

Curriculum Vitae

Jennifer L. Goff

678-592-4321

JLGoff@uga.edu

EDUCATION

Ph.D. in Microbial Biology, 2020

Rutgers – New Brunswick, NJ

B.S. in Biology, 2014

Georgia Institute of Technology, Atlanta, GA

RESEARCH INTERESTS

Microbial responses to anthropogenic contaminants in the environment through multi-omics approaches, environmentally informed functional studies, and metagenomic analyses. Topics of interest include the role of mobile genetic elements in microbial evolution, cellular responses to emerging environmental contaminants, and the interplay between microbial sulfur metabolism and metal/metalloid biogeochemical cycling.

PROFESSIONAL APPOINTMENTS

Post-Doctoral Research Associate

Department of Biochemistry and Molecular Biology, University of Georgia, 2021-Present

Post-Doctoral Research Associate

Department of Earth and Planetary Sciences, Rutgers, 2020-2021

PUBLICATIONS

*authors contributed equally | undergraduate mentee coauthor

Refereed journal articles and chapters

[10] **Goff JL**, Chen Y, Thorgersen MP, Hoang LT, **Szink EG**, Poole FL II, Siuzdak G, Petzold CJ, Adams MWW. Mixed Heavy Metals Stress Induces Global Iron Starvation as Revealed by System Level Multi-Omic Analyses. *In revision at ISME J*.

bioRxiv preprint: <https://doi.org/10.1101/2022.08.05.502853>

[9] **Goff JL**, **Szink EG**, Thorgersen MP, Putt AD, Fan Y, Lui LM, Nielsen TN, Hunt KA, Michael JP, Wang Y, Ning D, Fu Y, Van Nostrand JD, Poole II FL, Chandonia, J-M, Hazen TC, Stahl DA, Zhou J, Arkin AP, Adams MWW. **2022**. Ecophysiological and genomic analyses of a representative isolate of highly abundant *Bacillus cereus* strains in contaminated subsurface sediments. *Environmental Microbiology*. <https://doi.org/10.1111/1462-2920.16173>

[8] Hao J*, Liu W*, **Goff JL**, Steadman JA, Large RR, Falkowski PG, Yee N. **2022**. Anoxic photochemical weathering of pyrite. *Science Advances*. 8: eabn2226.

<https://doi.org/10.1126/sciadv.abn2226>

[7] **Goff JL***, Lui LM*, Nielsen TN, Thorgersen MP, **Szink EG**, Chandonia J-M, Poole II FL, Zhou J, Hazen TC, Arkin AP, Adams MWW. **2022**. Complete Genome Sequence of *Bacillus cereus* strain CPT56D-587-MTF, Isolated from a Nitrate- and Metals-Contaminated Subsurface Environment. *Microbiology Resource Announcements*. <https://doi.org/10.1128/mra.00145-22>.

[6] **Goff JL**, Wang Y, Boyanov MI, Yu Q, Kemner KM, Fein JB, Yee N. **2021**. Tellurite adsorption onto bacterial surfaces. *Environmental Science & Technology*. 55: 10378-10386. <https://doi.org/10.1021/acs.est.1c01001>.

[5] **Goff JL**, Boyanov MI, Kemner KN, Yee N. **2021**. The role of cysteine in tellurate reduction and toxicity. *BioMetals*. 34: 937-946. <https://doi.org/10.1007/s10534-021-00319-8>

[4] **Goff JL**, Shaefer JK, Yee N. **2021**. Extracellular sulfite is protective against reactive oxygen species and antibiotic stress in *Shewanella oneidensis* MR-1. *Environmental Microbiology Reports*. 13: 394-400. <https://doi.org/10.1111/1758-2229.12947>

[3] **Goff J***, Terry L*, Mal J, Schilling K, Pallud C, Yee N. **2019**. Role of extracellular reactive sulfur metabolites on microbial Se(0) dissolution. *Geobiology* 17:320-329. <https://doi.org/10.1111/gbi.12328>

[2] **Goff J**, Yee, N. **2017**. Tellurate enters *E. coli* K-12 cells via the SulT-type sulfate transporter CysPUWA. *FEMS Microbiology Letters* 364. <https://doi.org/10.1093/femsle/fnx241>

[1] Cooper RE, **Goff JL**, Reed BC, Sekar R, DiChristina TJ. **2016**. Breathing Metals: Molecular Mechanism of Microbial Iron Reduction by *Shewanella oneidensis* (Chapter). *Manual of Environmental Microbiology*. <https://doi.org/10.1128/9781555818821.ch5.2.1>

Manuscripts in preparation (at writing stage)

[1] **Goff JL***, Choi JK*, Poudel S, Yee N. Integration of phylogenomic and structural data illuminates evolutionary transition points between the canonical diderm and monoderm *Firmicutes*.

[2] Thorgersen MP, Trotter VV, **Goff JL**, Poole FL II, Joyner DC, Hazen TC, Arkin AP, Deutschbauer AM, Adams MWW. Elucidating the mechanism of resilience to contaminated ORR groundwater using the RB-TnSeq library of *Pantoea* sp. strain MT58.

Published datasets

[2] **Goff J**, Putt AD, Fan Y, Michael J, Wang Y, Ning D., Fu Y, Van Nostrand J, Chandonia J-M, Hazen T, Zhou J, Arkin A, Adams, A. 2022. Geochemical and sequencing data from Goff et. al. 2022. DOE Systems Biology KnowledgeBase. <https://doi.org/10.25982/112150.61/1863566>

[1] **Goff J** 2022. Complete Genome Sequence of *Bacillus cereus* strain CPT56D-587-MTF Isolated from a Nitrate and Metals Contaminated Subsurface Environment. DOE Systems Biology KnowledgeBase. <https://doi.org/10.25982/105874.55/1844990>.

GRANTS AND FELLOWSHIPS

Discovery Program: “*Laboratory evolution of a highly abundant ORR Area 3 strain in response to heavy metal stress*”

Amount: \$185,804 (Oct 2022 – Sept 2023)

Agency: U.S. Department of Energy

Lead Investigator: Jennifer L. Goff (co-PI Michael W.W. Adams, Adam P. Arkin, Christopher J. Petzold)

Southeastern Conference (SEC) Emerging Scholars Program – Postdoctoral Award

\$10,000 (Aug 2022- May 2023)

Presidential Fellowship, Rutgers

\$75,000 (Sept 2014- June 2019)

Graduate School Excellence Fellowship, Rutgers

\$26,500 (Sept 2014- June 2015)

AWARDS

- Microbial Biology Graduate Program Travel Award, Rutgers, 2019
- Teaching Assistant and Graduate Assistant Professional Development Fund Award, Rutgers, 2018
- School of Graduate Studies Conference Travel Award, Rutgers, 2018
- Hamo Hachnasarian Scholarship, Rutgers, 2015
- Cherry L. Emerson Research Award, Georgia Institute of Technology, 2014
- Outstanding Undergraduate Researcher Award, Georgia Institute of Technology, 2014
- President’s Undergraduate Research Award, Georgia Institute of Technology, 2013

CONFERENCE PRESENTATIONS

*JLG presenter | undergraduate mentee contributor | #undergraduate mentee presenter

[25] “Incorporation of Microbial Communities into Reactive Transport Modeling of Nitrogen in Subsurface Systems under Rainfall Perturbations.” (Poster), J. Im, L.M. Lui, A. P. Arkin, A. Putt, K. F. Walker, T. C. Hazen, A. Carr, K. Hunt, Y. Wang, Y. Fan, J. Michael, J. Zhou, **J.L. Goff**, F.L. Poole, M.W.W. Adams, J. Marquis, M.W. Fields, M. Newcomer. AGU Fall Meeting, Chicago, IL, *upcoming 2022*

[24] “Mixed Heavy Metals Stress Induces Global Iron Starvation as Revealed by System Level Multi-Omic Analyses.” (Talk), ***J.L. Goff**, Y. Chen, M.P. Thorgersen, L.T. Hoang, F.L. Poole II, **E.G. Szink**, G. Siuzdak, C.J. Petzold, M.W.W. Adams. AGU Fall Meeting, Chicago, IL, *upcoming 2022*

[23] “Diurnal and Seasonal Fluctuations within 27 Contaminated Subsurface Wells.” (Poster), Walker, K.F.; E. R. Dixon, D.C. Joyner, K.A. Lowe, F.L. Poole, X. Ge, M.P. Thorgersen, D. Ning, Y. Fan, J.P. Michael, J.D. Van Nostrand, L.M. Lui, X. Wu, **J.L. Goff**, M.W.W. Adams, R. Chakraborty, D.A. Elias, R.L. Wilpiseski, J. Zhou, M.W. Fields, A.P. Arkin, P.D. Adams, and T.C. Hazen, ASM Microbe, Washington, DC, 2022

[22] “Anoxic photochemical weathering of pyrite on Archean continents.” (Talk), J. Hao, W. Liu, **J.L. Goff**, J.A. Steadman, R.R. Large, P.G. Falkowski, and N. Yee, AbSciCon, Atlanta, GA, 2022

[21] “Anoxic photochemical weathering of pyrite on Archean continents.” (Talk), J. Hao, W. Liu, **J.L. Goff**, J.A. Steadman, R.R. Large, P.G. Falkowski, and N. Yee, Microbiology Symposium, Rutgers, New Brunswick, NJ, 2022

[20] “Characterization of a *Bacillus cereus* Strain Isolated from a Nitrate and Metal Contaminated Subsurface Environment.” (Talk), **E.G. Szink**, M.W.W. Adams, and **J.L. Goff**, UGA AIChE Undergraduate Life Sciences 3 Minute Research Showcase, 2022

[19] “Genomic and proteomic analyses of a highly-abundant *Bacillus cereus* isolate reveal niche adaptation to mixed-waste subsurface site.” (Talk), ***J.L. Goff**, Y. Chen, L.M. Lui, T.N. Nielsen, **E.G. Szink**, M.P. Thorgersen, A.D. Putt, K.A. Hunt, Y. Fan, J.P. Michael, Y. Wang, D. Ning, Y. Fu, J.D. Van Nostrand, F.L. Poole II, C.J. Petzold, Terry C. Hazen, D.A. Stahl, J. Zhou, A.P. Arkin, and M.W.W. Adams, 9th Annual Southeastern Biogeochemistry Symposium, Atlanta, GA, 2022

[18] “Anoxic photochemical weathering of pyrite on Archean continents.” (Talk), J. Hao, W. Liu, **J.L. Goff**, J.A. Steadman, R.R. Large, P.G. Falkowski, and N. Yee, Goldschmidt2022, Honolulu, Hawai'i, 2022

[17] “Characterization of a *Bacillus cereus* Strain Isolated from a Nitrate and Metal Contaminated Subsurface Environment.” (Talk), **E.G. Szink** and **J.L. Goff**, 2022 CURO Symposium, University of Georgia, Athens, GA, 2022

[16] “Investigating the abiotic control of denitrification processes using synthetic communities and laboratory simulations.” (Poster), J.J. Valenzuela, J. Wilson, S. Turkarlan, H. Smith, A. Otwell, K. Hunt, F. Poole, X. Ge, **J.L. Goff**, M. Thorgersen, M. Wells, P. Walian, A.M. Deutschbauer, T.R. Northen, M.W.W. Adams, R. Chakraborty, D.A. Elias, D.A. Stahl, M.W. Fields, N.S. Baliga, A.P. Arkin, and P.D. Adams, DOE Genome Sciences Program PI Meeting (online due to COVID-19), 2022

[15] “Diurnal and Seasonal Fluctuations with the Subsurface: A 17-Week Survey of Groundwater and Sediment in 27 Contaminated Wells.” (Poster), K.F. Walker, E.R. Dixon, D.C. Joyner, K.A. Lowe, F.L. Poole, X. Ge, M.P. Thorgersen, D. Ning, Y. Fan, J.P. Michael, J.D. Van Nostrand, L.M. Lui, X. Wu, **J.L. Goff**, M.W.W. Adams, R. Chakraborty, D.A. Elias, R.L. Wilpiseski, J. Zhou, M.W. Fields, T.C. Hazen, A.P. Arkin, and P.D. Adams, DOE Genome Sciences Program PI Meeting (online due to COVID-19), 2022

[14] “Characterization of a Nitrate-Respiring, Multi-Metal-Resistant *Bacillus* Species Highly Abundant in Heavily Contaminated ORR FRC Subsurface.” (Poster), ***J.L. Goff**, **E.G. Szink**, M.P. Thorgersen, L.M. Lui, T.N. Nielsen, F.L. Poole II, A.D. Putt, Y. Fan, J.P. Michael, Y. Wang, D. Ning, Y. Fu, J.D. Van Nostrand, E.R. Kelly, K.A. Lowe, M. Rodriguez Jr., Y. Chen, C.J. Petzold, M.W.W. Adams, J.-M. Chandonia, T. C. Hazen, J. Zhou, A.P. Arkin, and P.D. Adams, DOE Genome Sciences Program PI Meeting (online due to COVID-19), 2022

[13] “The ENIGMA Subsurface Observatory: A high resolution approach to studying a shallow contaminated groundwater system.” (Poster), A.D. Putt, E.R. Kelly, K.F. Walker, M. Newcomer,

M.W. Fields, **J.L. Goff**, **E.G. Szink**, M.P. Thorgersen, F.L. Poole II, Y. Fan, J.P. Michael, P.J. Walian, D. Ning, J.D. Van Nostrand, T. C. Hazen, M.W.W. Adams, J. Zhou, A.P. Arkin, and P.D. Adams, DOE Genome Sciences Program PI Meeting (online due to COVID-19), 2022

[12] “Metals influence nitrate respiration by ORR isolates: discovery-to-core success story.” (Talk), ***J. Goff**, ENIGMA LBNL DOE Reverse Site Visit (online due to COVID-19), 2021

[11] “Spatiotemporal dynamics of groundwater and sediment: geochemistry, microbial communities and subsurface structure of contaminated aquifer.” (Poster), K. F. Walker, E. R. Dixon, D. C. Joyner, K. A. Lowe, A. D. Putt, F. L. Poole, **J. L. Goff**, X. Ge, M. P. Thorgersen, D. Ning, Y. Fan, J. P. Michael, Y. Fu, R. Tian, Y. Wang, J. D. Van Nostrand, L. M. Lui, X. Wu, K. J. Davis, R. L. Wilpiseski, M. W. W. Adams, R. Chakraborty, D. A. Elias, J. Zhou, M. W. Fields, T. C. Hazen, A. P. Arkin, and P. D. Adams, ENIGMA LBNL DOE Reverse Site Visit (online due to COVID-19), 2021

[10] “Understanding the abiotic control of denitrification processes partitioned among synthetic communities.” (Poster), J. J. Valenzuela, J. Wilson, A. Carr, S. Turkarslan, H. J. Smith, A. Otwell, K. Hunt, **J. Goff**, F. L. Poole, X. Ge, M. P. Thorgersen, M. Wells, Y. Chen, C. J. Petzold, A. M. Deutschbauer, T. R. Northern, M. W. W. Adams, R. Chakraborty, D. A. Elias, D. A. Stahl, M. W. Fields, N. S. Baliga, A. P. Arkin, and P. D. Adams, ENIGMA LBNL DOE Reverse Site Visit (online due to COVID-19), 2021

[9] “Teaching microbiology laboratory with tablets.” (Poster and Demonstration), A. Walczak, S. Skelly, and ***J. Goff**, Office of STEM Education Symposium, Rutgers, New Brunswick NJ, 2019

[8] “Production of extracellular sulfite by *Shewanella oneidensis* MR1.” (Poster), ***J. Goff**, J. Schaefer, K. Dawson, and N. Yee, Goldschmidt, Barcelona, Spain, 2019

[7] “Extracellular sulfur metabolite production by bacteria.” (Poster), ***J. Goff** and N. Yee, NEMPET, Blue Mountain Lake, NY, 2019

[6] “Tellurate enters *Escherichia coli* K-12 cells via the sulfate transporter CysPUWA.” (Poster), ***J. Goff** and N. Yee, ASM Microbe, Atlanta, GA, 2018

[5] “Abiotic and biotic oxidation of chemically synthesized Se(0) nanoparticles.” (Talk), J. Mal, N. Yee, K. Schilling, **J. Goff**, K. Dhillon, C. Pallud, Goldschmidt, Boston, MA, 2018

[4] “A role for the sulfate assimilation pathway in tellurate resistance in Enterobacteriaceae.” (Poster), ***J. Goff**, **C. Ekedede**, and N. Yee, Microbiology at Rutgers Symposium, Rutgers, New Brunswick, NJ, 2017

[3] “Identification of genes involved in tellurate reduction.” (Poster), ***C. Ekedede**, **J. Goff**, and N. Yee, Rutgers Undergraduate Research Symposium, Rutgers, New Brunswick, NJ, 2016.

[2] “Characterization of amino acid biosynthesis mutants of *Shewanella oneidensis* MR1.” (Poster), ***J. Goff** and T. DiChristina, School of Biology Senior Poster Session, Georgia Tech, Atlanta, GA, 2014

[1] “An intragenic complementation approach to engineer a faster fluorescence biosensor.” (Poster and Talk), M. Agrawal, J. Boothby, N. Chilcutt, J. Elsherbini, and ***J. Goff**, iGEM America’s East Regional Jamboree, Pittsburgh, PA, 2012

SEMINARS

“Mixed Heavy Metals Stress Induces Global Iron Starvation as Revealed by System Level Multi-Omic Analyses”, ENIGMA Seminar Series, Lawrence Berkeley National Lab (online), November 2022

“Mechanistic ecology across scales: microbial adaptations to heavy metals at a contaminated subsurface site”, Department of Environmental Sciences Seminar Series, Rutgers-New Brunswick.(hybrid). **Invited speaker**. September 2022

“Tungsten utilization by ORR isolates”, ENIGMA Seminar Series, Lawrence Berkeley National Lab (online), November 2021

TEACHING EXPERIENCE

University of Georgia, Athens, GA

Project Mentor

Biochemistry & Molecular Biology Independent Research Projects (Su 2021, F 2021, S 2022, F 2022)

Designed and mentored undergraduate research projects. Supervised research. Provided guidance and feedback on end-of-semester research reports.

Curricular Revision

Microbiology and Health Care Laboratory, S 2022

Contributed to re-writing the lab manual and developing new laboratory exercises

Guest Lecturer

Introductory Microbiology, “Microbial Respiration and Biogeochemical Cycles”, F 2022

Prepared and delivered lecture on microbial metabolism and biogeochemical cycles. Developed a collaborative, case-study exercise to examine nitrogen cycling and bioremediation at an industrial contamination site.

Microbiology and Health Care, “Microbial Metabolism”, F 2022

Prepared and delivered lecture on microbial metabolism. Developing team-driven, concept-mapping activity to reinforce learning objectives.

Introductory Microbiology, “Human Microbiota”, S 2022

Prepared and delivered lecture on human microbiota, including in-class interactive whiteboard activities and associated exam question.

Rutgers – New Brunswick, NJ

Summer Session Instructor

Microbiology for the Health Sciences Lecture (Su 2019, Su 2020 [online due to COVID-19])

Instructor-of-record for introductory microbiology lecture for health sciences students (~20 students). Developed the syllabus, lectures, projects, assignments, and grading criteria. Implemented traditional lectures with integrated polling for formative assessment as well as in-class discussions on current healthcare-related topics. For asynchronous online version, recorded 5-30 min videos on discrete topics followed by online quiz questions for immediate formative assessment within the Canvas LMS. Students engaged in an on-going project applying lecture knowledge to understand emerging viral diseases.

Coadjutant (instructional designer role)

Microbiology Lab for the Health Sciences (Su 2018)

Created the electronic lab notebook for the course within LabArchives for use on new tablets. Revised and transferred all existing course material to electronic notebook. Created lab exercise templates and associated assessment questions. Developed standard operating procedures for tablet usage in the laboratory.

Graduate Teaching Assistant

Microbiology Lab for the Health Sciences (F 2017, S 2018, F 2018, S 2019, F 2019)

Sole instructor for one or two introductory microbiology laboratory sections per week for health sciences students. Wrote exams and designed practicals, prepared materials for each class, led in-class lectures, assisted students with laboratory techniques, and graded assignments.

Head Teaching Assistant (F 2018, S 2019, F 2019)

Implemented new electronic notebooks and accompanying tablet set into course, training all students and TAs on technology usage. Managed electronic notebook content including writing associated exercise questions and monitoring student engagement across all sections. Developed unified set of lecture content and materials for the entire course. Trained new teaching assistants.

Genetics Lecture (F 2016, S 2017)

Sole instructor for three recitation periods per week for upper-level undergraduate biology students. Developed workshop materials, facilitated recitation workshops, and graded assignments.

General Microbiology Lab (F 2015, S 2016)

Sole instructor for two general microbiology laboratory sections per week for upper-level undergraduate biology students. Wrote exams and designed practicals, prepared materials for each class, led in-class lectures, assisted students with laboratory techniques, and graded assignments.

Georgia Institute of Technology, Atlanta, GA

Undergraduate Teaching Assistant (2011-2014)

Honors Introduction to Organismal Biology Lab

Assisted professor with service learning, course-based undergraduate research experience for biology majors. Prepared materials for each class, assisted students with laboratory techniques and field work, and graded assignments.

Biological Principles Lab

Co-taught with another TA two sections per week of introductory biology laboratory for major and non-major undergraduate students. Prepared materials for each class, led in-class lectures, assisted students with laboratory techniques, and graded assignments.

Molecular and Cell Biology Lab

Assisted professor with advanced undergraduate laboratory course. Prepared materials for each class, led in-class lectures, assisted students with laboratory techniques, and graded assignments.

MENTORSHIP

Konnor Durrence – Biochemistry and Molecular Biology Independent Research Student (2022-Present), University of Georgia

Elizabeth Szink – Biochemistry and Molecular Biology Independent Research Student (2021-2022), Research Technician (2022-Present), University of Georgia

CURO Research Award recipient (Spring 2022). Project title: “Investigation of nitrite utilization by environmental isolates grown under varying environmental parameters”

Highlight: “ENIGMA science engages undergraduate researcher in environmental microbiology.”

Cristian Sanlatte Reyes – Post-Baccalaureate Research Education Program Scholar, University of Georgia, 2021

Jonathan Phan – Microbial Biology PhD Student, Rutgers, 2021- 2022

Richard Bennett – Undergraduate Research Assistant, Rutgers, 2018

Chioma Ekedede – Aresty Undergraduate Research Fellow, Rutgers, 2016-2018

OUTREACH AND SERVICE

Journal Reviewer: *Geochemica et Cosmochimica Acta; Environmental Pollution; Letters in Applied Microbiology; Environmental Science and Pollution Research; International Journal of Environmental Research and Public Health; Sustainability*

Conference Abstract Reviewer: Council on Undergraduate Research Posters on the Hill (2022); Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS) National Diversity in STEM (NDiSTEM) Conference (2022)

Committee Membership:

Early Career Scientist Committee Chair (2022, ENIGMA SFA, Lawrence Berkeley National Lab)

Lab Manual Review Committee (2022, Department of Microbiology, University of Georgia)

Outreach:

Judge for Annual Biomedical Conference Research Conference for Minority Students (ABRCMS) ePoster Spring Symposium for Emerging Scientists (2022)

Faculty moderator for National Conference on Undergraduate Research (NCUR) (2022)

Travel scholarship reviewer for Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS) National Diversity in STEM (NDiSTEM) Conference (2022)

CERTIFICATIONS, COURSES, AND WORKSHOPS

Developing an Action Plan for Aligned and Inclusive Lessons Workshop, University of British Columbia, Dalhousie University, and CIRT Network (virtual), July 2022

CARE for Inclusion and Equity in Learning Environments Workshop, Stanford University and CIRT Network (virtual), June 2022

Certificate in Diversity and Inclusion, 2022, University of Georgia – Office of Institutional Diversity and Human Resources Training and Development Department

The American Society for Microbiology 2018 Improving Undergraduate Biology Education Based on Research in Science Learning Online Course

The American Society for Microbiology 2017-2018 Best Practices in Curriculum Design, Teaching, and Assessment Online Course

PROFESSIONAL MEMBERSHIP

American Society for Microbiology (2014-present)

Geochemical Society (2018-2020)

American Geophysical Union (2021-present)

Society for Advancement of Biology Education Research (2022-present)