Janna L. Fierst

Associate Professor

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Education

2010 **PhD, Biological Science, Section for Ecology and Evolution**, The Florida State University, Tallahassee, FL, *Genetic Interactions in Evolutionary Processes*.
Advisors: David Houle and Thomas F. Hansen

2004 **MS, Biology**, California State University Northridge, Los Angeles, CA, *Complex life histories in the red alga Mastocarpus papillatus*.
Advisor: Steven R. Dudgeon

1998 **BS**, Pomona College, Claremont, CA.

Professional Positions

Florida International University, Miami, FL, USA

2022– **Associate Professor with Tenure**.
Department of Biological Sciences

University of Alabama, Tuscaloosa, AL, USA

2021 **Associate Professor with Tenure**.
Department of Biological Sciences

2015–2021 **Assistant Professor**.
Department of Biological Sciences

University of Oregon, Eugene, Oregon, USA

2012–2014 **Postdoctoral Researcher**, *Institute for Ecology and Evolution*.
Mentor: Patrick C. Phillips

2010–2012 **National Science Foundation Postdoctoral Fellow**, *Department of Biology and Department of Computer Science*.
Mentors: John S. Conery and Patrick C. Phillips

The University of Oslo, Oslo, NO

2008–2009 **Liev Eiriksson Mobility Fellow**, *Center for Ecological and Evolutionary Synthesis*.
Sponsor: Thomas F. Hansen

Grants & Awards

In Review

2026–2027 **DEFENSEWERX**, University of Florida. *Agricultural AI enabled biotechnology and Biosecurity for global Surveillance (ABS)* $2,618,315 (Fierst subcontract)

2026–2028 **USDA-NIFA**. *Signals in Plant-Microbe Interactions: Exploring Phytohormonal Modulation of Rhizosphere Microbiome)* $791,324 (Fierst co-PI)

Current Funding

2025–2026 **DEFENSEWERX**, University of Florida. *Agricultural AI enabled biotechnology and Biosecurity for global Surveillance (ABS)* $1,918,315 (Fierst subcontract; $181,832)

2024–2029 **National Institutes of Health**, National Institute on Aging. *Mechanisms underlying aged host-virus interactions* $2,862,182 (Fierst subcontract; $867,493)

2024-2027 **Center for Inclusive Computing**, Northeastern University. *A Study of the Creation of Interdisciplinary Computing Majors - Their Implementation and Impact on Broadening Participation in Computing at 10 Public Universities* $1,055,855 (Fierst senior investigator)

2022–2027 **National Institutes of Health**, National Institute of General Medical Sciences. *Maximizing Investigators Research Award (MIRA) R35: Structural variants and the locus of evolution* $1,796,900 (Fierst PI)

2020–2026 **National Science Foundation**. *CAREER: Reproductive mode and horizontal gene transfer: training early career researchers in computational evolutionary biology* $1,135,944 (Fierst PI)

Completed Funding

2020–2025 **National Science Foundation**. *Understanding the Rules of Life: Epigenetics 2: Collaborative research: Bumble bee cold tolerance across elevations– From epigenotype to phenotype across space, time, and levels of biological organization* $2,589,602 (Fierst co-PI; $702,222)

2021–2022 **National Science Foundation**. *Research Experience for Post-Baccalaureate Students in the Biological Sciences; CAREER supplemental funding* $48,366 (Fierst PI)

2015–2019 **National Institutes of Health**, National Institute of General Medical Sciences. *R01: System genetics of natural variation in stress response pathways* $1,251,600 (Fierst subcontract; $302,613)

2015–2017 **University of Alabama Research Grants Committee**. *Genome-scale model guided metabolic engineering of C. tyrobutyricum* $82,446 (Fierst co-I; $41,223)

2010–2012 **National Science Foundation**. *Postdoctoral Fellowship in Biological Informatics* $123,000 (Fierst PI)

2008–2009 **Norwegian Research Council**. *Liev Eiriksson Mobility Fellowship* NOK 300,000 (Fierst PI)

Awards

2024 **Florida International University** Top Scholar Faculty Recognition Award in Research

2023 **Florida International University College of Arts, Sciences and Education** Faculty Recognition Award in Research

Publications

* An asterisk indicates the publication was co-authored with one or more of my students or postdoctoral researchers

Manuscripts in Review and Revision

*JD Millwood, JD Lozier, CL Atkinson, **JL Fierst** and MJ Jenny. Analysis of de novo transcriptomes of four unionid species (*Fusconaia escambia*, *F. cerina*, *Cambarunio nebulosus*, and *Leaunio lienosus*). *In review*.

*JA Spaulding and **JL Fierst**. The eukaryotic Horizontal Gene Transfer dataset (euHGT): A compendium. *In review*.

*RK Verma, JA Fuentes-Gonzalez, J Pienaar and **JL Fierst**. Co-mutation based genetic networks to infer temporal mutation dynamics in ancient human mitochondrial genomes. *In review*.

*R Kapila, S Saber, RK Verma, G Blanco, VK Eggers and **JL Fierst**. Outcrossing complicates mutation purging by trapping SNPs in SVs in *C. elegans* strains. *In revision*.

*VK Eggers and **JL Fierst**. Regulatory logic and transposable element dynamics in nematode worm genomes. *In revision*.

Published Articles

2026 J Pienaar, J Fuentes-Gonzalez, **JL Fierst**, B Brahmantio, HC Kiang, K Bartoszek, B Kopperud, KL Voje and TF Hansen. Phylogenetic comparative methods for studying macroevolutionary adaptation: What can we learn about microevolutionary processes? *Journal of Evolutionary Biology* 39:1-17.

2025 The BioDIGS Consortium (**JL Fierst**; one of 174 members). Unearthing soil biodiversity through collaborative genomic research and education *Nature Genetics* 58: 3-8.

2025 A Thibeaux, MY Lu, M Martin, M Rodwell, V Faber, L Sheffield, **JL Fierst** and S Chtarbanova. Investigating the differential microRNAs expression in young and aged *Drosophila melanogaster* following Flock House Virus infection. *Virulence* 16:2549497.

2024 *PE Adams, JM Sutton, JL Thies, JD Millwood, GA Caldwell, KA Caldwell and **JL Fierst**. Identifying transgene insertions in *Caenorhabditis elegans* genomes with Oxford Nanopore sequencing. *PeerJ* 12: e18100.

2023 *PE Adams, VK Eggers, JD Millwood, JM Sutton, J Pienaar, and **JL Fierst**. Genome size changes by duplication, divergence, and insertion in *Caenorhabditis Worms*. *Molecular Biology and Evolution*, 40: msad039.

2023 *A. Kandoor and **JL Fierst**. Dauer fate in a *Caenorhabditis elegans* Boolean network model. *PeerJ*, 11: e14713.

2022 *JM Sutton, TJ Bushman, DM Akob, and **JL Fierst**. Complete genome sequence of *Rhodococcus opacus* strain MoAcy1 (DSM 44186), an aerobic acetylenotroph isolated from soil. *Microbiology Resource Announcements*, 11: e00814–21.

2022 *JM Sutton, TJ Bushman, SM Baesman, E Klein, Y Shrestha, R Andrews, **JL Fierst**, M Kolton, S Gushgari-Doyle, RS Oremland, J Freeman and DM Akob. Acetylenotrophic and diazotrophic *Bradyrhizobium sp.* strain I71 from tce-contaminated soils. *Applied and Environmental Microbiology*, 88: e01219.

2022 *PE Adams, AB Crist, EM Young, JH Willis, PC Phillips, and **JL Fierst**. Slow recovery from inbreeding depression generated by the complex genetic architecture of segregating deleterious mutations. *Molecular Biology and Evolution*, 39: msab330,

2021 *JM Sutton, JD Millwood, AC McCormack, and **JL Fierst**. Optimizing experimental design for genome sequencing and assembly with oxford nanopore technologies. *GigaByte*, 27.

2021 L Sheffield, N Sciambra, A Evans, E Hagedorn, C Goltz, M Delfeld, H Kuhns, **JL Fierst**, and S Chtarbanova. Age-dependent impairment of disease tolerance is associated with a robust transcriptional response following RNA virus infection in *Drosophila*. *G3: Genes, Genomes, Genetics*, 11: jkab116.

2021 CH O'Connor, KL Sikkink, TC Nelson, **JL Fierst**, WA Cresko, and PC Phillips. Complex pleiotropic genetic architecture of evolved heat stress and oxidative stress resistance in the nematode *Caenorhabditis remanei*. *G3*, 11: jkab045.

2021 *LT Bubrig and **JL Fierst**. Review of the dauer hypothesis: What non-parasitic species can tell us about the evolution of parasitism. *The Journal of Parasitology*, 107: 717–725.

2021 *SM Baesman, JM Sutton, **JL Fierst**, DM Akob, and RS Oremland. *Syntrophotalea acetylenivorans sp. nov.*, a diazotrophic, acetylenotrophic anaerobe isolated from intertidal sediments. *International Journal of Systematic and Evolutionary Microbiology*, 71.

2020 SD Heraghty, JM Sutton, ML Pimsler, **JL Fierst**, JP Strange, and JD Lozier. De novo genome assemblies for three north american bumble bee species: *Bombus bifarius, Bombus vancouverensis, and Bombus vosnesenskii*. *G3: Genes, Genomes, Genetics*, 10: 2585–2592.

2020 *LT Bubrig, JM Sutton, and **JL Fierst**. *Caenorhabditis elegans* dauers vary recovery in response to bacteria from natural habitat. *Ecology and Evolution*, 10: 9886–9895.

2020 *AG Anderson, LT Bubrig, and **JL Fierst**. Environmental stress maintains trioecy in nematode worms. *Evolution*, 74: 518–527.

2020 *PE Adams, LT Bubrig, and **JL Fierst**. Genome evolution: On the road to parasitism. *Current Biology*, 30: R272–R274.

2018 *DM Akob, JM Sutton, **JL Fierst**, KB Haase, Shaun Baesman, GW Luther III, LG Miller, and RS Oremland. Acetylenotrophy: a hidden but ubiquitous microbial metabolism? *FEMS microbiology ecology*, 94: fiy103.

2017 *JM Sutton, SM Baesman, **JL Fierst**, AT Poret-Peterson, RS Oremland, DS Dunlap, and DM Akob. Complete genome sequences of two acetylene-fermenting *Pelobacter acetylenicus* strains. *Genome Announcements*, 5: 1128.

2017 *JM Sutton, SM Baesman, **JL Fierst**, AT Poret-Peterson, RS Oremland, DS Dunlap, and DM Akob. Complete genome sequence of the acetylene-fermenting *Pelobacter sp.* strain SFB93. *Genome Announcements*, 5: 1127.

2017 ***JL Fierst**, DA Murdock, C Thanthiriwatte, JH Willis, and PC Phillips. Metagenome-assembled draft genome sequence of a novel microbial *Stenotrophomonas maltophilia* strain isolated from *Caenorhabditis remanei* tissue. *Genome Announcements*, 5: 10–1128.

2017 ***JL Fierst** and DA Murdock. Decontaminating eukaryotic genome assemblies with machine learning. *BMC Bioinformatics*, 18: 1–16.

2017 *DM Akob, SM Baesman, JM Sutton, **JL Fierst**, AC Mumford, Y Shrestha, AT Poret-Peterson, S Bennett, DS Dunlap, KB Haase, and RS Oremland Detection of diazotrophy in the acetylene-fermenting anaerobe *Pelobacter sp.* strain SFB93. *Applied and Environmental Microbiology*, 83: e01198.

2016 C Ma, J Ou, N Xu, **JL Fierst**, S-T Yang, and X (M) Liu. Rebalancing redox to improve biobutanol production by *Clostridium tyrobutyricum*. *Bioengineering*, 3: 2.

2015 **JL Fierst**, JH Willis, CG Thomas, W Wang, RM Reynolds, TE Ahearne, AD Cutter, and PC Phillips. Reproductive mode and the evolution of genome size and structure in *Caenorhabditis* nematodes. *PLoS Genetics*, 11: e1005323.

2015 **JL Fierst** and PC Phillips. Modeling the evolution of complex genetic systems: The gene network family tree. *Journal of Experimental Zoology Part B: Molecular and Developmental Evolution*, 324: 1–12.

2015 **JL Fierst**. Using linkage maps to correct and scaffold de novo genome assemblies: Methods, challenges, and computational tools. *Frontiers in Genetics*, 6: 220.

2013 D Houle and **JL Fierst**. Properties of spontaneous mutational variance and covariance for wing size and shape in *Drosophila melanogaster*. *Evolution*, 67: 1116–1130.

2013 **JL Fierst**. Female mating preferences determine system-level evolution in a gene network model. *Genetica*, 141: 157–170.

2012 **JL Fierst** and PC Phillips. Variance in epistasis links gene regulation and evolutionary rate in the yeast genetic interaction network. *Genome Biology and Evolution*, 4: 1080–1087.

2011 **JL Fierst**. Sexual dimorphism increases evolvability in a genetic regulatory network. *Evolutionary Biology*, 38: 52–67.

2011 **JL Fierst**. A history of phenotypic plasticity accelerates adaptation to a new environment. *Journal of Evolutionary Biology*, 24: 1992–2001.

2010 **JL Fierst**, JE Kübler, and SR Dudgeon. Spatial distribution and reproductive phenology of sexual and asexual *Mastocarpus papillatus* (Rhodophyta). *Phycologia*, 49:.274–282.

2010 **JL Fierst** and TF Hansen. Genetic architecture and postzygotic reproductive isolation: Evolution of Bateson–Dobzhansky–Muller incompatibilities in a polygenic model. *Evolution*, 64: 675–693.

2009 B Hollis, **JL Fierst**, and D Houle. Sexual selection accelerates the elimination of a deleterious mutant in *Drosophila melanogaster*. *Evolution*, 63: 324–333.

2005 **JL Fierst**, C TerHorst, JE Kübler, and SR. Dudgeon. Fertilization success can drive patterns of phase dominance in complex life histories. *Journal of Phycology*, 41: 238–249.

2002 **JL Fierst**, JE Kübler, and SR Dudgeon. Spatial and temporal distribution of life history variants in the red alga, *Mastocarpus papillatus*. *Journal of Phycology*, 38: 9

Teaching and Mentoring

Teaching

2022– **Florida International University** *Instructor of Record*

Genomics and Bioinformatics Analysis Lab Developed and taught a course-based undergraduate research experience (CURE) focused on the fundamentals of genomic data analysis including scientific ethics, molecular laboratory skills, DNA extraction, Oxford Nanopore Technologies sequencing, UNIX skills, genome assembly and scientific presentation and visualization. Enrollment 24 students per term; cross-listed for graduate enrollment.

Python Programming Lab for Biologists Developed and taught an online, asynchronous undergraduate course focused on Python programming and applications to biological questions. Enrollment 48 students per term; cross-listed for graduate enrollment.

2015–2021 **The University of Alabama** *Instructor of Record*

Introduction to Bioinformatics Developed and taught a cross-listed undergraduate/graduate course covering the tools and approaches necessary to perform computational analysis of large high-throughput DNA and RNA datasets including operating in a UNIX/bash shell environment, scripting, genome assembly, alignment, bioinformatic algorithms and statistical analyses. Enrollment 36 students per term.

Computational Biology Developed and taught a cross-listed undergraduate/graduate course introducing the programming skills, statistical methods and conceptual foundations necessary to pursue computational analysis and modeling of biological systems. Enrollment 36 students per term.

Genetics Taught an undergraduate core curriculum course in fundamental Genetics. Enrollment 180 students per term.

2003–2010 **The Florida State University** *Graduate Teaching Assistant*
Taught study sections, lectures and lab sessions for Introductory Biology, Animal Diversity and Evolution.

2000–2003 **California State University Northridge** *Graduate Teaching Assistant*
Taught lectures and lab sessions for Introductory Biology, Anatomy and Physiology, Marine Ecology and Biometry.

1998–2000 **Immaculate Heart High School** *Science Teacher*
Taught 9th grade Introductory Science and 10th grade Biology and Honors Biology.

Educational Program Development

2024-2025 *Member of* The Genomic Data Science Community Network

2024-2027 *Department of Biological Sciences Faculty Director for* Interdisciplinary Computing Majors, Computer Science+Biology

Mentoring

2024 *External dissertation examiner for* Grace Mariene **University of Calgary**

2022– **Florida International University**

Current

Postdoctoral research mentor for

Christina Burns, Rohit Kapila, Michelle McCauley, Karolina Willicott

Dissertation chair for

Johnathan Spaulding, Victoria Eggers, Florence Onifade, Shanjida Afrin

Postbaccalaureate research mentor for

Jasbelle Sosa

Biological Sciences undergraduate research mentor for

Gabriella Abaunza, Abdul Raafay Khan, Pooja Lad, Leena Luwasia, Jessica Olivera

Biochemistry undergraduate research mentor for

Lara Arbex Herden

Computer Sciences undergraduate research mentor for

Pooja Lad

Biological Sciences dissertation committee member for

Andrea Arce, Julianne Buggs, Jessica Gonzalez, Elizabeth Hoffman, Prabhu Kannan, Kaylee Marrero, Daniel Morales

Biochemistry dissertation committee member for

Hugo Bravo Gallegos, Ayesha Nawaz

Earth and Environment dissertation committee member for

Holly Velligan

Past

Postdoctoral research mentor for (with current position)

Juan Pablo Aguilar Cabezas (Postdoctoral researcher, University of Virginia)

Sayran Saber (Assistant Professor, University of Erbil, Iraq)

Rahul Verma (Assistant Professor, Amity University, India)

Postbaccalaureate research mentor for (with current position)

Gabriel Blanco (MS in respiratory therapy; SUNY Upstate)

Victoria Eggers (PhD student, FIU)

Jessica Gonzalez (PhD student, FIU)

Johnathan Spaulding (PhD student, FIU)

Biological Sciences undergraduate research mentor for Steve Abraham, Isabella Alonso, Alexandra Alsina, Victor Coelho, Leena Luwasia, Rocio Perez Padilla, Loriane Torres Diaz

Dissertation committee member for Mayson Lin

Thesis committee member for Jose Blanco Ancantara

2015–2022 **The University of Alabama**

Dissertation chair for (current position)

Paula Adams (Postdoctoral researcher, Auburn University)

Joshua Millwood (Assistant Professor, University of West Alabama)

John Sutton (Sequencing scientist, AbSci Bio)

Mahsa Tanha (PhD student, University of Alabama)

Thesis chair for (position after graduation)

Louis Bubrig (PhD student, University of Virginia)

Sarah Oladejo (PhD student, Carnegie Mellon University)

Chris Youssef (Research technician, UCLA)

Alekhya Kandoor (PhD student, University of Virginia)

Biological Sciences undergraduate research mentor for Ashlyn Anderson, Louis Bubrig, Kaylee Covan, Sai Dwarampudi, Danielle Kem, Obie Moultrie, Robert Reis, Nilsamarie Rodriguez, John Sutton, Kloe Timbers, Mackenzie Valentin, Aaron Frederick

Computer Science undergraduate research mentor for Alan Hencey, A. Case McCormack, A. Houston Wingo, Tenisha Ciby

Biological Sciences dissertation committee member for Andrei Bombin, Jason Jackson, Younji Kim, Vishal Oza, Rebecca Varney, Timothy Bushman, Mustafa Divyapicigil, Madee Fisher, Jennifer Fortunato, Sam Heraghty, Jacob Loeffelholz, Sameekshya Mainali, Sogol Momeni, Caleb Turberville, Kelton Verble, Karolina Willicott

Chemical and Biological Engineering dissertation committee member for Chao Ma, Jianfa Ou

Biological Sciences thesis committee member for Ryan Lavoie, Brucker Nourse, Anna Reding, Grace Scarsella, Haylee Quertermous, Amber Thibeaux

2012–2013 **The University of Oregon**

Computer and Information Sciences research project mentor for
Undergraduate students: Zeyu Feng, Katerina Ko, Jiazhang Liu, Erick Rogers, Alexandra Weston, Ran Zhang
Graduate students: Azad Abbasi, Dan Everson, Mahshid Yar Mohammadi, Yunfeng Zhang

The Institute of Ecology and Evolution graduate student rotation project mentor for
Allison Fuiten, Andrew Nishida, Christine O'Connor, Alex Weimer

Educational Training and Workshops

Florida International University

2023 Quality Enhancement Plan: Faculty Professional Development training in two microcredentials "Artificial Intelligence: How it Works and Its Impact" and "Thinking and Communicating with Data"

2022 Fundamentals of Online Teaching

The University of Alabama

2018 College of Arts and Sciences: Active Learning Initiatives

2016 College of Arts and Sciences: Advising Is

Graduate Student Invited Presentations

2017 Genome evolution in *Caenorhabditis* nematode worms. Graduate student invited speaker, Population Biology, Ecology and Evolution Graduate Group. Emory University, Atlanta, GA.

2016 Decontaminating de novo genome assemblies. Graduate student invited speaker, Ecology, Evolution and Marine Biology Graduate Group, University of California, Santa Barbara, CA.

Invited Presentations

2026 Hyper-variable regions across Rhabditina. Royal Society Theo Murphy meeting, Liverpool, UK.

2025 Self-attentuation in transposable elements and viruses. University of Oklahoma seminar series, Norman, OK.

2025 Studying epigenetic inheritance at the interface of developmental genetics and evolutionary biology. Fondation des Treilles seminar series, Tourtour, France.

2024 Integrating theory and genomic data to understand structural mutations in *Caenorhabditis*. University of Florida Whitney Marine Laboratory for Marine Bioscience seminar series, Marineland, FL.

2024 Assessing Learning Outcomes in a Course-based Undergraduate Research Experience. Oxford Nanopore Technologies Education Beta seminar series, online.

2023 Evolutionary theory in a data rich world. Florida International University, Biomolecular Sciences Institute seminar series, Miami, FL.

2021 Ecology and the evolution of nematode sexual systems. University of Florida, Ecology and Evolutionary Biology seminar series, Gainesville, FL.

2021 The evolution of genome size and complexity in nematodes. Texas A&M University, Ecology and Evolutionary Biology graduate group, College Station, TX.

2021 Genome evolution across worms and microbes. Binghamton University, Department of Biology, Binghamton, NY.

2021 Sex and self-fertility: Genome evolution in nematodes. Florida International University, Department of Biology, Miami, FL.

2020 Best practices for decontaminating de novo assembled genome sequences. Research Coordination Network: Evolving Seas Genomic Workshop, Catalina, CA *Canceled due to Covid-19*.

2020 Holocentric chromosomes and the locus of evolvability. Center for Advanced Studies, the University of Oslo, Oslo, Norway *Canceled due to Covid-19*.

2020 Complex systems and genome evolution. Syracuse University, Department of Biology, Syracuse, NY.

2020 Complex systems and genome evolution. Tufts University, Department of Biology, Medford, MA.

2019 A systems approach to studying genome evolution. The University of Alabama at Birmingham, Department of Biomedical Engineering, Birmingham, AL.

2018 Sexual conflict in genome evolution. Mississippi State University, Starkville, MS.

2018 Sexual conflict in genome evolution. The University of Alabama at Birmingham, Department of Biological Sciences, Birmingham, AL.

2018 Genome evolution across worms and microbes. The University of West Alabama, Livingston, AL.

2016 Chemical and Biological Engineering Departmental Seminar, The University of Alabama, Tuscaloosa, AL.

2016 Department of Mathematics, Applied Math Seminar, The University of Alabama, Tuscaloosa, AL.

2016 Form and function in biological networks. Network study interdisciplinary graduate education research and training, University of California, Santa Barbara, CA.

2014 Computational approaches to genetic evolution. The Florida State University, Tallahassee, FL.

2014 Sex and recombination in genomic evolution. San Francisco State University, San Francisco, CA.

2014 The influence of sex on genetic and genomic evolution. The University of Alabama, Tuscaloosa, AL.

2012 Evolutionary systems biology. The University of Colorado at Denver, Denver, CO.

2011 Nucleosome occupancy mediates transcription, gene expression, and epistatic fitness effects. Workshop on Systems Biology, Luebeck, Germany.

2010 Studying evolutionary processes with models of gene regulatory networks. University of Pretoria, Pretoria, South Africa.

2010 Sexual selection determines robustness and evolvability in a computational model of a genetic regulatory network. Gothenburg University, Gothenburg, Sweden.

Selected Conference Presentations

* An asterisk indicates the presentation was co-authored with one or more of my postdoctoral researchers or students

2025 VK Eggers and **JL Fierst**. Transposable elements in Phylum Nematoda. Society for the Study of Evolution Annual Meeting, Athens, GA.

2025 R Kapila, RV Verma, S Salim ,VK Eggers and **JL Fierst**. Mutational Makeover: SNP and Structural Variation Dynamics Across *C. elegans* Strains, Society for the Study of Evolution Annual Meeting, Athens, GA.

2025 **JL Fierst**. Self-attenuation in an aged host-virus system. Biomolecular Sciences Institute Annual Meeting *Biomolecules on the Beach*, Miami, FL.

2024 R Kapila, RV Verma, S Salim ,VK Eggers and **JL Fierst**. Mutational Makeover: SNP and Structural Variation Dynamics Across *C. elegans* Strains, Society for the Study of Evolution Annual Meeting, Montreal, Canada.

2024 R Kapila, RV Verma, S Salim ,VK Eggers and **JL Fierst** Genomic resilience in *C. elegans* Strains, Florida Worm meeting, Melbourne, FL.

2024 ***JL Fierst** and VK Eggers. Regulatory logic and the stability of transposable elements. Society for the Study of Evolution Annual Meeting, Montreal, Canada.

2024 **JL Fierst**. Population genetic theory for structural variant mutations. Florida Worm Meeting, Melbourne, FL.

2024 **JL Fierst**. Regulatory logic can stabilize transposable elements in *Caenorhabditis* genomes. Biomolecular Sciences Institute Annual Meeting *Biomolecules on the Beach*, Miami, FL.

2024 *VK Eggers and **JL Fierst**. Comparative genomics: *Mutator* dynamics in nematodes. Society for the Study of Evolution Annual Meeting, Montreal, Canada.

2024 *VK Eggers and **JL Fierst**.Outcrossing vs. selfing: genome evolution in *Caenorhabditis*. Cold Spring Harbor Transposable Elements meeting, Long Island, NY.

2024 *RK Verma and **JL Fierst**. Co-mutation based genetic networks to infer temporal mutation dynamics in ancient human mitochondrial genomes. The Allied Genetics Conference Washington DC.

2024 *J Spaulding and **JL Fierst**. Identifying Horizontal Gene Transfer with Support Vector Machine and Random Forest Algorithms in Eukaryotes. FIU Biscayne Bay Campus Biosymposium, Miami, FL.

2024 *J Spaulding and **JL Fierst**. Horizontal Gene Transfer Identification in Eukaryotes using Supervised Machine learning. GSAW (Graduate Student Appreciation Week) Scholarly Forum, Miami, Florida.

2024 *J Spaulding and **JL Fierst**. Supervised machine learning methods to classify horizontally transferred. Society of Evolution Annual Meeting, Montreal, Canada.

2024 J* Spaulding and **JL Fierst**. Classifying Horizontal Gene Transfer in Nematodes: A Supervised Machine Learning Approach. Enhancing Social Mobility Through STEM: The CHIPS & Science Act. Washington, DC.

Guest Lectures and Outreach

2025-2026 Career Day Speaker, Dr. Henry E. Perrine Academy of the Arts, Palmetto Bay, FL.

2024 Citizen Science, Girl Scouts of Tropical South Florida, Palmetto Bay, FL.

2019 Society for Engineers in Biomedicine, University of Alabama, Tuscaloosa, AL.

2019 Society of Women Engineers, University of Alabama, Tuscaloosa, AL.

2019 Honors Biology Enrichment Section (BSC 118), University of Alabama, Tuscaloosa, AL.

2018 Honors Biology Enrichment Section (BSC 118), University of Alabama, Tuscaloosa, AL.

2016 NSF Research Experiences for Undergraduates Fluid Mechanics with Analysis Using Computations and Experiments, University of Alabama, Tuscaloosa, AL.

2015 NSF Research Experiences for Undergraduate Fluid Mechanics with Analysis Using Computations and Experiments, Guest speaker, University of Alabama, Tuscaloosa, AL.

2013 NSF Integrative Graduate Education and Research Traineeship Genetics Training Program, Guest speaker, University of Oregon, Eugene, OR.

Service

Service to the scientific community

2026 Society for Molecular Biology and Evolution Awards Nomination Committee

2024-2028 National Institutes of Health Maximizing Investigators Research Award A study section (MRAA) chartered member

2021– National Science Foundation panel reviewer for: Systematics and Biodiversity Sciences, Division of Environmental Biology CAREERs, Evolutionary Processes

2023– National Institutes of Health Genetic Variation in Evolution (GVE) panel reviewer

2023 National Institutes of Health MRAA panel reviewer

2020–2022 National Institute for Neurological Disorder and Stroke Individual Fellowships panel reviewer

2020 NIH Early Career Reviewer for the Genomics, Computational Biology and Technology (GCAT) study section

2016–2018 W.D. Hamilton Award for Outstanding Graduate Student Presentation Selection Committee, Society for the Study of Evolution

Departmental and university service

2026 Chair, FIU Department of Biological Sciences Big Data / AI / Bioinformatics Faculty Search Committee

2026-2028 FIU Faculty Senate Budget and Resource Allocation Committee

2025– Member, Biomolecular Sciences Institute Steering Committee

2025 Member, FIU 2030 Strategic Planning Implementation Committee, Research Excellence Pillar

2025 Chair, FIU Department of Biological Sciences Vector Biology Faculty Search Committee

2023– UFF-FIU Chapter Council member; UFF senator; Grievance Committee member

2023– FIU Department of Biological Sciences Research Planning Committee member

2023 FIU Combined Majors Planning Grant Committee, Computer Science-Biology Major in Interdisciplinary Studies

2023 FIU Department of Biological Sciences Graduate Committee member

2020–2021 Faculty advisor, University of Alabama Graduate Women in Science

2019–2021 University of Alabama Cyberinstitute member

2018–2021 Graduate Admissions and Recruiting Committee, Department of Biological Sciences, University of Alabama

2017–2021 College of Arts and Sciences High Performance Computing Advisory Committee, University of Alabama

2016–2021 3 Minute Thesis (3MT) Biological Sciences Judge

2014–2021 Technology Research Advisory Committee, University of Alabama

2019–2021 Research Software Engineer Search Committee, University of Alabama

2015–2018 Facilities Committee, Department of Biological Sciences, University of Alabama

2015–2018 Alabama Lectures on Life's Evolution (ALLELE) Organizing Committee, University of Alabama

2015 Plant Systematics Faculty Search Committee, University of Alabama

2013 Organizing Committee, University of Oregon Postdoctoral Association

2012–2013 Constitution and Bylaws Committee, University of Oregon Faculty Union

2006–2008 Graduate representative, Integrating Genotype and Phenotype faculty search committee, The Florida State University

2004–2005 President, Ecology and Evolution Discussion Group, The Florida State University

2002–2003 President, Biology Graduate Student Association, California State University Northridge

Articles reviewed for scientific journals:

American Naturalist

Bioinformatics

Biosystems

Briefings in Bioinformatics

BMC Bioinformatics

BMC Evolutionary Biology

BMC Genomics

Current Biology

Ecology

eLife

Evolution

Evolution Letters

G3: Genes, Genomes and Genetics

Genetica

Genetics

Genome Biology

Genome Biology and Evolution

Genome Research

J. of Evolutionary Biology

Life Sciences Alliance

Microbial Genomics

Molecular Biology and Evolution

Nucleic Acids Research Genomics and Bioinformatics

PLoS Genetics

Proceedings of the Royal Society, Series B

Science Advances

Ad hoc grant reviewer for:

National Science Foundation (US)

Medical Research Council (UK)

Wellcome Trust (UK)

Agence Nationale de la Recherche (FR)

CONACYT (MX)

Graduate Women in Science National Fellowship Program (US)

Book reviewer for:

Professor Thomas Spiegelhalter. *Generative AI-ML-assisted SynBio Climate Design Tools Concepts, Workflows, and Protocols Projects 1985-2100*

Special Programs

2011 Pacific-American Studies Institute, Valparaiso, Chile. Scientific Computing: The Challenge of Massive Parallelism in the Americas.

2006 Santa Fe Institute, Beijing, China. Complex Systems Summer School.

1997 Semester Abroad in Zimbabwe, Harare, Zimbabwe. Pitzer College International Programs.

Memberships

International Society for Computational Biology

Society for Modeling and Theory in Population Biology

Society for Molecular Biology and Evolution

Society for the Study of Evolution