

Linda S. Lee

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Education: B.S. Chemistry (1983), M.S. Environmental Engineering Sciences (1989), Ph.D. Soil Chemistry & Contaminant Hydrology (1993), University of Florida

Academic Appointments

2022 - present	Distinguished Professor
2021- current	COA Assistant Dean of Graduate Education & Research
2021- present	Professor, Division of Environmental Ecological Engineering
2011- 2018	Associate Head, Department of Agronomy
2006 - present	Head, Ecological Sciences & Engineering Interdisciplinary Graduate Program
2011 - present	Courtesy Faculty appointment, Division of Environmental Ecological Engineering
2013 - present	Purdue Center for the Environment Executive Board
2010 - 2017	Purdue Water Community Executive Committee
2005 - 2010	Associate Director, Discovery Park Center for the Environment
2006 - 2010	Pre-Environmental Studies Program, Chair (2006-07AY); Co-Chair (2007-09AY)
2001 - present	Professor, Purdue University, Department of Agronomy
1997 - 2001	Associate Professor, Purdue University, Department of Agronomy
1993 - 1997	Assistant Professor, Purdue University, Department of Agronomy
1989 - 1993	Senior Chemist, University of Florida, Soil & Water Science Department
1988-1989	Chemist III, University of Florida, Soil & Water Science Department
1984-1988	Chemist, University of Florida, Soil & Water Science Department

Awards and Honors: Chemist Certification, American Chemical Society (ACS, 1984); Frederick B. Smith Scholarship, U. of Florida (1991); Certificate of Merit, ACS (1991); U. of Florida Sigma Xi Graduate Student Research Award (1992); Award for Excellence in Grad. Studies, Soil & Water Science, University of Florida (1993); Emil Truog Award for Best Doctoral Dissertation, Soil Science Society of America (1994); Gamma Sigma Delta Research Award of Merit (2001); Purdue University Faculty Scholar (2001-2006); SSAJ Citation for Excellence in Manuscript Review (2003); ASA Fellow (2003); SSSA Fellow (2004); Outstanding Assoc. Editor for J. of Environ. Quality (2004); Gamma Sigma Delta Award of Merit in Research & Teaching (2005); Outstanding Graduate Educator in Agronomy (2008, 2009, 2010); Purdue Graduate Student Government Faculty Mentor Award (2012); ES&T Excellence in Review Award (2014). COA Outstanding Graduate Educator (2015); Agriculture's First Unsung Diversity Hero Diversity InFocus Highlight (2016); Purdue Seed for Success (2017, 2018, 2019, 2020); Faculty Unsung Diversity Hero (2021); #Purdue Women Highlighted (2021); 2020 JHM Editor-selected Paper of the Year; 2021 ASA Environmental Quality Research Award; SSSA Diversity Trailblazer Presidential Award.

Editorial Boards/National Committees. Soils and Human Health within Frontiers in Soil Science, Associate Editor (2021 – current); Associate Editor -Vadose Zone J. (2002-7); Associate Editor - J. Environ. Qual. (2003-6); W45 Mechanisms & Mitigation of Agrochemical Impacts on Human and Environ. Health (2000-5); W82/W1082/W2082 Evaluating the Physical and Biological Availability of Pesticides and Pharmaceuticals in Agricultural Contexts (1994-2013); Indiana Water Resources Research Center Faculty and External Advisory Committees; National Council of Science and the Environment (NCSE) (2005-2010); Council of Deans and Director (CEDD) (2005-2010); Livestock & Poultry Expert (LPE) Pharmaceutical Expert Team (2007-09); W2170/W3170/W4170 Beneficial Ruses of Residuals and Reclaimed Water: Impact on Soil Ecosystem and Human Health (2009-current); National Biosolids Data Project Advisor (2019-current); EPA Science Advisory Board's Biosolids Panel (2022-current).

Representative Expert Services: EPA Expert Panel Member for Past, Present, and Future Research in the Area of Complex Mixtures (1993); Gas Remediation Institute Expert Panel Member for Environmentally Acceptable Endpoints (1996); Ecological Soil Screening Task Group on Soil Chemistry

(Eco-SSLs) (1998-2003); EPA Peer Consultation PFOA Panel for Alabama Dow Site Evaluation (2008); EPA Peer Consultation PFOA Panel for the DuPont Washington Works Site Evaluation (2009); WERF/EPA Supplemental Scientist -Board Member for addressing Trace Organic Chemicals in Biosolids-Amended Soils (2010); Perfluorotelomer Biodegradation Supplemental Environmental Project External Evaluation Team (2010); Technical Panel, Geothermal Inc. Landfill, Management of Coal Combustion Products (2010); NRC Report Review Team (Future Options for Management in the Nation's Subsurface Remediation Effort, 2012); International Panel Member for Advising Australian Water Board; Expert Reviewer for CA Proposed Basin Plan Amendment to Adopt Total Maximum Daily Loads for Toxicity and Pesticides in the Santa Maria Watershed (2012); DuPont C-F Forum (2012-2013); Expert Peer Reviewer for the Proposed Adoption of Carpet and Rugs Containing Perfluoroalkyl or Polyfluoroalkyl Substances as a Priority Product (2019); Expert Peer Reviewer for Product – Chemical Profile for Treatments Containing Perfluoroalkyl or Polyfluoroalkyl Substances for Use on Converted Textiles or Leathers (2020); Expert Peer Reviewer for Product- Chemical Profile for Food Packaging Containing Perfluoroalkyl or Polyfluoroalkyl Substances (2021); Water Research Foundation 5107 Project Advisory Committee for “Understanding Pyrolysis for PFAS Removal” (2021-2023); Eastern Research Group Expert Reviewer for EPA’s draft report, Emerging Issues in Food Waste Management: Persistent Chemicals Report (2021); EPA Science Advisory Board: Biosolids Area (2021- current).

Research Advisory Roles: Current Major Graduate Advisees: 5 PhD, 1 MS; Previous Major or co-Major Graduate Advisees: 20 PhD, 6 MS-Thesis, & 8 MS-nonthesis; Undergraduate Research Advisor: 22 previous, 7 current undergraduate research assistants; Postdoctoral Assoc. and Visiting Scientists sponsored: 19 previous, 1 current post doc.

Patents

Zenobio, J., Lee, L.S., Vecitis, C. Activated carbon supported Ni⁰Fe⁰ nanoparticles for reductive transformation of perfluoroalkyl-containing compounds. Patent No. EUS 11,045,676 B2, June 29, 2021.

Xu, T., Lee, L.S., Nies, L.F., Seager, T. Decontaminating soils and sediments with zero-valent metal nanoparticles. Provisional Patent, Cosolvent-enhanced bimetal ZVI Remediation of PCB-contaminated Soils. Attorney Doc 12258-0105, Application 814562.

Peer-reviewed Journal Papers (Sept 2023)

Peter, L.S., Lee, L.S., Modiri-Gharehveran, M., Alvarez-Campos, O., Evanylo, G. 2023. PFAS Fate Using Lysimeters During Degraded Soil Reclamation Using Biosolids Peter, *J. Environ. Quality*, JEQ-2023-11-0325-TR, *In review*..

Coelho, P., Fitzgerald, G., Isaacson, K., Diop, R., Prabhakar, G., Heffner, S., Verma, A., Youngblood, J., Choi, Y., Surdyka, S., Spears, S. Frisbee, M.D., Del Real, K., Gustafson, L., Torrez, A.M., Proctor, C., Lee, L.S., Whitehead, H., Doudrick, K., Harpur, B., Whelton, A. 2023. Environmental and Private Property Contamination Following the Norfolk Southern Chemical Spill and Chemical Fires in Ohio, *Environ. Sci. & Tech.*, es-2023- 100683, *In review*.

Wesley, F.R., Haskins, D., Hamilton, M., Choi, Y., de Perre, C., Sepúlveda, M. Lee, L.S., Hoverman, J., 2023. Trophic magnification and distribution of per-/polyfluoroalkyl substances (PFAS) in an AFFF-impacted aquatic food web. *Environ. Sci. & Tech.*, es-2023-093737, *In review*.

Lech, Melissa; Choi, Youn; Lee, Linda S.; Sepulveda, Maria; Hoverman, Jason, 2023. Assessing the combined effects of host and parasite exposure to forever chemicals in an amphibian-echinostome system. *Environ. Toxicol. and Chem.*. ETCJ-Jul-23-00418, *Minor revision requested*

Pandelides, Z., Conder, J. , Choi, Y, Allmon, E., Hoskins, T., Lee, L.S., Hoverman, Jason, Sepúlveda, M. 2023. Critical Review of Amphibian Per- and Polyfluoroalkyl Substance Ecotoxicity Research Studies: Identification of Screening Levels in Water and Other Useful Resources for Site-Specific Ecological Risk Assessments, *Environ. Toxicol. and Chem.*, <https://doi.org/10.1002/etc.5695>

- J Liu, E. Edwards, J. Van Hamme, M. Manefield, C.P. Higgins, J. Blotevogel, Jinyong Liu, L.S. Lee. 2023. Correspondence on Defluorination of Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) by Acidimicrobium sp. Strain A6, *Enviro. Sci. & Tech.* 53 (19), 11410-11419
- Gravesen, C., Lee, L.S., Alukkal, C., Openiyi, E., Judy, J.D., 2023. Per and Polyfluoroalkyl Substances in Water Treatment Residuals: Occurrence and Desorption. *Journal of Environmental Quality*, 29 September 2023 <https://doi.org/10.1002/jeq2.20520>
- Wasel, Ola; King, Hanna; Choi, Youn; Lee, Linda; Freeman, Jennifer. 2023. Differential developmental neurotoxicity and tissue uptake of the PFAS alternatives, GenX and PFBS, *Environ. Sci. & Tech.*, 57(48): 19274-19284. <https://doi.org/10.1021/acs.est.3c05023>
- Schilling-Costello, Maria; Asad, Neelam; Haris, Muhammad; Bahambari, Peyman; Khan, Bushra; Lee, Linda. 2023. Reconnaissance Survey of Organic Contaminants of Emerging Concern in the Kabul and Swat Rivers of Pakistan, *Environ. Toxicol. Chem.*, 42 (12), 2599-2613, <https://doi.org/10.1002/etc.5750>
- Barragan, Evelyn; Hoskins, Tyler; Allmon, Elizabeth; McQuigg, Jessica; Hamilton, Matthew; Christian, Erin; Coogan, Grace; Searle, Catherine; Choi, Youn; Lee, Linda; Hoverman, Jason; Sepúlveda, Maria. 2023. Toxicities of Legacy and Current Use PFAS in an Anuran: Do Larval Exposures Influence Responses to a Terrestrial Pathogen Challenge? *Environ. Sci. & Tech.*, 57(48):19180-19189, <https://doi.org/10.1021/acs.est.3c03191>
- Broadbent, Emma, Caleb Gravesen, Youn Choi, Linda S Lee, Patrick Wilson and Jonathan Judy. 2023. Effects of Drinking Water Treatment Residual Amendments to Biosolids on Plant Bioavailable Per- and Polyfluoroalkyl Substances, *J. Environ. Quality*, <https://doi.org/10.1002/jeq2.20511>
- Burcham, Lucy; Elizabeth B. Allmon, PhD; Meredith N. Scherer; Anna G. Bushong; Matthew T. Hamilton; Sini Macheri; Grace S. Coogan; Youn Choi; Linda S. Lee; Maria S. Sepúlveda. 2023. Does salinity mediate the toxicity of perfluorooctanesulfonic acid (PFOS) in an estuarine fish? *Ecotoxicology and Environmental Safety*, <http://dx.doi.org/10.2139/ssrn.4409246>
- Hoskins, Tyler; Flynn, R. Wesley; Coogan, Grace; Catlin, Ann; De Perre, Chloe; Modiri Gharehveran, Mahsa; Choi, Youn Jeong; Lee, Linda; Hoverman, Jason; Sepúlveda, Maria, 2023, Chronic Exposure to a PFAS Mixture Resembling AFFF-Impacted Surface Water Decreases Body Size in Northern Leopard Frogs (*Rana pipiens*), *Environ. Sci. & Tech.*, <https://doi.org/10.1021/acs.est.3c01118>
- Ganga M. Hettiarachchi, Linda S. Lee, Hui Li, Dominic Brose, Nicholas Basta, 2023, Translating Soil Science to Improve Human Health, *Frontiers in Environmental Science*, <https://doi.org/10.3389/fenvs.2023.1215416>
- Liu, Min; Munoz, Gabriel; Hermiston, Juliana; Zhang, Ju; Vo Duy, Sung; Wang, Dan; Dey, Anindya Sundar; Bottos, Eric; Van Hamme, Jonathan; Lee, Linda; Sauv , S bastien; Liu, Jinxia. High Persistence of Novel Polyfluoroalkyl Betaines in Aerobic Soils, *Environ. Sci & Technol.* 57, 19, 7442–7453. <https://doi.org/10.1021/acs.est.2c07395>
- Gravesen, C., Lee, L.S., Choi, Y., Silveira, M.L. C., Judy, J.D., 2023. PFAS Release from Wastewater Residuals as a Function of Composition and Production Practices, *Environmental Pollution*, 12116,7 <https://doi.org/10.1016/j.envpol.2023.121167>
- Ji, Y., Y. Choi, Y. Fang, H.S. Pham, A. T. Nou, LS Lee, J. Niu, and D.M. Warsinger. 2023. Electric field-assisted nanofiltration for PFOA removal with exceptional flux, selectivity, and destruction, *Environ. Sci & Technol.*, <https://doi.org/10.1021/acs.est.2c04874>
- Choi, Y., Lee, L.S., Hoskins, T.D., Modiri-Gharehveran, M., Sep lveda, M.S. 2023. Occurrence and Implications of Per and Polyfluoroalkyl Substances in Animal Feeds Used in Laboratory Toxicity Testing, *STOTEN*, <https://doi.org/10.1016/j.scitotenv.2023.161583>.
- Souza, A., Rojas, MZ, M., Yang, Y., Lee, L.S. Hoagland, L Classifying cadmium contaminated leafy vegetables using hyperspectral imaging and machine learning. *Heliyon*, <https://doi.org/10.1016/j.heliyon.2022.e12256>

- Lech, ME, YJ Choi, LS Lee, MS Sepúlveda, JT Hoverman. 2022. Effects of Per- and Polyfluoroalkyl Substance Mixtures on the Susceptibility of Larval American Bullfrogs to Parasites, *Environmental Science & Technology*, <https://doi.org/10.1021/acs.est.2c04574>
- Hoskins, TD, EB Allmon, RW Flynn, LS Lee, Y Choi, JT Hoverman, MS Sepúlveda. 2022. An Environmentally Relevant Mixture of PFOS and PFHxS Does Not Conform to Additivity in Northern Leopard Frogs Exposed Through Metamorphosis, *Environmental Toxicology and Chemistry*, <https://doi.org/10.1002/etc.5486>
- Judy, J.D., Gravesen, C., Wilson, P.C., Lee, L.S., Sarchapone, J., Hinz, F., Broadbent, E. 2022. Trophic transfer of PFAS from tomato (*Solanum lycopersicum*) to tobacco hornworm (*Manduca sexta*) caterpillars. *Environ Poll.* 310:119814. doi: 10.1016/j.envpol.2022.119814.
- Souza, A., Rojas, MZ., Yang, Y., Lee, L.S. Hoagland, L. 2022. Identifying cadmium contaminated leafy vegetables using hyperspectral imaging and machine learning. <http://dx.doi.org/10.2139/ssrn.4095061>
- Schaefer, C.E., Hooper, J., Modiri-Gharehveran, M., Drennan, D., Beecher, N. Lee, L.S. 2022. Release of poly- and perfluoroalkyl substances from finished biosolids in soil mesocosms. *Water Research*, 217:118405. <https://doi.org/10.1016/j.watres.2022.118405>
- Nixon, R., Zhao, M., Zanotti, L., Khan, B., Birkenholtz, T., Lee, L.S., Mian, I., 2022. Social influence shapes adaptive water governance: Empirical evidence from northwestern Pakistan. *Environmental Management, Ecology and Society*, <https://doi.org/10.5751/ES-13546-270337>
- Modiri-Gharehveran, M., Choi, Y. Zenobio, J.E., Lee, L.S. 2021. Perfluoroalkyl Acid Transformation and Mitigation by nNiFe-Activated Carbon Nanocomposites in Steady-state Flow Column Studies. *J. of Environ. Chemical Engineering*, 127, 678-687 <https://doi.org/10.1016/j.jece.2021.106901>
- Jones, Devin; Quinlin, Kathryn; Wigren, Maggie; Choi, Youn; Sepulveda, Maria; Lee, Linda; Haskins, David; Lotufo, Guilherme R.; Kennedy, Alan; May, Lauren; Harmon, Ashley; Biber, Thomas; Melby, Nicolas; Chanov, Michael; Hudson, Michelle; Key, Peter; Chung, Katy; Moore, David; Suski, Jamie; Wirth, Edward; Hoverman, Jason. Acute toxicity of 8 aqueous film-forming foams to 13 aquatic species, *Environ. Sci. & Technol.*, <https://doi.org/10.1021/acs.est.1c03776>.
- Flynn, RW, GM Hoover, M. Iacchetta, S. Guffey, C DePerre, B. Huerta, W. Li, J. Hoverman, LS Lee, M. Sepulveda. 2022. Comparative toxicity of aquatic PFAS exposure in three species of amphibians. *Environ. Toxicol. & Chemistry*. <https://doi.org/10.1002/etc.5319>
- Zea, M. Z, A. Souza, Y. Yang; L.S. Lee; K. Nemali, L. Hoagland. 2021. Leveraging high-throughput hyperspectral imaging technology to detect cadmium stress in two leafy green crops and accelerate soil remediation efforts. *Environ. Pollution*, <https://doi.org/10.1016/j.envpol.2021.118405>.
- Modiri-Gharehveran, M., Zenobio, J.E., Lee, L.S. 2021. Transformation and defluorination by nNiFe-activated carbon nanocomposites: PFAS structure and matrix effects. *J. of Environ. Chemical Engineering*, 9(6):106901 <https://doi.org/10.1016/j.jece.2021.106901>.
- Nixon, R., Z. Ma, B. Khan, T. Birkenholtz, L. S. Lee, I. Mian. 2021. Adaptation to Social-Ecological Change in Northwestern Pakistan: Household Strategies and Decision-making Processes, *Environmental Management*, <https://doi.org/10.1007/s00267-021-01583-7>.
- Guelfo, Jennifer L., S. Korzeniowski, M.A. Mills, J. Anderson, R. H. Anderson, J.A. Arblaster, J.M. Conder, I.T. Cousins, K. Dasu, B.J. Henry, LS. Lee, J. Liu, E. McKenzie, J. Willey. 2021. Environmental sources, chemistry, fate and transport of per- and polyfluoroalkyl 2 substances: state of the science, key knowledge gaps, and recommendations presented at the August 2019 SETAC focus topic meeting. *Environ. Toxicol. & Chem.*, <https://doi.org/10.1002/etc.5182>
- Cheng, F.Y., H.E. Preisendanz, M.L. Mashtare, L.S. Lee, N.B. Basu, 2021. Nevertheless, they persisted: Can hyporheic zones increase the persistence of estrogens in streams? *Water Resources Research*, <https://doi.org/10.1029/2020WR028518>.

- Schilling-Costello, M. and L.S. Lee. 2020. Sources, Fate and Plant-Uptake in Agricultural Systems of Per- and Polyfluoroalkyl Substances. *Current Pollution Reports*, <https://doi.org/10.1007/s40726-020-00168-y>
- Flynn, R.; Hoskins, T.; Iacchetta, M.; De Perre, C.; Lee, L.S.; Hoverman, J.; Sepulveda, M.S. 2021. Dietary exposure and accumulation of per- and polyfluoroalkyl substances alters growth and reduces body condition of post-metamorphic salamanders. *Science of the Total Environ.*, 765:142730. <https://doi.org/10.1016/j.scitotenv.2020.142730>
- Wasel, O., Thompson, K.M., Gaob, Y., Godfrey, A.E., Gaob, J., Mahaptra, C., Lee, L.S., Sepúlveda, M.S., Freeman, J.L., Comparison of zebrafish in vitro and in vivo developmental toxicity assessments of perfluoroalkyl acids (PFAAs). 2020. *J. Toxicol. & Environ. Health A*, <https://doi.org/10.1080/15287394.2020.1842272>
- Foguth, R., Hoskins, T., Cali Clark, G., Nelson, M., Flynn, W., de Perre, C., Hoverman, J., Lee, L.S., Sepulveda, M., Cannon, J.R. 2020. Single and mixture per- and polyfluoroalkyl substances accumulate in developing Northern leopard frog brains and produce complex neurotransmission alterations. *Neurotoxicology and Teratology*, 81:106907. <https://doi.org/10.1016/j.ntt.2020.106907>
- Zenobio, J.E., Modiri-Gharehveran, M., Perre, Chloe, Vecitis, C.D., Lee, L.S. 2020. Rates and Products of Reductive Transformation of Perfluorooctanesulfonate by nNiFe⁰-Activated Carbon. *J. Haz. Mat.* <https://doi.org/10.1016/j.jhazmat.2020.122782>. Editor-selected 2020 paper of the year.
- Abercrombie, S., de Perre, C., Iacchetta, M., Flynn, R., Sepulveda, M., Lee, L.S., Hoverman, J. 2020. Sublethal Effects of Dermal Exposure to Poly- and Perfluoroalkyl Substances on Post- Metamorphic Amphibians, *Environ. Toxicol. Chem.*, <https://doi.org/10.1002/etc.4711>
- Flynn, R., Iacchetta, M., de Perre, C., Lee, L.S., Sepúlveda, M., Hoverman, J. 2021. Chronic PFAS-exposure under environmentally relevant conditions delays development in northern leopard frog (*Rana pipiens*) larvae, *Environ. Toxicol. Chem.*, <https://doi.org/10.1002/etc.4690>. ET&C Top 10 Exceptional Papers of 2021
- Lazcano-Kim, R., Choi, Y., Mashtare, M. Lee, L.S. 2020. Characterizing and Comparing Per- and Polyfluoroalkyl Substances in Commercially Available Biosolid and Nonbiosolid-based Organic Products. *Environ. Sci. Technol.* 54(14):8640-8648. <https://doi.org/10.1021/acs.est.9b07281>.
- Foguth RM, Flynn RW, de Perre C, Iacchetta M, Lee LS, Sepúlveda MS, Cannon JR . 2019. Developmental exposure to perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) selectively decreases brain dopamine levels in Northern leopard frogs. *Toxicol Appl Pharmacol.* 377:114623. <https://doi.org/10.1016/j.taap.2019.114623>
- Ghaffar, N., Lee, L.S., Choi, Y., de Perre, D., Khan, B. 2019. Efficient Heated Ultrasound Assisted Extraction and Clean-Up Method for Quantifying Paclitaxel Concentrations in *Taxus Wallichiana*. *International J. of Environ. Analytical Chem.*, 101:549-560, <https://doi.org/10.1080/03067319.2019.1669584>.
- Park, S., L.S. Lee, I. Ross, J. Hurst. 2020. Evaluating Claims of Permanganate Oxidation of Perfluorooctanesulfonate. *Environ. Research and Pollution*, (2020). <https://doi.org/10.1007/s11356-020-07803-7>
- Sammi, S.R., Foguth, R.M., Nieves, C.S., De Perre, C., Wipf, P., McMurray, C.T., Lee, L.S., Cannon, J.R. 2019. Perfluorooctanesulfonate (PFOS) produces selective dopamine neuron neuropathology in *C. elegans*. *Tox. Sci.*, 172(2): 417–434, <https://doi.org/10.1093/toxsci/kfz191>
- Choi, Y., R. Kim Lazcano, P. Yousefi, H. Trim and L.S. Lee. 2019. Perfluoroalkyl Acid Characterization in U.S. Municipal Organic Solid Waste Composts, *Environ. Sci. Technol. Letters*. <https://doi.org/10.1021/acs.estlett.9b00280>
- Choi, Y., L.F. Nies and L.S. Lee. 2019. Persistence of Three Bisphenols and Other Trace Organics of Concern in Anaerobic Sludge Under Methanogenic Conditions, *Environ. Technol.* TENT-2019-0603, <https://doi.org/10.1080/09593330.2019.1668966>.

- Kim Lazcano, R., C. de Perre, M.L. Mashtare and L.S. Lee. 2019. Per- and Polyfluoroalkyl Substances in Commercially Available Biosolid-Based Products: The Effect of Treatment Processes, *Water Environ. Research*, <https://doi.org/10.1002/wer.1174> WER paper of the year.
- Chen, H., Y. Choi, and L.S. Lee. 2018. Sorption, Aerobic Biodegradation and Oxidation Potential of PFOS Alternatives Chlorinated Polyfluoroalkyl Ether Sulfonic Acids. *Environ. Sci. Technol.*, 52(17):9827-9834. <https://doi.org/10.1021/acs.est.8b02913>
- Park, S., J. Zenobio, and L.S. Lee. 2018. Perfluorooctane sulfonate (PFOS) loss with Pd⁰/nFe⁰ nanoparticles: adsorption and Fe-complexation, not transformation, *Journal of Hazardous Materials*. 342:20-28. <https://doi.org/10.1016/j.jhazmat.2017.08.001>
- Choi, Y. and L.S. Lee. 2017. Aerobic soil biodegradation of bisphenol A (BPA) alternatives bisphenol S and bisphenol AF compared to BPA. *Environ. Sci. Technol.*, 51(23):13698-13704. <https://doi.org/10.1021/acs.est.7b03889>.
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- Horzmann, K., C. de Perre, Chloe, L.S. Lee, A. Whelton, and J. Freeman. 2017. Comparative Analytical and Toxicological Assessment of Methylcyclohexanemethanol (MCHM) Mixtures Associated with the Elk River Chemical Spill, *Chemosphere*, 188:599-607.
- Mohamad, A.; Deegan, D.; Gao, J.; de Perre, C.; Doucette, J.; Jenkinson, B.; Lee, L.; Sepulveda, M. 2017. Gonadal intersex in smallmouth bass *Micropterus dolomieu* from northern Indiana with correlations to molecular biomarkers and anthropogenic chemicals. *Environmental Pollution*, 230:1099-110.
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Non-Peer-reviewed Publications – 30 book chapters, briefs, and proceedings

Invited Talks for 2018-2022

Lee, L.S. Trace Organics in Biosolids: Trends, Myths and Challenge, Keynote, Emerging Contaminants Summit, Westminster, CO., March 6-7, 2018

Lee, L.S. Trace Organics and Toxicity, Poly/Per-fluoroalkyl Substances: Highlights on Source, Fate and In-situ Treatment Potential, AEESP, Distinguished Lecturer Conference, Purdue University, 2018

Lee, L.S. Lab-scale Evaluation of in-situ-Amenable Abiotic Remediation Technologies and Analytical Challenges Associated with Per/polyfluoroalkyl Acids, The 2018 Toxicology and Risk Assessment (TRAC) Conference, Models, Methods, and Emerging Concerns, April 23 - 26, 2018, West Chester, Ohio, April 25, 2018

Lee, L.S. PFAS Levels in Composts and Biosolids Products, Water Environment Federation (WEF), Webinar. August 1, 2018

Fate & Transport, Panelist, October 16, 2018, Soil Health and Human Health Conference, Silver Springs, MD

Lee, L.S. Chamber of Commerce Environmental Conference Presentation, Presentation Title: PFAS, PFOA and PFOS: What Are They and Why Do We Care? 1-h panel with attorney firm. 2019

Lee, L.S. Environmental Health Matters Initiative (EHMI), National Academies - Understanding, Controlling, and Preventing Exposure to PFAS. Workshop, Panel, Presenter, Sept. 26-27, 2019, Washington, DC.

Lee, L.S. PFAS Characteristics, Fate and Challenges, June 7, 2019, Racer Trust Foundation, Webinar

Lee, L.S. PFAS - More Than You Ever Wanted to Know and Then Some, March 13, 2019, 2019 Biosolids Conference "Challenges and Opportunities," Detroit, MI

Lee, L.S. PFAS Characteristics, Fate and Challenges, May 9, 2019, Indiana Water Council Meeting, Indianapolis, IN

Lee, L.S. PFAS Highlights & Waste-based Products Targeted for Land-Application, June 24, 2019, W3170, Baltimore, MD

Lee, L.S. PFAS Characteristics, Fate and Effects on Amphibians, June 26, 2019, IWRA Conference, Oakwood Resort, IN

Lee, L.S. Addressing Long-Term Transformation of PFAS Precursors in the Environment, August 12, 2019, SETAC PFAS FOCUS meetings, Durham, NC

Lee, L.S. PFAS Characteristics and Challenges in Waste Management, August 21, 2019, Indiana Water Environment Association (IWEA) Annual Conference, Ft. Wayne, IN

Lee, L.S. Current PFAS Research at Purdue, October 1, 2019, EPA Region 5 Water Managers; Meeting, Indianapolis, IN

Lee, L.S. PFAS Highlights & Treatment Challenges, October 9, 2019, Indiana Environmental Conference, IN Chamber of Commerce, Indianapolis, IN

Lee, L.S. PFAS in Composts and Biosolids, September 23, 2019, Water Environment Federation, WEFTEC2019, WEFTEC PFAS Forum, Chicago, IL

Lee, L.S. PFAS Treatment Panel, September 25, 2019, National Academy of Sciences, Engineering and Medicine Environmental Health Matters Initiative (EHMI), Washington DC.

Lee, L.S. PFAS Fate & Transport, Dec. 5, 2019, Air & Solid Waste Management Association-Technical Meeting, Indianapolis, IN

Lee, L.S. IN: Industry, agriculture and biosolids: CECs environmental fate and remediation, WRF, Vancouver, BC, Feb. 26, 2020

Lee, L.S. 2020. Two Research Snapshots: (1) PFAS Occurrence in Commercial Biosolids-base Soil Amendments and (2) Reductive mineralization of PFAS using nNiFe⁰-activated carbon Particles, Oregon State University (Invited), May 6, 2020

Lee, L.S. W4170 Committee Response to the 2018 OIG Report. MWEA 2020 Biosolids Conference, Aug 18, 2020

Lee, L.S., PFAS Characteristics and Challenges in Waste Management and Clean Potable Waters. 23rd Annual Indiana Pollution Prevention Conference and Tradeshow. Sept. 17, 2020.

Lee, L.S. 2020. PFAS Characteristics, Fate and Challenges in Wastewater & Waste Management. 2020 Webinar hosted by VA Biosolids Council, Sept. 23, 2020

Lee, L.S. PFAS Work and Purdue and in Indiana. Indiana Private Water Resource (InPWR) Monthly Meeting, Sept. 25, 2020

Lee, L.S. 2020. PFAS Characteristics and Fate in Agricultural Operations. MSU 2020 Fall Seminar Series. Oct. 22, 2020

Lee, L.S. PFAS Characteristics, Fate and Challenges in Waste Management, EEE Seminar, Jan 26, 2021

Lee, L.S. PFAS Transformation and Mitigation with nNi⁰Fe⁰-Activated Carbon Nanocomposites, SERPD-ESTCP Webinar, Jan 28, 2021 (over 800 attended online)

Lee, L.S. and Ned Beecher. PFAS in Agricultural Operations, NRCS PFAS Webinar. Feb. 19, 2021

Lee, L.S.. Evaluating PFAS Occurrence and Impact in Agricultural Operations, IN Groundwater Focus Monthly Meeting, March 4, 2021

Lee, L.S. PFAS in Municipal Waste Management and Agricultural Operations. Carollo Engineers Seminar Series, March 26, 2021

Lee, L.S. Assessing Poly- and Perfluoroalkyl Substances (PFAS) Release from Finished Biosolids (WERF Project No. 5042), Michigan Water and Environment Association (MWEA), March 31, 2021

Lee, L.S. Per- and Polyfluoroalkyl Substances in Commercially Available Biosolids and Other Soil Amendments, WEF, April 1, 2021

Lee, L.S. PFAS: PFAS Mitigating PFAS in Biosolids, Finding the Way to the Future Panel, ET Tech, April 13, 2021

Lee, L.S. PFAS Characteristics, Fate and Challenges in Waste Management, Emerging Contaminant Conference, IL, Keynote, April 27, 2021

Lee, L.S. Trends in Trace Organics and Other Constituents in Biosolids and Biosolid Land-Application Sites. Ontario Water & Environment Association (OWEA), April 27, 2021

Lee, L.S. PFAS: Our Greatest Current Challenge in Waste Management, Water Environment Federation Biosolids and Residuals Specialty Conference. Columbus, Ohio May 11, 2021

Lee, L.S. PFAS in Biosolids: Challenges & Management Options. WEF Residual & Biosolid Conference, May 11, 2021

Lee, L.S. Per- and Polyfluoroalkyl Substances (PFAS): Characteristics and Management Challenges. Purdue DP C4E hosted meeting with a subset of Indiana Legislators, Virtual, May 12, 2021

Lee, L.S. In situ reductive defluorination of PFAS with nNi⁰Fe⁰-AC Nanocomposites, Noblis ESI, May 19, 2021

Lee, L.S. PFAS Challenges in Biosolid Management. California Water & Environment Association (CWEA) Annual Conference, Virtual, June 7, 2021

Lee, L.S. Multiplication through Transformation, American Chemical Society National Meetings, Division of Environmental Chemistry, Women in Environ. Science & Engineering, Aug. 22, 2021

Lee, L.S. Process Effects on PFAS in Biosolids, Effluents, and Leachate. Biofest, Sept. 20, 2021

Lee, L.S. PFAS: Characteristics and Management Challenges, PFAS Research & Policy Forum, White River Alliance, Sept. 23, 2021.

Lee, L.S. Trends in Trace Organics in Biosolids and Biosolid Land-Application Sites. Emerging Contaminant Short Course, Oct. 26, 2021

Lee, L.S. Poly- and Perfluoroalkyl Substances in Biosolids: Fate Trends and Fluorine Mole Balance. ASA/SSSA National Meetings, Nov. 7-10, 2021

Lee, L.S. PFAS Characteristics, Occurrence in Fertilizers and Plant Uptake. The Association of American Plant Food Control Officials Jackson Hole, WY, CA Oct. 27, 2021 (hybrid)

Lee, L.S. PFAS Characteristics, Occurrence in Fertilizers and Plant Uptake, California Department of Food and Agriculture Fertilizer Division, Jan 4, 2022 (virtual).

Lee, L.S. Characterizing PFAS in biosolids and their leaching potential when applied to agricultural soils in the US, PFAS Workshop, University of Tübingen, Tübingen, Germany, 04.-05. April 2022 (may switch to virtual due to COVID surge/uncertainty).

Lee, L.S. PFAS Characteristics and Trends in Waste Management. Shipshewana, IN, Feb. 9, 2022.

Lee, L.S. PFAS Occurrence, Fate and Mitigation in the Context of Biosolids, IWEA, Kokomo, IN, March 9, 2022.

Lee, L.S. Addressing Gaps in Understanding of PFAS in Rural Communities. Public Health and Water Conference, Cincinnati, OH, March 24, 2022.

Lee, L.S. 2022. Impacts of Land-applied Biosolids on Groundwater. AWWA WQT22, Nov 22 (MON07)

Lee, L.S. 2022. PFAS Fate in Agricultural Operations. ACS Presidential Symposium Panel: Waste Products as a Source of PFAS, August 21, 2022

Lee, L.S. Addressing Gaps in Understanding of PFAS in Rural Communities. Public Health and Water Conference, Cincinnati, OH, March 24, 2022.

Lee, L.S. Occurrence and Fate of PFAS in Land-Applied Biosolids. 2022 NWGA PFAS Conference Panel: Waste Products as a Source of PFAS, June 21-22, 2022, Westerville, OH

Lee, L.S. (Sept 28, 2023) Characterizing Fate and Impact of PFAS in Biosolids Generation and Application to Agricultural Soils. Notre Dame PFAS Workshop, Notre Dame, IN, Sept 28-29, 2023, Invited.

Lee, L.S. (May 11, 2023). PFAS (Per- & Polyfluoroalkyl Substances) and Biosolids Perspectives in Context. VWEA Education Seminar, Virtual, May 11, 2023, Invited.

Lee, L.S. Occurrence and Fate of PFAS in Land-Applied Biosolids. 2022 NWGA PFAS Conference Panel: Waste Products as a Source of PFAS, June 21-22, 2022, Westerville, OH , Invited.

Lee, L.S. (Oct. 22, 2023) Overview of PFAS and Grand Challenges for Agricultural Systems. PFAS: Current Knowledge and Applications for Agricultural Production Workshop, Kellogg Hotel & Conference Center, MI, Oct 22-24, 2023, Keynote.

Lee, L.S. (Dec 5, 2023) Characterization and Contamination Panel: PFAS and Food Wastes, NIST Food Waste Reduction and Recovery Workshop.

Non-peer Reviewed Publications: 31 chapters, reports, research briefs, invited book reviews

Current/Active Research Grants

WQRF. Retention of PFAS on Spent Filters. (2024-2026) Total: \$100,00. Zhou (PI), Lee, Choi (co-PIs).

NIH. PFAS induced alterations in reward processing. (2023-2028) Total: \$3,303,080. Cannon (PI), Chester, Foti, Lee, Wells (co-PIs)

USGS-104G. Pre-treatment assisted PFAS analysis in understudied complex media. Total: \$250,000. (2024-2026). Lee (PI), Choi, Sepulveda Hoverman, Hoskins (co-PIs).

SERDP ER24-C1-4061. Self-Assembly of PFAS Mixtures in the Presence of Inorganic Ions and Hydrocarbon Surfactants During Wetting and Drying. (2024-2028) Total: \$1,661,900. Martinez (PI), Youngblood, Lee, Choi, and Figuero (co-PIs).

SERDP ER23-4032. Coupling Foam Fractionation with High-Resolution Molecular Absorption Spectrometry Graphite Furnace to Quantify Total PFAS in PFAS-Free Firefighting Formulations. (2024-2026), Total: \$250,000. Choi (PI), Lee (co-PI)

WRF 5212: Enhanced Aeration and Scum Recovery for Physical Removal of PFAS from Wastewater. 2023-2024. Schaefer (CDM Smith, PI), Lee (co-PI).

USDA-FSA. Overall PFAS Fate During Optimization of PFAS contaminated Livestock Composting, Stabilization and Use. 2023-2025, \$313,749. Lee (PI)

SERDP ER24-C1-4061 Self-assembly of PFAS Mixtures in the Presence of Inorganic Ions and Hydrocarbon Surfactants During Wetting and Drying . 2024-2027. \$1,696,220 Martinez (PI), Lee (co-PI).

USDA-FSA. Overall PFAS Fate During Optimization of PFAS-contaminated Livestock Composting, Stabilization and Use. (2023-2025). Total: \$323,961, Lee (PI), Choi (co-PI)

USDA-CIG-Maine. Biochar Use to Reduce Crop Uptake of PFAS and Improve Soil Health. 2023-2026. Carpenter (Northern Tilth, PI), Lee (Purdue co-PI)

USDA-FSA. PFAS Mitigation Strategies and Effects of CRPs on PFAS Fate. 2023-2027. \$500,000. Lee (PI)

SERDP ER22-3158: Electrocatalytic Reduction of PFAS in Groundwater and Aqueous Concentrates, (2023-2026), Total: \$ 989K, \$ 395K, Chaplin (PI, UIC), Lee (co-PI, Purdue).

WRF 5214. Direct In-situ Measurement of PFAS Transformation and Leaching from Land-applied Biosolids. (2023-2024) Total: 150K. Purdue PI; Led by Schaefer, CDM Smith

DC Water. PFAS Source Tracking and Changes During Processing to Biosolids-based Products, \$18,690 Lee, (PI)

SERDP ER-2527 Physiological, Ecological and Environmental Determinants of PFAS Accumulation in Fish: Towards an Improved Bioaccumulation Model. (2022-2023), Salice (PI, Towson University), Lee (co-PI)

EPA National Priority/WRF. Unregulated Chemicals in Biosolids: Prioritization, Fate and Risk Evaluation for Land Applications (2021 – 2026); Total \$ 1,497,907, Purdue \$585,000, Lee, Purdue PI; Led by Water Research Foundation.

EPA National Priority Grant. Evaluating PFAS Occurrence and Fate in Rural Water Supplies and Agricultural Operations to Inform Management Strategies (2020-2025); Total EPA \$ 1,609,344; Lee (PI)

HRSD Match to EPA National Priorities Grant. Evaluating PFAS Occurrence and Fate in Rural Water Supplies and Agricultural Operations to Inform Management Strategies, 2021 – 2024, Total: \$ 340,000, Lee (PI)

SERDP ER-1491. Upscaling Reactive Electrochemical Membrane (REM) Reactors for the Oxidation of Perfluoroalkyl Compound Contaminated Water, 2021 – 2024, Total: \$ 972,820, \$ 336,402, Chaplin (PI, UIC), Lee (co-PI, Purdue)

NAWI. Electrocatalytic Destruction of PFAS using a Reactive Electrochemical Membrane System, 2022-2024. Total: \$ 1,912,295, Purdue (\$ 244,326), Chaplin (PI, UIC), Lee (co-PI, Purdue)

EPA-G2022-STAR-A1/Protein Binding Affinity as the Driver for Studying PFAS Mixture Toxicity, 2022-2025, Total \$ 725,481, Sepulveda (PI), Lee (co-PI)

USGS-104G. PFAS Precursor Bioaccumulation and Biotransformation in Agriculturally Impacted Wetland Food Webs, 2022-2025, Fed Total \$243,721 (plus matching \$243,776), Sepulveda (PI), Lee (co-PI)

SERDP ER-2626, Development of Amphibian Poly- and Perfluoroalkyl Substances Toxicity Reference Values for use in Ecological Risk Assessment at Aqueous Film Forming Foam Sites, 2016 – 2023, \$ 2,465,781, Sepulveda (PI), Lee (co-PI)

SERDP ER20-1537. The relative toxicities of current use aqueous film forming foams and next generation alternatives to aquatic species for informing risk assessment, 2020 – 2024, Total: \$ 1,298,816, Hoverman (PI), Lee (co-PI)

SERDP23-C1-3599 , Assessing Polyfluorinated Compound Biotransformation in Historic AFFF-Impacted Source Areas, Total: \$ 886,000. Dung, CDM Smith (Lead), Lee (co-PI)

SERDP23-4032. Coupling Foam Fractionation with High-Resolution Molecular Absorption Spectrometry Graphite Furnace to Quantify Total PFAS in non-PFAS AFFFs. 2023-2024. \$249,466. Choi (PI), Lee (co-PI)

DOD-Army Research Dev. Command. Role of military relevant chlorpyrifos exposure in Parkinson disease relevant dopaminergic neurotoxicity. 2022-2025. \$1,199,999, Cannon (PI), Lee (co-PI)

WRF5170. State of the Science and Regulatory Acceptability for PFAS Residual Management Options. 2023-2024. \$150,000. Modiri-Gharehveran (EA Eng. PI), Lee (co-PI).

NSF. RAPID: Elucidating the Types and Role of VOC and SVOC Fate in Drinking Water Wells and Plumbing After the 2023 Ohio Chemical Disaster in East Palestine. \$200,000. Whelton (PI), Lee (co-

News/Media Examples for 2019-2023

- WUFT News. Eco-friendly packaging could be poisoning our compost. Ula Chrobok, May 30, 2019. <https://projects.wuft.org/foreverinflorida/do-forever-chemicals-make-their-way-into-food/>
- Boston News. 'Forever chemicals' were found in MWRA fertilizer. Here's what you need to know. Christopher Gavin, Dec. 3, 2019. <https://www.boston.com/news/local-news/2019/12/03/forever-chemicals-mwra-fertilizer-what-to-know>
- Boston Globe. 'Forever chemicals' are found in MWRA fertilizer, drawing alarm, David Able, Dec. 3, 2019. <https://www.bostonglobe.com/metro/2019/12/01/levels-toxic-chemicals-mwra-fertilizer-found-tests-are-raising-concern/tlnN0BffygFKCweSpFq5J/story.html>
- Sinclair Broadcast Group. Inside Your World investigate toxic soil with potential links to cancer. Mark Hyman, Jan. 13, 2020. <https://wjla.com/news/inside-your-world/inside-your-world-investigates-toxic-soil-with-potential-links-to-cancer>
- Kokomo News. Inside Your World: The lasting effects PFAS contamination has on groundwater. Jan. 20, 2020. <https://komonews.com/news/inside-your-world/inside-your-world-the-lasting-effects-pfas-contamination-has-on-groundwater>
- Indianapolis Star. 'Forever chemicals' were found in Indianapolis' tap water. Here's why it matters. London Gibson, Indianapolis Star, March 19, 2020. <https://www.indystar.com/story/news/environment/2020/03/19/pfas-found-indianapolis-drinking-water/4830205002/>
- Purdue Alumnus. So You Want to Do Field Research. March 25, 2020. <https://www.purduealumnus.org/features/so-you-want-to-do-field-research/>
- Indianapolis Star. Some industrial sites in Indiana may be discharging toxic 'forever chemicals,' report says. London Gibson, Indianapolis Star, May 2, 2020. <https://www.indystar.com/story/news/environment/2020/05/02/indiana-industrial-sites-could-discharging-toxic-pfas-chemicals/5153057002/>
- Detroit Public TV, Great Lakes Now. Indiana universities receive grants to study PFAS impact on water quality. Sept 2, 2020. <https://www.greatlakesnow.org/2020/09/indiana-universities-pfas-impact-water-quality/>
- WFYI, Indianapolis. Purdue, Indiana University get grants to study PFAS in Rural Water. Sept. 7, 2020 <https://www.wfyi.org/news/articles/purdue-indiana-university-get-grants-to-study-pfas-in-rural-water>
- Inside Indiana Business. Purdue Scientist awarded \$1.6M from EPA. Mary Roberts, Aug. 27, 2020. <https://www.insideindianabusiness.com/story/42553395/purdue-scientist-awarded-dollar16m-from-epa>
- VA Biosolids Council. New PFAS research will improve understanding. Jan. 31, 2021, <http://www.virginiabiosolids.com/pfas-research-proposes-improve-knowledge-fate/>
- Indianapolis Star. Legislation tackles toxic 'Forever chemicals' found in Indianapolis drinking water, London Gibson, Indianapolis Star, Feb. 15, 2021. <https://www.indystar.com/story/news/environment/2021/02/15/bills-would-tackle-forever-chemicals-found-indiana-water/6677257002/>
- WEF/Words on Water. \$123: Dr. Linda Lee on the Science of PFAS n Water Treatment. <https://wordsonwaterwef.com/2020/02/03/words-on-water-123-dr-linda-lee-on-the-science-of-pfas-in-water-treatment/>

Plastics Today. Warning: Compostable food packaging may be hazardous to our health. Feb. 13, 2021. <https://www.plasticstoday.com/packaging/warning-compostable-food-packaging-may-be-hazardous-your-health>

Indianapolis Star. South Bend legislators push state bills to regulate toxic ‘forever chemicals’ in drinking water. London Gibson, Indianapolis Star, Feb. 15, 2021. https://www.southbendtribune.com/news/indiana/south-bend-legislators-push-state-bills-to-regulate-toxic-forever-chemicals-in-drinking-water/article_88c881d4-6f92-11eb-b880-472aa10828cc.html

WUFT News. Do forever chemicals make their way onto food? Natalie Nix, Feb 16, 2021. <https://projects.wuft.org/foreverinflorida/do-forever-chemicals-make-their-way-into-food/>

CWEA, San Francisco Bay Area Agencies Participate in Land Application Biosolids Study, Issue 5 2022, pp 27-31. <https://www.kelmanonline.com/httpdocs/files/CWEA/cleanwater-issue5-2022/index.html>

CSA News. When chemicals go to the dark side. Nov., 2022, 65(11)6-15. Lee students on front cover and within, <https://access.onlinelibrary.wiley.com/doi/10.1002/csan.20894>

WISH TV - <https://www.wishtv.com/news/i-team-8/purdue-university-professors-fight-disinformation-about-east-palestine-train-derailment/>

PBS Montana Documentary, *Dangerous Chemical in Compost*. <https://www.youtube.com/watch?v=H7-yQALgSRE&t=1s>

Courses Taught in the past 5 years

FNR/AGRY/NRES/EAPS 125 *Introduction to Environmental Sciences* is offered to students interested in an introductory natural resource or environmental science elective. It is a team-taught class and covers topics from introduction to ecological principles, history of conservation, natural resource management, human impacts on the environment, and environmental ethics. The course is taught every fall and spring. Dr. Lee has co-taught this course beginning in Spring 2018 to Dec. 2021.

AGRY/NRES385 *Environmental Soil Chemistry* is an upper-level introductory course with 3 lectures and one 3-hour wet lab each week. It covers environmental soil chemistry concepts in the framework most applicable to metal, nutrient, and organic chemical contamination of soil and water resources. Students are empowered with knowledge and both semi-quantitative and quantitative skills in the fundamental properties and processes responsible for the environmental fate of contaminants in the soil-water environment, with emphasis on soil and solution chemistry. The intended audience includes students in an environmental science field that may not have strong chemistry/math backgrounds. There is no textbook. Dr. Lee uses lectures, environmental case studies, laboratory exercises, and computer modules to teach the course. This course has been taught each year since its inception in 1999. Students have repeatedly expressed that they learned problem solving skills that they have applied to their other courses and their research.

AGRY544 *Environmental Organic Chemistry* focuses on the fundamental properties and processes responsible for the environmental fate of organic contaminants in aqueous and nonaqueous-phase liquids (e.g., fuels, chlorinated solvents, industrial and manufacturing residuals), and soils. Both conceptual and theoretical aspects are covered, as well as estimation, correlation, and measurement techniques. AGRY544 was initially taught every year for the first 15 years since it began in 1994 with an enrollment between 19 to 31. It has since been taught every other year with an enrollment of 15-24. Students repeatedly comment that this is among the top two courses they have taken at Purdue. AGRY544 recently was cross-listed with EEE.

GRAD590 *ESE Colloquium* is a 3-credit series (2 credits in Fall and 1 credit in Spring) seminar/lab course for ESE students. It fosters the development of critical thinking and life cycle-type thinking skills, team

building, and integration across social, ecological, and technical sciences with a focus on sustainability and resilience. Dr. Lee co-developed and co-teaches or leads GRAD590 every fall and spring.

GRAD590 ESE Peer-to-Peer Mentoring is for advanced ESE students who formally mentor the incoming cohort, particularly through facilitating and co-instructing in the ESE Colloquium series.

EEE560 Per- & Polyfluoroalkyl Substances (PFAS) This course facilitates student exploration of the complex world of per and polyfluoroalkyl substances (PFAS) including history, uses, defining characteristics, exposure pathways and effects, regulatory and risk assessment, environmental fate, treatment options/challenges, and alternatives. PFAS are complex on many fronts and lead to many economic, environmental and social injustices, and sustainability challenges. Spring, 5-week module.

Graduate student summary as primary or co-advisor:

Name	Degree/Degree	Current (or last known) Employment
Neda Rafiee	PhD	Current (Jan. 2022, ESE-AGRY)
Rachel Gehr	PhD	Current (Fall 2021, EEE)
Elijah Openiyi	PhD	Current (May 2021, ESE-AGRY)
Lynda Peters	PhD	Current (ESE-AGRY)
Caroline Alukkal	PhD	Current (ESE-EEE)
M. Christina Schilling	PhD	Current (ESE-AGRY); passed prelim
Thomas, Parker*	MS (Dec/ 2021)	In transition
Lim-Lazcano-Kim, Rooney*	PhD (2018)	Proctor & Gamble
Zenobio, Jenny	PhD (May 2018)	UC-Irvine, Post Doc
Park, Saerom	MS (2013), PhD (2017)	Korea Institute of Sci. & Technol., KIST
Schwartz, Colleen	MS	Withdrew/Medical; current unknown
Wilbanks, Chris	MS (June 2016)	Great Lakes Institute, Nevada
Choi, Younjeong	PhD (June 2016)	A/P Chemist, Purdue; Previous - Colorado School of Mines, Post Doc
Zull, Aaron	MS (Dec. 2015)	USEPA, Denver, CO
Martin, Andy	PhD (May 2014)	U.S. Army Corps of Engineers, Vicksburg, MI
Horn, Brittaney	MS (May 2014)	Pharmaceutical Company, IN
Sassman, Stephen	PhD, May (2015)	Ion Labs Inc, Texas
Mashtare, Michael	PhD (Dec 2013)	Purdue and now Penn State, Asst. Professor
Jannotta, Izabela	MS (May 2012)	Laboratory Operations Coordinator, Purdue NW
Gall (Preisendanz), Heather**	MS (2008); PhD (2011)	Penn State Univ., Assoc. Prof.
Dasu, Kavitha	PhD (2011)	Battelle Labs; Previous USEPA, Cincinnati, OH
Qi Qi	MS (August 2011)	Industry
Stinson, Craig	MS (May, 2011)	PhD in Chemistry (Purdue); now at Intel Corp
Royer, Laurel	PhD (March, 2011)	Desimone Consulting Engineers, Formerly Exponent (Consulting firm)
Khan, Bushra	PhD (Dec. 2009)	University of Peshawar, faculty
Carmosini, Nadia	PhD (Jan. 2009)	U. Wisconsin-La Crosse, faculty
Liu, Jinxia	PhD (2007)	McGill University, faculty
Kolbe, Jennifer	PhD (2006)	MWH (Engineering/Consulting)
Burns, Perre	PhD (2003)	St. John - Mittelhauser & Associates (SMA)
Jackson, Monica	MS (2005)	DNR (last known)
Hyun, Seunghun	PhD (2003)	Korea University SEOUL, faculty
Strock, Troy	MS (2003)	USEPA Chicago
Lee, Jaesun	PhD	Finished in Pharmacy, Pharmacist in Korea
Zhao, Maggie	MS (2002)	PhD, Purdue Pharmacy, Current Mayo Clinic

Biegel, Connie	PhD, Incomplete Dissertation	Elderly parent care decision; Last known employment - St. Mary's College (instructor)
Hawes, Kevin	MS (1999)	Global Director Quality, Charlotte Metro
Seol, Yongkoo	PhD (1998)	National Energy Technol. Lab., DOE
Huang, Xinjiang	PhD (1999)	Syngenta (Formerly at DuPont)
Li, Hui	PhD (1999)	Michigan State University, faculty
Priddy, Nick	MS (1996)	Wisconsin – WWTP
Xu, Tianbo	PhD (2005)	Bayer Pharmaceutical, Kansas

**Co-chair; **Co-research advisor, not co-chair*