Beckett Sterner

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Research Interests

I use methods from philosophy and social science to study **how knowledge systems can better address wicked problems**. My current projects address biodiversity data, modeling, governance, and philosophy.

Employment

Arizona State University	2023–Present	Associate Professor
Arizona State University	2016–2023	Assistant Professor
University of Michigan	2014–2016	Society of Fellows, Department of Philosophy
Field Museum	2012–2014	NSF Postdoctoral Fellow, Philosophy of Biology

Education

University of Chicago

2012	PhD, Committee on Conceptual and Historical Studies of Science
	Thesis: "The Practice of Theorizing in Computational Biology"
	Committee: William Wimsatt, Robert Richards, C. Kenneth Waters
2011	M.Sc., Statistics
2009	M.A., Philosophy

Massachusetts Institute of Technology

2006	B.S., Mathematics

Honors and Awards

2021	Inclusive Teaching Fellowship, Research for Inclusive STEM Education Center	Arizona State University
2020–2021	Graduate College Teaching Innovation Fellowship	Arizona State University
2020	Ideas Challenge winner (ranked #4 out of 250 nationally)	Templeton Foundation
2014–2016	Postdoctoral Fellowship, Society of Fellows	University of Michigan
2011–2012	Mellon Foundation Dissertation-Year Fellowship	University of Chicago
2006–2008	University Fellowship	University of Chicago
2006	Pogosyants Award for Outstanding Undergrad Research, Dept. of Electrical Engineering and Computer Science	MIT

Research Support

Awarded External ($3.4M total: $2.5M active; $900k completed)

2023–2028 DMS/NIGMS 2: Spatial, Multi-Host Petri Net Models for Zoonotic Disease Forecasting
PI   40% REC $1.1M   NIH R01 (NIGMS)   Co-PI Petar Jevtic, Nate Upham

2023–2025 Debating the Who, What, and Where of the National Ecological Observatory Network
PI	60% REC	$240k	Sloan Foundation	Co-PI Ute Brady, Zoe Nyssa (Purdue)

2023–2024 DDRIG: Boundary Speak: Science and Traditional Ecological Knowledge in Dinétah
PI	50% REC	$14k	NSF Science and Technology Studies	Co-PI Myla Vicenti Carpio

2022–2027 CAREER: Knowledge Infrastructure in the Red List of Threatened Species
PI	100% REC	$439k	NSF CAREER

2022–2023 Alliance for Biodiversity Knowledge Governance Models
PI	33% REC	$26k	Global Biodiversity Information Facility	Co-PI Ute Brady, Zoe Nyssa (Purdue)

2021–2024 Dynamic Linear Modeling to Unlock New Tests of Directionality in Fossil Lineages
PI	60% REC	$250k	Templeton Fdn	Co-PI John Fricks

2021–2023 Intelligently predicting viral spillover risks from bats and other wild mammals
Co-PI	25% REC	$475k	NIH R21	PI Nathan Upham, Co-PI Nico Franz, Atriya Sen (Univ. of New Orleans), DeeAnn Reader (Bucknell)

2021–2023 Explaining Differential Success in Biodiversity Knowledge Commons
PI	67% REC	$396k	NSF Science of Science	Co-PI Steve Elliott, Zoe Nyssa (Purdue)

2019–2020 Essays on Emerging Ecological Risk
Co-PI	50% REC	$9.2k	Society of Actuaries	PI: Petar Jevtic

2018–2021 Productive Ambiguity in Classification
PI	55% REC	$160k	NSF Science and Technology Studies	Co-PIs: Nico Franz, Manfred Laubichler, Liz Lerman, Joeri Witteveen

2012–2014 The Impact of Mathematics on Inferring Classifications and Phylogenies
Co-PI	50% REC	$120k	NSF Postdoctoral Fellowship	PI: Scott Lidgard (Field Museum)

2008–2011 Implications of the History of Computers in Biology for the Unity of Science
PI	100% REC	$150k	NSF Graduate Research Fellowship

Awarded Internal ($702k total: $0k active; $702k completed)

2023 Community visions of the Salt River: collaborative meaning-making through game play
PI	NA	$5k	Seize the Moment Initiative, Humanities Lab	Co-PI Nancy Grimm, Jennifer Keahey

2020–2021 Biocollections JEDI Research Fellowship: Facilitating Equity and Inclusivity in Human-Nature Connections
Co-PI	NA	$10k	ASU Natural Sciences JEDI Seed Grant	PI: Kelsey Yule, Co-PI Nico Franz

2019 Workshop: Closing The Feedback Loop Between Decision-Making and Biodiversity Data
PI	NA	$12k	Global Futures Initiative	Co-PI: Nico Franz

2019–2021 Biodiversity Data Science Initiative
PI	NA	$600k	ASU Presidential Strategic Initiative Fund	Co-PI: Nico Franz

2017–2019 Statistical Innovation, Models, and Complex Data Questions in Paleontology and Beyond

Co-PI	100% REC	$55k	Field Museum Science Innovation Award	PI: Scott Lidgard
2017–2018	When Does Taxonomy Matter: Linnaeus and Beyond			
PI	33% REC	$20k	McDonnell Foundation, via Marine Biological Laboratory	Co-PIs: Nico Franz, David Remsen

PUBLICATIONS

My research program is highly interdisciplinary and best suited to collaborative, co-authored research articles. Significance of author order: First authorship indicates the person who contributed the primary research effort to the publication, and corresponding authorship indicates the main project lead. Author order is determined by effort contributed.

Google Scholar Profile: https://scholar.google.com/citations?user=Visl4CkAAAAJ
Total citations: 346; h-index: 10; i10-index: 10; accessed August 26, 2023

Trainees: [u] undergraduate; [g] graduate; [p] postdoctoral or assistant research professor. The corresponding author is starred (*).

Published Peer-Reviewed Articles (29 total: 20 first author; 22 corresponding)

29. 2023   ***Sterner B**, and S Elliott. "How Data Governance Principles Influence Participation in Biodiversity Science." *Science as Culture.* DOI: 10.1080/09505431.2023.2214155.

28. In Press   ***Sterner B**, S Elliott, E Gilbert[g], and N Franz. "Data Integration without Unification." *Big Data and Society*.

27. 2023   *Cartney, Ann Mc, K. S. Tsosie, **B Sterner**, J. R. Glass, S Paez, J Geary, Maui Hudson, and Mitchell A. Head. "Indigenous Peoples and Local Communities as Partners in the Sequencing of All Eukaryotic Life for the Future of Life." *NPJ Biodiversity*, October 5, 2022. DOI: 10.21203/rs.3.rs-2128776/v1.

26. 2023   ***Sterner, B**. 2023. "Norms of Evidence in the Classification of Living Fossils." *Frontiers in Ecology and Evolution* 11. DOI: 10.3389/fevo.2023.1198224

25. In press   ***Sterner B**, S Elliott, J Wideman. "An Account of Conserved Functions and How Biologists Use Them to Integrate Cell and Evolutionary Biology." *Biology and Philosophy*.

24. 2023   *Halpern, B. S., Boettiger , C., Dietze, M. C., Gephart, J. A., Gonzalez, P., … **Sterner, B**... Lancaster, L. "Priorities for synthesis in ecology and environmental science." *Ecosphere*. DOI: 10.1002/ecs2.4342

23. 2022   ***Sterner B**, J Witteveen, and A Sen. "Consensus and Scientific Classification." *Knowledge Organization*. DOI: 10.5771/0943-7444-2022-4-236

22. 2022   ***Sterner, B**. "Explaining Ambiguity in Scientific Language." *Synthese*. DOI: 10.1007/s11229-022-03792-x

21. 2021   ***Sterner B,** and S Lidgard. "Objectivity and Underdetermination in Statistical Model Selection." *British Journal for the Philosophy of Science.* DOI: 10.1086/716243

20. 2021   *Upham N[p], JH Poelen, DL Paul, Q Groom, NB Simmons, MPM Vanhove, S Bertolino, DM Reeder, C Bastos-Silveira, A Sen, **B Sterner**, N Franz, M Guidoti, L Penev, and D Agosti. "Liberating Host–Virus Knowledge from Biological Dark Data." *The Lancet Planetary Health* 5(10): e746–50. DOI: 10.1016/S2542-5196(21)00196-0

19. 2021   *Sen A[p], **B Sterner**, N Franz, C Powell[g], N Upham[p]. "Combining Machine Learning & Reasoning for Biodiversity Data Intelligence." *Proceedings of the AAAI Conference on Artificial Intelligence* 35(17): 14911–19. DOI: 10.1609/aaai.v35i17.17750

18. 2021   ***Sterner B**, S Elliott, N Franz, and N Upham[p]. "Bats, Objectivity, and Viral Spillover Risk." *History and Philosophy of the Life Sciences* 43(1): 7. DOI: 10.1007/s40656-021-00366-x

17. 2021   ***Sterner B,** and C DiTeresi. 2021. "Making Coherent Senses of Success in Scientific Modeling." *European Journal for Philosophy of Science* 11(1). DOI: 10.1007/s13194-020-00336-3.

16. 2020   ***Sterner, B**, E Gilbert[g], and N Franz. 2020. "Decentralized but Globally Coordinated Biodiversity Data." *Frontiers in Big Data* 3: 519133. DOI: 10.3389/fdata.2020.519133

15. 2020   ***Sterner B**, J Witteveen, and N Franz. 2020. "Coordinating dissent as an alternative to consensus classification: insights from systematics for bio-ontologies." *History and Philosophy of the Life Sciences* 42(1): 8. DOI: 10.1007/s40656-020-0300-z

14. 2020   Cullan M[g], S Lidgard, and ***B Sterner**. "Controlling the Error Probabilities of Model Selection Information Criteria Using Bootstrapping." *Journal of Applied Statistics* 47(13–15): 2565–81. DOI: 10.1080/02664763.2019.1701636

13. 2019   Cusimano S[u] and ***B Sterner**. "Integrative Pluralism for Biological Function." *Biology & Philosophy* 34(6): 55. DOI: 10.1007/s10539-019-9717-8

12. 2019   Cusimano S[u], and ***B Sterner**. "The Objectivity of Organizational Functions." *Acta Biotheoretica.* DOI: 10.1007/s10441-019-09365-9

11. 2019   ***Sterner B**. "Evolutionary Species in Light of Population Genomics." *Philosophy of Science*. 86: 1-12. DOI: 10.1086/705527

10. 2018   ***Sterner B**, and S Lidgard. "Moving Past the Systematics Wars." *Journal of the History of Biology*. 51: 31–67. DOI: 10.1007/s10739-017-9471-1

9. 2018   *Franz N, and **B Sterner**. "To Increase Trust, Change the Social Design of Biodiversity Data Aggregation." *Database.* DOI: 10.1093/database/bax100

8. 2017   ***Sterner B**. "Individuating Population Lineages: A New Genealogical Criterion." *Biology and Philosophy*. 32 (5): 683–703. DOI: 10.1007/s10539-017-9580-4

7. 2017   ***Sterner B** and N Franz. "Taxonomy for Humans or Computers?" *Biological Theory*. 12 (2): 99–111. DOI: 10.1007/s13752-017-0259-5

6. 2015   ***Sterner B**. "Pathways to Pluralism about Biological Individuality." *Biology and Philosophy*. 30 (5): 609–628. DOI: 10.1007/s10539-015-9494-y

5. 2014   ***Sterner B**. "The Practical Value of Biological Information for Research." *Philosophy of Science* 81 (2): 175–94. DOI: 10.1086/675679.

4. 2014   ***Sterner B**, and S. Lidgard. "The Normative Structure of Mathematization in Systematic Biology." *Studies in the History and Philosophy of Biological and Biomedical Sciences* 46: 44–54. DOI: 10.1016/j.shpsc.2014.03.001 .

3. 2009   ***Sterner B**. "Object Spaces: An Organizing Strategy for Biological Theorizing." *Biological Theory* 4(3): 280–286. DOI: 10.1162/biot.2009.4.3.280

2. 2008   Li S, F Zhao, **B Sterner**, and *J Xu. "Discriminative Learning for Protein Conformation Sampling." *Proteins: Structure, Function, and Bioinformatics* 73(1): 228–240. DOI: 10.1002/prot.22057

1. 2007   **Sterner B,** R Singh, and *B Berger. "Predicting and Annotating Catalytic Residues: An Information-Theoretic Approach." Journal of Computational Biology. 14(8): 1058–1073. DOI: 10.1089/cmb.2007.0042

Book Chapters (2 total: 2 first author; 2 corresponding)

2. 2017   ***Sterner B**. "Individuality and the Control of Life Cycles." In *Biological Individuality*, eds. Scott Lidgard and Lynn Nyhart. Chicago: University of Chicago Press, 84–108.

1. 2013   ***Sterner B**. "Well-Structured Biology: Numerical Taxonomy and Its Methodological Vision for Systematics." In *The Evolution of Phylogenetic Systematics*, edited by Andrew Hamilton, 213–44. Los Angeles: University of California Press.

Essay Reviews (1 total; 1 first author; 1 corresponding)

1. 2018   ***Sterner B**. (5000 words) "Review of *Data-Centric Biology: A Philosophical Study.*" Philosophy of Science. 85 (3): 540–550.

Scientific Reports (2 total; 1 first author; 0 corresponding)

2. 2021   **Sterner B**, E Boyle[g], *P Jevtic. "Emerging Risks in the Health Sector from Changing Species Distributions and Seasonality." *Environmental Risk Series,* Society of Actuaries. https://www.soa.org/globalassets/assets/files/resources/research-report/2021/emerging-risks-health-sector.pdf

1. 2021   Boyle E[g], **B Sterner**, A Kinzig, *P Jevtic. "New Fire Hazard Risk from Policy Responses to Climate Change." *Environmental Risk Series*, Society of Actuaries. https://www.soa.org/globalassets/assets/files/resources/research-report/2021/fire-hazard-risk.pdf

Conference Abstracts (7 total: 2 first author; 4 corresponding)

7. 2022   *Upham N, C Powell, L Rocha Prado, N Franz, and **B Sterner**. "Extended Taxonomic Curation: Moving beyond Species Lists to Linking Species Data." *Biodiversity Information Science and Standards* 6 (August 23, 2022): e93670.

6. 2022   *Rocha Prado L, N Upham, N Franz, and ***B Sterner**. "Extending Recognition for Taxonomic Curation Beyond the Traditional Authorities." *Biodiversity Information Science and Standards* 6 (September 7, 2022): e94252.

5. 2021   *****Sterner B**, N Upham[p], P Gupta[p], C Powell[g], and N Franz. 2021. "Wanted: Standards for FAIR Taxonomic Concept Representations and Relationships." *Biodiversity Information Science and Standards* 5: e75587.

4. 2020   *Gilbert E[g], N Franz, **B Sterner**. "Historical Overview of the Development of the Symbiota Specimen Management Software and Review of the Interoperability Challenges and Opportunities Informing Future Development." *Biodiversity Information Science and Standards*. 4: e59077.

3. 2020   *Sen A[p], N Franz, **B Sterner**, N Upham[p]. "The Automated Taxonomic Concept Reasoner." *Biodiversity Information Science and Standards*. 4: e59074.

2. 2020   *****Sterner B**, N Upham[p], A Sen[p], N Franz. "Avenues into Integration: Communicating taxonomic intelligence from sender to recipient." *Biodiversity Information Science and Standards*. 4: e59006.

1. 2019   *Franz N, E Gilbert[g], and **B Sterner**. "Distributed, but Global in Reach: Outline of a de-centralized paradigm for biodiversity data intelligence." *Biodiversity Information Science and Standards*. 3: e37749.

Works Forthcoming (4 total: 1 first author; 3 corresponding)

4. In Prep   Cheng H[g], and ***B Sterner**. "Controlling False Positives Using the Akaike and Bayesian Information Criteria." Target journal: *Journal of the Royal Statistical Society Series B: Statistical Methodology*.

3. In Prep   Brady U[p], Z Nyssa, and ***B Sterner**. "Identifying Governance Approaches to Information Decay in Long-Term Data Commons" Target journal: *Policy Studies*.

2. In Prep   Martinez W R[g], G Hunt, **B Sterner**, and *J Fricks. "A Framework for Modeling Trait Evolution in Fossil Lineages." Target journal: *Journal of the Royal Society Interface*.

1. In Prep   ***Sterner B**, S Elliott, U Brady, Z Nyssa. "Epistemic Oppression in Open Data Commons." Target Journal: *Philosophy of Science*.

PRESENTATIONS

Venue type: **Bold** = international; <u>Underlined</u> = national; *italics* = regional

External Invited Presentations (17 total)

17. 2023   "State space modeling to unlock new tests of directionality in fossil lineages," with John Fricks, Gene Hunt, Melanie Hopkins, and Antonio Campbell. **40th Altenberg Workshop in Theoretical Biology**, "Directionality in Genomics and Macroevolution," Konrad Lorenz Institute, Vienna.

16. 2023   "Data for Whom? Intellectual Property, Biodiversity, and Indigenous Genomic Data Sovereignty," with Krystal Tsosie. **7th Annual Digital Data in Biodiversity Conference**, iDigBio.

15. 2023   "An Account of Conserved Functions and How Biologists Use Them to Integrate Cell and Evolutionary Biology," **Science of Purpose Initiative**, University of Minnesota.

14. 2022   "Knowledge Systems for Wicked Problems," **Egenis Seminar**, University of Exeter

13. 2021   "Building a Community Around Your Taxonomic Needs," **TaxonWorks Together 2021**, University of Illinois-Urbana Champaign.

12. 2021   "Making Biodiversity Portals FAIR and CARE," *Indigenous Data Sovereignty Collaboratory*, University of Arizona

11. 2021   "Biodiversity Data Methods Now and Into the Future," Plenary presentation with Leah Oliver and Anne Frances, <u>Biodiversity without Borders</u>, NatureServe Annual Conference

10. 2021   "The Practical Value of Biological Information," Guest lecture for graduate Philosophy of Mind seminar, *University of Arizona*

9. 2020   "Biodiversity and Intensive Agriculture: Determining the Landscape for Win-Win Outcomes." Food and Values Workshop, **University of Adelaide**, Australia.

8. 2020   Commentator and panelist, Book manuscript seminar for Paola Castaño, "Beyond the Lab: The Social Life of Experiments on the International Space Station," <u>University of Chicago</u>

7. 2020   Panelist, "Numbers and Names: How taxonomic challenges affect biodiversity conservation," NatureServe **Pulse of the Planet Webinar**

6. 2017   "What Does It Mean to Know Something? The Ontological and Epistemological Faces of Information." *Templeton World Charity Foundation Workshop*, Phoenix, Arizona.

5. 2017   "Modeling the Ephemeral Branches of Population Lineages." Species in the Age of Discordance Workshop, University of Utah.

4. 2013   "The Epistemology of Causal Selection: Insights from Systems Biology." Center for Philosophy of Science Colloquium, University of Pittsburgh.

3. 2013   "What Statistical Phylogenetics Implies About Species." *Watson Armour Seminar*, Field Museum, Chicago.

2. 2011   "Well-Structured Biology: Statistics and Philosophies of Systematics." Progress by Design: Mathematization in Science and Engineering from the Enlightenment to the Personal Computer, **Bielefeld University**, Bielefeld, Germany.

1. 2008   "Reduction and Modular Objects: DNA, Evolution, and Sequence Space." Boundaries and Edges of Biological Objects, University of Utah.

Peer-Reviewed Conference Submissions (33 total)

33. 2023   "Modeling Evolutionary Rates." **International Society for the History, Philosophy, and Social Studies of Biology** (ISHPSSB).

"Cognitive and affective domains of evolution acceptance," presented by Josh Hoskinson. **ISHPSSB**

32. 2023   "Specimens and the Free Rider Problem For Biodiversity Data," with Ute Brady. **Society for the Preservation of Natural History Collections**.

31. 2023   "From social dilemma to social panacea: Openness in natural and knowledge commons," presented by Ute Brady. **International Association for the Study of the Commons.**

30. 2022   "Governance and the Social Epistemology of Data Integration for Global Biodiversity Loss," with Ute Brady and Steve Elliott. Governance of Emerging Technologies and Science

29. 2021   "Wanted: Standards for FAIR Taxonomic Concept Representations and Relationships," with Nathan Upham, Prashant Gupta, Caleb Powell, and Nico Franz. **TDWG 2021.**

28. 2021   "Data Integration without Unification," with Steve Elliott, Ed Gilbert, and Nico Franz, Philosophy of Science Association (PSA)

27. 2021   "Making Biodiversity Data Portals FAIR and CARE," with Steve Elliott, **ISHPSSB**

26. 2021   "AI for biodiversity Data," presenter and panelist with Atriya Sen, Nathan Upham, Nico Franz, Sara Beery, and Anuj Karpatne, 6th Annual Digital Data in Biodiversity Research Conference

25. 2021   "Focus on Platforms to Understanding Environmental Data Commons and Make Them Accessible," with Steve Elliott and Zoe Nyssa, **Commoning the Anthropocene**, Arizona State University

24. 2021   "Explaining Ambiguity in Scientific Language: Towards a Computational Approach," **Digital Studies of Digital Science**, Catholic University of Louvain, Belgium

23.	2020	"Explaining Differential Success in Biodiversity Knowledge Commons." **Environmental Evidence Summit**, November 2020.
22.	2020	"Interdisciplinary Responses to the Pandemic," Plenary Panelist, <u>Association of Interdisciplinary Studies</u>
21.	2020	"Fair but inequitable: the impacts of data governance on participatory biodiversity science." Presented with co-author Steve Elliott. **GEO BON Open Science Conference**.
20.	2020	"Taxonomically intelligent biodiversity data: Progress and next steps to scale up." Organized panel discussion and presented. <u>Fourth Annual Digital Data in Biodiversity Research Conference</u>.
19.	2020	"The Social Epistemology of Data Integration for Global Biodiversity Loss," *Philosophy of Biology At the Mountains* (POBAM)
18.	2019	"Decentralized but globally coordinated biodiversity data science." Philosophy in Biology and Medicine Conference, **University of Bordeaux**, France.
17.	2019	"Synthesis Research As Maintenance" (Declined due to schedule conflict). <u>The Maintainers III</u>, Washington DC.
16.	2019	"Naming Practices In and Outside Biology." Two-session symposium co-organized with Sabina Leonelli, **ISHPSSB**
15.	2019	"Coordinative Synthesis Research in Areas of Low Scientific Consensus" (Declined due to schedule conflict). Computational Methods and the Future of Science, <u>University of Kansas</u>.
14.	2018	"Evolutionary Species in Light of Population Genomics." <u>PSA</u>, Seattle.
13.	2018	"Standards of Evidence in Model Selection: A New Underdetermination Problem." History and Philosophy of Science Conference 2018: Chance and Probability in Science, <u>University of Colorado Boulder</u>, CO.
12.	2018	"A Synthetic Approach to Studying Scientific Problems." **Society for Philosophy of Science in Practice** (SPSP), Ghent, Belgium.
11.	2018	"Evolutionary Species in Light of Population Genomics." <u>Pacific American Philosophy Association</u> (APA) Conference, San Diego.
10.	2017	"Integrative Pluralism for Biological Function." Scientific Knowledge Under Pluralism, <u>University of Pittsburgh</u>, Pittsburgh, PA.
9.	2016	"Natural Kinds in Practice." **SPSP**, Glassboro, NJ.
8.	2016	"A Formal Model of Biological Lineages." <u>Central APA Conference</u>, Chicago.
7.	2015	"Species are Probabilistic Processes." **ISHPSSB**, Montreal, Canada.
6.	2014	"Mathematization and Methodology," with Scott Lidgard. <u>History of Science Society</u> (HSS), Chicago.
5.	2013	"Structuring Problems, Coordinating Research." **SPSP**, Toronto, Canada.
4.	2012	"Pragmatics of Prediction and Explanation." <u>PSA</u>, San Diego.
3.	2011	"Biological Information Justifies and Explains How Mechanisms Realize Functions." **ISHPSSB**, Salt Lake City, UT.
2.	2009	"Making Meaning of Mathematics: Computer Technology in Systematics and Taxonomy." **ISHPSSB**, Brisbane, Australia.

1. 2007 "Reconnecting Evolutionary and Descriptive Biology: A Network Effect in Computational and Systems Biology." **ISHPSSB**, Exeter, England.

Teaching Experience

ASU Courses

2023	Spring	Evolution	BIO 345	Co-Instructor
2022	Fall	Big Data in Context	BIO/EVO/HPS 598	Instructor
	Spring	Philosophy of Biology & Medicine	BIO/HPS/PHI 494, 598	Instructor
	Spring	Biology and Society Lab	BIO/HPS 615	Co-Instructor
2021	Fall	Evolution	BIO 345	Co-Instructor
	Fall	Big Data in Context	BIO/EVO/HPS 598	Instructor
	Spring	Philosophy of Biology & Medicine	BIO/HPS/PHI 494, 598	Instructor
	Spring	Creative Tools for Saving Biodiversity	BIO/HDA/HPS 494, 598	Co-Instructor
	Spring	Biology and Society Lab	BIO/HPS 615	Co-Instructor
2020	Fall	Evolution	BIO 345	Co-Instructor
	Fall	Big Data in Context	BIO/EVO/HPS 598	Instructor
	Spring	Philosophy of Biology & Medicine	BIO/HPS/PHI 394, 598	Instructor
	Spring	Biology and Society Lab	BIO/HPS 615	Co-Instructor
	Spring	Honors Thesis	BIO 493	Instructor
	Spring	Undergraduate Research	BIO 495	Instructor
2019	Fall	Evolution	BIO 345	Co-Instructor
	Fall	History and Philosophy of Data	HPS/BIOS/EVOL 598	Instructor
	Spring	Philosophy of Biology & Medicine	BIO/HPS/PHI 394, 598	Instructor
	Spring	Biology and Society Lab	BIO/HPS 615	Co-Instructor
	Spring	Advanced Reading Seminar	BIO 590	Instructor
	Spring	Undergraduate Research	BIO 499	Instructor
2018	Fall	Evolution	BIO 345	Co-Instructor
	Fall	Biology & Society Lab	BIO/HPS 615	Co-Instructor
	Spring	Philosophy of Science	HPS 314	Instructor
	Spring	Biology & Society Lab	BIO/HPS 615	Co-Instructor
2017	Fall	Biology & Society Lab	BIO/HPS 615	Co-Instructor
	Spring	Biology & Society Lab	BIO/HPS 615	Co-Instructor
	Spring	Advanced Reading Seminar	BIO 590	Instructor
2016	Fall	Philosophy of Biology	BIO 494/598, HPS 494/598, PHI 420/591	Instructor
	Fall	Biology & Society Lab	BIO/HPS 615	Co-Instructor

Mentorship

Postdoctoral & Assistant Research Professor Mentoring, ASU (4 total: 1 current)

4.	2022–Present	Postdoc	Social Science	Ute Brady
3.	2021–2022	Postdoc	Computer Science	Prashant Gupta
		Obtained Data Engineer position at Amazon		
2.	2020–2022	Asst. Prof.	Evolutionary Biology	Nathan Upham
		Obtained tenure-track position at ASU		
1.	2019–2020	Postdoc	Computer Science	Atriya Sen
		Obtained tenure-track position at University of New Orleans		

Ph.D. Student Primary Advisor, ASU (5 total: 4 current)

5.	2022–Present	Advisor	PhD	Biology & Society	Josh Hoskinson
4.	2019–Present	Advisor	PhD	Environmental Life Science	Katherine Weiss
3.	2019–Present	Co-Advisor	PhD	Biology & Society	Charles Wallace
2.	2018–Present	Advisor	PhD	Biology & Society	Elliott Millinor
1.	2016–2021	Advisor	PhD	Biology & Society	Kelle Dhein
		Obtained Lyman T. Johnson Postdoctoral Fellowship at University of Kentucky			

M.S. Student Primary Advisor, ASU (1 total: 0 current)

1.	2017–2018	Advisor	MS	Statistics	Michael Cullan
		Obtained job as Data Scientist in Residence at The Data Incubator			

ASU Graduate Student Committee Member, ASU (10 total: 5 current)

10.	2023–Present	Committee	PhD	Evolutionary Biology	Samanta Orellana
9.	2023–Present	Committee	PhD	Biology & Society	Dan Affsprung
8.	2022–Present	Committee	PhD	Biology	Courtney Grigsby
7.	2022–Present	Committee	PhD	Biology & Society	Risa Schnebly
6.	2022	Committee	MS	Biology & Society	Baylee Edwards
5.	2021–2023	Committee	PhD	Biology & Society	Taya Misheva
4.	2018–2023	Committee	PhD	Biology & Society	Anna Guerrero
3.	2018	Committee	MS	Biology & Society	Jerica Vie
2.	2017–Present	Committee	PhD	Evolutionary Biology	Edward Gilbert
1.	2016–2019	Committee	MS	Biology & Society	Sean Cohmer

Other Universities, Graduate Student Committee Member (1 total: 1 current)

1.	2022–Present	Committee	PhD	Philosophy, U. of Arizona	Robert Lazo

Barrett Honors Undergraduate Thesis Director, ASU (8 total: 2 current)

8.	2023–Present	Thesis Advisor	Biology	Nikita Kumari
7.	2023–Present	Thesis Advisor	Biology	Linnea Donovan
6.	2022–2023	Thesis Advisor	Biology	Reilly Burton
		Obtained job as Clinical Research Coordinator at HonorHealth		
5.	2022–2023	Thesis Advisor	Biology	Muhammad Tariq
		Applying for medical school		

4.	2022–2023	Thesis Advisor	Conservation Biology	Tanishq Jain
	Enrolled in Dual Masters of Urban Planning and Sustainability at ASU			
3.	2022–2023	Thesis Advisor	Conservation Biology	Ally Finkbeiner
	Enrolled in Masters in Environmental Management at Duke University			
2.	2019–2020	Thesis Advisor	Biology	Sylvia Karjala
	Enrolled in Masters in Education for Applied Behavioral Science			
1.	2019–2020	Thesis Advisor	Biology & Society	Sydney Fikse
	Obtained job as Behavioral Technician, Desert Choice Schools			

Barrett Honors Undergrad Thesis Committee Member, ASU (4 total: 1 current)

4.	2023–2024	Thesis 2nd Reader	Biology	Gabrielle Feldman
3.	2022–2023	Thesis 2nd Reader	Biology	Elisa Olofsson
2.	2021–2022	Thesis 2nd Reader	Biology	Monica Lam
1.	2020–2021	Thesis 2nd Reader	Biology	Andrew Sinclair

Undergraduate Research Mentor, ASU (32 total: 13 current)

32.	2023–Present	Research Asst.	Biology	Jacqueline Dominguez
31.	2023–Present	Research Asst.	Biology	Hanna Rodrigo
30.	2023–Present	Research Asst.	Biology	Rohan Patel
29.	2023–Present	Research Asst.	Biology	Jillian Amend
28.	2023–Present	Research Asst.	Biology	Sophia Koutsogiannis
27.	2023–Present	Barrett Fellowship	Biology	Leah Cotton
26.	2023–Present	Research Asst.	Biology	Hannah Spraggins
25.	2023–Present	Research Asst.	Biology	Gwenyth Calaro
24.	2023–Present	Research Asst.	Biology	Gabrielle Suarez
23.	2023–Present	Research Asst.	Biology	Jennifer Johnson
22.	2022–Present	Research Asst.	Biology	Jordan Sowards
21	2022–2023	Research Asst.	Environmental Science	Zoe Gentry
20.	2022–2023	Research Asst.	Biology	Briana Gonzales
19.	2022–2023	Research Asst.	Biology	Casie Navarro
18.	2022–Present	Barrett Fellowship	Biology	Ahmad Katib
17.	2022–Present	Research Asst.	Biology	Anvita Makhija
16.	2022–2023	Barrett Fellowship	Biology	Shawna Brechbill
15.	2022–2023	Research Asst.	Biology	Natalie Wade
13.	2022	Research Asst.	Biology	Niles Clipson
12.	2022	Research Asst.	Biology	Mariah Beltran
11.	2022	Research Asst.	Biology	Jackelyn Lobatos
10.	2022	Research Asst.	Biology	Shahad Ayad
9.	2022	Research Asst.	Conservation Biology	Diana Nguyen
8.	2021–2022	Research Asst.	Biology	Samantha Naman
7.	2021–2022	Research Asst.	Biology	Savage Hess
6.	2021–2022	Research Asst.	Biology	Nicole Veeder

5.	2021–2022	Research Asst.	Biology	Reane Raj Kaur
4.	2020–2021	Research Asst.	Biology	Vinit Karkathar
3.	2020	WAESO advisor	Biology	D'Kiehl Cole-Cash
2.	Spring 2019	Research Asst.	Biology	Davis Cammann
1.	Spring 2019	Research Asst.	Conservation Biology	Michael Renner

Teaching Professional Development

2021	ASU	RISE Inclusive Teaching Fellowship Training
2020	ASU	Graduate College Teaching Fellowship
2019	ASU	ACUE Effective Teaching Certification
2019	ASU	Training in Course Assessment
2018	ASU	Midterm Course Consultation with Joshua Caulkins, SOLS
2018	ASU	Biospine Development Meetings for BIO 345 Evolution
2017	ASU	Doing Active Learning, TeachT@lk Workshop
2016	ASU	Workshop on Designing Authentic Learning Outcomes
2014	Univ. of Michigan	Teaching Academy
2011	Univ. of Chicago	Seminar on the Survey Course
2011	Univ. of Chicago	Individual Teaching Consultation
2011	Univ. of Chicago	Workshop on Using the Blackboard for Effective Teaching
2010	Univ. of Chicago	Seminar on Course Design
2010	Univ. of Chicago	Conference on "Thinking through Teaching"
2010	Univ. of Chicago	Midterm Course Review, Teaching and Learning Center

Service & Professional Activities

Positions

2023–Present	Contributor	Int'l	Indigenous Data and Repositories Consortium
2022–Present	Member	Int'l	Indigenous Data Sharing and Management Working Group, Earth BioGenome Project
2021–Present	Contributor	Int'l	IEEE Standards Working Group, Indigenous Data Provenance
2021–Present	Program Committee Member	SOLS	Computational Life Sciences Certificate, School of Life Sciences (SOLS)
2021–Present	Program Lead	SOLS	Big Data in Biodiversity, Center for Biodiversity Outcomes
2020–Present	ASU Co-Lead	ASU	Governing Board, Red List of Threatened Species Partnership, International Union for Conservation of Nature
2018–Present	Associate Director	SOLS	Biodiversity Knowledge Integration Center
2018–Present	Advisory Board	SOLS	Life Science Ethics Initiative
2018–2023	Co-Director	SOLS	Biodiversity Data Science Initiative
2022	Panel Reviewer	USA	National Science Foundation
F2017, S2019	Director	SOLS	History and Philosophy of Science PhD Program

2018–2019	Reviewer	ASU	ARCS Fellowship Program
2017–2018	Co-organizer	SOLS	Center for Biology & Society Conversation Series

Search Committees

2022	Chair	Lecturer in History of Life Sciences
2021	Committee Member	Lecturer in Bioethics
2020	Committee Member	Open Rank Tenure Track Faculty, Center for Evolutionary Medicine
2019	Committee Member	Assistant Professor, Center for Evolutionary Medicine

Workshops Organized

2022	"Alliance 2022 Workshop," Virtual, international 2-day workshop, organized as part of the Alliance for Biodiversity Knowledge Governance Models project.
2019	"Closing the Feedback Loop on Decision Making and Biodiversity Data," ASU
2018	"Catalyzing the Taxonomic Intelligence Knowledge Base," with Nico Franz and David Remsen, Marine Biological Laboratory (MBL)
2017	"The Future of Systematics in Data-Centric Biology," with Nico Franz and David Remsen, MBL
2013	"Is Adding More Data Always Better?" Field Museum

Organizational Affiliations

International Society for the History, Philosophy, and Social Studies of Biology

Philosophy of Science Association

Society for Philosophy of Science in Practice

American Philosophical Association

Biodiversity Information Standards (TDWG)

Research Data Alliance

Refereeing

Acta Biotheoretica; Applied Ontology; Biology and Philosophy; Biomolecules; BioScience; British Journal for Philosophy of Science; Conservation Science and Practice; Entropy; European Journal of Taxonomy; History and Philosophy of Life Sciences; International Journal of the Commons; Journal of the History of Biology; MIT Press; Perspectives in Plant Ecology; Philosophy of Science; Philosophy, Theory, and Practice in Biology; PLoS One; Social Science Information; Springer Science+Business; Studies in the History and Philosophy of Biological and Biomedical Sciences; Synthese; Theoria; University of Chicago Press.