J.A. Maresca**. Microbial Utilization of Mineral Associated Phosphate and Organophosphate Esters. Microbial Systems Symposium, February 2016. (Poster presentation)
5. A.K. Treglia^{1*}, **J.A. Maresca**. Role of Carotenoid Compounds In Oxidative Stress Response in Bacteria Isolated from Concrete. Microbial Systems Symposium, February 2016. (Poster presentation)
6. P. Hempel^{2*}, J.L. Keffer³, **J.A. Maresca**. Characterizing Light Responsive Growth of Actinobacteria Using In Silico Transcriptomic Analysis. Microbial Systems Symposium, February 2016. (Poster presentation)
7. K.J. Miller^{2*}, J.L. Keffer³, **J.A. Maresca**. Visualization of rhodopsin-utilizing cells in the Chesapeake Bay. Microbial Systems Symposium, February 2016. (Poster presentation)
8. M. Yao^{2*}, **J.A. Maresca**. Methylphosphonate degradation may contribute to methane production in the oxic water column of Lake Matano. Microbial Systems Symposium, February 2016. (Poster presentation)
9. D. Kitt^{1*}, M. Yao², **J.A. Maresca**. Microbial Utilization of Mineral Associated Phosphate

- and Organophosphate Esters. Undergraduate Research and Service Symposium, August 2015. (Poster presentation)
10. A.K. Treglia^{1*}, **J.A. Maresca**. Role of Carotenoid Compounds In Oxidative Stress Response in Bacteria Isolated from Concrete. Delaware Environmental Institute Environmental Scholars Symposium, May 2015. (Poster presentation)
 11. J.L. Keffer^{3*}, **J.A. Maresca**. Characterization of an unconventional rhodopsin in *Actinobacteria*. Microbial Systems Symposium, February 2015. (Oral presentation.)
 12. K. Miller^{2*}, J.L. Keffer³, **J.A. Maresca**. Synthesis of bacterioruberin by light-responsive *Actinobacteria*. Microbial Systems Symposium, February 2015. (Poster presentation.)
 13. K. Zhang^{2*}, P. Moser¹, **J.A. Maresca**. Microbial communities in concrete and their applications. Microbial Systems Symposium, February 2015. (Poster presentation.)
 14. S.M. Yannarell^{1*}, M. Yao², **J.A. Maresca**. Antifungal compounds produced by *Bacillus* spp. isolated from soil. Microbial Systems Symposium, February 2015. (Poster presentation.)
 15. A. Treglia^{1*}, K. Zhang², **J.A. Maresca**. Role of carotenoid pigments in protection from oxidative stress in concrete. Microbial Systems Symposium, February 2015. (Poster presentation.)
 16. M. Yao^{2*}, C.A. Jones, S. Crowe, S. Nomosatryo, F. Elling, K.-U. Hinrichs, **J.A. Maresca**. Heterotrophic bacteria in a lake without phosphate. Microbial Systems Symposium, February 2015. (Poster presentation.)
 17. S.M. Yannarell^{1*}, J.L. Keffer³, **J.A. Maresca**. Antifungal compounds produced by *Bacillus* spp. isolated from soil. DENIN Scholars symposium, May 2014. (Poster presentation.)
 18. S.M. Yannarell^{1*}, J.L. Keffer³, **J.A. Maresca**. Antifungal compounds produced by *Bacillus* spp. isolated from soil. DENIN Scholars symposium, May 2014. (Poster presentation.)
 19. S.M. Yannarell^{1*}, J.L. Keffer³, **J.A. Maresca**. Antifungal compounds produced by *Bacillus* spp. isolated from soil. DENIN External Advisory Board meeting, April 2014. University of Delaware. (Poster presentation.)
 20. A.S. DiPietro^{1*}, J.L. Keffer³, **J.A. Maresca**. Identification and characterization of an agarase- and melanin-producing marine *Pseudoalteromonas* sp. Undergraduate Research and Service Symposium, August 2013. (Poster presentation)
 21. P. Moser^{1*}, J. Moore, T. Schumacher, **J.A. Maresca**. Microbially-mediated Detection of Damaged Concrete. Undergraduate Research and Service Symposium, August 2013. (Poster presentation)
 22. J.V. Kerridge^{1*}, **J.A. Maresca**. Degradation of asphalt by microbial species. Undergraduate Research and Service Symposium, August 2013. (Poster presentation)
 23. S. M. Yannarell^{1*}, M. Yao², **J.A. Maresca**. Phosphorus release and cross-feeding between bacteria and fungi. Undergraduate Research and Service Symposium, August 2013. (Poster presentation)
 24. J.M. Page^{1*}, **J.A. Maresca**. Behaviors and classification of coastal bacteria. Summer Scholars Poster Session, April 2012. (Poster presentation)
 25. B. Debord^{1*}, **J.A. Maresca**. Effects of the quorum quenching gene of *Sulfolobus solfataricus* on mineral degradation. Undergraduate Research and Service Symposium, August 2011. (Poster presentation)
 26. J.M. Page^{1*}, **J.A. Maresca**. Behaviors and classification of coastal bacteria. Undergraduate Research and Service Symposium, August 2011. (Poster presentation)

2. TEACHING, ADVISING, AND SUPERVISING

2.1 Research associates and visiting scholars

1. Jessica (Keffer) Clinton, April 2016 – present
2. Monica Numpaque, Colombian Summer Exchange Program. Summer 2014.

2.2 Postdoctoral scholars

Jessica Keffer, October 2012 – July 2015

2.3 Research student mentoring

2.3.1 Ph.D. students

1. Priscilla Hempel, 2015 – present (Bioinformatics and Computational Biology; anticipated graduation spring/summer 2020; funded by NSF-IGERT award)
2. Mengyin Yao, 2012 – 2016 (Environmental Engineering, defended thesis October 2016)
3. Kehui (Keira) Zhang, 2013 – 2015 (Environmental Engineering, left without completing thesis research)

2.3.2 MS students

1. Christine Chapman, 2016 – present (Water Science and Policy; anticipated graduation spring/summer 2018)
2. Anders Kiledal, 2016 – present (Biological Sciences; anticipated graduation spring/summer 2018)
3. Kelsey J. Miller, 2014 – 2016 (Biological Sciences)
4. Valentina (Beneski) Miller, 2011-2013 (Environmental Engineering)

2.3 Undergraduate students

Students above the line are all University of Delaware undergraduates.

1. Eric Rouviere, University of Delaware Quantitative Biology/Physics, Class of 2018. Using TIRF microscopy to estimate single-protein rhodopsin fluorescence. September 2016 – present.
2. Steven Olson, University of Delaware Biology, Class of 2018. DNA photolyase activity in Actinobacteria. January 2016 – December 2016.
3. Natalie Muneses, University of Delaware Biomedical Engineering, Class of 2018. Developing a microscale cell-sorter. January 2016 – December 2016.
4. Dianna Kitt, University of Delaware Civil and Environmental Engineering, Class of 2017. Biophysical consequences of lipid remodeling in phosphate-starved bacteria. June 2015 – June 2017. *DENIN Environmental Scholar (2015-2016)*, Senior thesis.
5. Katherine Dillon, University of Delaware Biological Sciences, Class of 2016. Actinorhodopsin oligomerization and its effect on bacterial membrane integrity. Summer 2015.
6. Alison Treglia, University of Delaware Civil and Environmental Engineering, Class of 2018. Carotenoid-enhanced tolerance of oxidative stress in bacteria isolated from concrete. November 2014-December 2016. *DENIN Environmental Scholar (2014-2016)*.
7. Sarah Yannarell, University of Delaware, Chemistry and Biochemistry, Class of 2015. Bacterial-fungal interactions in soil. June 2013 – June 2015. *Senior thesis*.
8. Elena Dadukova, University of Delaware Civil and Environmental Engineering, Class of 2015. Analysis of a colorless mutant of *Rhodoluna laticola*. Spring 2014. *CIEG 461 credit*.
9. Danielle Weader, University of Delaware Civil and Environmental Engineering, Class of 2015. Vampire bacteria in an ultra-oligotrophic lake. Spring 2014. *CIEG461 credit*.
10. Andrew DiPietro, University of Delaware, Chemical Engineering, Class of 2015. Relationship between pigmentation and agar degradation in a marine bacterium. Summer

2013 – Spring 2014.

11. Paul Moser, University of Delaware, Civil and Environmental Engineering, Class of 2015. Microbial populations on concrete. Fall 2012 – Spring 2014.
 12. Joseph V. Kerridge, University of Delaware, Chemical Engineering, Class of 2015. Degradation of organic components of asphalt. Spring – Summer 2013.
 13. Mary Katherine Sutter, University of Delaware, Civil and Environmental Engineering, Class of 2014. Alkalitolerant microbial populations on concrete. Fall 2011 – Spring 2012.
 14. Samayyah Williams, California State University at Pomona, Civil Engineering Class of 2013. Summer 2012.
 15. Julianne Page, University of Delaware Civil and Environmental Engineering Class of 2012. Bacterial population analysis in Canadian oil sands tailings ponds. June 2011 to June 2012.
 16. Brittany Debord, University of Delaware Civil and Environmental Engineering Class of 2012. Archaeal population analysis in Canadian oil sands tailings ponds. June 2011 to June 2012.
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17. Julia Hopkins, MIT Class of 2012. Actinorhodopsins in freshwater ponds. May 2009 - December 2009.
18. Mike Lee, MIT Bioengineering Class of 2009. Construction of three carotenogenic strains of *E. coli*. June 2008 - May 2009.
19. Aleksandr Lewicki, Penn State BMB Class of 2010. Oxygen sensitivity of carotenoid mutants of *Chlorobium tepidum*. January 2006-December 2006.
20. Christina M. Cress, Penn State BMB Class of 2006. Analysis of nitrogen- and molybdenum-dependent gene expression in *Chlorobium tepidum*. January 2004 – May 2006.
21. Lindsay Glace, Penn State Biology. Transcriptional regulation of *modE* in *Chlorobium tepidum* in response to nitrogen availability. Summer 2004.
22. Jennifer Vrentas, Penn State BMB Class of 2006. Characterization of *Chlorobium phaeobacteroides* isolated from Fayetteville Green Lake. Summer 2004.

2.6 Courses taught

1. Course: CIEG437

Title: Water and wastewater quality

Course structure: Lecture, discussion, laboratory with final project, poster session

Terms taught: Spring 2012, Fall 2013, Fall 2015, Spring 2017.

2. Course: CIEG444/644

Title: Microbiology of engineered systems

Course structure: Lecture, journal club, discussion

Terms taught: Spring 2013, Spring 2015, Fall 2016, Spring 2018.

3. Course: CIEG867 (Permanent course number to be assigned)

Title: Bioengineering and molecular genetics

Course structure: Journal club, student-led discussions

Terms taught: Spring 2016

4. Course: CIEG439

Title: Bio-sustainability and public health

Course structure: Lecture, discussion

Terms taught: Fall 2012 (co-taught with Steve Dentel), Fall 2014

5. Course: CIEG636 (co-taught with Dan Cha)

Title: Biological Aspects of Environmental Engineering

Course structure: Lecture
Terms taught: Fall 2011

3. SERVICE

3.1 Department service

3.1.1 Department committees

1. 2016. ABET Self-Study committee.
2. May 2016. Search committee, Environmental Engineering Laboratory Manager.
3. May 2013. *Ad hoc* committee on CEE Alumni Awards.
4. 2013-present. Environmental Engineering Undergraduate Curriculum Committee.
5. 2012. Search committee, CEE Undergraduate Program Coordinator.

3.1.2 Department undergraduate recruiting

1. February and October 2016 Decision Days
2. April 2013 Decision Days
3. July 2013 Discovery Days
4. April 2012 Decision Days

3.2 College of Engineering service

3.2.1 College of Engineering Committees

(items above the line began after I submitted my application for promotion to assistant professor)

- | | |
|--------------------------|---|
| 1. February 2017-present | Assistant Chair, Graduate Student subcommittee for College of Engineering Diversity Committee |
| 2. April 2015 | Grade grievance panel, College of Engineering |
| 3. Fall 2014-Spring 2017 | College of Engineering Educational Activities Committee |
| 4. Fall 2013-Spring 2017 | Dean's Junior Faculty Advisory Council |

3.2.2 Engineering outreach and mentoring

(items above the line occurred after I submitted my application for promotion to assistant professor)

- | | |
|-----------------------|---|
| 1. January 2017 | Organized and attended LGBTQ+ Ally Training session for faculty |
| 2. October 2016 | Organized seminars by staff from Center for Counseling and Student Development for graduate students coping with high levels of stress and for faculty mentoring those students |
| 3. 2016 (June-August) | Mentor, UD K-12 Engineering High School Internship program |
| 4. 2016 (April 27) | University of Delaware College of Engineering Coffee Talk. <i>Hard Microbiology: Bacteria in concrete.</i> |
| 5. 2012 | Invited presenter at lunch with Women in Engineering students, UD College of Engineering |

3.3 University service

3.3.1 Interdisciplinary research and educational initiatives

1. 2015 – present Microbiology Graduate Program steering committee
2. 2016 – present Environmental Council

3.3.2 Affiliations with interdisciplinary programs

1. Delaware Institutes for the Environment (DENIN)
2. Center for Bioinformatics and Computational Biology
3. Biogeochemistry/Biogeosciences
4. Water Science and Policy

3.3.3 On-campus symposia

(items above the first line occurred after I submitted my application for promotion to assistant professor; items above the second line occurred after I arrived at UD)

- | | | |
|-------|-------------------|--|
| 1. | February 2017 | Organizing committee chair, University of Delaware Microbial Systems Symposium |
| <hr/> | | |
| 2. | February 2016 | Organizing committee, University of Delaware Microbial Systems Symposium |
| 3. | May 2015 | Session Chair, COBRE Membrane Protein Symposium |
| 4. | February 2015 | Organizing committee, University of Delaware Microbial Systems Symposium |
| 5. | May 2014 | Session Chair, COBRE Membrane Protein Symposium |
| <hr/> | | |
| 6. | March 19-20, 2004 | Session Chair, Environmental Chemistry Symposium, Penn State University |
| 7. | Spring 2004 | Organizing Committee, Environmental Chemistry Symposium, Penn State University |

3.3.4 Outreach activities

- | | | |
|-------|------------|--|
| 1. | 2017 | Presenter, Darwin Day at UD |
| 2. | 2014 | Panelist, DENIN Environmental Scholars' Winter Retreat. |
| 3. | 2012 | Environmental Technology Teacher Training Workshop, Institute of Soil and Environmental Quality, University of Delaware. |
| 4. | 2012 | Exhibitor, AAUW Awards Luncheon for Excellence in Science and Mathematics. Dover, DE. |
| <hr/> | | |
| 5. | 2010 | Judge, Massachusetts State Science and Engineering Fair. Cambridge, MA. |
| 6. | 2010 | Judge, Orchard Gardens Elementary School Science Fair. Roxbury, MA. |
| 7. | 2006 | Volunteer, BioDays at Penn State. |
| 8. | 2004, 2005 | Volunteer Coordinator, BioDays at Penn State. Organized volunteers to present their current research and staff demos presenting biological sciences to the general public. |
| 9. | 2004 | Demonstration for BioDays: “Glowing bacteria: How bacteria count without counting.” |
| 10. | 2003 | Workshop for middle school girls: “Who’s on the sunshine diet? Colored bacteria and how they use sunlight.” Expanding Your Horizons Conference, Women in Science and Engineering Institute, The Pennsylvania State University. |
| 11. | 2002 | Workshop for middle school girls: “What lives in pond scum?” MathFest Conference, Women in Science and Engineering Institute, The Pennsylvania State University. |

3.3.5 Press interest

1. February 2017 UDaily article, “New pathway for microbially minded.” <http://www.udel.edu/003686>
2. November 2016 UDaily article, “Finding phosphorus: Research provides evidence that bacteria in freshwater lakes release methane as a byproduct of phosphorus acquisition.” <http://www.udel.edu/003687>
3. November 2016 The Scientist, “Freshwater Bacteria Might Help Explain the ‘Methane Paradox’” <http://www.udel.edu/003476>
4. October 2016 Geological Society of America press release, “Tough Microbe Settlers in the Concrete Jungle” <http://www.geosociety.org/news/pr/2016/16-59.htm>
5. October 2015 MATS-UTC Newsletter Faculty Spotlight, “Microbial Biomarkers for ASR-Damaged Concrete” <http://www.udel.edu/003339>
6. August 2015 UDaily article, “Concrete evidence: Bacteria may be harbingers of invisible damage in concrete” <http://www.udel.edu/003340>
7. April 2013 UDaily article, “Monitoring concrete: UD professors study microbes as potential biomarkers for damaged concrete” <http://www.udel.edu/003341>

3.4 Professional service

3.4.1 Editorial service

1. January 2016 – December 2018 Editorial board, *Applied and Environmental Microbiology*
2. 2011 – present Editorial board, *Frontiers in Extreme Microbiology*
3. 2011 Guest editor, special issue of *Geobiology* on anoxic photosynthetic ecosystems (<http://onlinelibrary.wiley.com/doi/10.1111/gbi.2012.10.issue-3/issuetoc>)

3.4.2 Conference organizing committees

1. July 2017-June 2018 Applied and Environmental Sciences programming committee for American Society for Microbiology’s Microbe 2018 meeting