

Dr. JING JIAO

Assistant Professor

jjiao@etbu.edu

817-257-6180

 <https://orcid.org/0000-0003-2666-6452>

Department of Biology,
Texas Christian University,
2955 S. University Drive,
Fort Worth, TX 76129

EDUCATION

Ph.D. University of Florida, Gainesville, FL Major: Zoology Minor: Statistics	2011-2017
M.S. East China Normal University, Shanghai, China Major: Ecology	2008-2011
B.S. East China Normal University, Shanghai, China Major: Statistics	2004-2008

ACADEMIC POSITIONS

- | | |
|--|----------------|
| 1. Assistant Professor, Department of Biology, East Texas Baptist University | 8/2026~ |
| 2. Assistant Professor, Department of Biology, Texas Christian University, | 8/2023~7/2026 |
| 3. Research Associate, Department of Biological Science, Florida State University, | 10/2020-8/2023 |
| 4. NIMBioS Postdoctoral Research Associate, University of Tennessee, Knoxville, | 9/2018-10/2020 |
| 5. Research Associate, Quantitative Fisheries Center, Michigan State University, | 9/2017-9/2018 |

TEACHING INTERESTS

Evolution, Ecology, Conservation Biology, Biostatistics, Disease Ecology, General Biology, Quantitative Methods, Research Methods, Mathematical Biology, Public Health Modeling

COURSE TAUGHT

1. Evolution, Disease, and Medicine – TCU, UT Knoxville
2. Biostatistics (graduate) – TCU
3. General Biology Lab – University of Florida (TA for 300+ students)
4. Biology Seminar – TCU

RESEARCH INTERESTS AND SKILLS

- Statistical analyses, mathematical modeling and machine learning
- Computational ecology, epidemiological modeling, and within-host pathogen dynamics
- Expertise in R (preferred language), MATLAB, and quantitative/statistical modeling
- Cross-functional collaboration with psychology, empirical biologists and data science teams
- Experience designing study protocols, conducting analyses, and publishing results

EXPERIENCE APPLYING FOR FUNDING

1. **Participating in NSF APPEX Project (2025–present):** Contributed to a systematic review on the topic of team science with researchers from multiple universities and drafted one manuscript.
2. **Integrating sociopsychology into control behaviors of vector-borne diseases,** PI: Jing Jiao; co-PIs: Cathy Cox (TCU), Nina H. Fefferman (UTK), Yuede Ji (UT Arlington), Dana Pasquale (Duke), Collaborative proposal in final preparation for submission to **NSF IHBEM**

3. **Exploring how tobacco use influences infectious disease control**, PI: Jing Jiao; Co-PI: Qinghua Yang (TCU). Engaged in cross-disciplinary collaboration in preparation for submission to **NIH R15**
4. **Collaborative Research: Advancing theory for disease dynamics in marine systems**, PI: Jing Jiao, Co-PIs: Michael H. Cortez (FSU) and Nina H. Fefferman (UTK), Submitted to **NSF Division of Mathematical Biology** (October 2024)
Received strong reviews (1 “Excellent,” 4 “Very Good,” 1 “Good”), currently under revision for resubmission.
5. **Preliminary modeling about marine disease transmission**, PI: Jing Jiao. Funded by TCU Junior Faculty Summer Research Program (JFSRP) 4/2024-7/2025
6. **RAPID: Estimating the Impact of Behavioral and Etiological Confounders in Real-time Surveillance for Outbreaks of Novel Pathogens**: grant preparation (funded) 3/5/2020-10/2020

PUBLICATIONS (mentored students are underlined)

1. **Jiao J.** The Waxing and Waning of Fear Influence the Control of Vector-Borne Diseases. *Mathematics*, 2025, 13(5): 879.
2. **Jiao J**, Cortez M H. How priority effects within co-infected individuals scale up to affect disease risk in a two-host-two-pathogen system. *Ecological Modelling*, 2025, 502: 111025.
3. Grandison, B, Yin, H, Kilgore, A, Young, M, **Jiao, J**, N Fefferman (2023). Epidemiology, Game Theory, and Evolutionary Rescue: Understanding How Outbreaks Impact Population Viability. *Letters in Biomathematics*, 10(1), 75-86.
4. **Jiao, J**, MH Cortez (2022). Exploring How a Generalist Pathogen and Within-Host Priority Effects Alter the Risk of Being Infected by a Specialist Pathogen. *The American Naturalist*, 200(6), 815-833.
5. Nguyen, D, Wakhare, T, **Jiao, J**, Myers, K, Udiani, O, N Fefferman (2022). Seasonality in multi-host disease systems. *Ecological Modelling*, 470, 109973.
6. **Jiao, J**, G Suarez, N Fefferman (2021). How public reaction to disease information across scales and the impacts of vector control methods influence disease prevalence and control efficacy. *PLOS Computational Biology*, 17(6): e1008762.
7. **Jiao, J**, N Fefferman (2021) The dynamics of evolutionary rescue from a novel pathogen threat in a host metapopulation, *Scientific Reports*, 11(1): 1-13.
8. Tong, X, SG Compton, **J Jiao**, Y Chen Y, YY Ding, R Wang, XY Chen (2021). Dual effects of insect fecundity overdispersion on the Wolbachia establishment and the implications for epidemic biocontrol. *Journal of Pest Science*: 1-11.
9. **Jiao, J**, L. Riotte-Lambert, SS. Pilyugin, MA. Gil and CW. Osenberg (2020) Mobility and its sensitivity to fitness differences determine consumer-resource distributions. *Royal Society Open Science*: 200247.
10. **Jiao, J**, M. Gilchrist, N. Fefferman (2020). The Impact of Host Metapopulation structure on short-term evolutionary rescue in the face of a novel pathogenic threat. *Global Ecology and Conservation*: e01174.
11. Marino Jr, JA, SD Peacor, DB Bunnell, HA Vanderploeg, SA Pothoven, AK Elgin, JR Bence, **J Jiao**, EL Ionides (2019). Evaluating consumptive and nonconsumptive predator effects on prey density using field time-series data. *Ecology*, 100(3): e02583.
12. **Jiao, J**, SS Pilyugin, L Riotte-Lambert, CW Osenberg (2018). Habitat-dependent movement rate can determine the efficacy of marine protected areas. *Ecology*, 99(11): 2485-2495.

13. **Jiao, J**, SS Pilyugin, CW Osenberg (2016). Random movement of predators can eliminate trophic cascades in marine protected areas. *Ecosphere*, 7(8): e01421.
14. Gil, MA, **J Jiao**, CW Osenberg (2015). Enrichment scale determines herbivore control of primary producers. *Oecologia* 180:833-840.
15. Wang, XY, DW Shen, **J Jiao**, NN Xu, S Yu, XF Zhou, MM Shi, XY Chen (2012). Genotypic diversity enhances invasive ability of *Spartina alterniflora*. *Molecular Ecology* 21:2542-2551.
16. Chen, XY, **J Jiao**, X Tong (2011). A generalized model of island biogeography. *Science China: Life Science*, 54: 1055-1061.
17. Li, JH, **J Jiao**, K Jiang and YY Li (2011). Development and characterization of microsatellites in *Torreya JackII* (Taxaceae), an endangered species in China. *American Journal of Botany*, 98:e349-e351.
18. **Jiao, J**, JJ Guan, YH Xie (2010). Conference Review: The 2nd Chinese R Conference. *The R Journal*, 2: 60-61.
19. Yang, SZ, Y Ma, P Jiang, **J Jiao**, YF Zhu, MS Zhao, XY Chen (2009). Soil physical and chemical properties along altitudes of Western Tianmushan. *Journal of East China Normal University*, 6:101-107.

MANUSCRIPTS SUBMITTED OR IN PREPARATION

20. **Jiao, J**, J. Ferguson, A. Hasik, A. Siepielski. Nonlinear pathogen interactions alter the scaling of coinfection patterns in a damselfly system. (Under review; *Journal of Animal Ecology*).
21. Wu, B., **J. Jiao**. Exploring evolutionary rescue of white-nose syndrome in bats under seasonal migration (Under review; Ecological Modeling)
22. Liam, R., Xiong, G., **J. Jiao**. The vector-borne disease dynamics in communities with different disease control policies (in prep.)
23. **Jiao, J**, N Fefferman. Exploring how mismatch of disease and harvesting seasonality affects crop disease dynamics (in prep.). *Proceedings of the Royal Society B: Biological Sciences*.

TEACHING AND MENTORING EXPERIENCES

1. **Sole Instructor of Record**, Texas Christian University: I design and teach two graduate-level courses: *Evolution, Disease and Medicine, Biostatistics*. 8/2023~
2. **Class designer**, University of Tennessee, TN: I participated in the design and test of a teaching activity about honeycreeper conservation for young children and pre-K students: *Biology in A Box* 10/2020~10/2022.
3. **Sole Instructor of Record**, University of Tennessee, Knoxville, TN: I designed and lectured one 3-credit undergraduate class: *Evolution, Disease and Medicine*. 2/2019-7/2019
4. **Co-Mentor**, NIMBioS Summer Research Experiences (SRE) program: I co-guided three undergraduate students in developing project hypothesis and provided methodological support. One related manuscript is under active preparation. 6/4/-7/26/2019
5. **Teaching Assistant**, University of Florida, Gainesville, FL: I designed, organized and lectured one general biology lab (> 300 undergraduate students across multiple disciplines). 8/2012-12/2016

OUTREACH ACTIVITIES

1. **Consulting facilitator**, The Mathematical Modeling Consulting Center: I worked as a facilitator for a NIMBioS seminar series entitled "A Tasting Menu of Mathematical Models". 10/2018
2. **Statistic Consultant**, The Mathematical Modeling Consulting Center: I provide help with, and advice on, statistical analyses to students and faculty at the University of Tennessee 2/2020~

EDITORIAL BOARD FOR PEER-REVIEW JOURNALS

1. PLoS ONE

REVIEWER FOR PEER-REVIEW JOURNALS

1. The American Naturalist
2. Ecology
3. Frontier in Ecology and the Environment
4. PLoS Computational Biology
5. Biotechnology and Bioprocessing

AWARDS AND GRANTED SCHOLARSHIP

1. Charles Vincent and Heidi Cole McLaughlin Endowment Dissertation Fellowships, Department of Biology, University of Florida 1/15/2017-5/25/2017
2. QSE3 IGERT¹ interdisciplinary research funding, Department of Mathematics, University of Florida 10/1/2015-5/31/2016
3. QSE3 IGERT¹ interdisciplinary research funding, Department of Biology, University of Florida 8/1/2011-5/31/2012
4. Outstanding Achievement Certificate, University of Florida International Center (UFIC), University of Florida 12/10/2012

PRESENTATIONS

Invited talks:

1. **Jiao, J.** *Nonlinear pathogen interactions alter the scaling of coinfection patterns in a damselfly system*, University of Oklahoma, 2/2026
2. **Jiao, J.** *Mathematical Modeling in Disease Epidemiology*. Mathematical department, Texas Christian University 4/2025
3. **Jiao, J.** *The waxing and waning of fear influence the control of vector-borne diseases*. University of Oklahoma: <https://www.ceom.ou.edu/outreach/workshops/content/10> 10/2024
4. **Jiao, J.** *How psychology influences human control on vector-borne diseases?* Biopsy seminar, psychology department, Texas Christian University 9/2024
5. **Jiao, J.** *Public's fear to death can determine host-vector interactions*. Morsel Talk at NIMBioS University of Tennessee, Knoxville 6/2024
6. **Jiao, J., M. Gilchrist and N. Fefferman.** *The impact of host metapopulation structure on short-term evolutionary rescue in the face of a novel pathogenic threat*. AMS Southeastern Sectional Meeting, Charlottesville, VA (canceled due to COVID-19)
7. **Jiao, J.** and N. Fefferman. *A transient disease cycles in host-pathogen interactions when host migrate among patches*. Biology Seminar in Florida State University, Tallahassee, FL (canceled due to COVID-19)
8. **Jiao, J.** and N. Fefferman. *A disease cycle pattern in a spatial-structured host population*. Dr. Joshua Weitz's lab Seminar in Georgia Tech, Atlanta, Georgia 2/2020
9. **Jiao, J.** and N. Fefferman. *Host metapopulation, disease epidemiology and host evolution*. Georgia Tech Biomath Seminar, Atlanta, Georgia 10/2018

¹ QSE3 IGERT (DGE-0801544) is Quantitative Spatial Ecology, Evolution, and Environment Integrative Graduate Education Research Traineeship NSF (QSE3 IGERT/NSF).

Contributed Presentations:

10. **Jiao, J.**, J. Ferguson, A. Hasik, A. Siepielski. *Detecting nonlinear parasite interactions in a damselfly coinfection system*. **Annual meeting of Ecology Society of America**, Salt lake city, UT 7/2026
11. **Jiao J.** N. Fefferman. Exploring how mismatch of disease and harvesting seasonality affects crop disease dynamics, **Annual Meeting of The American Public Health Association**, Washington, D.C., 11/2025
12. **Jiao, J.** *Fear-to-Death influences the control of vector-borne diseases*. **Annual meeting of Ecology Society of America**, long beach, CA. 8/2024
13. **Jiao, J.**, MH. Cortez. *How within-host priority effects between specialist and generalist pathogens affect disease risk*. **Symposium on Biomathematics and Ecology Education and Research**, virtual meeting 11/2021
14. **Jiao, J.**, MH. Cortez. *Exploring how generalist pathogens and priority effects alter the risk of being infected by specialist pathogens*. **Annual Meeting of Ecology Society of America**, virtual meeting 8/2021
15. **Jiao, J.**, M. Gilchrist, N. Fefferman. *The Impact of Host Metapopulation structure on short-term evolutionary rescue in the face of a novel pathogenic threat*. **Annual Meeting of Ecology Society of America, virtual meeting**, virtual meeting 8/2020
16. **Jiao, J.**, M. Gilchrist, N. Fefferman. *The influences of host evolution on host-pathogen interactions across space*. **Annual Meeting and Conference of the Society for Mathematical Biology**, Montreal, CA 7/2019
17. **Jiao, J.**, SD. Peacor, JA Marino, Jr., J. Bence, DB. Bunnell, HA. Vanderploeg, SA. Pothoven, AK. Elgin and EL. Ionides. *Temperature influences the consumptive and non-consumptive effects of predators on zooplankton production in the Great Lakes*. **Annual Meeting of the Ecological Society of America**, New Orleans, Louisiana 8/2018
18. **Jiao, J.**, L. Riotte-Lambert, SS. Pilyugin, MA. Gil and CW. Osenberg. *Mobility determines consumer resource interactions across space and time*. **Annual Meeting of the Ecological Society of America**, Fort Lauderdale, Florida 8/2016
19. **Jiao, J.**, L. Riotte-Lambert, SS. Pilyugin, MA. Gil and CW. Osenberg. *Mobility determines consumer resource interactions across space and time*. **Gordon Research Conference “Unifying Ecology Across Scales”**, Biddeford, Maine 7/2016
20. **Jiao, J.**, SS. Pilyugin, and CW. Osenberg. *Movement reverses trophic cascades in marine reserves*. **North Florida Marine Science Symposium**, St. Augustine, Jacksonville, Florida 1/2014
21. **Jiao, J.**, SS. Pilyugin, and CW. Osenberg. *Movement reverses trophic cascades in marine reserves*. **Gordon Research Conference “Predator-Prey Interactions”**, Ventura, California 1/2014
22. **Jiao, J.**, J. Langebrake, L. Riotte-Lambert and CW. Osenberg *Differential movement of harvested organisms affects predicted responses to Marine Protected Areas*. **42th benthic conference**, Savanna, Georgia. 3/2013