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**EDUCATION**

- 1999-2003 Ph.D., *Molecular Biology, Microbiology, & Biochemistry*, Southern Illinois University, Carbondale
- 1997-1999 Bachelor of Science, *Biology (Chemistry Minor)*, Murray State University, Murray, KY, *Magna Cum Laude*
- 1995-1997 Associate in Science, Paducah Community College/Western Kentucky Technical and Community College, Paducah, KY, *High Distinction*

**EXPERIENCE**

- 2020 –... Associate Dean, Graduate College, University of Oklahoma
- 2014 –... Associate Professor, Microbiology, University of Oklahoma
- 2017-2020 Graduate Program Director, Microbiology and Plant Biology, University of Oklahoma
- 2014 – ... Associate Director, Price Family Foundation Institute of Structural Biology
- 2007-2014 Assistant Professor, Microbiology, University of Oklahoma
- 2003-2007 The Ohio State University, Postdoctoral Fellow, *Microbiology*
- 2000-2003 Graduate Research Assistant, Southern Illinois University, Carbondale
- 1999-2000 Graduate Teaching Assistant, Southern Illinois University, Carbondale
- 1999 Undergraduate Teaching Assistant, Murray State University
- 1998-1999 Undergraduate Research Assistant, Murray State University

**AWARDS**

- 2020 OU Graduate College Graddy Award
- 2004-2006 NSF Postdoctoral Fellow, Microbial Biology
- 1999 Outstanding Senior in Biology, Murray State University
- 1999 Gamma Beta Phi Leadership Award, Murray State University
- 1998 Gamma Beta Phi inductee
- 1997 Phi Theta Kappa inductee

**PUBLICATIONS IN PREPARATION (\*CORRESPONDING AUTHOR)**

- Isom, C.E., S.K. Menon, G.B. Richter-Addo, A.H. West, and **E.A. Karr\***. Crystal structure and DNA functional analysis of an HxIR/DUF24 family transcription regulator, CdTR\_3200 from hypervirulent *Clostridioides difficile* R20291. *Proteins: Struct. Funct. Genet.* In preparation for submitting April 2023. Product PDB ID 7KD3.
- Yaghoubi, S., M. Arbing, R. Gunsulas, **E.A. Karr\***. Crystal structure of the electron transfer flavoprotein EtfAB3 from *Syntrophomonas wolfeii*. *Acta Crystallogr. Sect. F Struct. Biol. Cryst. Commun.* In preparation for submitting Summer 2023.

- Chanderban, M. and **E.A. Karr\***. A two-component signaling system is essential for growth of *Methanococcus maripaludis* on formate. Planned submission to Molecular Microbiology.
- Dinh, D., S. Yaghoubi, L.M. Thomas, N. Wofford, M.J. McInerney, **E.A. Karr\***. Functional and Structural Characterization of AMP-forming Acetyl-CoA Synthetase (Acs1) from *Syntrophus aciditrophicus* strain SB. In preparation.

## PUBLICATIONS

\*indicates corresponding author, #Karr Lab graduate student, Karr Lab undergraduate, *Karr Lab postdoc*

- Dinh, D. #, E. Moore, L.M. Thomas, **E.A. Karr\***. Crystal structure of putative 3-hydroxypimelyl-CoA dehydrogenase, Hcd1, at 1.78 Å resolution from *Syntrophus aciditrophicus* strain SB. Acta Crystallogr. Sect. F Struct. Biol. Cryst. Commun. Under Revision. March 2023. Product PDB ID 7SUB.
- J.E. McDermott, S. Lee, N. Parshall, S. M. McBride, **E. A. Karr**. [Developing a New Partnership Between Universities Focused on Supporting Minority Graduate Students in Engineering.](#) Proceedings of Connecting Efforts to Support Minorities in Engineering Education Workshop, National Academies of Engineering, 2022.
- James, K.L., J.W. Kung, B.R. Crable, H. Mouttaki, J.R. Sieber, H.N. Nguyen, Y. Yang, Y. Xie, J. Erde, N.Q. Wofford, **E.A. Karr**, J.A. Loo, R.R. Ogorzalek Loo, R.P. Gunsalus and M.J. McInerney\*. 2019. *Syntrophus aciditrophicus* uses the same enzymes in a reversible manner to degrade and synthesize aromatic and alicyclic acids. *Environ Microbiol*, 21: 1833-1846.
- Hebdon, S., S.K. Menon, **E.A. Karr**, G.B. Richter-Addo, A.W. West\*. 2018. Regulatory targets of the response regulator RR\_1586 from *Clostridioides difficile* identified using a bacterial one-hybrid screen. *J. Bacteriol.* Vol 200.
- Jennings, M.E., F.H. Lessner, **E.A. Karr**, D.J. Lessner\*. 2017. The [4Fe-4S] clusters of Rpo3 are key determinants in the post Rpo3/Rpo11 heterodimer formation of RNA polymerase in *Methanosarcina acetivorans*. *Microbiol. Open*.
- *Isom, C.E.*, S.K. Menon, L.M. Thomas, A.H. West, G.B. Richter-Addo and **E.A. Karr\***. 2016. Crystal structure of a PadR family transcription regulator from hypervirulent *Clostridium difficile* R20291. *BMC Microbiol.* 16:231.
- Wang, B., S.M. Powell, N. Hessami, F.Z. Najjar, L.M. Thomas, **E.A. Karr**, A.H. West, G.B. Richter-Addo\*. 2016. Crystal structures of two nitroreductases from hypervirulent *Clostridium difficile* and functionally related interactions with the antibiotic metronidazole. *Nitric Oxide: Biol. Chem.* 60:32-39.
- James, K.L., L.A. Ríos-Hernández, N.Q. Wofford, H. Mouttaki, J.R. Sieber, C.S. Sheik, H.N. Nguyen, Y. Yang, Y. Xie, J. Erde, L. Rohlin, **E.A. Karr**, J.A. Loo, R.R. Ogorzalek-Loo, G.B. Hurst, R.P. Gunsalus, L.I. Szveda, and M.J. McInerney\*. 2016. Pyrophosphate-Dependent ATP Formation from Acetyl Coenzyme A in *Syntrophus aciditrophicus*, a New Twist on ATP Formation. *mBio* 7.
- Sheehan, R.C., A.C. McCarver, C.E. Isom, **E.A. Karr\***, and D.J. Lessner\*. 2015. The *Methanosarcina acetivorans* thioredoxin system activates DNA binding of the redox-sensitive transcriptional regulator MsvR. *J. Ind. Microbiol. Biotechnol.* 42:965-969.
- **Karr, E. A.\*** 2014. Transcription Regulation in the Third Domain. *Adv. Appl. Microbiol.* Chapter 3, Vol 89:101-133.
- *Isom, C.E.*, J.L. Turner#, D.J. Lessner, **E.A. Karr\***. 2013. Characterization of the *Methanosarcina acetivorans* C2A MsvR homologue reveals functional diversity of MsvR within methanogens. *BMC Microbiol.* 13:163.

- Islam, S., E.A. Karr\*. 2013. Examination of Metal Corrosion by *Desulfomicrobium thermophilum*, *Archaeoglobus fulgidus*, and *Methanothermobacter thermautotrophicus*. *BIOS*, 84.
- Cafasso, J., B.A. Manjasetty, **E.A. Karr**, K. Sandman, M.R. Chance and J.N. Reeve. 2010. Preliminary crystallography confirms that the archaeal DNA-binding and tryptophan-sensing regulator, TrpY, is a dimer. *Acta Cryst. F66*, 1493-1495.
- **Karr, E.A.\*** 2010. The methanogen-specific transcription factor MsvR regulates the adjacent *fpaA-rlp-rub* oxidative stress operon in *Methanothermobacter thermautotrophicus*. *J. Bacteriol.* 192 5914-5922.
- Dunn, A.K.\* , **E.A. Karr**, Y. Wang, A. Batton, E. Ruby, and E. Stabb. 2010. The alternative oxidase (AOX) gene in *Vibrio fischeri* is controlled by NsrR and upregulated in response to nitric oxide stress. *Mol. Microbiol.* 77: 44-55.
- Walker, C., J. de la Torre, M. Klotz, H. Urakawa, N. Pinel, D. Arp, C. Brochier-Armanet, P. Chan, A. Golabgir-Anbarani, J. Hemp, M. Hügler, **E.A. Karr**, M. Könneke, M. Shin, T. Lowe, W. Martens-Habena, L. Sayavedra-Soto, D. Lang, S. Sievert, A. Rosenzweig, G. Manning, and D. Stahl. 2010. The *Nitrosopumilus maritimus* genome reveals unique mechanisms for nitrification and autotrophy in globally distributed marine Archaea. *Proc. Natl. Acad. Sci. U. S. A.* 107: 8818-8823.
- **Karr, E.A.**, K. Sandman, R. Lurz, and J.N. Reeve. 2008. TrpY Regulation of *trpB2* Transcription in *Methanothermobacter thermautotrophicus*. *J. Bacteriol.* **190**: 2637-2641.
- Cubonova, L., K. Sandman, **E.A. Karr**, A. Cochran, and J.N. Reeve. 2007. Mutational Analysis of the archaeal regulator TrpY. *J. Bacteriol.* 189: 4338-4342.
- **Karr, E.A.**, W.M. Sattley, S.M. Belchik, M.T. Madigan, and L.A. Achenbach. 2006. Biodiversity of methanogenic and other *Archaea* in the permanently frozen Lake Fryxell, Antarctica. *Appl. Environ. Microbiol.* 72: 1663-1666.
- **Karr, E.A.**, W.M. Sattley, M.R. Rice, D.O. Jung, M.T. Madigan, and L.A. Achenbach. 2005. Diversity and distribution of sulfate-reducing bacteria in the permanently frozen Lake Fryxell, McMurdo Dry Valleys, Antarctica. *Appl. Environ. Microbiol.* 71: 6353-6359.
- Jung, D.O., L.A. Achenbach, **E.A. Karr**, S. Takaichi, and M.T. Madigan. 2004. A gas vesiculate planktonic strain of the purple nonsulfur bacterium *Rhodospirillum rubrum* isolated from Lake Fryxell, Dry Valleys, Antarctica. *Arch. Microbiol.* 182: 236-243.
- **Karr, E.A.**, W.M. Sattley, D.O. Jung, M.T. Madigan, and L.A. Achenbach. 2003. Remarkable diversity of phototrophic purple bacteria in a permanently frozen Antarctic lake. *Appl. Environ. Microbiol.* 69: 4910-4914.

## OTHER RESEARCH PRODUCTS

- McInerney, M. J., Karr, E. A., Wofford, N., Bolling, E., Enhanced Biological Production of a Base Flavor Chemical, ID Number: Invention Disclosure No. 2023-025, Disclosed: October 25, 2022.
- PDB ID 7KD3 Structure of an HxIR/DUF24 family transcription regulator, CdTR\_3200 from hypervirulent *Clostridioides difficile* R20291
- PDB ID 5DYM Crystal structure of a PadR family transcription regulator from hypervirulent *Clostridium difficile* R20291 – CdPadR\_0991 to 1.89 Angstrom resolution
- PDB ID 7SUB 3-oxoacyl-ACP reductase FabG from *Syntrophus aciditrophicus*
- PDB ID 5J6C FMN-dependent Nitroreductase (CDR20291\_0767) from *Clostridium difficile* R20291
- PDB ID 5J62 FMN-dependent Nitroreductase (CDR20291\_0684) from *Clostridium difficile* R20291

## BOOK CHAPTERS

- **Karr, E.A.**, C.E. Isom, V. Trinh and E. Peeters. 2017. Transcription factor-mediated gene regulation in *Archaea*. In: Nucleic Acids and Molecular Biology, Vol. RNA metabolism and gene expression in Archaea, Béatrice Clouet-d'Orval (ed). Vol. 32, Springer, Cham, pp 27-69.
- Madigan, M.T., D.O. Jung, **E.A. Karr**, W.M. Sattley, L.A. Achenbach, and M. van der Meer. 2005. Diversity of anoxygenic phototrophs in contrasting extreme environments. In: Geothermal Biology and Geochemistry in Yellowstone National Park. W. Inskeep (ed). Thermal Biology Institute, Montana State University.

#### INVITED SEMINARS AND CONFERENCE PRESENTATIONS

- E. A. Karr. From MsvR to Acs1- Structural and Functional Analysis of Proteins from Unique Anaerobes. COBRE 10th Annual Symposium on Structural Biology. University of Oklahoma. June 16, 2022.
- Karr, E. A. Insight into the MsvR protein family. Oral presentation presented at Archaea: Ecology, Metabolism & Molecular Biology, Lucca, Italy; July 2013.
- Karr, E. A. Transcription regulation: the methanogen way. Invited Seminar in Molecular, Developmental, and Cellular Biology Meeting. University of Oklahoma, April 12, 2013.
- Karr, E. A. Transcription Regulation in Methanogens, Missouri Branch ASM Meeting, University of Nebraska, April 1, 2011.
- Karr, E. A. Transcription regulation: the methanogen way. Department of Microbiology, Oklahoma State University, March 21, 2011.
- Karr, E. A. Transcription Regulation in Methanogens. Invited Seminar at the University of Arkansas, Fayetteville. November 2010.
- Karr, E. A. Transcription Regulation in the Third Domain of Life. Invited seminar at Northeastern State University, Tahlequah, OK, November 2009.
- Karr, E. A. Regulation of Oxidative Stress Responses in a methanogen. Invited seminar at Southern Illinois University, Carbondale, September 2009.
- Karr, E. A. Transcription Regulation in *Methanothermobacter thermautotrophicus*. Oral presentation at Archaea: Ecology, Metabolism & Molecular Biology Waterville Valley Resort, NH July 2009.
- Karr, E. A. Regulation of gene expression in a thermophilic methanogen. Society for Industrial Microbiology Annual Meeting. San Diego, CA. August 2008.

#### CONTRIBUTED ORAL CONFERENCE PRESENTATIONS

\*Presenter(s), #Graduate Student, Karr Lab undergraduate, *Karr Lab postdoc*

- D.M. Dinh\*#, S. Yaghoubi#, L.M. Thomas, M.J. McInerney, **E.A. Karr**. 3-D structure of an enzyme responsible for energy production in a model syntroph. West Coast Bacterial Physiologists. December 17, 2022.
- Irvin, S.\* and **E. A. Karr\***. Promoting a Supportive Climate for Graduate Students. Virtual SERU Research Symposium – Student Success and Wellbeing at Research Universities. June 15-16, 2022.
- Irvin, S.\*, R. Bates\*, W. Bush\*, **E.A. Karr\***, & K. Shea Smith\*. Academic Life Coaching to Promote Graduate Student Thriving, Coaching in Higher Education Consortium 2021 Virtual Conference, July 30, 2021.
- Irvin, S.\*, R. Bates\*, W. Bush\*, **E.A. Karr\***, & K. Shea Smith\*. Academic Life Coaching to Promote Graduate Student Thriving, Graduate Student Success and Wellness Conference, May 7, 2021.
- D.M. Dinh.\*#, L.M. Thomas, E. Moore, M.J. McInerney, and **E. A. Karr**. "Characterization of enzymes involved in substrate metabolism and energy production in *Synthrophus aciditrophicus* strain SB". West Coast Bacterial Physiologists Annual Asilomar Conference, December 12, 2020.

## CONFERENCE POSTER PRESENTATIONS

\*Presenter, #Graduate Student, undergraduate researcher

- S. Yaghoubi<sup>#</sup>, D.M. Dinh<sup>#</sup>, L.M. Thomas, N.Q. Wofford, M.J. McInerney, **E. A. Karr**. Structural characterization of an enzyme responsible for energy conservation in a model syntrophic organism. Poster Presented at OU Graduate Student Life Research Day, March 3, 2023.
- D.M. Dinh<sup>#</sup>, S. Yaghoubi<sup>#</sup>, L.M. Thomas, N.Q. Wofford, M.J. McInerney, and **E.A. Karr**<sup>\*</sup>. Electron Flow and Energy Conservation in Syntrophic Metabolism. Poster presented at the 2022 DOE Basic Energy Sciences Physical Biosystems PI Meeting.
- D.M. Dinh<sup>\*\*</sup>, L.M. Thomas, N.Q. Wofford, E. Moore, M.J. McInerney, and **E. A. Karr**. Initial structure solution of 3-oxopimelyl-CoA thiolase (Act1) and the activities of bidirectional enzymes from *Syntrophus aciditrophicus*. 7th Annual Symposium on Structural Biology, Oklahoma COBRE in Structural Biology, June 6, 2019.
- Moore, E.<sup>\*</sup>, D.M. Dinh<sup>#</sup>, M.J. McInerney, and **E. A. Karr**. Purification and crystallization of recombinant 3-oxypimelyl-CoA thiolase from *Syntrophus aciditrophicus*. OU Honors College Four Year Research Experiences for Undergraduates program poster session. May 2019.
- Moghe, R.<sup>\*</sup>, D.M. Dinh<sup>#</sup>, M.J. McInerney, and **E.A. Karr**. Overexpression and purification of recombinant acetyl-CoA synthetase from *Syntrophus aciditrophicus*. *OU Honors College Four Year Research Experiences for Undergraduates program poster session. May 2018.*
- Koshy, R.A.<sup>\*</sup>, D.M. Dinh<sup>#</sup>, M.J. McInerney, and **E.A. Karr**. Optimizing the purity of recombinant acetyl-CoA synthetase from *Syntrophus aciditrophicus*. OU NSF REU in Structural Biology Poster Session. July 27, 2017.
- Dinh, D.M.<sup>\*#</sup>, M.J. McInerney, and **E.A. Karr**. Purification and crystal screening of acetyl-CoA synthetase from *Syntrophus aciditrophicus*. 5th Annual Symposium on Structural Biology, Oklahoma COBRE in Structural Biology, June 15, 2017.
- Hebdon, S.<sup>\*</sup>, S. Menon, J. Syke, G.B. Richter-Addo, **E.A. Karr**, and A.H. West. Elucidating the structure and a putative transcriptional regulon of response regulator RR\_1586 from *Clostridium difficile* R20291. 5th Annual Symposium on Structural Biology, Oklahoma COBRE in Structural Biology, June 15, 2017.
- Hebdon, S.<sup>\*</sup>, S. Menon, J. Sykes, G.B. Richter-Addo, **E.A. Karr**, and A.H. West. Structure-function studies of a response regulator of unknown function from hypervirulent *Clostridium difficile* R20291. Bacterial Locomotion and Signal Transduction (BLAST XIV), New Orleans, January 15-20, 2017.
- Chanderban, M.<sup>\*</sup>, and E.A. Karr. Functional analysis of a two-component system in a methanogen. Louis Stokes Midwest Center for Excellence Annual Meeting for Louis Stokes Alliances for Minority Participation Scholars, September 2016.
- Malone, H.<sup>\*</sup>, *V. Trinh*, and **E.A. Karr**. Functional analysis of methanogen hybrids. OU NSF REU in Structural Biology Poster Session. July 28, 2016.
- Chanderban, M.<sup>\*</sup>, *C.E. Isom*, P.C. Bourne, A.H. West, G.B. Richter-Addo, **and E.A. Karr**. Elucidating the role of YtrA-like transcription regulators in hypervirulent *Clostridium difficile*. OU Summer Undergraduate Research Symposium, July 28, 2016.
- **Karr, E.A.**<sup>\*</sup>, K. Shelton<sup>#</sup>, K. Gilcrest<sup>#</sup>, *V. Trinh*. The novel transcription regulator, MsvR, from methanogenic archaea. NIH, NIGMS 6th Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE). Washington, DC June 26-28, 2016.
- Chanderban, M.<sup>\*</sup>, *C.E. Isom*, P.C. Bourne, A.H. West, G.B. Richter-Addo, **and E.A. Karr**. Elucidating the role of YtrA-like transcription regulators in hypervirulent *Clostridium difficile*. 4th Annual Symposium on Structural Biology, Oklahoma COBRE in Structural Biology, June 14, 2016.

- Shelton, K.\*<sup>#</sup>, V. Trinh, C.E. Isom, K. Gilcrest<sup>#</sup>, M. Chanderban and **E.A. Karr**. Characterization of the *Methanosarcina acetivorans* MsvR family protein. 4th Annual Symposium on Structural Biology, Oklahoma COBRE in Structural Biology, June 14, 2016.
- Powell, S.M.\*<sup>#</sup>, B. Wang, N. Hessami, F. Najar, L.M. Thomas, A.H. West, **E.A. Karr**, and G.B. Richter-Addo. Crystal structures of two FMN-dependent nitroreductases from a hypervirulent strain of *C. difficile*. 4th Annual Symposium on Structural Biology, Oklahoma COBRE in Structural Biology, June 14, 2016.
- Hebdon, S.\*<sup>#</sup>, J. Sykes, S. Menon, F. Najar, **E.A. Karr**, G.B. Richter-Addo, and A.H. West. Gene transcription regulated by two-component response regulators in a hypervirulent strain of *Clostridium difficile*. 4th Annual Symposium on Structural Biology, Oklahoma COBRE in Structural Biology, June 14, 2016.
- Cheng, M.\*<sup>#</sup>, C.E. Isom, and **E.A. Karr**. Development and understanding of the GntR1351 transcription regulator in *Clostridium difficile*. OU Honors College First Year Research Experiences for Undergraduates program poster session. April 2016.
- \*Shelton, K. <sup>#</sup>, C.E. Isom, V. Trinh, K. Gilcrest<sup>#</sup>, J. Lee<sup>#</sup>, and **E.A. Karr**. Structure and function analysis of the redox-sensing transcription factor Methanogen Specific Vinyl-4-Reductase (MsvR), ASM Regional Missouri Valley Branch Meeting. March 4-5, 2016.
- Jennings, M.E.\*<sup>#</sup>, F. H. Lessner, **E. A. Karr**, and D. J. Lessner. The ferredoxin-like domain and [4Fe-4S] clusters of subunit D play important roles in RNAP assembly and activity in *Methanosarcina acetivorans*. Gordon Research Conference entitled Archaea: Ecology, Metabolism, and Molecular Biology. Newry, Maine; July 2015.
- Shelton, K. K.\*<sup>#</sup>, C.E. Isom, V. Trinh, K. Gilcrest<sup>#</sup>, J. Lee<sup>#</sup>, and **E.A. Karr**. Structure and function analysis of the redox-sensing transcription factor MsvR. 3rd Annual Symposium on Structural Biology, Oklahoma COBRE in Structural Biology, June 8, 2015.
- Isom, C.E.\*<sup>#</sup>, S. Menon, L.M. Thomas, A.H. West, G. B. Richter-Addo, and **E. A. Karr**. Crystal structure of the transcription regulator PadR from hyper-virulent *Clostridium difficile*. 3rd Annual Symposium on Structural Biology, Oklahoma COBRE in Structural Biology, June 8, 2015.
- Wang, B.\*<sup>#</sup>, N. Hesami, L.M. Thomas, A.H. West, **E.A. Karr**, and G.B Richter-Addo. Crystal structure of an FMN-binding nitroreductase from *Clostridium difficile*. 3rd Annual Symposium on Structural Biology, Oklahoma COBRE in Structural Biology, June 8, 2015.
- Menon, S.\*<sup>#</sup>, F. Najar, K. Soni, J. Sykes, **E.A. Karr**, G.B Richter-Addo, and A. H. West. Structure-function characterization of response regulator proteins from *Clostridium difficile*, a major cause of healthcare-associated infections (HAIs). 3rd Annual Symposium on Structural Biology, Oklahoma COBRE in Structural Biology, June 8, 2015.
- Jennings, M.E.\*<sup>#</sup>, F.H. Lessner, **E.A. Karr**, and D. J. Lessner. Investigation of the role [4Fe-4S] clusters play in RNA polymerase formation and function in *Methanosarcina acetivorans*. Poster position presented at Iron-Sulfur Enzymes Gordon Research Conference. Easton, MA June 16-20, 2014.
- Folkerts, M., C.E. Isom, and **E.A. Karr**\*. The role of the MsvR regulatory domain in function. NIH, NIGMS 5th Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE). Washington, DC June 16-18, 2014.
- Folkerts, M.\*<sup>#</sup>, C.E. Isom, and **E.A. Karr**. The role of the MsvR regulatory domain in function. 2nd Annual Symposium on Structural Biology, Oklahoma COBRE in Structural Biology, June 2014.
- James, K.L.\*<sup>#</sup>, L.A. Rios-Hernandez, N. Wofford, H. Mouttaki, J.R. Sieber, C.S. Sheik<sup>#</sup>, **E.A. Karr**, Y. Yang, Y. Xie, L. Rohlin, J.A. Loo<sup>#</sup>, R.R. O. Loo<sup>#</sup>, R.P. Gunsalus, and M.J. McInerney. A mechanism for substrate-level phosphorylation in the syntrophic fatty

- and aromatic acid degrader, *Syntrophus aciditrophicus*. Poster session presented at the 114th General Meeting of the American Society of Microbiology, Boston, MA, May 2014.
- Isom, C.E., M. Folkerts, D.J. Lessner, and **E.A. Karr**\*. Insights into the MsvR protein family. Poster presentation at the Gordon Research Conference entitled Archaea: Ecology, Metabolism, and Molecular Biology. Lucca, Italy; July 2013.
  - Jennings, M.E.\* , F.H. Lessner, **E.A. Karr**, and D.J. Lessner. Investigation of the role [4Fe-4S] clusters play in RNA polymerase formation and function in *Methanosarcina acetivorans*. Poster session presented at the 113th General Meeting of the American Society of Microbiology, Denver, CO. May 18-21, 2013.
  - Isom, C.E.\* , and **E.A. Karr**. The MsvR homologue of *Methanosarcina acetivorans* C2A is a dimeric regulator whose function, on is modulated by cysteine residues. 1st Annual Symposium on Structural Biology, Oklahoma COBRE in Structural Biology, May 2013.
  - **Karr, E.A.\***, J.L. Turner<sup>#</sup>, and D.J. Lessner. Characterization of the *Methanosarcina acetivorans* C2A MsvR homologue and comparisons to *Methanothermobacter thermotrophicus*. Poster presentation at the Gordon Research Conference entitled Archaea: Ecology, Metabolism & Molecular Biology Waterville Valley Resort, NH July 2011.
  - Turner, J.L.\*<sup>#</sup>, and **E.A. Karr**. Mutational analysis of key amino acid residues in a transcriptional regulator of an oxidative stress response operon in *Methanothermobacter thermotrophicus*. Poster session presented at the 110th General Meeting of the American Society of Microbiology, San Diego, CA. May 23-27, 2010.
  - **Karr, E.A.\***, K. Sandman, R. Lurz, and J.N. Reeve. TrpY regulation of *trpB2* transcription *in vitro* from *Methanothermobacter thermotrophicus*. Poster session presented at the Archaea Gordon Conference, Andover, NH, August 19-24, 2007.
  - **Karr, E.A.\***, K. Sandman, L. Cubonova, A. Cochran, and J.N. Reeve. TrpY regulation of *trpB2* transcription *in vitro* from *Methanothermobacter thermotrophicus*. Poster session presented at Extremophiles 2006, Brest, France, September 17-21, 2006.
  - Madigan, M.T.\* , D. O. Jung, **E.A. Karr**, W.M. Sattley, L.A. Achenbach, and M. van der Meer. The diversity of Anoxygenic Phototrophs in contrasting extreme environments. Abstract for the First Biannual Geothermal Biology Workshop, Yellowstone National Park, WY, October 9-11, 2003.
  - Jung, D.O., W.M. Sattley, **E.A. Karr**, L.A. Achenbach, and M.T. Madigan\*. New extremophilic phototrophic bacteria including purple nonsulfur bacteria containing gas vesicles. Poster session presented at the 11th International Symposium on Phototrophic Prokaryotes, Tokyo, Japan, August 24-29, 2003.
  - **Karr, E.A.\***, J.M. Ng, S.M. Belchik, and L.A. Achenbach. Molecular analysis of the biodiversity of Archaea in Lake Fryxell, Antarctica. Poster session presented at the 103rd General Meeting of the American Society of Microbiology, Washington, D.C. May 18-23, 2003.
  - Jung, D.O.\* , D.B. Nichols, **E.A. Karr**, L.A. Achenbach, and M.T. Madigan. A gas-vesiculate purple nonsulfur bacterium from Lake Fryxell, Antarctica. Poster session presented at the 103rd General Meeting of the American Society of Microbiology, Washington, D.C., May 18-23, 2003.
  - Sattley, W.M.\* , **E.A. Karr**, L.A. Achenbach, and M.T. Madigan. Cold-active sulfate-reducing and sulfur chemolithotrophic bacteria from Lake Fryxell, Dry Valleys, Antarctica. Poster session presented at the 103rd General Meeting of the American Society of Microbiology, Washington, D.C., May 18-23, 2003.
  - Madigan, M.T.\* , **E.A. Karr**, D.O. Jung, W.M. Sattley, and L.A. Achenbach. Extremophilic phototrophic and sulfur-cycling prokaryotes from permanently frozen Antarctic lakes and

African soda lakes. Poster session presented at the NSF-Microbial Observatories/Life in Extreme Environments Workshop, Washington, D.C., September 23-24, 2002.

- **Karr, E.A.\***, M.T. Madigan, and L.A. Achenbach. Molecular analyses of the biodiversity and metabolic state of sulfate-reducing bacteria in Lake Fryxell, Antarctica. Poster session presented at the 102nd Annual Meeting of the American Society for Microbiology, Salt Lake City, Utah, May 2002.
- **Karr, E.A.\***, M.T. Madigan, and L.A. Achenbach. Molecular Analyses of the Biodiversity and metabolic state of sulfur-cycling prokaryotes in Lake Fryxell, Antarctica. Eighth Annual Molecular and Cellular Biology Symposium, Grafton, IL, March 2002.
- **Karr, E.A.\***, J.R. Carey, M.T. Madigan, and L.A. Achenbach. Biodiversity of anoxygenic phototrophs in permanently frozen Antarctic lakes. Poster session presented at the 101st Annual Meeting of the American Society for Microbiology, Orlando, Florida, May 2001.
- Achenbach, L.A., **E.A. Karr**, J.R. Carey, J.N. Crespi, and M.T. Madigan\*. A photosynthesis probe for tracking phototrophic purple bacteria in nature. US-Egypt Workshop on Microbial Ecology, National Research Center, Cairo, Egypt, May 2001.

## FUNDING

### Submitted

- **DOE Basic Energy Sciences** – Submitted January 31, 2023, **Karr, E.A. (PI)**  
Project Title: *Living on the Edge: Energy Conservation and Electron Flow in Syntrophic Metabolism*, \$527,887, **July 15, 2023 – July 14, 2026.**

### Extramural Funding

- **DOE Basic Energy Sciences**, Award DE-FG02-96ER20214, **Karr, E.A. (PI)**, McInerney, M.J. (Co-PI), Project Title: *Electron Flow and Energy Conservation in Syntrophic Metabolism*, \$558,548, **July 15, 2018 – July 14, 2023.**
- **Oklahoma State University/National Science Foundation**, **Karr, E.A. (PI)**, Project Title: *Louis Stokes STEM Pathways and Research Alliance: OK-LSAMP Alliance Phase VI*, \$140,000, **August 1, 2021 – July 31, 2023.**
- **Givaudan**– McInerney, M.J. (PI), **Karr, E.A. (Co-PI)**, Project Title: *Biological Production of a Base Flavor Chemical*, \$49,186, **January 13, 2022 – December 31, 2022.**
- **National Science Foundation: Research Experience for Undergraduates**, Sims, P.A., (PI.); Schroeder, S.J. (Other Key Participant, OKP), Bartley, L.E. (OKP), Burgett, A.W. (OKP), **Karr, E.A. (OKP)**, Richter-Addo, G.B. (OKP), West, A.H. (OKP), Project Title: *REU Site: Program in Structural Biology at the University of Oklahoma*, **October 1, 2014 – September 30, 2017.**
- **National Institutes of Health Center of Biomedical Research Excellence in Structural Biology**, West, A.H. (PI), **Karr, E.A. (JI)**, Project Title: *Structure-Function Studies of MsvR, a Methanogen-Specific Transcriptional Regulator*, \$750,000, **August 1, 2012 – August 31, 2017.**
- **Price Family Foundation** (private donor), West, A.H. (PI), **Karr, E.A. (co-PI)**, Richter-Addo, G.B. (co-PI), *Anaerobic Structural Biology*, \$1,300,000, **February 2014 – March 2017.**  

This private donation funded a collaborative project between OU and Albert Einstein College of Medicine focused on X-ray structure determination of selected protein targets from the anaerobic microbe *Clostridium difficile*.
- **National Science Foundation Starter Grant**, **Karr, E.A. (PI)**, Project Title: *Molecular Analysis of Transcription Regulation in the archaeon Methanothermobacter thermautotrophicus*, \$50,000.00, **Sept. 2008 – Aug. 2010.**



- **National Science Foundation Postdoctoral Fellowship in Microbiology, Karr, E.A.** (PI), Project title: Identification and characterization of regulators of transcription in prokaryotic *Archaea*, \$100,000.00, **January 2005 – February 2007.**

### **Internal Funding**

- The University of Oklahoma Research Council PI Research Investment Grant, **Karr, E.A.** (PI), Project Title: Analysis of Gene Expression Patterns in a Methanogen, \$8600, **June 2012 – May 2013.**
- The University of Oklahoma, Dodge Family College of Arts and Sciences – Information Technology Grant, **Karr, E.A.** (PI), Dunn, A.K. (Co-PI), Project Title: Request for Tablet PC Upgrades for Teaching Upper Division Science Courses, \$4468.00, **Fall 2011.**
- The University of Oklahoma, Dodge Family College of Arts and Sciences – Junior Faculty Summer Fellowship, **Karr, E.A.** (PI), Project Title: Regulation of Biofilm Formation in Methanogens, \$7000.00, **June 2011.**
- The University of Oklahoma, Dodge Family College of Arts and Sciences – Junior Faculty Summer Fellowship, **Karr, E.A.** (PI), Project Title: Metal Dependent Regulation of Oxidate Stress in The Archaeon *Methanothermobacter thermautotrophicus*, \$6000.00, **June 2009.**
- The University of Oklahoma Research Council PI Research Investment Grant, **Karr, E.A.** (PI), Project Title: Development of an *in vitro* transcription system for *Nitrosopumilus maritimus*, \$8028, **April 2008 – April 2009.**

### **Travel Awards**

- *National Science Foundation Travel Award:* NSF Joint Annual Meeting, **2009**
- *National Science Foundation Selected Participant,* ADVANCE Transforming the Professoriate: Preparing Women for Academic Careers in Science and Engineering, Virginia Tech, **2006**

## **TEACHING EXPERIENCE**

*\*Graduate*

### **University of Oklahoma**

2022 Instructor, MBI0/PBIO 5821\*, Graduate Professional Development Seminar  
 2021 Instructor, MBI0 4853/4853G\*, Physiology of Microorganisms  
 2020 Instructor, MBI0 4853/4853G\*, Physiology of Microorganisms  
 2019 Instructor, MBI0 4873, Case Studies in Medical Microbiology  
 2018 Instructor, MBI0 4853/4853G\*, Physiology of Microorganisms  
 2018 Instructor, MBI0 4873, Case Studies in Medical Microbiology  
 2018 Coordinator, MBI0/PBIO 5971\*, Graduate Seminar  
 2017 Instructor, MBI0 4810, Case Studies in Medical Microbiology  
 2016 Instructor, MBI0/PBIO 3673, Practical Bioinformatics  
 2016 Instructor, MBI0 4810, Case Studies in Medical Microbiology  
 2017 Instructor, BIOL/MBIO/PBIO 4843/5843\*, Molecular Biology  
 2015 Instructor, MBI0/PBIO 5883\*, Advanced Molecular Biology  
 2014 Instructor (Fall), BIOL/MBIO/PBIO 4843/5843\*, Molecular Biology  
 2014 Instructor (Spring), BIOL/MBIO/PBIO 4843/5843\*, Molecular Biology  
 2013 Coordinator, MBI0 5971\*, Graduate Seminar  
 2013 Instructor, BIOL/MBIO/PBIO 4843/5843\*, Molecular Biology

- 2012 Instructor, HON 3513, Honors Introduction to Biotechnology
- 2012 Instructor, BIOL/MBIO/PBIO 4843/5843\*, Molecular Biology
- 2011 Instructor, HON 3513, Honors Introduction to Biotechnology
- 2011 Instructor, BIOL/MBIO/PBIO 4843/5843\*, Molecular Biology
- 2010 Instructor, HON 3513, Honors Introduction to Biotechnology
- 2010 Instructor, BIOL/MBIO/PBIO 4843/5843\*, Molecular Biology
- 2009 Instructor, BIOL/MBIO/PBIO 4843/5843\*, Molecular Biology
- 2009 Instructor, MBIO/PBIO 5810\*, Scientific Integrity for Graduate Students
- 2008 Instructor, BIOL/MBIO/PBIO 4843/5843\*, Molecular Biology
- 2008 Coordinator, MBIO 5971, Graduate Seminar

### ***Southern Illinois University***

- 2003 Guest Lecturer, Molecular Biology Lecture, 3 lectures
- 2002 Guest Lecturer, Bacterial and Viral Genetics, 2 lectures
- 2000 Graduate Teaching Assistant, Elementary Microbiology Lab
- 1999 Graduate Teaching Assistant, Principles of Microbiology Lab

### ***Murray State University***

- 1999 Undergraduate Teaching Assistant, Introduction to Microbiology Lab

## **GRADUATE AND POSTDOCTORAL MENTORING**

### ***Current Graduate Advisees***

1. Selena Yaghoubi, M.Sc. – Ph.D. candidate, Microbiology, 2019 – present.
  - Specialized Training, Awards, and Funding while in the Karr Lab:
    - 2023 ASM Future Leaders Mentoring Fellowship, ASM Microbe
    - 2023 Kenneth & Joye Harwell Scholarship
    - 2022 M.Sc., non-thesis, Microbiology
    - 2022 Louis Pfeister Scholarship, OU
    - 2021 Provost's Certificate of Distinction in Teaching

### ***Past Graduate Advisees***

2. David Dinh, Ph.D., Microbiology, 2016 – 2022. *Currently serving as an instructor for Spring 2023 in Microbiology at Cal Tech Fullerton before beginning a postdoc at UC Irvine in May 2023.*
  - Specialized Training, awards, and funding while in the Karr Lab:
    - 2021 – 2022 Robert E. and Mary B. Sturgis Award
    - 2020 – 2021 David C. Steed (Dodge Family College of Arts & Sciences) Scholarship
    - 2020 – 2021 RapiData at Stanford Synchrotron Radiation Lightsource, SLAC National Accelerator Laboratory “Data Collection & Structure Solving: A Practical Course in Macromolecular X-Ray Diffraction Measurement”
    - 2020 Roberson & Wethington Scholarship for prestigious training at another institution, OU
    - 2020 Provost's Graduate Teaching Assistant Award, OU
    - 2018 Graduate Student Teaching Excellence Award, Department of Microbiology & Plant Biology, OU
    - 2016 Provost's Certificate of Distinction in Teaching, Fall Semester, OU

3. Zane Mills – M.Sc. student, Microbiology, 2019. *Since June 2020, Zane has been enrolled in the Doctor of Dental Surgery Degree Program at the University of Oklahoma Health Sciences Center.*
4. Christine Woelfel-Monsivais, M.Sc., Microbiology, non-thesis, 2017 – 2019. *Christine is enrolled in a Ph.D. program at Clemson University.*
5. Jack Lee, M.Sc., Microbiology, non-thesis: 2015 – 2017. Jack is the Mid-South Regional Sales Representative for BMG Lab Tech.
6. Alyssa Grossen, M.D. – M.Sc. student, Microbiology, 2013 –2014. Alyssa is currently an Internal Medicine Physician at OU Medicine in Oklahoma City.
7. Kristen Shelton, M.Sc., Microbiology, 2013 –2017. Kristen is a Ph.D. candidate in the Instructional Leadership and Academic Curriculum STEM Education program at the University of Oklahoma
  - Specialized Training, awards, and funding while in the Karr Lab:
    - X-ray Methods in Structural Biology, Cold Spring Harbor Lab, New York
    - RapiData at Stanford Synchrotron Radiation Lightsource, SLAC National Accelerator Laboratory “Data Collection & Structure Solving: A Practical Course in Macromolecular X-Ray Diffraction Measurement”
8. Kylie Gilcrest, M.Sc., Microbiology, 2014 –2016. Kylie is a Research Scientist at BioAgilytix in Raleigh-Durham, North Carolina
9. Jessica Turner Harper, M.Sc., MHS, PA-C, – M.Sc. Microbiology, 2009 – 2012. Jessica is a Physician Assistant at the University of Oklahoma Children’s Hospital.
10. Chrystle McAndrews – M.Sc. student, Microbiology, LSAMP Bridge the Doctorate Fellow, 2009 – 2011.

#### **Past Postdoctoral Advisees**

1. Catherine Isom, Ph.D., Postdoctoral Researcher, 2012 – 2017. Cat is completing a master’s in clinical professional counseling program and teaching in undergraduate biology labs at OU. Before this, she worked as a manager at Immunomycologics (IMMY), a Norman-based biotech company, and as a research scientist in the Department of Chemistry and Biochemistry at OU.
  - a. Specialized Training, awards, and funding while in the Karr Lab:
  - b. RapiData at Stanford Synchrotron Radiation Lightsource, SLAC National Accelerator Laboratory “Data Collection & Structure Solving: A Practical Course in Macromolecular X-Ray Diffraction Measurement”
2. Vy Trinh, Ph.D. – Postdoctoral Researcher, 2015 –2017. Vy is a scientist at Cytovance Biologics, Oklahoma City. Before taking her position at Cytovance, she worked as the Department of Microbiology undergraduate microbiology lab coordinator and media prep center director.

#### **Other Graduate Thesis and Doctoral Committees**

- Graduate Committee member for forty-three students
  - M.Sc. (6), Ph.D. (37) – Outside the Department (25)

### **UNDERGRADUATE RESEARCH MENTORING**

*Status listed if known.*

1. Arabella Martin, 2022 –present.
2. Eric Moore, 2019 Four Year Research Experience (FYRE) program participant, a *Ph.D. student in the GPIBS program at the University of Oklahoma Health Science Center.*

3. Vy Dinh, 2018 – 2019, Honors Research, *Community and Systems Analyst Healthy Minds Policy Initiative, pursuing a master's in public health at the University of Oklahoma Health Science Center.*
4. Rohan Moghe, 2018 – 2019, FYRE program participant, Honors Research, *began medical school at the University of Chicago Pritzker School of Medicine in the Fall of 2021.*
5. Makenzie Bender, 2017 – 2018, Undergraduate Research, *received a master's in public health from the University of North Texas Health Science Center, currently studying medicine at the University of Arkansas College of Osteopathic Medicine.*
6. Dominic Cortassa, 2017 – 2018, Senior Thesis, *enrolled in the Doctor of Dental Surgery Degree Program at the University of Oklahoma Health Sciences Center.*
7. Riya Koshi, Summer 2017, National Science Foundation (NSF) Research Experiences for Undergraduates (REU) Structural Biology Participant, *finishing medical school in Spring 2023 at Texas Tech.*
8. Hannah Malone, Summer 2016, NSF REU Structural Biology Participant, *Institute of Wilderness Instructor at Pine Cove, Houston, TX.*
9. Moriah Chen, Spring 2016, Honors Four Year Research Experience program participant.
10. Gabriel Dunbar, Summer 2015, NSF REU Structural Biology Participant.
11. Melissa Chanderban, 2014 – 2017, Honors Research, Senior Thesis, NSF Graduate Fellowship Recipient for a Karr Lab project, *completed a Ph.D. at the University of Arkansas in Fall 2022 and is doing a biotech postdoc.*
12. Lillian Flannigan, M.D., 2013 –2014, Honors Research, *completed a master's in public health at Emory University and an M.D. at the University of Oklahoma, College of Medicine. She is completing a pediatric residency at Arkansas Children's Hospital/University of Arkansas for Medical Sciences.*
13. Alyssa Grossen, M.D. 2012 – 2013, Honors Research, *an Internal Medicine Physician at OU Medicine in Oklahoma City.*
14. Jenny Perry Neff, 2012 –2013, Honors Research, *an Internal Medicine Physician at Oklahoma State University Medical Center Emergency in Tulsa, OK.*
15. Rachel Wilson, 2012, Honors Research
16. Patrick Block, M.D., 2012, Honors Research, *completed an M.D. at the University of Oklahoma, College of Medicine.*
17. Julianne Bonifield Fallon, 2011, Honors Research, *Clinical Pharmacist at Cleveland Clinic Heart and Vascular Institute.*
18. Chelsea House Ball, 2010, Honors Research.
19. Namisha Thapa, M.D., 2010, Honors Research, *completed an M.D. at The University of North Texas Health Science Center at Fort Worth, currently a Gastroenterology & Hepatology Fellow at Baylor Scott & White Health.*
20. Jessica Turner Harper, 2008 – 2009, Undergraduate Research, *Physician Assistant at the University of Oklahoma Children's Hospital.*
21. Ashley Robbins Jones, M.D., 2008 – 2010, Honors Research, *currently the Medical Director of the Physician Assistant Studies Program, University of Nevada, School of Medicine.*
22. Marika Sauter Patterson, 2008 – 2009, Honors Research, *studied optometry at the University of Houston.*
23. Evan Francis, Fall 2009, Undergraduate Research
24. Shaer Islam: 2008, Senior Thesis, *completed and M.Sc. in Microbiology at SIUC*

#### **ADMINISTRATION/LEADERSHIP**

## ***Associate Dean of Graduate College***

### Academic College and Program Portfolio

The University of Oklahoma Graduate College oversees approximately 6000 graduate students, including online and in-person professional master's, research master's, and doctoral degrees. I work collaboratively with the Provost's office, academic colleges, departments, and other stakeholders on all matters related to graduate education on mentor/mentee relationship issues, graduate milestones (general exams, thesis & dissertation defenses), academic appeals, graduate course, and program-related issues, graduate faculty criteria and status, graduate student wellbeing and professional development, international student support, and graduate assistant policy and onboarding matters. Additionally, in several programs, I have used graduate program metrics (attrition and time to degree) in conjunction with results from the gradSERU survey to launch targeted responses to graduate program climate and culture. My portfolio includes graduate students and faculty in the colleges and corresponding programs below.

- College of Architecture
- College of Journalism and Mass Communication
- College of Earth and Energy
- College of Atmospheric and Geographic Sciences
- College of Engineering (through Sept 2022) – *Aerospace and Mechanical Engineering, Biomedical Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, General Engineering*
- College of Professional and Continuing Studies-including oversight of programs transitioning to DFCAS and teach out of AP programs
- College of Arts and Sciences – *Anthropology, Communication, Economics, Environmental Science, Health and Exercise Science, Human Relations, Library and Information Sciences, Math, Native American Studies, Philosophy, Physics and Astronomy, Sociology, Women's and Gender Studies*

### Graduate College Operations

2020 – ...	Supervise Director of Graduate Admissions
2020 – ...	Supervise Director of Graduate Student and Postdoc Retention and Support
2020 – ...	Supervise Director of English and Training Certification and Services
2021	Supervise Director of Graduate College Operations (July - December)
2021	Supervise Director of Graduate Information Services (July - December)
2021	Supervise Director of Graduate Academic Services (July - December)
2020 – ...	<u>Office of Postdoctoral Affairs</u> <ul style="list-style-type: none"><li>● Work and coordinate with the OU Postdoc Association</li><li>● Coordinate National Postdoc Appreciation Week events</li><li>● Maintain a web presence for the office</li><li>● Policy related to postdocs</li><li>● Support for the postdoc mentor/mentee relationship</li><li>● Tracking postdoc data</li></ul>
2022-2023	Planning and implementing a campus-wide Graduate Dean's Distinguished Master's Thesis Award.
2022-2023	Planning and implementation of a faculty award – <u><a href="#">Graduate Dean's Award for Excellence in Mentoring of Graduate Students</a></u> .
2023	Oversee Provost's Doctoral Dissertation Prize committee.

- 2022 Oversaw the implementation of a new base starting salary for the graduate admissions counselors and reclassification of the Director of Graduate Admissions.
- 2022 – ... Oversee Graduate English Pathway Program at OU, a partnership with Graduate Admissions, English Training and Certification Services, Center for English as a Second Language, and International Student Services
- 2020 – ... Committee Chair, Graduate Council Travel and Research Subcommittee
- 2022 Worked with the Director of English and Training Certification and Services and Director of Graduate College Operations to revise the Associate Director of Programs role to the Associate Director of Awards and Programs, search, and onboard the new associate director.
- 2021-2022 Continued planning for implementing Admissions Connect through Salesforce and transitioning from Slate as our admissions portal.
- 2021-2023 Review and feedback on academic unit revised Graduate Faculty Criteria.
- 2020-2022 Oversaw the Dissertation Completion Fellowship Awards committee
- 2022 Oversaw the Eddie Carrol Smith Fellowship committee,
- 2020- 2022 Oversaw academic integrity cases and determine sanctions for all graduate students at OU.
- 2021 Led the search for and onboarding of a new Director of Graduate Student and Postdoc Retention and Support.
- 2021 Oversaw the promotion of the Director of Information Services to the Assistant Dean of Graduate Information Services and implementation of a new Information Services team, including adding three new positions (Marketing and Communications Coordinator, Technology Coordinator, and Website Manager/Graphic Designer).
- 2021 Oversaw the rebranding of our Academic Counselors on our Graduate Academic Services Team to Graduate Degree Management Specialists (GDMS), a title that better describes their roles.
- 2021 Oversaw the implementation of a new salary equity plan for the GDMS positions on the Graduate Academic Services teams, as well as the promotion of several GDMSs to senior roles.
- 2021 Graduate College Strategic Planning Group.  
As Associate Dean of the Graduate College, I am responsible for several areas of our strategic plan and track key performance indicators.
- 2021 (Fall) Committee Chair, Graduate Council Course and Programs Subcommittee.
- 2020 Worked with a donor to finalize a new travel award for graduate students and postdocs in environmental science and technology.

#### Graduate College Policy Development

- 2023 Drafted a new admissions policy for Doctor of Dental Surgery students pursuing an MBA; went before Graduate Council in April 2023.
- 2022 Introduced a new admissions policy for exchange students from Universidad Popular Autónoma Del Estado De Puebla (UPAEP) that begin pursuing accelerated master's degrees at OU before completion of the bachelor's degree at UPAEP; after [Graduate Council approval](#), worked with the provost's office to obtain [OU Regent's approval](#).
- 2021 Introduced a new admissions policy for Pharm.D. students pursuing an MBA; after [Graduate Council approval](#), working with the provost's office to obtain [OU Regent's approval](#).
- 2021 Introduced and implemented a new [Family and Medical Graduate Assistant](#) policy.

- 2021 Introduced and implemented a policy changing the minimum required hours for the [non-thesis master's degree from 32 to 30](#).
- 2021 Introduced and implemented a [new tuition waiver policy](#) permitting an additional semester of tuition waiver beyond the max hours required for the degree.
- 2020 Project Coordinator and Policy Development SHARE OK Errata Policy. Formally approved by [Graduate Council February 2022](#).  
Worked with OU libraries, the Provost's Office, and the Office of Research Services to develop an Errata policy for Dissertations and Theses in SHAREOK.

#### Graduate College Programs and Outreach

- 2020 – ... Faculty Advisor, Campus Program Manager Bridge the Doctorate/LSAMP Scholars Program.
- 2023 Workshop developer and lead. Teaching Philosophy Workshop, Instructional Core Competencies Micro-Credential Program, March 23, 2023.
- 2021 Workshop Lead, Graduate College Brown Bag for Graduate Student Support – Implementing Individual Development Plans Across Disciplines
- 2020-2022 Committee Member, Campus-Wide Graduate Student Support Committee.
- 2020 – ... Oversee the [Accelerate 2 Industry Program](#)
- 2020 – ... Host Graduate College Virtual Coffee Chats with Graduate Students and Postdocs.
- 2020 – ... Host Graduate College Virtual Office Hours for Graduate Program Leadership.
- 2020 – ... Workshop Organizer, Graduate College Brown Bag for Graduate Student Support.  
Organize workshops on various topics related to graduate education for graduate faculty members. The topics are geared towards supporting graduate education, the mentor/mentee relationship, best practices, etc.
- 2020-2022 Guest Speaker, OU New Faculty Orientation on Graduate College.
- 2020-2022 Workshop Organizer, NSF Graduate Research Fellowship Virtual Two-Part Information Series.  
Hosted one session with Georgia Kosmopoulou, presenting on eligibility and requirements. Hosted a panel session of faculty that have served as NSF GRFP reviewers to answer questions and point out important aspects of the review process. Assembled a Canvas course for students applying that included recordings of the live events and sample applications that were successful.
- 2020-2022 Panelist, Graduate College Welcome Week: Making the Most of Graduate School.
- 2021-2022 In-depth Workshops-New Faculty Orientation – Mentoring Graduate Students and Undergraduates in Research & Creative Activities.
- 2020-2021 Panelist, New Graduate Teaching Assistant Training: Assessment Best Practices.
- 2020 Panelist, Postdoc Appreciation Week: Virtual Interviewing Skills.
- 2020 Panelist, Postdoc Appreciation Week: Art of Negotiation in Academic Positions.
- 2020 Workshop Organizer, Postdoc Appreciation Week: Art of Negotiation in Academic Positions.

#### Graduate College Special Projects and Program Development

- 2022 – ... *Multi-university Collaboration* – National Academy of Engineering's [Connecting Efforts to Support Minorities in Engineering Education](#) Mini-Grant – "[GradThriving](#)": Building a bigger network to support current minority graduate students. [Collaborative Project](#) with  
 Project Lead: Jacqueline McDermott, Ph.D., Associate Director of Diversity and Inclusion, Purdue University, College of Engineering Dean's Office of Graduate Education (  
 Shernita Lee, Assistant Dean & Director of the Office of Recruitment, Diversity, and Inclusion at Virginia Tech Graduate School  
 Elizabeth Karr, Associate Dean of the Graduate College and Associate Professor of Microbiology at the University of Oklahoma  
 Steven Crossley, IREES faculty fellow, AISES faculty advisor, and Associate Professor of Chemical Engineering at the University of Oklahoma  
 Nina Parshall, Director of Graduate Recruitment and Support for the College of Engineering at The Ohio State University
- 2022 *Graduate Bridge Program with* Universidad Popular Autónoma Del Estado De Puebla (UPAEP)  
 Worked with the Director of Graduate Admissions, the College of International Studies, OU's Office of Legal Counsel, and the leadership at UPAEP to write a Memo of Understanding implementing a bridge graduate program with UPAEP. In the program, a student from UPAEP spends the final year of a UPAEP undergraduate program taking graduate-level classes that can be considered part of an accelerated master's program at OU ("Bridge Program"). Credits are shared between the two degrees. After completing the bachelor's degree, the student completes the master's program at OU.
- 2021-2022 Planning and implementing the new [Graduate English Pathway Program](#)  
 Allows international students that have not met the English proficiency standards for admission to begin coursework in their programs while simultaneously taking English training in the US. The program hosted its first cohort in the fall of 2022. I continue to oversee the management of this program.
- 2020-2021 Committee Member, Provost Initiative-Holistic Admissions Training Development, September 2020 -2021.
- 2020-2021 Project Lead, Survey, and Classification of [Non-Thesis Master's Degrees](#).  
 Cataloged culminating experiences and classified (academic vs. professional) non-thesis master's program at OU.
- 2020 Project Participant, Doctoral Committee Role Best Practices and Communications Development.  
 Drafted targeted communication to doctoral committee members outlining the expectations of their designated role on a particular student committee.  
 Crafted website language on doctoral committee best practices.
- Graduate Program Director – Microbiology and Plant Biology Graduate Program***
- 2018 Led efforts to remove the requirement of GRE scores for our graduate program applicants.
- 2018 Worked with the department chair to implement a multi-year stipend increase program for graduate students using funds provided by the administration to improve the competitiveness of stipends in several key disciplinary areas.
- 2017 Spearheaded a complete revision of the general exam process that is more informative and beneficial to the student.



- The new process increased transparency surrounding the process, expectations, objectives, and outcomes.
- 2017 Implemented a more comprehensive annual evaluation process for the students and a required annual advisory committee meeting.
- 2017 Implemented evaluations of graduate teaching assistants (GTAs) each semester.  
The evaluations are completed by the GTA's faculty teaching supervisor and are supplemental to the student teaching evaluations/student experience survey GTAs receive.
- 2017-2020 Worked to improve the graduate students' morale and interactions/comradery.  
These efforts encouraged a more inclusive environment and facilitated communications between the microbiology and plant biology disciplines for both students and faculty.
- 2017-2020 Worked closely with the Graduate College to identify additional means of financial support and modification of academic plans to accommodate student needs.
- 2017-2020 Implemented action plans to guide students, particularly those struggling with progress toward their degree.
- 2017-2020 Regularly advocated for students facing challenges that negatively impacted their ability to carry out research and academic requirements.
- 2017 Worked with the department chair to implement a one-credit-hour professional development course for first-year students. The course launched in Fall of 2017.
- 2016-2020 Overhauled the graduate program admissions application review process and the recruitment of graduate students beginning in the Spring of 2016.
- 2015-2016 Along with a colleague, I implemented an optional lab rotation program beginning in the Fall of 2016 to be comparable with peer programs.

## **SERVICE**

### ***University***

- 2021-2022 Vice President for Research and Partnerships Postdoc Incentive Program Review Panel
- 2021-2022 Associates Deans for Research Council, VPRP Office.
- 2020 Vice President for Research and Partnerships COVID-19 Research Continuity Committee
- 2020 Team Lead, Emerging Pathogenic Threats, Life Sciences and the Future of Health, OU Vice President for Research and Partnerships strategic planning group
- 2020 Nancy L. Mergler and Bullard Dissertation Completion Fellowships Committee
- 2019-2020 Education Abroad Advisory Committee
- 2019-2020 Vice President for Research and Partnerships Research Council, Presidential Appointee
- 2016-2019 Faculty Senate, College of Arts and Sciences, Natural Sciences Representative, Elected

2018 – ... NIH COBRE Protein Production Core Advisory Committee  
 2014-2019 NIH COBRE Faculty Mentor to Rakhi Rajan in Chemistry and Biochemistry  
 2014-2019 NIH COBRE Faculty Mentor to Christina Bourne in Chemistry and Biochemistry  
 2019 3-Minute Thesis semi-final round judge  
 2018 3-Minute Thesis preliminary round judge  
 2009-2010 Radiation Safety Committee  
 2009 Premedical Advisory Interview Committee

***Dodge Family College of Arts and Sciences (DFCAS) Service***

2020 DFCAS Biological Sciences Internal Working Group, Appointed by Dean  
 ○ The working group looked at the strengths and shortcomings of the organization of the biological sciences at OU in meeting the educational and programmatic needs of approximately 1600 undergraduate and 100 graduate students and the faculty's research goals and aspirations. We looked at alternate models that exist at peer institutions and considered the perspectives of stakeholder groups on the current and alternate models. Ultimately, it was determined that having an external group take an unbiased look at the biological sciences would be invaluable.

2019-2020 Chair and Committee A, Dodge Family College of Arts and Science Dean's Executive Committee  
 2018-2020 Member, Dodge Family College of Arts and Science Dean's Executive Committee, Natural Sciences Representative, Elected  
 2014 External Representative, Faculty Search Committee, Department of Chemistry and Biochemistry  
 2013 External Representative, Faculty Search Committee, Department of Chemistry and Biochemistry, Fall 2013  
 2012 External Representative, Faculty Search Committee, Department of Chemistry and Biochemistry

***Microbiology and Plant Biology Department Service***

2019-2021 Junior Faculty Mentor to Kara De Leon  
 2019-2021 Junior Faculty Mentor to Krithi Sankaranarayanan  
 2017-2020 Graduate Liaison and Graduate Program Director, Microbiology and Plant Biology Master's and Ph.D. degrees  
 2017-2020 Chair, Microbiology and Plant Biology Graduate Committee.  
 2019 Member, Faculty Search Committee, Microbiology  
 2016-2020 Member of Microbiology and Plant Biology Assessment Committee  
 2015-2016 Microbiology and Plant Biology Graduate Admission, Retention, and Rotation Committee  
 2015-2016 Chair, Faculty Search Committee Microbiology  
 2014-2017 Microbiology and Plant Biology Biotechnology Committee  
 2011-2017 Microbiology Undergraduate Student Advising  
 2011-2016 Chair, Microbiology and Plant Biology, Website Migration Committee  
 2010-2020 Member of Microbiology and Plant Biology External Speakers Committee  
 2010 Member, Faculty Search Committee, Plant Biology  
 2008 Member, Microbiology and Plant Biology Safety Committee

## **Professional Service**

### Editorial

- 2020 – Associate Editor, *Antonie van Leeuwenhoek Journal*, Anaerobic Bacteria Section.
- 2012 – Review Editor, *Frontiers in Microbial Physiology and Metabolism*.

### Grant Panels

- 2009 DOE Office of Basic Research, Basic Energy Sciences Physical Biosystems.
- 2011 NSF Antarctic/Polar Programs.
- 2009 USDA NRI Biobased Products and Bioenergy Production Research Program.
- 2008 USDA NRI Biobased Products and Bioenergy Production Research Program.

### Ad Hoc Grant Review

- NSF Antarctic/Polar Programs
- DOE Early Career Programs – DOE Basic Energy Sciences Physical Biosystems
- NSF Molecular and Cellular Biology

### Ad Hoc Manuscript Review

Microbiology, *Journal of Bacteriology*, *Molecular Microbiology*, *Nucleic Acids Research*, *BMC Genetics*, *Astrobiology*, *Environmental Science and Technology*, *Canadian Journal of Microbiology*, *Journal of Visualized Experiments*, *Environmental Microbiology*, *PLOS One*, *Antonie van Leeuwenhoek*, *mBio*

## **OUTREACH AND BROADER IMPACTS**

- 2019 Math Graduate Student Club Faculty Panel: "How to build effective mentoring relationships"
- 2019 Academic Tech Expo: Faculty Panel on Implementation of Gradescope,
- 2009-2019 Biotechnology Curriculum Advisory Committee, Moore Norman Technology Center.
- 2018 Life at the Extremes. Presentation to 6<sup>th</sup>-grade science classes at Whittier Middle School, Norman, OK.
- 2018 Lab host for Honor's College Four Year Research Experience Program.
- 2015-2017 Lab host for NSF Research Experience for Undergraduate in Structural Biology students.
- 2016-2017 Lab host for a John Marshall High School minority senior with an interest in Research.
- 2015 Navigating the Sciences at OU. Presentation to Moore Norman Technology Center Biotechnology Program high school students.
- 2014 Becoming a scientist. Presentation to 3<sup>rd</sup> grade science classes at Trinity Lutheran School, Norman, OK.
- 2012 Life at the Extremes. Presentation to 1st-3<sup>rd</sup> grade science classes at Trinity Lutheran School, Norman, OK.
- 2011 Biology of Archaea. Presentation to Environmental Microbiology and Biotechnology undergraduate summer course at OU.
- 2010 Science in the Karr Lab. Presentation to Moore Norman Technology Center Biotechnology Program high school students.
- 2009-2011 Host to NSF Bridge to the Doctorate graduate student.
- 2015-2017 Host to NSF Research Experience for Undergraduate students in Structural Biology

- 2008 An Antarctic Adventure. Presentation to Pre-K class at St. Josephs Early Childhood Development Center, Norman, OK.
- 2001 Become a Pen Pal with a Scientist in the Antarctic. 1<sup>st</sup> and 3<sup>rd</sup>-grade classes at Heath Elementary School, Paducah, KY.
- 2001 An Antarctic Adventure with a Dutrow Alumnus. All grades at Dutrow Elementary School, Newport News, VA.

## **PROFESSIONAL DEVELOPMENT**

- 2022 Council of Graduate Schools Summer Workshop
- 2022 OK-LSAMP Alliance Annual Research Symposium, Stillwater, OK
- 2020 DOE Basic Energy Sciences Physical Biosciences PI Meeting
- 2020 Council of Graduate Schools Summer Workshop and New Deans Institute-with quarterly New Deans cohort meetings through May 2021
- 2018 OU Graduate College Workshop: Graduate Student Mentoring
- 2018 OU Graduate Workshop: Graduate Student and Postdoc Mental Health: A Discussion for Faculty
- 2014 NIH, NIGMS National IDeA Symposium of Biomedical Research Excellence
- 2013 X-ray Methods in Structural Biology, Cold Spring Harbor Lab, New York,
- 2013 RapiData Collection & Structure Solving. A practical course in macromolecular X-ray diffraction measurement. Brookhaven National Lab.
- 2010 Gordon Research Conference on Microbial Stress Response, South Hadley, MA
- 2009 National Science Foundation: Joint Annual Meeting, Washington, D. C.
- 2007 Women in Higher Education: Career Strategies for Entering the Workplace, The Ohio State University
- 2006 Transforming the Professoriate: Preparing Women for Academic Careers in Science and Engineering, Virginia Tech  
2003 – Annual Meeting of the American Society for Microbiology