JEFFREY A. CUNNINGHAM

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PROFESSIONAL POSITIONS

Professor	University of South Florida, Tampa, FL	Jun 2021 – present
Visiting Scientist	CSIRO Land and Water, Floreat, Western Australia	Oct 2013 – May 2014
Associate Professor	University of South Florida, Tampa, FL	Aug 2011 – Jun 2021
Assistant Professor	University of South Florida, Tampa, FL	Jan 2005 – Aug 2011
Assistant Professor	Texas A&M University, College Station, TX	Aug 2003 – Dec 2004
Research Associate	Stanford University, Stanford, CA	Feb 2001 – Aug 2003
Post-Doctoral Researcher	Stanford University, Stanford, CA	Jan 1999 – Jan 2001
Doctoral Student/Candidate	Stanford University, Stanford, CA	Jul 1993 – Dec 1998

EDUCATION

Ph.D.	Stanford University	1999	Civil & Environmental Engineering
M.S.	Stanford University	1993	Civil Engineering (Environmental Engineering & Science)
B.S.	Rice University	1991	Chemical Engineering (conferred *magna cum laude*)

RESEARCH INTERESTS

Contaminant fate and transport in the (aqueous) environment
Physical, chemical, and biological processes for water treatment and water quality control
Water resources and water re-use
Mass transfer in natural and engineered environmental systems
Contaminant behavior in groundwater
Remediation of contaminated soil and groundwater
Geologic sequestration of carbon dioxide for mitigation of global climate change
Recovery of energy and resources from solid and liquid waste streams

OTHER PROFESSIONAL EXPERIENCE

Associate Engineer, Radian Corporation, Austin, TX: Aug 1991 – Aug 1992
Passed Engineer-in-Training (EIT) licensure examination, 1993 (California license XE089121).

FUNDED PROJECTS (GRANTS, AWARDS, CONTRACTS)

Total dollar amount: **$5,974,342**

Total dollar amount as Principal Investigator (PI): **$1,925,917**

Note: grants of less than $10,000 are not included in the following list.

Alternative electron donors for denitrification filters at South Cross Bayou Water Reclamation Facility. S. Ergas (PI), J. Cunningham. Funded by Pinellas County Utilities (Florida), 1 Feb 2023 – 31 Jul 2024: **$105,167**.

Engineering Fellows (eFellows) Postdoctoral Fellowship Program. Post-doctoral fellowship awarded to Dr Erica Dasi; J. Cunningham (PI). Funded by the National Science Foundation (NSF) via the American Society for Engineering Education (ASEE), 1 Oct 2022 – 30 September 2024: **$259,200**.

Assessing the potential for geologic sequestration of carbon dioxide (CO_2) at TECO's Polk Power Station. J Cunningham (PI). Funded jointly by Tampa Electric Company (TECO), 9 May 2022 – 31 December 2023, and the Florida High-Tech Corridor, 7 August 2022 – 31 December 2023: **$277,633** (total funding).

Microbiome of denitrification processes facilitated by iron-sulfur minerals. J Cunningham (PI), SJ Ergas, E Dasi, VJ Harwood, KM Scott. Funded by USF Institute for Microbiomes / USF Center for Microbiome Research, 1 Feb 2022 – 30 June 2022: **$30,000**.

IRES Track 1: Convergent research to support provision of safe water in eastern coastal Madagascar. J Cunningham (PI), M Khaliq Pasha, J Mihelcic. Funded by the National Science Foundation (NSF #2107114), 1 Sep 2021 – 31 Aug 2024: **$288,759**.

Process optimization at Hillsborough County's Advanced Water Reclamation Facilities. J Cunningham (PI), S Ergas, A Sunol. Funded by Hillsborough County (Florida), 15 Feb 2019 – 30 Sept 2022: **$139,025** (part 1: $10,922; part 2: $69,636; part 3: $58,467).

Building institutional research capacity to reduce childhood metal and lead exposure. J Mihelcic (PI), J Cunningham, K Alfredo, M Khaliq Pasha. Funded by University of South Florida (USF) Strategic Investment Pool, 1 Apr 2020 – 29 Mar 2021: **$100,000**.

Reducing childhood lead exposure in Madagascar by remediation of lead-containing hand pump components. LJP Barrett (PI), J Mihelcic, M Khaliq Pasha, J Cunningham. Funded by Pure Earth, 1 Nov 2019 – 31 Jul 2020: **$29,880**.

Evaluation of options for disinfection at South Cross Bayou Advanced Water Reclamation Facility. J Cunningham (PI), S Ergas. Funded by Pinellas County (Florida), 1 Nov 2019 – 31 Jul 2021: **$44,976**.

Biological denitrification for small water systems using iron-sulfur minerals. S Ergas (PI), J Cunningham. Funded by Water Innovation Network for Sustainable Small Systems (WINSSS), 1 Jul 2017 – 30 Jun 2018: **$50,000.**

Net-energy-positive recovery and removal of nitrogen and phosphorus from digester effluents (sidestreams) at municipal wastewater treatment plants. J Cunningham (PI). Funded by the University of South Florida (USF) Creative Scholarship Grant (CSG) program, 1 May 2017 – 3 Apr 2018: **$10,000**.

Management of nitrogen and phosphorus at Hillsborough County's Advanced Water Reclamation Facilities. J Cunningham (PI), S Ergas. Funded by Hillsborough County (Florida), 1 Jan 2017 – 31 Aug 2018: **$96,484**.

Evaluation of chlorine demand and formation of disinfection by-products (DPBs) for Hillsborough County's water reclamation facilities. J Cunningham (PI). Funded by Hillsborough County (Florida), 1 Sep 2015 – 31 Aug 2016: **$49,838**.

Development and Application of New Modeling Capabilities in the Geochemist's Workbench®: Subsurface Sequestration of Supercritical Carbon Dioxide (CO_2) in Deep Saline Aquifers. J Cunningham (PI), MA Trotz. Funded by the United States Geological Survey (USGS), 1 Jan 2015 – 31 Dec 2016: **$85,601**.

EAGER: Fungal bioleaching for recovery of lithium and cobalt from spent lithium-ion batteries. J Cunningham (PI), VJ Harwood. Funded by the National Science Foundation (NSF #1438447), 1 Sep 2014 – 31 Aug 2015: **$49,998**.

Center for Reinventing Aging Infrastructure for Nutrient Management (RAINmgt). J Mihelcic (PI), TH Boyer, E Coney, JA Cunningham, A Davis, S Ergas, Y Kuwayama, S Olmstead, N Richardson, JS Shih, M Trotz, DH Yeh, Q Zhang, JB Zimmerman. Funded by the US Environmental Protection Agency, 1 Nov 2013 – 31 Oct 2017: **$2,220,649**.

Collaborative research: Development and testing of a fundamentals of environmental engineering concept inventory. S Ergas (PI), J Cunningham. Funded by the National Science Foundation (NSF #1044063), 1 Aug 2011 – 31 Jul 2013: **$64,000**. Collaborative project with the University of Massachusetts at Dartmouth ($72,780), University of Utah ($39,732), and Purdue University ($22,797).

Geochemical modeling of waste stream injection into deep aquifers. M Trotz (PI), M Stewart, and J Cunningham. Funded by Environmental Consulting and Technology (ECT), Inc., 12 Sep 2007 – 31 Dec 2012: **$214,172**.

Conference: 2011 AEESP Conference and CAREER Workshop: Global Sustainability, Tampa, Florida, July 10-12, 2011. J Cunningham (PI), M Trotz. Funded by the National Science Foundation (NSF #1115178), 1 Mar 2011 – 29 Feb 2012: **$44,350**.

Conference support grant: AEESP 2011 Research and Education Conference. J Cunningham (PI). Funded by the University of South Florida Research Council, 1 Jun 2011 – 31 Dec 2011: **$10,000**.

Novel physical-chemical-biological treatment process for swine wastes. O Lahav (PI), M Green, S Ergas, J Cunningham. Funded by the Binational Agricultural Research and Development (BARD) Fund, 1 Dec 2010 – 31 Aug 2013: **$300,000**.

IRES: Sustainable clean water technologies for the UN's Millennium Development Goals -- a partnership between UNESCO-IHE (Delft, Netherlands) and Univ. South Florida. D Yeh (PI), N Alcantar, J Cunningham, R Izurieta, and M Trotz. Funded by the National Science Foundation (NSF), 1 Jun 2009 – 31 May 2013: **$149,932**.

Carbon sequestration evaluation and technologies. M Stewart (PI), J Cunningham, and M Trotz. Funded by the Florida Energy Systems Consortium (FESC), 27 Feb 2009 – 31 May 2012: **$479,640**.

Development of a new engineering course for non-engineering majors: "Global warming: politics & science of a contemporary issue." J Cunningham (PI). Funded by USF College of Engineering, summer 2007: **$10,000**.

Evaluation of subsurface sequestration of carbon dioxide (CO_2) at the Polk Power Station: Physical and chemical modeling. J Cunningham (PI) and M Stewart. Funded by Tampa Electric Company (TECO), 16 May 2007 – 15 Aug 2008: **$107,453**.

Towards sustainable healthy communities: Communicating science and risks of emerging micropollutants in reclaimed water. J Cunningham (PI), F Jaward, D Holtzhausen, and D Yeh. Funded by the State of Florida through the University of South Florida, 1 May 2007 – 30 Apr 2009: **$392,400**.

Optimization of reverse osmosis membrane system at the Dunedin water treatment facility: Understanding and control of membrane fouling. D Yeh (PI) and J Cunningham. Funded by the City of Dunedin (Florida), 1 Apr 2007 – 31 Mar 2010: **$105,000**.

Macro-percolation rates in Hillsborough County closed basins. M Nachabe (PI) and J Cunningham. Funded by Hillsborough County (Florida), 2 Jan 2007 – 31 Dec 2008: **$200,000**.

Investigation of cleaning protocol improvement and lifetime extension for reverse osmosis membranes. D Yeh (PI), J Cunningham, and LD Duke. Funded by the City of Dunedin (Florida), 1 Jul 2006 – 31 Aug 2007: **$29,985**.

Closed-loop catalytic treatment of contaminated soils. J Cunningham (PI). Funded by the Texas Hazardous Waste Research Center, 1 Sep 2004 – 15 Feb 2006: **$20,000**.

REFEREED JOURNAL PUBLICATIONS

Publication *h*-indices as of August 2023:

Scopus	Google Scholar	Web of Science / Publons	Semantic Scholar	ResearchGate
20	24	19	22	22

In the list below, names of my graduate students (MS or PhD advisees) are underlined.

60. Nenninger C, **Cunningham JA**, Mihelcic JR. **Accepted for publication**. A historical and critical review of latrine siting guidelines. *Journal of Water, Sanitation, and Hygiene for Development*. Accepted for publication 21 September 2023.
59. Dasi EA, **Cunningham JA**, Talla E, Ergas SJ. **2023**. Autotrophic denitrification supported by sphalerite and oyster shells: Chemical and microbiome analysis. *Bioresource Technology*, 375, 128820. DOI: 10.1016/j.biortech.2023.128820
58. Butkus MA, Pfluger AR, Andino JM, Starke JA, Harrington GW, Dacunto P, **Cunningham J**. **2022**. Leveraging a Board of Advisors for continuous interaction and improvement: Study of U.S. Military Academy's Environmental Engineering major. *International Journal of Engineering Education*, 38(5A), 1366–1376. Available at https://www.ijee.ie/contents/c380522A.html or https://www.ijee.ie/latestissues/Vol38-5A/14_ijee4261.pdf
57. Champion W, Buerck AM, Nenninger C, Yusuf K, Barrett LJP, Rakotoarisoa L, Rakotondrazaka R, Alfredo K, **Cunningham J**, Khaliq M, Mihelcic JR. **2022**. Childhood blood lead levels and environmental risk factors in Madagascar. *Environmental Science and Pollution Research*, 29(45), 68652–68665. DOI: 10.1007/s11356-022-20586-3.
56. Zahid F, **Cunningham JA**. **2022**. Effect of grain-size distribution on temporal evolution of interfacial area during two-phase flow in porous media. *Transport in Porous Media*, 144, 283–300. DOI: 10.1007/s11242-022-01767-7.
55. Haghnazar H, **Cunningham JA**, Kumar V, Aghayani E, Mehraein M. **2022**. COVID-19 and urban rivers: Effects of lockdown period on surface water pollution and quality -- A case study of the Zarjoub River, north of Iran. *Environmental Science and Pollution Research*, 29(18), 27382–27398. DOI: 10.1007/s11356-021-18286-5
54. Kassouf H, Orner K, García Parra A, **Cunningham JA**. **2022**. Treatment of an aerobic digester sidestream in a microbial fuel cell: Nitrate removal and electricity generation. *Journal of Environmental Engineering (ASCE)*, 148(4), 04022003. DOI: 10.1061/(ASCE)EE.1943-7870.0001979
53. Lobos A, Harwood VJ, Scott K, **Cunningham JA**. **2021**. Tolerance of three fungal species to lithium and cobalt: Implications for bioleaching of spent rechargeable Li-ion batteries. *Journal of Applied Microbiology*, 131, 743–755. DOI: 10.1111/jam.14947
52. Buerck A, Usowicz M, **Cunningham JA**, Khaliq M, Barrett L, Rakotoarisoa L, Rakotondrazaka R, Alfredo K, Sommariva S, Mihelcic J. **2021**. Health and economic consequences of lead exposure associated with products and services provided by the informal economy. *Environmental Science & Technology*, 55(12), 8362–8370. DOI: 10.1021/acs.est.0c08127
51. Orner KD, Tsegaye S, Kassouf H, Rathore K, Sunol A, **Cunningham JA**. **2021**. Case study for analyzing nutrient-management technologies at three scales within a sewershed. *Urban Water Journal*, 18(6), 410–420. DOI: 10.1080/1573062X.2021.1893361
50. Akers DB, Buerck A, MacCarthy MF, **Cunningham JA**, Mihelcic JR. **2020**. Estimates of blood lead levels (BLLs) for children in coastal Madagascar: Accounting for dietary uptake of lead (Pb). *Exposure and Health*, 12(3), 501–511. DOI: 10.1007/s12403-019-00316-w

49. Roberts-Ashby T, Berger PM, **Cunningham JA**, Kumar R, Blondes M. **2020**. Modeling geologic sequestration of CO_2 in a deep saline carbonate reservoir with T2CPI, a new tool for reactive transport modeling. *Environmental Geosciences (AAPG/DEG)*, 27(2), 103–116. DOI: 10.1306/eg.08061919003

48. Orner K, Camacho-Céspedes F, **Cunningham JA**, Mihelcic JR. **2020**. Assessment of nutrient fluxes and recovery for a small-scale agricultural waste management system. *Journal of Environmental Management*, 267, 110626. DOI: 10.1016/j.jenvman.2020.110626

47. Kumar R, Campbell S, **Cunningham JA**. **2020**. Effect of temperature on the geological sequestration of CO_2 in a layered carbonate formation. *Journal of Energy Resources Technology (ASME)*, 142(7), 070907. DOI: 10.1115/1.4046137

46. Kumar R, Campbell S, Sonnenthal E, **Cunningham J**. **2020**. Effect of brine salinity on the geological sequestration of CO_2 in a deep saline carbonate formation. *Greenhouse Gases: Science and Technology*, 10(2), 296–312. DOI: 10.1002/ghg.1960

45. Kassouf H, García Parra A, Mulford L, Iranipour G, Ergas SJ, **Cunningham JA**. **2020**. Mass fluxes of nitrogen and phosphorus through water reclamation facilities: Case study of biological nutrient removal, aerobic sludge digestion, and sidestream recycle. *Water Environment Research*, 92(3), 478–489. DOI: 10.1002/wer.1239

44. Sánchez Vivas L, Mullins G, **Cunningham JA**, Mihelcic JR. **2019**. Mechanical properties of bamboo: A research synthesis of strength values and the factors influencing them. *Journal of the American Bamboo Society*, 29, 1–22. Available via open access at https://bamboo.org/abs-publications/journal.

43. Tang J, Zhang C, Shi X, Sun J, **Cunningham JA**. **2019**. Municipal wastewater treatment plants coupled with electrochemical, biological, and bio-electrochemical technologies: Opportunities and challenges toward energy self-sufficiency. *Journal of Environmental Management*, 234, 396–403. DOI: 10.1016/j.jenvman.2018.12.097

42. Orner K, Cools C, Balaguer-Barbosa M, Zalivina N, Mihelcic JR, Chen G, **Cunningham JA**. **2019**. Energy recovery and nitrogen management from struvite precipitation effluent via microbial fuel cells. *Journal of Environmental Engineering (ASCE)*, 145(3), 04018145. DOI: 10.1061/(ASCE)EE.1943-7870.0001500

41. Kassouf H, **Cunningham JA**, Mulford L, Iranipour G. **2018**. Chlorine demand and trihalomethane formation during chlorination of wastewater in Hillsborough County, Florida, USA: Effects of temperature and chlorine dose. *Journal of Environmental Engineering (ASCE)*, 144(8), 04018067. DOI: 10.1061/ (ASCE)EE.1943-7870.0001413

40. Aponte-Morales V, Payne K, **Cunningham J**, Ergas S. **2018**. Bioregeneration of chabazite during nitrification of centrate from anaerobically digested livestock waste: Experimental and modeling studies. *Environmental Science & Technology*, 52(7), 4090–4098. DOI: 10.1021/acs.est.7b06248

39. Mendoza-Sanchez I, Autenrieth R, MacDonald TJ, **Cunningham J**. **2018**. Biological limitations of dechlorination of *cis*-dichloroethene during transport in porous media. *Environmental Science & Technology*, 52(2), 684–691. DOI: 10.1021/acs.est.7b04426

38. Sengupta S, Ergas S, **Cunningham J**, Goel R, Feldman A, Chen Y-H. **2017**. Concept inventory (CI) for Fundamentals of Environmental Engineering courses: Findings from CI development and testing. *Environmental Engineering Science*, 34(12), 895–907. DOI: 10.1089/ees.2016.0595

37. Orner K, Ozcan O, Saetta D, Boyer TH, Yeh DH, Anderson D, **Cunningham J**. **2017**. A House of Quality planning matrix for evaluating wastewater nutrient management technologies at three scales within a sewershed. *Environmental Engineering Science*, 34(11), 773–784. DOI: 10.1089/ees.2017.0016

36. Amini A, Aponte-Morales V, Wang M, Dilbeck MP, Lahav O, Zhang Q, **Cunningham JA**, Ergas SJ. **2017**. Cost-effective treatment of swine wastes through recovery of energy and nutrients. *Waste Management*, 69, 508–517. DOI: 10.1016/j.wasman.2017.08.041

35. Manser ND, **Cunningham JA**, Ergas SJ, Mihelcic JR. **2016**. Modeling inactivation of highly persistent pathogens in household-scale semi-continuous anaerobic digesters. *Environmental Engineering Science*, 33(11), 851–860. DOI: 10.1089/ees.2016.0131

34. Kinyua MN, Trimmer J, Izurieta R, **Cunningham J**, Ergas SJ. **2016**. Viability and fate of *Cryptosporidium parvum* and *Giardia lamblia* in tubular anaerobic digesters. *Science of the Total Environment*, 554-555, 167–177. DOI: 10.1016/j.scitotenv.2016.02.170

33. Akers DB, MacCarthy M, **Cunningham JA**, Annis J, Mihelcic JR. **2015**. Lead (Pb) contamination of self-supply groundwater systems in coastal Madagascar and predictions of blood lead levels in exposed children. *Environmental Science & Technology*, 49(5), 2685–2693. DOI: 10.1021/es504517r

32. Kim WS, **Cunningham JA**. **2014**. Biodegradation of bisphenol-A and 17β-estradiol under alternating aerobic/anoxic conditions. *Environmental Engineering Science*, 31(5), 232–242. DOI: 10.1089/ees.2013.0423

31. Kinyua MN, **Cunningham J**, Ergas SJ. **2014**. Effect of solids retention time on the bioavailability of organic carbon in anaerobically digested swine waste. *Bioresource Technology*, 162, 14–20. DOI: 10.1016/j.biortech.2014.03.111

30. Cone M, Osborn C, Ticknor JL, **Cunningham JA**. **2014**. Effects of solvent composition and hydrogen pressure on the catalytic conversion of 1,2,4,5-tetrachlorobenzene to cyclohexane. *Environmental Engineering Science*, 31(3), 156–166. DOI: 10.1089/ees.2013.0471

29. Kim WS, Do A, Yeh DH, **Cunningham JA**. **2014**. Extraction of bisphenol-A and 17β-estradiol from water samples via solid-phase extraction (SPE). *Reviews in Analytical Chemistry*, 33(1), 59–77. DOI: 10.1515/revac-2013-0016

28. Ticknor JL, Elsayed-Ali O, Kim WS, Trotz MA, **Cunningham JA**. **2013**. Simplified analysis of chlorinated ethenes in water samples by GC/FID. *Environmental Engineering Science*, 30(1), 30–37. DOI: 10.1089/ ees.2012.0101

27. Schweitzer RW, **Cunningham JA**, Mihelcic JR. **2013**. Hydraulic modeling of clay ceramic water filters for point-of-use water treatment. *Environmental Science & Technology*, 47(1), 429–435. DOI: 10.1021/es302956f

26. Wee HY, **Cunningham JA**. **2013**. Soil treatment by solvent extraction and catalytic hydrodehalogenation. *International Journal of Environment and Waste Management*, 11(1), 59–74. DOI: 10.1504/IJEWM.2013.050520

25. Okwen RT, Thomas M, Stewart MT, Trotz M, **Cunningham JA**. **2012**. Conjunctive injection of CO_2 and wastewater in a heterogeneous porous formation. *Technology and Innovation (Proceedings of the National Academy of Inventors®)*, 14(2), 143–151. DOI: 10.3727/194982412X13462021397778

24. Thomas MW, Stewart M, Trotz M, **Cunningham JA**. **2012**. Geochemical modeling of CO_2 sequestration in deep, saline, dolomitic-limestone aquifers: Critical evaluation of thermodynamic sub-models. *Chemical Geology*, 306-307, 29–39. DOI: 10.1016/j.chemgeo.2012.02.019

23. Mendoza-Sanchez I, **Cunningham JA**. **2012**. Efficient algorithms for modeling the transport and biodegradation of chlorinated ethenes in groundwater. *Transport in Porous Media*, 92(1), 165–185. DOI: 10.1007/s11242-011-9896-5

22. Wee HY, **Cunningham JA**. **2011**. Remediation of contaminated soil by solvent extraction and catalytic hydrodehalogenation: Semi-continuous process with solvent recycle. *Environmental Progress & Sustainable Energy*, 30(4), 589–598. DOI: 10.1002/ep.10513

21. Okwen R, Stewart M, **Cunningham J**. **2011**. Effect of well orientation (vertical vs. horizontal) and well length on the injection of CO_2 in deep saline aquifers. *Transport in Porous Media*, 90(1), 219-232. DOI: 10.1007/s11242-010-9686-5

20. Okwen R, Stewart M, **Cunningham J**. **2011**. Analytical model for screening potential CO_2 repositories. *Computational Geosciences*, 15(4), 755–770. DOI: 10.1007/s10596-011-9246-2

19. Okwen R, Stewart M, **Cunningham J**. **2011**. Temporal variations in near-wellbore pressures during CO_2 injection in saline aquifers. *International Journal of Greenhouse Gas Control*, 5, 1140–1148. DOI: 10.1016/j.ijggc.2011.07.011

18. Okwen R, Pu R, **Cunningham JA**. **2011**. Remote sensing of temperature variations around major power plants as point sources of heat. *International Journal of Remote Sensing*, 32(13), 3791–3805. DOI: 10.1080/01431161003774723

17. Mendoza-Sanchez I, Autenrieth RL, McDonald TJ, **Cunningham JA**. **2010**. Effect of pore velocity on the biodegradation of *cis*-dichloroethene (DCE) in column experiments. *Biodegradation*, 21(3), 365–377. DOI: 10.1007/s10532-009-9307-6

16. Okwen R, Stewart M, **Cunningham JA**. **2010**. Analytical solution for estimating storage efficiency of geologic sequestration of CO_2. *International Journal of Greenhouse Gas Control*, 4, 102–107. DOI: 10.1016/j.ijggc.2009.11.002.

15. Wee HY, **Cunningham JA**. **2008**. Palladium-catalyzed hydrodehalogenation of 1,2,4,5-tetrachlorobenzene in water-ethanol mixtures. *Journal of Hazardous Materials*, 155(1–2), 1–9. DOI: 10.1016/ j.jhazmat.2007.10.045

14. **Cunningham JA**, Fadel ZJ. **2007**. Contaminant degradation in physically and chemically heterogeneous aquifers. *Journal of Contaminant Hydrology*, 94(3–4), 293–304. DOI: 10.1016/j.jconhyd.2007.07.011

13. Mendoza-Sanchez I, **Cunningham JA**. **2007**. Efficient algorithm for modeling transport in porous media with mass exchange between mobile fluid and reactive stationary media. *Transport in Porous Media*, 68(3), 285–300.

12. Hoelen TP, **Cunningham JA**, Hopkins GD, Lebrón CA, Reinhard M. **2006**. Bioremediation of *cis*-DCE at a sulfidogenic site by amendment with propionate. *Ground Water Monitoring & Remediation*, 26(3), 82–91.

11. **Cunningham JA**, Mendoza-Sanchez I. **2006**. Equivalence of two models for biodegradation during contaminant transport in groundwater. *Water Resources Research*, 42(2), W02416, DOI: 10.1029/2005WR004205

10. **Cunningham JA**, Deitsch JJ, Smith JA, Reinhard M. **2005**. Quantification of contaminant sorption-desorption time-scales from batch experiments. *Environmental Toxicology and Chemistry*, 24(9), 2160–2166.

9. **Cunningham JA**, Hoelen TP, Hopkins GD, Lebrón CA, Reinhard M. **2004**. Hydraulics of recirculating well pairs for ground water remediation. *Ground Water*, 42(6), 880-889.

8. Lin A, Debroux JF, **Cunningham JA**, Reinhard M. **2003**. Comparison of rhodamine WT and bromide in the determination of hydraulic characteristics of constructed wetlands. *Ecological Engineering*, 20(1), 75–88.

7. **Cunningham JA**, Reinhard M. **2002**. Injection-extraction treatment well pairs: An alternative to permeable reactive barriers. *Ground Water*, 40(6), 599–607.

6. **Cunningham JA**, Rahme H, Hopkins GD, Lebrón CA, Reinhard M. **2001**. Enhanced *in situ* bioremediation of BTEX-contaminated groundwater by combined injection of nitrate and sulfate. *Environmental Science & Technology*, 35(8), 1663–1670.

5. **Cunningham JA**, Hopkins GD, Lebrón CA, Reinhard M. **2000**. Enhanced anaerobic bioremediation of groundwater contaminated by fuel hydrocarbons at Seal Beach, California. *Biodegradation*, 11(2-3), 159–170.

4. **Cunningham JA**, Goltz MN, Roberts PV. **1999**. Simplified expressions for spatial moments of ground-water contaminant plumes. *Journal of Hydrologic Engineering*, 5(4), 377–380.

3. **Cunningham JA**, Roberts PV. **1998**. Use of temporal moments to investigate the effects of non-uniform grain-size distribution on the transport of sorbing solutes. *Water Resources Research*, 34(6), 1415–1425.

2. Werth CJ, **Cunningham JA**, Roberts PV, Reinhard M. **1997**. Effects of grain-scale mass transfer on the transport of volatile organics through sediments, 2: Column results. *Water Resources Research*, 33(12), 2727–2740.
1. **Cunningham JA**, Werth CJ, Reinhard M, Roberts PV. **1997**. Effects of grain-scale mass transfer on the transport of volatile organics through sediments, 1: Model development. *Water Resources Research*, 33(12), 2713–2726.

PEER-REVIEWED PUBLISHED CONFERENCE PAPERS

13. Akers DB, **Cunningham JA**, MacCarthy MF, Annis J, Mihelcic JR. "Lead (Pb) contamination of self-supply groundwater systems in coastal Madagascar: Estimates of blood lead levels (BLLs) in children." In: *World Environmental and Water Resources Congress 2016: Environmental, Sustainability, Groundwater, Hydraulic Fracturing, and Water Distribution Systems Analysis*, Proceedings of the 2016 World Environmental and Water Resources Congress, edited by CS Pathak and D Reinhart, pp 299–308. Published by the Environmental and Water Resources Institute (EWRI) of the American Society of Civil Engineers (ASCE). Presented in West Palm Beach, FL, May 22–26, **2016**. DOI: 10.1061/9780784479865.032
12. Kinyua MN, **Cunningham J**, Ergas SJ. "Effect of solids retention time on the bioavailability of organic carbon in anaerobically digested swine waste." Water Environment Federation, Proceedings of the 87th Annual Meeting (WEFTEC 2014), pp 6253–6263. Presented in New Orleans, LA, September 27–30, **2014**.
11. Aponte-Morales V, Payne K, **Cunningham J**, Ergas S. "Use of chabazite to overcome ammonia inhibition during nitrification of high-strength wastewater." Water Environment Federation, Proceedings of the 87th Annual Meeting (WEFTEC 2014), pp 1431–1442. Presented in New Orleans, LA, September 27–30, **2014**.
10. Amini A, Aponte-Morales V, Wang M, Dillbeck P, Manser N, Ergas S, Zhang Q, **Cunningham J**. "A proposed treatment train for sustainable energy and nutrient recovery from swine wastewater." Water Environment Federation, Proceedings of the 87th Annual Meeting (WEFTEC 2014), pp 6692–6700. Presented in New Orleans, LA, September 27–30, **2014**.
9. Lin A, Kinyua M, Peña O, **Cunningham J**, Ergas SJ. "Energy and nutrient recovery from anaerobically digested swine waste." In: *Trends in Resource Recovery and Use*, Proceedings of the 2013 IWA/WEF Nutrient Removal and Recovery 2013 conference, pp 337-340. Presented in Vancouver, Canada, July 28–31, **2013**.
8. Sengupta S, **Cunningham JA**, Ergas S, Goel R, Ozalp D, Reed-Rhoads T. "Development of a concept inventory for introductory environmental engineering courses." American Society of Engineering Education, Proceedings of the 2013 ASEE Annual Conference and Exposition. Presented in Atlanta, GA, June 23–26, **2013**. Available on-line at: https://peer.asee.org/
7. Trotz MA, Thomas KD, **Cunningham JA**, Zhang Q. "Improving writing in Civil and Environmental Engineering courses using CLAQWA, an online tool for writing improvement." American Society of Engineering Education, Proceedings of the 2010 ASEE Annual Conference and Exposition, paper number AC2010-675. Presented in Louisville, KY, June 20–23, **2010**. Available on-line at: https://peer.asee.org/
6. Okwen RT, Stewart M, **Cunningham JA**. "Storage of CO_2 in deep saline aquifers via injection in horizontal wells." Proceedings of the TOUGH Symposium 2009, edited by G Moridis, C Doughty, S Finsterle, and E Sonnenthal, pp 102–107. Published by Lawrence Berkeley National Laboratory (LBNL-2790E), Berkeley, CA. Presented in Berkeley, CA, Sept 14–16, **2009**. Available at: http://escholarship.org/uc/item/1zf1b81h

5. Munakata N, **Cunningham JA**, Reinhard M, Ruiz R, Lebrón C. "Palladium catalysis in horizontal flow treatment wells: Field-scale design and laboratory study." Proceedings of the Third International Conference on Remediation of Chlorinated and Recalcitrant Compounds, edited by AR Gavaskar and ASC Chen, pp 2267–2274. Published by Battelle Press, Columbus, OH. Presented in Monterey, CA, May 20–23, **2002**.
4. Hoelen TP, **Cunningham J**, Lebrón CA, Reinhard M. "Coupling of toluene oxidation with PCE dechlorination under sulfidogenic conditions." In: *Anaerobic Degradation of Chlorinated Solvents*, volume 6(7) of the Proceedings of the Sixth International In Situ and On-Site Bioremediation Symposium, edited by V Magar, D Fennell, J Morse, B Alleman, and A Leeson, pp 95–102. Published by Battelle Press, Columbus, OH. Presented in San Diego, CA, June 4–7, **2001**.
3. **Cunningham JA**, Hopkins GD, Reinhard M, Lebrón CA. "Enhanced anaerobic in situ bioremediation of fuel hydrocarbons in groundwater at Seal Beach, California." In: *Groundwater 2000*, Proceedings of the International Conference on Groundwater Research, edited by PL Bjerg, P Engesgaard, and TD Krom, pp 411–412. Published by A.A. Balkema Publishers, Rotterdam, Denmark. Presented in Copenhagen, Denmark, June 6–8, **2000**. DOI:10.1201/9781003078593-203
2. **Cunningham JA**, Freyberg DL, Roberts PV. "Solute transport at the Borden field experiment: Grain- and field-scale rate limitations." In: *Groundwater: An Endangered Resource*, Proceedings of Theme C of the 27th Congress of the International Association for Hydraulic Research, Water for a Changing Global Community, edited by AN Findikakis and F Stauffer, pp 65–70. Published by the American Society of Civil Engineers, New York, NY. Presented in San Francisco, California, August 10–15, **1997**.
1. Thompson PA, Berry CA, Espenscheid AP, **Cunningham JA**, Evans JM. "Estimating hydrocarbon emissions from triethylene glycol dehydration of natural gas." Proceedings of the SPE/EPA Exploration & Production Environmental Conference, pp 187–198, paper SPE-25952. Published by the Society of Petroleum Engineers (SPE), Richardson, TX. Presented in San Antonio, TX, March 7–10, **1993**. DOI: 10.2118/25952-MS

TRADE PUBLICATIONS & TECHNICAL REPORTS (*SELECTED*)

Kassouf H, Sager A, Mulford L, Iranipour G, Ergas SJ, **Cunningham JA**. **2019**. Enhanced biological phosphorus removal during simultaneous nitrification and denitrification in an oxidation ditch. *Florida Water Resources Journal*, January 2019, 16–20.

Goldman JE, Ferlita RE, Keen M, **Cunningham J**, Duke LD, Yeh D. **2009**. A multi-level, systematic evaluation of cleaning protocols for reverse osmosis membranes in drinking water treatment. *Solutions* [American Membrane Technology Association], Spring 2009, 10–16.

Munakata N, **Cunningham JA**, Reinhard M, Ruiz R, Lebron C. **2002**. *Palladium catalysis in horizontal-flow treatment wells: Field-scale design and laboratory study*. Lawrence Livermore National Laboratory, report UCRL-JC-147525: Livermore, CA.

Thompson PA, **Cunningham JA**, Berry CA, Evans JM. **1993**. PC program estimates BTEX, VOC emissions. *Oil and Gas Journal*, 91(24), 36–41.

STUDENT ADVISEES

For information on current employment status of my former advisees, please see:
http://www.eng.usf.edu/~cunning/Cunningham_advisees.htm

Completed PhD:

Kassouf, Hélène. Ph.D., University of South Florida (USF), 2021. *Efficient management of nitrogen and phosphorus at centralized water reclamation facilities.*

Kim, Won-Seok. Ph.D., USF, 2011. *Biodegradation of bisphenol-A and 17β-estradiol in soil mesocosms under alternating aerobic/anoxic/anaerobic conditions.*

Kumar, Ram (co-advised by Prof S Campbell). Ph.D., USF, 2019. *Effects of reservoir conditions and trace co-contaminant gases on geological carbon sequestration.*

Mendoza, Itza. Ph.D., Texas A&M University (TAMU), 2007. *Effects of pore-scale velocity and pore-scale physical processes on contaminant biodegradation during transport in groundwater: Modeling and experiments.*

Okwen, Roland. Ph.D., USF, 2009. *Enhanced CO_2 storage in confined geologic formations.*

Orner, Kevin (co-advised by Prof JR Mihelcic). Ph.D., USF, 2019. *Removal and recovery of nutrients from wastewater in urban and rural contexts.*

Wee, Hun-Young. Ph.D., TAMU, 2007. *Remedial extraction and catalytic hydrodehalogenation for treatment of soils contaminated by halogenated hydrophobic organic compounds.*

Zahid, Fizza. Ph.D., USF, 2021. *Impact of grain morphology on the temporal evolution of interfacial area during multi-phase flow in porous media.*

Completed MS:

Akers, D Brad. M.S., USF, 2014. *Lead (Pb) contamination of water drawn from pitcher pumps in eastern Madagascar.*

Allen, Whitney (co-advised by Prof A Ashmawy). M.S., USF, 2005. *Relationship between plasticity ratio and hydraulic conductivity for bentonite clay during exposure to synthetic landfill leachate.*

Cone, Margaret. M.S., USF, 2013. *Effects of solvent composition and hydrogen pressure on the catalytic conversion of 1,2,4,5-tetrachlorobenzene to cyclohexane.*

Fadel, Ziad. M.S., TAMU, 2005. *Stochastic modeling of transport and degradation of reactive solutes in heterogeneous aquifers.*

Goldman, Josh (co-advised by Prof L Donald Duke). M.S., USF, 2007. *Relationship between biofilm removal and membrane performance using Dunedin reverse osmosis water treatment plant as a case study.*

Grabo, Ian. M.S., USF, 2022. *Formation of trihalomethanes during chlorination at South Cross Bayou Advanced Water Reclamation Facility, Pinellas County, Florida.*

Hawasli, Hania. M.S., USF, 2021. *Effects of nitrate on arsenic mobilization during aquifer storage and recovery.*

Judah, Lauren (co-advised by Prof J Mihelcic). M.S., USF, 2022. *Assessment and prevention of bacterial regrowth in stored household water in eastern coastal Madagascar.*

Kalivoda, Mark. M.S., USF, 2017. *Assessment and modeling of three decentralized resource recovery systems in the cayes of the Belize Barrier Reef.*

Kassouf, Hélène. M.S., USF, 2016. *Formation of trihalomethanes (THMs) as disinfection by-products (DBPs) when treated municipal wastewater is disinfected with sodium hypochlorite.*

Kayabas, Murat. M.S., USF, 2021. *Building and characterizing a lab-scaled aquifer storage and recovery system.*

Lin, Alex (co-advised by Prof S Ergas). M.S., USF, 2012. *Precipitation of phosphate minerals from effluent of anaerobically digested swine manure.*

Lobos, Aldo (co-advised by Prof VJ Harwood). M.S., USF, 2017. *Bioleaching potential of filamentous fungi to mobilize lithium and cobalt from spent rechargeable Li-ion batteries.*

Morrison, Erin. M.S., USF, 2017. *Can we re-use "single-use" solid phase extraction cartridges?*

Osborn, Claire. M.S., USF, 2011. *Catalytic hydrodehalogenation and hydrogenation of halogenated aromatic organic contaminants for application to soil remediation*.

Panczer, Robert. M.S., USF, 2014. *Soil remediation using solvent extraction with hydrodehalogenation and hydrogenation in a semicontinuous system*.

Sutton, John (co-advised by Prof S Ergas). M.S., USF, 2019. *Chemolithotrophic denitrification of nitrate-contaminated groundwater using sulfur-bearing minerals*.

Thomas, Mark. M.S., USF, 2010. *Geochemical modeling of CO_2 sequestration in dolomitic limestone aquifers*.

Ticknor, Jonathan. M.S., USF, 2012. *Analysis and remediation of chlorinated hydrocarbons in environmental media.*

***Undergraduate Honors Thesis*:**

Carr, Benjamin. B.S., University of South Florida, 2020. *Complexation-enhanced rejection of N-nitroso-dimethylamine (NDMA) during membrane treatment*.

Shapiro, Deanna. B.S., University of South Florida, 2011. *Removal of phosphate from wastewater during vertical, down-flow, sand filtration*.

Wolf, Hillary. B.S., University of South Florida, 2010. *Pharmaceuticals in the environment: Possible strategies to prevent pharmaceuticals from entering waterways in the United States*.

Current research advisees (August 2023):

Dasi, Erica. Post-doctoral research fellow.

Nenninger, Christopher (co-advised by Prof J Mihelcic). Ph.D. candidate, Civil Engineering.

Torof, Majid. Ph.D. student, Environmental Engineering.

Ajugwe, Uzoma. M.S. student, Environmental Engineering.

Mancini, Bruno (co-advised by Prof S Ergas). M.S. student, Environmental Engineering.

COURSES TAUGHT (*as principal instructor of record; USF only, 2005–present*)

Undergraduate:

Chemical Fate & Transport in the Environment. Investigates how chemical properties, physical processes, and environmental characteristics all influence the fate and transport of chemicals in natural and engineered systems. Includes theory, practical examples, and laboratory experiment. *Spring 2022.*

Environmental Systems Engineering. Introduces students to the most important topics of environmental engineering, including environmental chemistry, water quality and treatment, wastewater treatment, air pollution, and solid waste management. *Spring 2007, Spring 2008, Fall 2008, Spring 2009, Spring 2010, Spring 2011, Spring 2012, Fall 2012, Fall 2014, Spring 2015, Fall 2016, Fall 2017, Fall 2018, Fall 2019, Fall 2020, Spring 2021, Fall 2021*

Environmental Engineering & Hydraulics Laboratory. Teaches students common laboratory techniques for environmental engineering and hydraulics. Emphasizes collection, analysis, and presentation of data. *Spring 2018*

Global Warming: Science and Politics of a Contemporary Issue. Engages students of all disciplines (i.e., non-science/non-engineering) in critical analysis of scientific evidence and proposed policy options related to global climate change. *Fall 2009, Fall 2010, Fall 2011, Spring 2013, Spring 2017, Spring 2019*

Water Quality and Treatment. Examines options for treatment of drinking water and treatment/reclamation of wastewater, and how the selection of treatment processes depends upon source-water quality and/or treatment objectives. *Fall 2015*

Graduate:

Physical and Chemical Principles in Environmental Engineering. Chemical properties, physical processes, and environmental characteristics that determine the fate and transport of contaminants in the environment. *Fall 2005, Fall 2006, Fall 2007, Fall 2008, Fall 2021*

Physical and Chemical Processes for Groundwater Remediation Unit processes commonly used to treat contaminated environmental media. *Spring 2008, Spring 2009, Spring 2010, Spring 2011, Spring 2012, Spring 2015, Spring 2017, Spring 2019, Spring 2021*

Physical and Chemical Processes for Drinking Water Treatment. Conventional physical and chemical processes used for centralized treatment of municipal drinking water (coagulation, flocculation, sedimentation, granular filtration, disinfection, membrane filtration, reverse osmosis). *Spring 2013, Spring 2016, Spring 2018, Spring 2020*

Transport in Porous Media. Fundamental phenomena governing scalar transport in porous media, with particular application to contaminant transport in groundwater. *Spring 2005*

Groundwater Engineering. Analytical and numerical methods for solving practical groundwater problems under steady and non-steady flow conditions, e.g., flow to and from wells, delineation of capture zones, design of simple capture systems. *Fall 2019*

Environmental Research Interdisciplinary Colloquium / Environmental & Water Resources Engineering Seminar. Graduate seminar examining current topics in environmental engineering, water resources engineering, environmental science, environmental policy, and environmental health. *Fall 2010, Fall 2016, Spring 2022*

TEACHING EVALUATIONS *(USF only, 2005-present)*

Results from *Student Assessments of Instruction* (end-of-term student surveys)
The lists below display course enrollment and average (mean) scores for *Overall Rating of Instructor.*
Maximum possible score = 5.00.

Undergraduate:

26. Spring 2022. ENV 4053C, *Fate and Transport of Chemicals in the Environment*, 13 students. **5.00**.
25. Fall 2021. ENV 4001, *Environmental Systems Engineering*, 44 students. **4.92**.
24. Spring 2021. ENV 4001, *Environmental Systems Engineering*, 44 students. **4.20**. (course was taught in "hybrid" mode, with some students in-person and some students on-line, because of SARS-CoV-2).
23. Fall 2020. ENV 4001, *Environmental Systems Engineering*, 44 students. **3.71**. (course was taught fully on-line because of SARS-CoV-2)
22. Fall 2019. ENV 4001, *Environmental Systems Engineering*, 54 students. **4.84**.
21. Spring 2019. ENV 2073, *Global Warming: Science and Politics of a Contemporary Issue*, 8 students. **5.00**.
20. Fall 2018. ENV 4001, *Environmental Systems Engineering*, 44 students. **4.42**.
19. Spring 2018. ENV 4004L, *Environmental Engineering & Hydraulics Laboratory*, 52 students. **4.47**.
18. Fall 2017. ENV 4001, *Environmental Systems Engineering*, 43 students. **4.36**.
17. Spring 2017. ENV 2073, *Global Warming: Science and Politics of a Contemporary Issue*, 18 students. **4.08**.
16. Fall 2016. ENV 4001, *Environmental Systems Engineering*, 48 students. **4.70**.
15. Fall 2015. ENV 4417, *Water Quality and Treatment*, 21 students. **4.58**.
14. Spring 2015. ENV 4001, *Environmental Systems Engineering*, 71 students. **4.30**.
13. Fall 2014. ENV 4001, *Environmental Systems Engineering*, 58 students. **4.21**.
12. Spring 2013. ENV 2073, *Global Warming: Science and Politics of a Contemporary Issue*, 13 students. **4.57**.
11. Fall 2012. ENV 4001, *Environmental Systems Engineering*, 53 students. **4.45**.
10. Spring 2012. ENV 4001, *Environmental Systems Engineering*, 57 students. **4.26**.
9. Fall 2011. ENV 2073, *Global Warming: Science and Politics of a Contemporary Issue*, 25 students. **4.52**.
8. Spring 2011. ENV 4001, *Environmental Systems Engineering*, 61 students. **4.80**.
7. Fall 2010. ENV 2073, *Global Warming: Science and Politics of a Contemporary Issue*, 28 students. **4.52**.
6. Spring 2010. ENV 4001, *Environmental Systems Engineering*, 65 students. **4.76**.
5. Fall 2009. ENV 2073, *Global Warming: Science and Politics of a Contemporary Issue*, 26 students. **4.78**.
4. Spring 2009. ENV 4001, *Environmental Systems Engineering*, 53 students. **4.50**.
3. Fall 2008. ENV 4001, *Environmental Systems Engineering*, 62 students. **4.51**.
2. Spring 2008. ENV 4001, *Environmental Systems Engineering*, 92 students. **4.58**.
1. Spring 2007. ENV 4001, *Environmental Systems Engineering*, 89 students. **4.39**.

Graduate:

23. Spring 2022. ENV 6935, *Environmental and Water Resources Engineering (EWRE) Seminar*, co-taught with Prof M Arias, 8 students. **3.00**.
22. Fall 2021. ENV 6002, *Physical & Chemical Principles of Environmental Engineering*, 12 students. **5.00**.
21. Spring 2021. ENV 6519, *Physical & Chemical Processes for Groundwater Remediation*, 8 students. **4.67**.
20. Spring 2020. ENV 6438, *Physical & Chemical Processes for Drinking Water Treatment*, 13 students. **5.00.**

19. Fall 2019. CGN 6933, *Groundwater Engineering*, 11 students. **5.00**.
18. Spring 2019. ENV 6519, *Physical & Chemical Processes for Groundwater Remediation*, 8 students. **5.00**.
17. Spring 2018. ENV 6438, *Physical & Chemical Processes for Drinking Water Treatment*, 12 students. **5.00**.
16. Spring 2017. ENV 6519, *Physical & Chemical Processes for Groundwater Remediation*, 7 students. **5.00**.
15. Fall 2016. EVS 6920, *Environmental Research Interdisciplinary Colloquium (ERIC)*, co-taught with Prof F Jaward, 15 students. **4.33**.
14. Spring 2016. ENV 6438, *Physical & Chemical Processes for Drinking Water Treatment*, 16 students. **4.83**.
13. Spring 2015. ENV 6519, *Advanced Physical & Chemical Processes*, 9 students. **4.44**.
12. Spring 2013. CGN 6933, *Physical & Chemical Processes for Drinking Water Treatment*, 11 students. **4.80**.
11. Spring 2012. ENV 6519, *Advanced Physical & Chemical Processes*, 9 students. **4.78**.
10. Spring 2011. ENV 6519, *Advanced Physical & Chemical Processes*, 16 students. **4.80**.
9. Fall 2010. CGN 6933, *Environmental & Water Resources Graduate Seminar*, 12 students. **5.00**.
8. Spring 2010. ENV 6519, *Advanced Physical & Chemical Processes*, 14 students. **4.93**.
7. Spring 2009. ENV 6519, *Advanced Physical & Chemical Processes*, 17 students. **4.93**.
6. Fall 2008. ENV 6002, *Physical & Chemical Principles in Environmental Engineering*, 20 students. **4.88**.
5. Spring 2008. ENV 6519, *Advanced Physical & Chemical Processes*, 20 students. **4.92**.
4. Fall 2007. ENV 6002, *Physical & Chemical Principles in Environmental Engineering*, 21 students. **5.00**.
3. Fall 2006. ENV 6002, *Physical & Chemical Principles in Environmental Engineering*, 20 students. **4.68**.
2. Fall 2005. CGN 6933, *Physical & Chemical Principles in Environmental Engineering*, 13 students. **5.00**.
1. Spring 2005. CGN 6933, *Transport in Porous Media*, 15 students. **4.36**.

Selected recent comments from students (2018–2022)

Provided anonymously via end-of-term student surveys

"Dr. Cunningham was a breath of fresh air with his teaching style for a higher-level engineering course. He made difficult content understandable and clearly has concern for students' understanding of the material." (*undergraduate student, spring 2022*)

"Most inspiring professor I have had at USF. Clearly puts a lot of effort into helping students and facilitating learning." (*undergraduate student, spring 2022*)

"Dr. Cunningham is by far one of the best professors in the department. Not only does he deliver the content in a clear way, he sees to it that we actually understand the concepts, rather than just memorize facts or formulas. He provides genuinely meaningful feedback that allows students to learn from their mistakes, and it is apparent that he spends a great deal of time grading assignments to provide such feedback. He also provides a great deal of support outside of the classroom, providing meaningful office hours. …He is extremely knowledgeable within the field, but does not make students feel dumb ever, and also humbly admits when he does not know the answer to certain questions. To be an expert in a field is one thing, and to be a passionate educator is another, but to be unequivocally both is very rare, and I am very grateful to have Dr. Cunningham as a professor, as he truly is both." (*undergraduate student, fall 2021*)

"One of the best professors, if not the best, I have had at USF. …The course was difficult, but expectations were communicated well. The coursework and lectures were tested clearly on exams. Feedback was provided [in] a constructive manner that fostered improvement." (*undergraduate student, fall 2021*)

"Great professor. Very respectful and helpful. The class is hard but fair. I wish all engineering teachers were hard and fair at the same time. Professor Cunningham is great." (*undergraduate student, fall 2021*)

"Literally the best professor I have had. So inspiring, so kind, so respectful, best teaching style, he deserves all the praise." (*undergraduate student, fall 2021*)

"The best course I have ever taken in my life. Dr Cunningham is an excellent teacher, he makes learning so enjoyable, I get really excited before every class day. I had to work a lot, I mean a lot for this course, but it felt good in the end to know that I have a good grasp of the concepts of this course. This course is very theory-based and I never liked theory. But the real-life example problems he gave, made even theory exciting. Lastly I want to say that he has genuine concern for students, he stayed to the last minutes of the office hours and helped us." (*graduate student, fall 2021*)

"LOVE LOVE LOVE LOVE LOVE HIM!!!!!! He breaks down heavy subjects in a manner that is super easy to understand. He genuinely cares about his students' success in the course, he will take the time to explain things differently and ask if that was helpful. I think he is amazing, definitely one of my favorite professors in my 5 years of being at USF." (*graduate student, fall 2021*)

"By far THE best professor I've ever taken at USF. He makes this not-so-easy class so simple and straight forward…. I love that he takes time to make sure every topic is crystal clear and how he actually writes/works problems with us instead of boringly reading off slides. Favorite class I've taken so far, professors really make or break a class. Will be keeping an eye out for any other classes he'll be teaching in the future. Thank you Dr. Cunningham :)" (*undergraduate student, spring 2021*)

"One of my favorite professors to date because he made the class so fun and interactive! I learned so much and his class sparked a new interest regarding environmental engineering." (*undergraduate student, spring 2021*)

"Dr. Cunningham is one of the best professors I've ever had at USF! He makes the concepts he teaches seem so simple while not sacrificing any of the necessary content. Very clear with what needs to be done in order to succeed, but also challenges the students to put in the work." (*undergraduate student, spring 2021*)

"One of the best professors I have had in all the courses I have taken at USF. Prof Cunningham set clear expectations from the beginning and has a great teaching style. …[C]ourse material was presented clearly and in a way that was easy to understand. Lectures were interesting and always seemed to go by quickly. He was always available for office hours and very helpful." (*graduate student, spring 2021*)

"Dr. Cunningham is one of the best professors I've had in my engineering academic career. [He] effectively communicates the concepts needed for this engineering design and provokes thought when [asked] for help. He really wants my peers and I [sic] to learn the process of design and its background, and you can tell by the effort he puts in." (*graduate student, spring 2021*)

"The best professor at USF hands down. …It is very clear that there is a lot of thought and care put into his course and that can be seen through the organization of his class. …I am grateful to have been his student. His teaching style has forever impacted my view on education and what my work ethic should be like moving forward." (*graduate student, spring 2020*)

"Best course thus far in terms of lecture clarity, expectations, and assignment organization. I hope to someday lecture with even half of the effectiveness of these lectures." (*graduate student, spring 2020*)

"Cunningham is an amazing professor. His respect and care for his students are unmatched, and his enthusiasm for the course makes it easy to love and understand. I really cannot express how much I have enjoyed this course. Although his grading is difficult, it is never unfair." (*undergraduate student, fall 2019*)

"Best professor I've ever had! Truly stimulates your interest in the subject." (*undergraduate student, fall 2019*)

"Dr. Cunningham is a very organized and passionate Professor. He puts a lot into this class and in turn expects a lot from his students." (*undergraduate student, fall 2019*)

"Excellent teacher! He has high standards and holds his class accordingly but isn't unreasonable." (*undergraduate student, fall 2019*)

"It was the most important and useful class that I've taken in my graduate program." (*graduate student, spring 2019*)

"The best professor I ever have class [sic], he turns a complex subject to an interesting and stimulating class. … I'm glad that USF and the environmental engineering department [sic] has a professor like him." (*graduate student, spring 2019*)

"I have never met a person who knew so much about so many topics. As someone how [sic] wants to specialize in Environmental Engineering, I really enjoyed learning from a professor who had such a deep and comprehensive understanding of the various facets of environmental engineering. Professor Cunningham expects his students to put in the work and is always available via email or during office hours if students need help." (*undergraduate student, fall 2018*)

"Without a doubt, Dr. Cunningham is one of the best instructors I have ever had in all my years of schooling. This by no means signifies that the course is easy. On the contrary, it is quite difficult. However, it is hard to find someone who is so engaged on the topic, really cares about his students learning, and will do anything to make sure you understand the topic at hand. There are so many positive things I can say about this individual, and so few negative things I can say, if any, but I will conclude by saying he is absolutely fantastic. I wish all my professors were like him." (*undergraduate student, fall 2018*)

PROFESSIONAL SERVICE

Manuscript reviewer for peer-reviewed archival scientific journals (listed alphabetically):

ACS Sustainable Chemistry & Engineering (American Chemical Society)
Advances in Water Resources (Elsevier)
Applied Catalysis B: Environmental (Elsevier)
Biotechnology and Bioengineering (Wiley)
Chemical Engineering Journal (Elsevier)
Computers & Geosciences (Elsevier)
Current Analytical Chemistry (Bentham Science)
Desalination and Water Treatment (Balaban Publishers / Desalination Publications)
Environmental Engineering Science (Mary Ann Liebert, Inc.)
Environmental Progress & Sustainable Energy (American Institute of Chemical Engineers)
Environmental Science & Technology (American Chemical Society)
Environmental Science & Technology Letters (American Chemical Society)
Environmental Technology & Innovation (Elsevier)
Environmental Toxicology and Chemistry (Society of Environmental Toxicology and Chemistry)
European Physical Journal Plus (Springer)
GeoHealth (American Geophysical Union / Wiley)
Greenhouse Gases: Science and Technology (Wiley)
Ground Water (National Ground Water Association)
Ground Water Monitoring & Remediation (National Ground Water Association)
Hydrological Processes (Wiley)
Hygiene and Environmental Health Advances (Elsevier)
International Journal of Environmental Analytical Chemistry (Taylor & Francis)
J. Applied Microbiology (Society for Applied Microbiology / Wiley)
J. Catalysis (Elsevier)
J. Contaminant Hydrology (Elsevier)
J. Engineering Mechanics (American Society of Civil Engineers)
J. Environmental Engineering (American Society of Civil Engineers)
J. Environmental Science and Health, Part A: Toxic/Hazardous Substance & Environmental Engineering (Taylor & Francis)
J. Exposure Science and Environmental Epidemiology (Springer Nature)
J. Hazardous Materials (Elsevier)
J. Hydrologic Engineering (American Society of Civil Engineers)
J. Hydrology (Elsevier)
J. Sustainable Water in the Built Environment (American Society of Civil Engineers)
J. Water Resource Planning and Management (American Society of Civil Engineers)
Molecules (MDPI)
One Earth (Cell Press)
PLoS ONE (Public Library of Science)
Polish Journal of Environmental Studies
Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management (American Society of Civil Engineers)
Science of the Total Environment (Elsevier)
Soil and Sediment Contamination (Taylor & Francis)
Solid Earth (Copernicus)
Transport in Porous Media (Springer)
Trends in Environmental Analytical Chemistry (Elsevier)
Urban Water Journal (Taylor & Francis)
Water Environment Research (Wiley / Water Environment Federation)
Waste Management (Elsevier)
Water Research (International Water Association)
Water Resources Research (American Geophysical Union)
Water Science and Technology (International Water Association)
Water Science and Technology: Water Supply (International Water Association)

Associate Editor of *Journal of Environmental Engineering* (American Society of Civil Engineers), 2017–present.

Member of the Advisory Board for the Environmental Engineering program (offered by the Department of Geography and Environmental Engineering), United States Military Academy (USMA), West Point, NY, 2016–present.

Proposal reviewer for **national** funding agencies:
U.S. National Science Foundation (NSF)
U.S. Environmental Protection Agency (US EPA)
U.S. National Institutes of Health (NIH): National Institute of Environmental Health Sciences (NIEHS)
U.S. Department of Defense (DoD): Strategic Environmental Research and Development Program (SERDP)
U.S. Department of Energy (DoE)
Environmental Molecular Sciences Laboratory (EMSL) at Pacific Northwest National Laboratory (DoE)
U.S. Civilian Research & Development Foundation (CRDF)
American Association for the Advancement of Science (AAAS), Research Competitiveness Program (RCP)

Proposal reviewer for **international** funding agencies:
Danish Council for Independent Research (Det Frie Forskningsråd, DFF)
Estonian Research Council
Israel Science Foundation
King Abdulaziz City for Science and Technology (KACST), Saudi Arabia (via AAAS RCP)
Saudi Arabian Ministry of Education's Research Development Office (RDO) (via AAAS RCP)
South Africa's National Research Foundation (NRF)

National service activities for the Association of Environmental Engineering and Science Professors (AEESP):
Co-chairperson (with Prof Maya Trotz) of the 2011 AEESP Research and Education Conference
Doctoral award sub-committee: member, 2008, 2014; chairperson, 2015, 2016
Conference site selection committee: member, 2017, 2019, 2021 conferences; chairperson, 2023 conference
Led or co-led workshops/sessions at AEESP Research and Education Conferences (2011, 2013, 2015, 2019)
Reviewer, AEESP Academic Job Application Review (AJAR) program, 2020

Reviewer of tenure & promotion packages for faculty members in the USA and internationally
University of North Carolina at Charlotte
King Saud University (Saudi Arabia)
National Research Foundation researcher rating (South Africa)

Former or current **member of professional organizations** (*not all memberships are currently active*):
American Chemical Society (ACS)
American Geophysical Union (AGU)
American Institute of Chemical Engineers (AIChE)
American Society of Civil Engineers (ASCE)
American Society for Engineering Education (ASEE)
American Water Works Association (AWWA)
Association of Environmental Engineering and Science Professors (AEESP)
National Association of Environmental Professionals (NAEP)

HONORS AND AWARDS

Association of Environmental Engineering and Science Professors (AEESP) Distinguished Service Award, 2011, 2016, 2023.

2020 AEESP Award for Outstanding Contribution to Environmental Engineering & Science Education.

2014 Outstanding Reviewer, awarded by ASCE *Journal of Environmental Engineering.*

2013 American Society for Engineering Education (ASEE) Best Paper Award, Environmental Eng. Division.

Outstanding Undergraduate Teaching Award, USF, 2008–09 academic year.

Editor's Citation for Excellence in Refereeing, awarded by *Water Resources Research*, 1999, 2006.

Invited Speaker, American Geophysical Union 1997 Fall Meeting.

Outstanding Student Paper, Hydrology Section, American Geophysical Union 1996 Fall Meeting.

U.S. Environmental Protection Agency (EPA) Graduate Fellowship, 1995–1998.

National Science Foundation (NSF) Graduate Fellowship, 1992–1995.

B.S. conferred *Magna Cum Laude*, Rice University, May 1991.

Member of Phi Beta Kappa and Tau Beta Pi scholastic honor societies.