

MATT FRIEDMAN

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University of Michigan
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EDUCATION

PhD, Evolutionary Biology, University of Chicago (2009)
SM, Evolutionary Biology, University of Chicago (2005)
MPhil, Zoology, University of Cambridge (2004)
BS, Biology-Geology, University of Rochester (2002)

APPOINTMENTS

Director, Museum of Paleontology, University of Michigan (2018–)
Curator, Museum of Paleontology, University of Michigan (2023–)
Professor, Earth and Environmental Sciences, University of Michigan (2023–)
Associate Curator, Museum of Paleontology, University of Michigan (2016–2023)
Associate Professor, Earth and Environmental Sciences, University of Michigan (2016–2023)
Professor of Palaeobiology, Earth Sciences, University of Oxford (2015–2016)
Associate Professor of Palaeobiology, Earth Sciences, University of Oxford (2014–2015)
Lecturer in Palaeobiology, Earth Sciences, University of Oxford (2009–2014)
Tutor in Earth Sciences, St. Hugh's College, University of Oxford (2009–2016)

EDITORIAL POSITIONS

Associate editor, *Cambridge Prisms: Extinctions* (2022–present)
Associate editor, *Paleobiology* (2020–present)
Associate editor, *Systematic Biology* (2016–present)
Associate editor, *Evolution* (2015–2018)
Associate editor, *PLoS ONE* (2013–2018)
Associate editor, *Journal of Vertebrate Paleontology* (2011–2014)

AWARDS, PRIZES, AND RECOGNITION

Robert Lynn Carroll Award, Society of Vertebrate Paleontology (2022)
Fellow, Paleontological Society (2022–present)
Charles Schuchert Award, Paleontological Society (2022)
Andre Dumont Medal, Geological Society of Belgium (2018)
Best Paper Award (*Palaeontology*), Palaeontological Association (2017)
Hodson Award, Palaeontological Association (2013)
Philip Leverhulme Prize, Leverhulme Trust (2012; £70,000; ca. \$111k)
Taylor & Francis Award, Society of Vertebrate Paleontology (2011)
Best Dissertation Award, Division of Biological Sciences, University of Chicago (2010)
Stoye Award, American Society of Ichthyologists and Herpetologists (2008)

02.01.24

GRANTS AND FELLOWSHIPS

Pending

NSF RUI “Collaborative Research: RUI: Testing the link between skeletal labyrinth morphology and habitat in sharks” PI M. Friedman (\$72,966). Submitted 10.18.23.

NSF DEB “Collaborative Research: The age of cichlids: a fossils-to-genomes approach to dating divergence and tracing ecomorphological change in a key model of vertebrate evolution” PI H. Lopez-Fernandez, Co-PI M. Friedman (\$1,127,416; \$406,835 to Friedman). Submitted 08.02.23.

External (with support to Friedman; total awarded ca. \$2.4 million)

NSF DEB 2333684 “Collaborative Research: Phenotypic and lineage diversification after key innovation(s): multiple evolutionary pathways to air-breathing in labyrinth fishes and their allies.” PI M. Friedman, Co-PI M. Zelditch (\$204,461). 2024–2026.

NSF EAR 2331991: “Conference: 12th North American Paleontological Convention, Ann Arbor, MI - June 17 to June 21, 2024. PI M. Friedman, Co-I S. Smith (\$47,794). 2024.

NSF EAR 2219007 “NSFGEO-NERC: Collaborative Research: The first actinopterygian ‘adaptive radiation’: integrating fossils, function and phylogeny to illuminate innovation in a post-extinction world. PI M. Friedman (\$399,892). 2022–2025.

NSF DEB 2017822 “Collaborative Research: Snapshots from the ancient Indo-Pacific: remarkable Eocene fish faunas and their implications for the origin of a modern marine biodiversity hotspot”; PI M. Friedman (\$346,910). 2020–2023, no cost extension to 2024.

Leverhulme RPG-2015-126 “The exceptional Early Jurassic fossils of Strawberry Bank, Somerset”; PI M. Benton; M. Friedman Co-I with J. Vinther, M. Williams (£53,577 to Friedman; ~\$82k). 2015–2018.

Leverhulme RPG-2012-658 “Reconciling ichthyology and palaeontology with exceptionally preserved fossils.” PI M. Friedman (£212,663; ~\$337k). 2012–2015.

NERC NE/J022632/1 “How do palaeontological data refine our understanding of adaptive radiation and the evolution of modern biodiversity?” PI M. Friedman (£280,699; ~\$445k). 2012–2015.

NERC NE/I005536/1 “The evolution of modern marine ecosystems: environmental controls on their structure and function.” PI M. Friedman (£225,790; ~\$362k). 2011–2014.

EPA STAR Fellowship F6E21148 “Loss, generation, and maintenance of ecomorphological diversity in marine teleost fishes: deep time perspectives on a contemporary biodiversity crisis (\$111,172). 2006–2009.

NSF DGE-0228235 Graduate Research Fellowship (\$116,500). 2002–2005.

External (as named co-investigator)

Leverhulme RPG-2019-113 “How to tuna fish: Drivers of diversity in Pelagiaria (tunas, mackerels and kin).” PI Z. Johanson; Co-I M. Friedman with A. Goswami, S. Giles. 2019–2022.

Leverhulme RPG-2016-168 “Timing the origin of genome doubling in fossil teleosts.” PI R. Benson, Co-I M. Friedman with P. Ahlberg, S. Sanchez. 2016–2019.

Internal (total ca. \$130k)

University of Michigan eGIF “Conservation of the Winchell Collection of the U-M Museum of Paleontology” (\$14,200). 2022.

University of Michigan LSA Associate Professor Support Fund “Diving into the Ancient Paleotropics with New Infrastructure for the Chemical Preparation of Vertebrate Fossils” (\$30,000). 2021–2022.

University of Michigan LSA Technology Services Level II Grant “Fossils in the age of big data: virtual specimens for interactive learning in large-format paleontology courses.” (\$12,850). 2018.

University of Oxford John Fell Fund “Capturing form, function and evolution in deep time: a new digital morphology centre for the Department of Earth Sciences” (£47,097; ca. \$72k). 2009.

Small grants, instrument time, and other support (total ca. \$39k)

Synthesys “Unravelling the evolution of pigment and cranial asymmetry in flatfishes (Pleuronectiformes): clues from exceptional material of a new genus of primitive early Eocene pleuronectiform.” Travel and accommodation, and subsistence for three weeks in Vienna (value undisclosed). 2012.

Diamond Light Facility, UK. Two days of beamtime on national synchrotron with M. D. Brazeau and R. Atwood (valued at £21,000; ca. \$33k). 2011.

University of Chicago Center for Latin American Studies, Field Research Grant (\$800). 2006.

Evolving Earth Foundation, Evolving Earth Grant (\$3,000). 2006.

American Museum of Natural History, Lerner-Grey Fund for Marine Research (\$2,000). 2005.

Palaeontological Association, Sylvester-Bradley Award (\$1,500). 2005.

Declined awards and fellowships

Yale Institute for Biospheric Studies Donnelley Postdoctoral Fellowship. 2009.

Royal Society Newton Fellowship (to be used at Natural History Museum, London). 2009.

National Evolutionary Synthesis Center (NESCent) Postdoctoral Fellowship. 2009.

NSF Postdoctoral Fellowship in Biology (to be used at Yale University). 2009.

PUBLICATIONS

Citations: 8,523; *h*-index: 46; *i*-10 index: 93 (Google Scholar, accessed 12.23.23)
postdoc mentee[†], graduate student mentee*, visiting student mentee[‡], undergraduate student mentee

Submitted, in review, in revision

(130) R. Rivero-Vega*, J. Berv[†], J. T. Clarke, M. Friedman. Submitted. Variable patterns of phenotypic evolution among canonical ‘living fossil’ groups. *Proceedings of the Royal Society B*.

(129) R. T. Figueroa*, L. C. Weinschütz, S. Giles, **M. Friedman**. Submitted. Soft-tissue fossilization illuminates the stepwise evolution of the actinopterygian brain. *PNAS*.

- (128) J. S. Berv[†], S. Singhal, D. J. Field, N. Walker-Hale, S. W. McHugh, J. R. Shipley, E. T. Miller, R. T. Kimball, E. L. Braun, A. Dornburg, C. T. Parins-Fukuchi, R. O. Prum, B. M. Winger, **M. Friedman**, S. A. Smith. In review. Molecular early burst associated with the diversification of birds at the K-Pg boundary. *Science*.
- (127) **M. Friedman**, R. T. Figueroa*, J.-P. M. Hodnett, S. Lucas, S. Giles. Submitted. A new genus and species of large macrodont actinopterygian from the Pennsylvanian (Kasimovian/Missourian) of New Mexico. *Contributions from the University of Michigan Museum of Paleontology*.
- (126) **M. Friedman**, J. Mondejar-Fernandez, S. Henderson, T. Challands, S. Giles. In revision. Braincase and endocast anatomy in porolepiforms (Sarcopterygii: Dipnomorpha), evidence from the Early Devonian (Emsian) 'porolepid' *Durialepis edentatus*. *Earth and Environmental Science Transactions of the Royal Society of Edinburgh*.
- (125) E. Troyer, K. Evans, C. Goatley, **M. Friedman**, G. Carnevale, B. Nicholas, M. Kolmann, K. Bemis. Submitted. Beaks promote rapid diversification in marine fishes, despite conserved skull integration. *Proceedings of the Royal Society B*.
- (124) K. Feilich[†], J. Nitta, P. O. Title, **M. Friedman**. In review. Multiple axes of biodiversity reveal contrasting patterns in freshwater fishes of the conterminous United States. *Miscellaneous Contributions, University of Michigan Museum of Zoology*.
- (123) E. Duarte-Ribeiro, U. Rosas-Puchuri, **M. Friedman**, G. C. Woodruff, L. C. Hughes, K. E. Carpenter, W. T. White, J. T. Pogonoski, M. Westneat, J. M. Diaz de Astarloa, J. T. Williams, M. D. Santos, O. Domínguez-Domínguez, G. Ortí, D. Arcila, R. Betancur-R. Phylogenomic and comparative genetic analyses support a single evolutionary origin of flatfish asymmetry. In review after revision. *Nature Genetics*.

Peer-reviewed

- (122) R. C. Harrington, M. Kolmann[†], J. J. Day, B. C. Faircloth, **M. Friedman**, T. J. Near. In press. Dispersal sweepstakes: biotic interchange propelled air-breathing fishes across the globe. *Journal of Biogeography*.
- (121) D. Davesne, J. Andrews*, H. Beckett, S. Giles, **M. Friedman**. In press. Three-dimensional anatomy of the early Eocene †*Whitehippus* (Teleostei: Lampriformes) documents parallel conquests of the pelagic environment by multiple teleost lineages. *Journal of Vertebrate Paleontology*.
- (120) A. Capobianco*, S. Zourhi, **M. Friedman**. Accepted with minor revisions. A long-snouted marine bonytongue (Teleostei: Osteoglossidae) from the early Eocene of Morocco and the phylogenetic affinities of marine osteoglossids. *Zoological Journal of the Linnean Society*.
- (119) X. Cui, **M. Friedman**, Y. Yu, Y.-A. Zhu. 2023. Bony-fish-like scales in a Silurian maxillate placoderm. *Nature Communications* **14**: 7622.
- (118) M. D. Brazeau, M. Castiello, A. El Sassi El Fehri, L. Hamilton, A. O. Ivanov, Z. Johanson, **M. Friedman**. 2023. Fossil evidence for a pharyngeal origin for the vertebrate pectoral girdle. *Nature* **623**: 550-552. [covered in *Science* **382**: 504]
- (117) A. M. Murray, D. B. Brinkman, **M. Friedman**, D. W. Krause. 2023. A large, freshwater chanid fish (Ostariophysi: Gonorynchiformes) from the Late Cretaceous of Madagascar. *Journal of Vertebrate Paleontology* e2255630.
- (116) **M. Friedman**, J. V. Andrews*, H. Saad*, S. El-Sayed*. 2023. The Cretaceous/Paleogene transition in spiny-rayed fishes: surveying "Patterson's Gap" in the acanthomorph skeletal record. *Geologica Belgica* **26**: 1-23. (André Dumont medalist paper)
- (115) A. Knapp, G. Rangel-de Lázaro, A. Goswami, **M. Friedman**, K. M. Evans, S. Giles, H. T. Beckett, Z. Johanson. 2023. How to tuna fish: constraint, convergence and integration in the neurocranium of pelagiarian fishes. *Evolution* qpad56.
- (114) K. Johnson and 153 others (including **M. Friedman**). 2023. A global approach for natural history collections in the 21st century. *Science* **379**: 1192-1194.
- (113) J. V. Andrews*, J. D. Schein, **M. Friedman**. 2023. An earliest Paleocene squirrelfish (Teleostei: Beryciformes: Holocentroidea) and its bearing on the timescale of holocentroid evolution. *Journal of Systematic Palaeontology* **21**: 2168571.
- (112) M. A. Kolmann[†], R. Nagesan, J. V. Andrews*, S. Borstein, R. T. Figueroa*, R. Singer, **M. Friedman**, H. López-Fernández. 2023. DiceCT for fishes: recommendations for pairing iodine

- contrasts agents with μ CT to visualize soft tissues in fishes. *Journal of Fish Biology* **102**: 893-903.
- (111) R. T. Figueroa*, D. Goodvin, M. A. Kolmann[†], A. M. Caron, M. I. Coates, **M. Friedman**, S. Giles. 2023. Exceptional fossil preservation and evolution of the ray-finned fish brain. *Nature* **614**: 486-491. (Friedman and Giles joint corresponding authors) [*Nature News & Views* by Dutel & Fabbri]
- (110) C. Brownstein, L. Yang, **M. Friedman**, T. Near. 2023. Phylogenomics of gars tracks 150 million years of continental fragmentation in the Northern Hemisphere. *Systematic Biology* **syac80**.
- (109) S. Giles, K. Feilich[†], R. Warnock, S. Pierce, **M. Friedman**. 2023. A Late Devonian actinopterygian suggests high lineage survivorship across the end-Devonian mass extinction. *Nature Ecology & Evolution* **7**: 10-19.
- (108) D. Collar, S. Tremaine, R. C. Harrington, H. Beckett, **M. Friedman**. 2022. Mosaic adaptive peak shifts underlie body shape diversification in pelagiarian fishes (Acanthomorpha: Percomorpha). *Biological Journal of the Linnean Society* **127**: 324-340.
- (107) **M. Friedman**. 2022. The macroevolutionary history of bony fishes: a paleontological view. *Annual Review of Ecology, Evolution, and Systematics*. **53**: 353-377.
- (106) A. Ghezelayagh, R. Harrington, E. Burrell, M. Campbell, J. Buckner, P. Chakrabarty, J. Glass, W. T. McCraney, P. Unmack, C. Thacker, M. Alfaro, S. Friedman, W. Ludt, P. Cowman, **M. Friedman**, S. Price, A. Dornburg, B. Faircloth, P. Wainwright, T. Near. 2022. Prolonged morphological expansion of spiny-rayed fishes following the end-Cretaceous. *Nature Ecology & Evolution* **6**: 1211-1220.
- (105) T. Argyriou, S. Giles, **M. Friedman**. 2022. A Permian fish reveals widespread distribution of neopterygian-like jaw suspension. *eLife* **11**: e58433.
- (104) X. Cui[‡], **M. Friedman**, T. Qiao., Y. Yu, M. Zhu. 2022. The rapid evolution of lungfish durophagy. *Nature Communications* **13**: 2390.
- (103) M. I. Coates, K. Tietjen, Z. Johanson, **M. Friedman**, S. Sang. 2021. The cranium of *Helodus simplex* (Agassiz, 1838) revised. Pp. 193-204 in A. Pradel, J. S. S. Denton, P. Janvier (eds), *Ancient Fishes and their Living Relatives*. Verlag Dr Friedrich Pfeil, Munich.
- (102) S. El-Sayed[‡], **M. Friedman**, T. Anan, M. A. Faris, H. Sallam. 2021. Diverse marine fish assemblages inhabited the paleotropics during the Paleocene-Eocene thermal maximum. *Geology* **49**: 993-998.
- (101) D. Davesne, **M. Friedman**, A. Schmitt, V. Fernandez, G. Carnevale, P. Ahlberg, S. Sanchez, R. B. J. Benson. 2021. Fossilized cell structures identify an ancient origin for the teleost whole-genome duplication. *PNAS* **118**: e2101780118.
- (100) R. C. Harrington, **M. Friedman**, M. Miya, T. J. Near, M. A. Campbell. 2021. Phylogenomic resolution of the monotypic and enigmatic *Amarsipus*, the Bagless Glassfish (Teleostei, Amarsipidae). *Zoologica Scripta* **50**: 411-422.
- (99) K. M. Evans, O. Larouche, S.-J. Watson, S. C. Farina, H. L. Habegger, **M. Friedman**. 2021. Integration drives rapid phenotypic evolution in flatfishes. *PNAS* **118**: e2101330118.
- (98) J. Mondejar-Fernandez, **M. Friedman**, S. Giles. 2021. Redescription of the cranial skeleton of the Early Devonian (Emsian) sarcopterygian *Durialepis edentatus* Otto 2007 (Dipnoi: Porolepiformes). *Papers in Palaeontology* spp2.1315.
- (97) R. Figueroa*, L. C. Weinschütz, **M. Friedman**. 2021. The oldest Devonian circumpolar ray-finned fish? *Biology Letters* rsbl.2020.0766.
- (96) A. Capobianco*, E. Foreman, **M. Friedman**. 2021. A Paleocene (Danian) osteoglossid (Teleostei: Osteoglossomorpha) from the Nuussuaq Basin of Greenland, with a brief review of Palaeogene marine bonytongue fishes. *Papers in Palaeontology* spp2.1291.
- (95) C. Dobson*, S. Giles, Z. Johanson, J. Liston, **M. Friedman**. 2021. Cranial osteology of the Middle Jurassic (Callovian) *Martillichthys renwickae* (Neopterygii: Pachycormiformes), with comments on the evolution and ecology and of edentulous pachycormiforms. *Papers in Palaeontology* spp2.1276.
- (94) M. Castiello, A. Jerve, M. G. Burton, **M. Friedman**, M. Brazeau. 2021. Endocranial morphology of the petalichthyid placoderm *Ellopetalichthys scheii* from the Middle Devonian of Arctic Canada, with remarks on the inner ear and neck joint morphology of placoderms. *Canadian Journal of Earth Sciences* **58**: 93-104.

- (93) A. Capobianco*, H. T. Beckett, E. Steurbaut, P. D. Gingerich, G. Carnevale, **M. Friedman**. 2020. Large-bodied sabre-toothed anchovies reveal unanticipated ecological diversity in early Palaeogene teleosts. *Royal Society Open Science* 192260.
- (92) **M. Friedman**, H. T. Beckett, K. L. Feilich[†], M. E. Alfaro, B. C. Faircloth, D. Černý, M. Miya, T. J. Near, R. C. Harrington. 2019. A phylogenomic framework for pelagiarian fishes (Acanthomorpha: Percomorpha) highlights mosaic radiation in the open ocean. *Proceedings of the Royal Society B* **286**: 20191502.
- (93) R. Figueroa*, **M. Friedman**, V. Gallo. 2019. Cranial anatomy of *Brazilichthys macrognathus* from the Permian (Cisuralian) Pedra de Fogo Formation, Parnaíba Basin, Brazil. *Journal of Vertebrate Paleontology* e1639722.
- (92) D. Davesne, F. J. Meunier, A. D. Schmitt, **M. Friedman**, O. Otero, R. B. J. Benson. 2019. The phylogenetic origin and evolution of acellular bone in teleost fishes: insights into osteocyte function in bone metabolism. *Biological Reviews* **94**: 1338-1363.
- (91) G. Benevento*, R. Benson, **M. Friedman**. 2019. Patterns of mammalian jaw ecomorphological disparity during the Mesozoic/Cenozoic Transition. *Proceedings of the Royal Society B* **286**: 20190347.
- (90) A. Capobianco*, **M. Friedman**. 2019. Vicariance and dispersal in southern hemisphere freshwater fish clades: a palaeontological perspective. *Biological Reviews* **94**: 662-699.
- (89) T. Argyriou[‡], S. Giles, **M. Friedman**, C. Romano, I. Kogan, M. Sanchez-Villagra. 2018. Internal cranial anatomy of Early Triassic species of †*Saurichthys* (Actinopterygii: †Saurichthyiformes): implications for the phylogenetic placement of †saurichthyiforms. *BMC Evolutionary Biology* **18**: 161.
- (88) H. Beckett*, S. Giles, **M. Friedman**. 2018. Comparative anatomy of the gill skeleton of fossil Aulopiformes (Teleostei: Eurypterygii). *Journal of Systematic Palaeontology* **16**: 1221-1245.
- (87) J. D. DiBattista, M. E. Alfaro, L. Sorenson, J. H. Choat, J.-P. A. Hobbs, T. H. Sinclair-Taylor, L. A. Rocha, J. Chang, O. J. Luiz, P. F. Cowman, **M. Friedman**, M. L. Berumen. 2018. Ice ages and butterflyfishes: Phylogenomics elucidates the ecological and evolutionary history of reef fishes in an endemism hotspot. *Ecology and Evolution* **22**: 10989-11008.
- (86) H. Beckett*, S. Giles, Z. Johanson, **M. Friedman**. 2018. Morphology and phylogenetic relationships of fossil snake mackerels and cutlassfishes (Trichiuroidea) from the Eocene (Ypresian) London Clay Formation. *Papers in Palaeontology* **4**: 577-603.
- (85) L. Sallan, **M. Friedman**, R. S. Sansom, C. M. Bird, I. J. Sansom. 2018. The nearshore cradle of early vertebrate diversification. *Science* **362**: 460-464. [Perspectives by Pimiento]
- (84) E. Sibert, **M. Friedman**, P. Hull, G. Hunt, R. Norris. 2018. Two pulses of morphological diversification in Pacific pelagic fishes following the Cretaceous-Palaeogene mass extinction. *Proceedings of the Royal Society B* **285**: 20181194.
- (83) J. T. Clarke*, **M. Friedman**. 2018. Body-shape diversity in Triassic-Early Cretaceous neopterygian fishes: sustained holostean disparity and predominantly gradual increases in teleost phenotypic variety. *Paleobiology* **44**: 402-434.
- (82) D. Rabosky, J. Chang, P. Tittle, P. Cowman, L. Sallan, **M. Friedman**, K. Kaschner, C. Garilao, T. Near, M. Alfaro. 2018. An inverse latitudinal diversity gradient in speciation rate for marine fishes. *Nature* **559**: 392-395. [Nature News & Views commentary by Moers & Greenberg]
- (81) **M. Friedman**, G. Carnevale. 2018. The Bolca *Lagerstätten*: shallow marine life in the Eocene. *Journal of the Geological Society* **175**: 569-579.
- (80) W. Schwarzhans, H. Beckett*, J. Schein, **M. Friedman**. 2018. Computed tomography as a tool for linking the skeletal and otolith-based fossil records of teleost fishes. *Palaeontology* **61**: 511-541.
- (79) D. Davesne, F. J. Meunier, **M. Friedman**, R. B. J. Benson, O. Otero. 2018. Histology of the endothermic opah (*Lampris* sp.) suggests a new structure-function relationship in teleost bone. *Biology Letters* **14**: 20180270.
- (78) M. Alfaro, B. Faircloth, R. Harrington, L. Sorenson, **M. Friedman**, C. Thacker, T. Near. 2018. Explosive diversification of marine fishes at the Cretaceous-Paleogene boundary. *Nature Ecology & Evolution* **2**: 688-696.
- (77) S. Giles, M. Rogers, **M. Friedman**. 2017. Bony labyrinth morphology in early neopterygian fishes (Actinopterygii: Neopterygii). *Journal of Morphology* **279**: 426-440.
- (76) **M. Friedman**, S. Pierce, M. Coates, S. Giles. 2018. Feeding structures in the ray-finned fish *Eurynotus crenatus* (Actinopterygii: Eurynotiformes): implications for trophic diversification among

- Carboniferous actinopterygians. *Earth and Environmental Science Transactions of the Royal Society of Edinburgh* **109**: 33-47.
- (75) Giles, **M. Friedman**, M. Zhu. 2017. A new stem sarcopterygian illuminates patterns of character evolution in early bony fishes. *Nature Communications* **8**: 1932.
- (74) S. Giles, G.-H. Xu, T. Near, **M. Friedman**. 2017. Early members of a 'living fossil' lineage and the later origin of modern ray-finned fishes. *Nature* **549**: 265-268. [*Nature News & Views* commentary by Coates]
- (73) M. D. Brazeau, **M. Friedman**, A. Jerve, R. C. Atwood. 2017. A three-dimensional placoderm (stem-group gnathostome) pharyngeal skeleton and its implication for primitive gnathostome pharyngeal architecture. *Journal of Morphology* **278**: 1220-1228.
- (72) T. G. Davies et al. (44 additional authors). 2017. Open data and digital morphology. *Proceedings of the Royal Society B* **284**: 1852.
- (71) D. Davesne, G. Carnevale & **M. Friedman**. 2017. *Bajaichthys elegans* from the Eocene of Bolca (Italy) and the overlooked morphological diversity of Zeiformes (Teleostei, Acanthomorpha). *Palaeontology* **60**: 255-268.
- (70) L. Soul, **M. Friedman**. 2017. Bias in phylogenetic measurements of extinction and a case study of end-Permian tetrapods. *Paleontology* **60**: 169-185. [best paper award, *Palaeontology*]
- (69) J.S. Adolfssen, **M. Friedman**, J. Milàn. 2017. Review of the Danian vertebrate fauna of southern Scandinavia. *Bulletin of the Geological Society of Denmark* **65**: 1-23.
- (68) R. C. Harrington[†], B. C. Faircloth, R. I. Eytan, W. Leo Smith, T. J. Near, M. E. Alfaro, **M. Friedman**. 2016. Phylogenomic analysis of carangimorph fishes reveals flatfish asymmetry arose in a blink of the evolutionary eye. *BMC Evolutionary Biology* **16**: 224.
- (67) G. T. Lloyd, D. Bapst, **M. Friedman**, K. E. Davis. 2016. Probabilistic divergence time estimation without branch lengths: dating the origin of dinosaurs, avian flight and crown birds. *Biology Letters* **12**: 20160609.
- (66) J. T. Clarke*, G. T. Lloyd, **M. Friedman**. 2016. Little evidence for enhanced phenotypic evolution in early teleosts relative to their living fossil sister group. *PNAS* **113**: 11531-11536. [covered in *Science In Depth* commentary by Pennisi]
- (65) D. Delbarre*, D. Davesne, **M. Friedman**. 2016. Anatomy and relationships of †*Aipichthys pretiosus* and †*Aipichthys nuchalis* (Acanthomorpha: Lampridomorpha), early Late Cretaceous relatives of oarfishes and their allies. *Journal of Systematic Palaeontology* **14**: 545-567.
- (64) R. Close[†], Z. Johanson, J. C. Tyler, R. C. Harrington, **M. Friedman**. 2016. Mosaicism in a new Eocene pufferfish highlights rapid morphological innovation near the origin of crown tetraodontiforms. *Palaeontology* **59**: 499-514.
- (63) J. Lu, S. Giles, **M. Friedman**, J. L. Den Blaauwen, M. Zhu. 2016. The oldest actinopterygian highlights the cryptic early history of the hyperdiverse ray-finned fishes. *Current Biology* **26**: 1602-1608.
- (62) V. Fischer[†], N. Bardet, R. B. J. Benson, M. S. Arkhangelsky, **M. Friedman**. 2016. Extinction of fish-shaped marine reptiles associated with reduced evolutionary rates and global environmental volatility. *Nature Communications* **7**: 10825.
- (61) **M. Friedman**, S. Giles. 2016. Actinopterygians: the ray-finned fishes—an explosion of diversity. 33 pp in J. A. Clack et al. (eds.), *Evolution of the Vertebrate Ear—Evidence from the Fossil Record, Handbook of Auditory Research* **59**: 17-49.
- (60) R. A. Close[†], B. M. Davis, S. Walsh, A. S. Wolniewicz, **M. Friedman**, R. B. J. Benson. 2016. A lower jaw of *Palaeoxonodon* from the Middle Jurassic of the Isle of Skye, Scotland, sheds light on the diversity of British stem therians. *Palaeontology* **59**: 155-169.
- (59) **M. Friedman**, H. T. Beckett*, R. C. Close[†], Z. Johanson. 2016. The English Chalk and London Clay: two remarkable British bony fish Lagerstätten. *Arthur Smith Woodward: His Life and Contribution to Modern Vertebrate Palaeontology (Geological Society of London Special Publication)* **430**: 165-200.
- (58) H. T. Beckett*, **M. Friedman**. 2016. The one that got away from Smith Woodward: cranial anatomy of *Micronatus* (Acanthomorpha: Scombridae) revealed using computed tomography. *Arthur Smith Woodward: His Life and Contribution to Modern Vertebrate Palaeontology (Geological Society of London Special Publication)* **430**: 337-353.

- (57) D. R. Bellwood, C. H. R. Goatley, O. Bellwood, D. J. Delbarre*, **M. Friedman**. 2015. The rise of jaw protrusion in spiny-rayed fishes closes the gap on elusive prey. *Current Biology* **25**: 2696-2700. [*Current Biology* Dispatch commentary by Ferry]
- (56) S. Giles*, L. Darras, G. Clément, A. Blicek, **M. Friedman**. 2015. An exceptionally preserved Late Devonian actinopterygian provides a new model for primitive cranial anatomy in ray-finned fishes. *Proceedings of the Royal Society B* **282**: 20151485.
- (55) S. Giles*, M.I. Coates, R.J. Garwood, M.D. Brazeau, R. Atwood, Z. Johanson, **M. Friedman**. 2015. Endoskeletal structure in Cheirolepis (Osteichthyes, Actinopterygii), the earliest ray-finned fish. *Palaeontology* **58**: 849-870.
- (54) R. Close†, **M. Friedman**, G. T. Lloyd, R. Benson. 2015. Elevated morphological rates and high disparity support a mid-Jurassic adaptive radiation of mammals. *Current Biology* **25**: 2137-2142. [*Current Biology* Dispatch commentary by Lee & Beck]
- (53) A. Dornburg, **M. Friedman**, T. J. Near. 2015. Phylogenetic analysis of molecular and morphological data highlights uncertainty in the relationships of fossil and living species of Elopomorpha (Actinopterygii: Teleostei). *Molecular Phylogenetics and Evolution* **89**: 205-218.
- (52) L. Soul*, **M. Friedman**. 2015. Taxonomy and phylogeny can yield comparable results in macroevolutionary palaeontological analyses. *Systematic Biology* **64**: 608-620.
- (51) M. Brazeau, **M. Friedman**. 2015. The origin and early phylogenetic history of jawed vertebrates. *Nature* **520**: 490-497. [invited article]
- (50) S. Giles*, **M. Friedman** and M. D. Brazeau. 2015. Osteichthyan-like cranial conditions in an Early Devonian stem gnathostome. *Nature* **520**: 82-85.
- (49) **M. Friedman**. 2015. The early evolution of ray-finned fishes. *Palaeontology* **58**: 213-228. [invited article]
- (48) M. J. Benton, P. C. J. Donoghue, R. J. Asher, **M. Friedman**, T. J. Near, J. Vinther. 2015. Constraints on the timescale of animal evolutionary history. *Palaeontologia Electronica* 18.1.1FC.
- (47) A. Dornburg, J. P. Townsend, **M. Friedman**, T. J. Near. 2014. Phylogenetic informativeness reconciles ray-finned fish molecular divergence times. *BMC Evolutionary Biology* **14**: 169.
- (46) T. J. Near, A. Dornburg and **M. Friedman**. 2014. Phylogenetic relationships and timing of diversification in gonorynchiform fishes inferred using nuclear DNA sequences (Teleostei: Ostariophysi). *Molecular Phylogenetics and Evolution* **80**: 297-307.
- (45) D. Davesne, **M. Friedman**, C. Gallut, V. Barriol, G. Lecointre, P. Janvier, O. Otero. 2014. Early fossils illuminate character evolution and interrelationships of Lampridiformes (Teleostei, Acanthomorpha). *Zoological Journal of the Linnean Society* **172**: 475-498.
- (44) F. Jones, J. A. Dunlop, **M. Friedman** and R. J. Garwood. 2014. *Trigonotarbus johnsoni* Pocock, 1911 revealed by X-ray computed tomography, with a cladistic analysis of the extinct trigonotarbid arachnids. *Zoological Journal of the Linnean Society* **172**: 49-70.
- (43) E. Jude, Z. Johanson, A. Kearsley, **M. Friedman**. 2014. Early evolution of the lungfish pectoral-fin endoskeleton: evidence from the Middle Devonian (Givetian) *Pentlandia macroptera*. *Frontiers in Earth Science* **2**: 18.
- (42) S. Giles*, **M. Friedman**. 2014. Virtual reconstruction of endocast anatomy in early ray-finned fishes (Osteichthyes: Actinopterygii). *Journal of Paleontology* **88**: 636-651.
- (41) S. A. Price, L. Schmitz, C. E. Oufiero, R. I. Eytan, A. Dornburg, W. L. Smith, **M. Friedman**, T. J. Near, P. C. Wainwright. 2014. Two waves of colonization straddling the K-Pg boundary formed the modern reef fish fauna. *Proceedings of the Royal Society B* **281**: 20140321.
- (40) M. Parfitt, Z. Johanson, S. Giles*, **M. Friedman**. 2014. A large, anatomically primitive tristichopterid lobe-finned fish (Sarcopterygii: Tetrapodomorpha) from the Late Devonian (Frasnian) Alves Beds, Upper Old Red Sandstone, Moray, Scotland. *Scottish Journal of Geology* **50**: 79-85.
- (39) M. D. Brazeau, **M. Friedman**. 2014. The characters of Palaeozoic jawed vertebrates. *Zoological Journal of the Linnean Society* **170**: 779-821.
- (38) T. J. Near, A. Dornburg, M. Tokita, D. Suzuki, M. C. Brandley, **M. Friedman**. 2014. Boom and bust: ancient and recent diversification in bichirs and ropefish (Polypteridae: Actinopterygii), a relictual lineage of ray-finned fishes. *Evolution* **68**: 1014-1026.
- (37) **M. Friedman**, B. P. Keck, A. Dornburg, R. I. Eytan, C. H. Martin, C. D. Hulsey, P. C. Wainwright, T. J. Near. 2013. Molecular and fossil evidence place the origin of cichlid fishes long after Gondwanan rifting. *Proceedings of the Royal Society B* **280**: 20131733. [*Science Findings*]

- (36) **M. Friedman**, Z. Johanson, R. C. Harrington[†], T. J. Near, M. R. Graham. 2013. An early fossil remora (Echeneoidea) reveals the evolutionary assembly of the adhesion disc. *Proceedings of the Royal Society B* **280**: 20131200.
- (35) M. Miya, **M. Friedman**, T. P. Satoh, H. Takeshima, T. Sado, W. Iwasaki, Y. Yamanoue, Y. Nakatani, M. Nakatani, K. Mabuchi, J. G. Inoue, J. Y. Poulsen, T. Fukunaga, Y. Sato and M. Nishida. 2013. Evolutionary origin of the Scombridae (tunas and mackerels): members of a Paleogene adaptive radiation with 14 other pelagic fish families. *PLoS ONE* **8**: e73535.
- (34) P. S. L. Anderson, **M. Friedman**, M. Ruta. 2013. Late to the table: diversification of tetrapod mandibular mechanics lagged behind the evolution of terrestriality. *Integrative and Comparative Biology* **53**: 197-208. [Science News Focus commentary by Pennisi]
- (33) T. J. Near, A. Dornburg, R. I. Eytan, B. P. Keck, W. L. Smith, K. L. Kuhn, J. A. Moore, S. A. Price, F. T. Burbrink, **M. Friedman**, P. C. Wainwright. 2013. Phylogeny and tempo of diversification in the superradiation of spiny-rayed fishes. *PNAS* **110**: 12738-12743.
- (32) G. T. Lloyd, **M. Friedman**. 2013. A survey of palaeontological sampling biases in fishes based on the Phanerozoic record of Great Britain. *Palaeogeography, Palaeoclimatology, Palaeoecology* **372**: 5-17.
- (31) **M. Friedman**, K. Shimada, M. Everhart, B. S. Grandstaff, K. Irwin, J. D. Stewart. 2013. Geographic and stratigraphic distribution of the Late Cretaceous suspension-feeding bony fish *Bonnerichthys gladius* (Teleostei: Pachycormiformes). *Journal of Vertebrate Paleontology* **33**: 35-47.
- (30) P. S. L. Anderson and **M. Friedman**. 2012. Using cladistic characters to predict functional variety: experiments using early gnathostomes. *Journal of Vertebrate Paleontology* **32**: 1254-1270.
- (29) **M. Friedman**, Z. Johanson. 2012. †*Opisthomyzon glaronensis* (Wettstein, 1886) (Acanthomorpha: Echeneidae), a junior synonym of †*Uropteryx elongatus* Agassiz, 1844. *Journal of Vertebrate Paleontology* **32**: 1202-1206.
- (28) T. J. Near, R. I. Eytan, A. Dornburg, K. L. Kuhn, J. A. Moore, M. P. Davis, P. C. Wainwright, **M. Friedman**, W. L. Smith. 2012. Resolution of ray-finned fish phylogeny and timing of diversification. *PNAS* **109**: 13698-13703.
- (27) **M. Friedman**. 2012. Osteology of †*Heteronectes chaneti* (Acanthomorpha: Pleuronectiformes), an Eocene stem flatfish, with a discussion of flatfish sister-group relationships. *Journal of Vertebrate Paleontology* **32**: 735-756. [cover article]
- (26) **M. Friedman**, L. C. Sallan. 2012. 500-million years of extinction and recovery: a Phanerozoic survey of large-scale diversity patterns in fishes. *Palaeontology* **55**: 707-742. [invited article]
- (25) L. C. Sallan, **M. Friedman**. 2012. Heads or tails: staged diversification in vertebrate evolutionary radiations. *Proceedings of the Royal Society B* **279**: 2025-2032.
- (24) **M. Friedman**. 2012. Parallel evolutionary trajectories underlie the origin of giant suspension-feeding whales and bony fishes. *Proceedings of the Royal Society B* **279**: 944-951.
- (23) **M. Friedman**. 2012. Ray-finned fishes (Actinopterygii) from the Maastrichtian, the Netherlands and Belgium. *Fossils of the Type Maastrichtian, Scripta Geologica Special Issue* **8**: 113-142.
- (22) P. S. L. Anderson, **M. Friedman**, E. J. Rayfield, M. D. Brazeau. 2011. Initial radiation of jaws demonstrated stability despite faunal and environmental change. *Nature* **476**: 206-209.
- (21) **M. Friedman**, M. D. Brazeau. 2011. Sequences, stratigraphy, and scenarios: what can we say about the fossil record of the earliest tetrapods? *Proceedings of the Royal Society B* **278**: 432-439.
- (20) **M. Friedman**. 2010. Explosive diversification of spiny finned teleosts in the aftermath of the end-Cretaceous extinction. *Proceedings of the Royal Society B* **277**: 1675-1683.
- (19) **M. Friedman**, K. Shimada, L. Martin, J. Liston, M. Everhart, M. Triebold, A. Maltese. 2010. 100-million-year dynasty of giant planktivorous bony fishes in Mesozoic marine ecosystems. *Science* **327**: 990-993. [Science Perspectives commentary by Cavin]
- (18) **M. Friedman**, M. D. Brazeau. 2010. A reappraisal of the origin and basal radiation of Osteichthyes. *Journal of Vertebrate Paleontology* **30**: 36-56. [Taylor & Francis Award winner]
- (17) **M. Friedman**. 2010. Postcranial evolution in early lungfishes (Dipnoi: Sarcopterygii): new insights from *Soederberghia groenlandica*. *Fossil Fishes and Related Biota: Morphology, Phylogeny and Palaeobiogeography—in Honor of Meemann Chang*. Elliott, D. K., Maisey, J. G., Yu, X. & Miao, D. (eds), pp. 299-324.

- (16) M. I. Coates, **M. Friedman**. 2010. *Litoptychus bryanti* and the characteristics of stem tetrapod neurocrania. *Fossil Fishes and Related Biota: Morphology, Phylogeny and Palaeobiogeography—in Honor of Meemann Chang*. Elliott, D. K., Maisey, J. G., Yu, X. & Miao, D. (eds), pp. 389-416.
- (15) **M. Friedman**. 2009. Ecomorphological selectivity among marine teleost fishes during the end-Cretaceous extinction. *Proceedings of the National Academy of Sciences of the USA* **106**: 5218-5223. [*Nature News & Views* by Santini & Alfaro]
- (14) M. I. Coates, M. Ruta, **M. Friedman**. 2009. Ever since Owen: changing perspectives on the early evolution of tetrapods. *Annual Review of Ecology, Evolution & Systematics* **39**: 571-592.
- (13) **M. Friedman**. 2008. The evolutionary origin of flatfish asymmetry. *Nature* **454**: 209-212. [*Nature News & Views* commentary by Janvier]
- (12) **M. Friedman**. 2007. Cranial structure in the Devonian lungfish *Soederberghia groenlandica* and its implications for the interrelationships of 'rynchodipterids'. *Transactions of the Royal Society of Edinburgh: Earth Sciences* **98**: 178-198.
- (11) **M. Friedman**. 2007. The interrelationships of Devonian lungfishes (Sarcopterygii: Dipnoi) as inferred from neurocranial evidence and new data from the genus *Soederberghia* Lehman, 1959. *Zoological Journal of the Linnean Society* **151**: 115-171.
- (10) **M. Friedman**, M. I. Coates, P. Anderson. 2007. First discovery of a primitive coelacanth fin fills a major gap in the evolution of paired fins and limbs. *Evolution & Development* **9**: 329-337. [cover article]
- (9) Hurley, I. A., R. Lockridge Mueller, K. A. Dunn, E. J. Schmidt, **M. Friedman**, R. K. Ho, V. E. Prince, Z. Yang, M. G. Thomas, M. I. Coates. 2007. A new time-scale for ray-finned fish evolution. *Proceedings of the Royal Society B* **274**: 489-498. [cover article]
- (8) H. Blom, J. A. Clack, P. E. Ahlberg, **M. Friedman**. 2007. Devonian vertebrates from East Greenland: a review of faunal composition and distribution. *Geodiversitas* **29**: 119-141.
- (7) **M. Friedman**. 2007. *Styloichthys* as the oldest coelacanth: implications for early sarcopterygian interrelationships. *Journal of Systematic Palaeontology* **5**: 289-343.
- (6) **M. Friedman**, E. B. Daeschler. 2006. Late Devonian (Famennian) lungfishes from the Catskill Formation of Pennsylvania, USA. *Palaeontology* **49**: 1167-1183.
- (5) **M. Friedman**, H. Blom. 2006. A new actinopterygian from the Famennian of East Greenland and the relationships of Devonian ray-finned fishes. *Journal of Paleontology* **80**: 1186-1204.
- (4) **M. Friedman**, M. I. Coates. 2006. A newly recognized coelacanth highlights the early morphological diversification of the clade. *Proceedings of the Royal Society B* **273**: 245-250.
- (3) **M. Friedman**, G. D. Johnson. 2005. A new species of *Mene* (Perciformes: Menidae) from the Paleocene of South America, with notes on paleoenvironment and a brief review of menid fishes. *Journal of Vertebrate Paleontology* **25**: 770-783. [cover article]
- (2) P. E. Ahlberg, **M. Friedman**, H. Blom. 2005. New light on the earliest known tetrapod jaw. *Journal of Vertebrate Paleontology* **25**: 720-724.
- (1) **M. Friedman**, J. A. Tarduno, D. B. Brinkman. 2003. Fossil fishes from the high Canadian Arctic: further paleobiological evidence for extreme climatic warmth during the Late Cretaceous (Turonian-Coniacian). *Cretaceous Research* **24**: 615-632.

Commentaries, responses, and reviews

- M. Friedman**. 2022. News & Views: Fossils reveal the deep roots of jawed vertebrates. *Nature* **609**: 897-898.
- M. Friedman**. 2021. Bone bonanza. *New Scientist* **245**: 54.
- M. Friedman**. 2014. Review of *Mesozoic Fishes 5: Global Diversity and Evolution*. *Copeia* **2014**: 411-415.
- M. Friedman**, M. D. Brazeau. 2013. News & Views: A jaw-dropping fossil fish. *Nature* **502**: 175-177.
- M. Friedman**, Z. Johanson, R. C. Harrington[†], T. J. Near, M. R. Graham. 2014. On fossils, phylogenies, and sequences of evolutionary change. *Proceedings of the Royal Society B* **281**: 20140115.
- M. Friedman**. 2009. Perspectives: Emerging on to a tangled bank. *Science* **324**: 341-342.

- M. Friedman**, M. Brazeau. 2008. Placoderm muscles and chordate interrelationships. *Biology Letters* **4**: 103.
- M. Friedman**, M. I. Coates. 2005. The last word on a lost world? *Trends in Ecology and Evolution* **8**: 425-426.

INVITED TALKS AND SEMINARS

- 2024 University of Oklahoma, Department of Biology
- 2024 University of Louisville, Department of Biology
- 2024 Earth Science Club of Northern Illinois
- 2023 Rochester Academy of Science, Fossil Section
- 2022 New York State Paleontological Society
- 2022 U-M Museum of Natural History Science Café
- 2022 Humboldt State University, Department of Biological Sciences
- 2022 University of Uppsala, Evolutionary Biology Centre
- 2022 University of Chicago, Darwinian Sciences retreat keynote speaker
- 2022 AAAS virtual event: "Night at the Museums"
- 2021 North Coast Fossil Club
- 2021 Friends of the University of Michigan Museum of Paleontology
- 2020 American Museum of Natural History (cancelled due to COVID-19)
- 2019 U-M Museum of Natural History Farrand Memorial Lecture
- 2019 Michigan Night at the Museum, U-M Alumni Event, Cincinnati Museum Center
- 2019 University of Buffalo, Department of Geology
- 2019 Cornell University, Department of Ecology and Evolutionary Biology
- 2018 University of Cincinnati, Department of Biological Sciences
- 2018 U-M Museum of Natural History Science Café
- 2017 University of Chicago, Evolutionary Morphology Seminar Series
- 2016 Institute of Vertebrate Paleontology and Paleoanthropology, Beijing
- 2015 Ludwig-Maximilians University, Munich
- 2015 University of Zurich, evolutionary biology graduate student retreat
- 2015 University of Cambridge, Department of Earth Sciences
- 2014 The Linnean Society of London
- 2014 University of Vienna
- 2014 University of Oxford, Alumni Weekend Lecture Series
- 2014 Imperial College, Silwood Park Campus
- 2015 University of Michigan, Department of Earth and Environmental Sciences
- 2015 University of Michigan, Department of Ecology and Evolutionary Biology
- 2014 University of Michigan, Department of Ecology and Evolutionary Biology
- 2014 Natural History Museum, London, Arthur Smith Woodward 150 Symposium
- 2014 University of Leeds
- 2013 University of Oxford, Alumni Weekend Lecture Series
- 2013 Abingdon Anglo-German Club
- 2013 University of Bristol, Department of Earth Sciences
- 2013 Ashmolean Natural History Society
- 2013 University of Oxford, Department of Zoology
- 2012 University College London
- 2013 University of Sheffield
- 2013 Yale University, Department of Geology and Geophysics
- 2012 Mary Anning Lecture Series, Lyme Regis
- 2012 Carnegie Museum of Natural History, Pittsburgh
- 2012 Netherlands Center for Biodiversity Naturalis
- 2011 University of Zurich
- 2010 Leicester Literary and Philosophical Society
- 2010 Yale University, Department of Geology and Geophysics
- 2010 University of Bristol, Department of Earth Sciences
- 2009 University of Cambridge, Department of Zoology

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2009 University of Birmingham, School of Geography, Earth and Environmental Sciences
2009 National Museum of Natural History, Department of Paleobiology
2009 University of California, Davis, Center for Population Biology
2008 Yale University, Department of Ecology and Evolutionary Biology
2008 University of Michigan, Department of Ecology and Evolutionary Biology
2007 Elgin Museum and Moray Society
2006 University of Copenhagen and Mineralogisk Museum

MENTORING

Postdoctoral fellows and mentees (9)

Jacob Berv (2019–2023; Michigan Life Sciences Fellow, co-supervised with D. Rabosky, S. Smith, B. Winger, U-M EEB), now Schmidt AI in Science Fellow, Michigan Institute for Data Science
Matthew Kolmann (2020–2022; U-M LSA), now Assistant Professor, University of Louisville
Carlos Peredo (2019–2022; NSF Postdoctoral Research Fellow in Biology, Michigan Fellow, co-supervised with C. Marshall, Texas A&M), now Assistant Professor, Miami University
Kara Feilich (2017–2020; U-M LSA, NSF Postdoctoral Research Fellow in Biology), now Veterans Health Administration
Donald Davesne (2016–2019; Leverhulme, co-supervised with R. Benson, University of Oxford), now Humboldt Research Fellow, Museum für Naturkunde, Berlin, Germany
Valentin Fischer (2015; Royal Society Newton Fellow), now Associate Professor, University of Liege, Belgium
Richard Harrington (2013-2015, NERC), now Associate Marine Scientist, Marine Resources Division, South Carolina Department of Natural Resources
Roger Close (2013-2015, Leverhulme), now Royal Society University Research Fellow, University of Oxford
Graeme Lloyd (2011-2013, NERC), now Lecturer, University of Leeds

DPhil and PhD students (15)

Sanaa El-Sayed (2021–present; U-M)
Lindsey DeHaan (2021–present; U-M)
Hadeel Saad (2021–present; U-M)
Rodrigo Tinoco Figueroa (2019–present; U-M)
Rafael Rivero Vega (2019–present; U-M)
James Andrews (2018–present; U-M)
Alessio Capobianco (2016–2021, U-M), now postdoctoral researcher, Ludwig-Maximilians University, Munich, Germany
Claire Dobson (2016–2019, Oxford), now commissioning editor, Oriel Square Limited, Oxford, UK
Cesar Espinoza Campuzano (2015–2019, Oxford)
Hermione Beckett (2015–2018, Oxford), now Head of Lower Sixth Form, The King's High School for Girls, Warwick, UK
Gemma Benevento (2015–2018, Oxford), now postdoctoral researcher, Senckenberg Biodiversität und Klima Forschungszentrum, Dresden, Germany
Daniel Delbarre (2013–2017, Oxford), now bioinformatician, Medical Research Council Harwell, Harwell, UK
Sam Giles (2011–2015, Oxford), now Royal Society Dorothy Hodgkin Senior Research Fellow, University of Birmingham, Birmingham, UK
Laura Soul (2011–2015, Oxford), now National Learning Programmes and Partnerships Manager, The Natural History Museum, London, UK
John Clarke (2010–2014, Oxford), now Humboldt Research Fellow, Ludwig-Maximilians University, Munich, Germany

Dissertations examined

Tamara El Hossny (2023, University of Geneva, PhD)
Struan Henderson (2023, University of Birmingham, PhD)
Hannah Byrne (2022, University of Uppsala, PhD)
Mohammed Bazzi (2021, University of Uppsala, PhD)
Lynne Bean (2020, Australian National University, PhD)
Benedict King (2018, Flinders University, PhD)
Renee Hoekzema (2015, University of Oxford, DPhil, internal examiner)
Donald Davesne (2015, Museum national d'Histoire naturelle, PhD)
Leila Battison (2012, University of Oxford, DPhil, internal examiner)
Laurent Darras (University of Leicester, PhD)
Aisha Al-Sulwadi (2012, University of Oxford, DPhil, internal examiner)
Eugenie Barrow (2012, University of Oxford, DPhil, internal examiner)
Alex Liu (2011, University of Oxford, DPhil, internal examiner)
Feng Li (2010, University of Oxford, DPhil, internal examiner)
Hesham Sallam (2010, University of Oxford, DPhil, internal examiner)

U-M dissertation committee member (primary mentees not listed)

Benjamin Nicholas (2023–present, EEB)
Patricia Torres-Pineda (2022–present, EEB)
Kevin Velez (2020–present, EES)
Ethan Shirley (2020–present, EES)
Zachary Quirk (2020–present, EES)
Tariq Abdul Kareem (2020–present, EES)
Kierstin Rosenbach (2018–present, EES)
James Saulsbury (2018–2021, EES)
Bian Wang (2017–2021, EES)
Tomomi Parins-Fukuchi (2017–2019, EEB)
Margaret Veitch (2015–2022, EES; co-supervisor 2021 – 2022)
Kelly Matsunaga (2017–2019, EES)

Dissertation committees outside U-M

Francesco Della Giustina (2023–present, University of Liege)
Miguel Montalvo (2022–present, Virginia Institute of Marine Science/College of William and Mary)
Tamara El Hossny (2020–present, University of Geneva)
Emanuel Ribeiro (2017–present, University of Oklahoma)

Visiting PhD students

Jesús Díaz Cruz (2021–2022, Universidad Nacional Autonoma de México; supported by Comexus Fulbright Fellowship)
Xindong Cui (2020–2021, Institute of Vertebrate Paleontology and Paleoanthropology; supported by Chinese Academy of Sciences)
Sanaa El-Sayed (2019–2020, Mansoura University; supported by Amideast Fulbright Fellowship)
Thodoris Argyriou (2016–2017, University of Zurich; supported by Swiss National Science Foundation)
Elizabeth Sibert (2015, Scripps Institute of Oceanography; supported by SIO graduate student grant)

Oxford MEarthSci project supervisor

Amy Tims (2014–2015)
Hermione Beckett (2013–2014)
Sarah Cook (2012–2013)
Fiona Walker (2012–2013)
Polly Russell (2012–2013)

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Emma Jude (2011–2012)
Matthew Parfitt (2011–2012)
Moya Wooley (2011–2012)
Susanna Woodward-Vukcevic (2010–2011)

Oxford Part II Zoology project supervisor

Fiona Jones (2012–2013)
Andrzej Wolniewicz (2012–2013)

U-M Undergraduate Research Opportunity Program (UROP)

Maoz Bareket (2021–2022)
Cassidy Beach (2020–2021)
Wesley Liao (2020–2021)
Matthew Palumbo (2020–2021; co-supervised w/ R. Rivero Vega; UROP Blue Ribbon Award Winner)
Janel LaPalm (2020–2021; co-supervised w/ R. Rivero Vega; UROP Blue Ribbon Award Winner)
Emma Archer (2019–2020; co-supervised w/ R. Rivero Vega; UROP Blue Ribbon Award Winner)
Makenzie McIntyre (2018–2019)
Anna Garcia (2017–2018)
Mallory Dwortz (2017–2018)
Dina Habibovic (2017–2018)
Rose Popma (2016–2017)

Recognition

Nominee, UROP Outstanding Mentor (2021)

TEACHING

University of Michigan

EARTH 103: Dinosaurs and Other Failures (FA 2016, 2017; WN 2017–2020)
EARTH 437: Evolution of Vertebrates (FA 2016, 2018, 2021; co-taught with Jeffrey Wilson Mantilla)
EARTH 444: Analytical Paleobiology (FA 2017, 2019, 2023; co-taught with Jeffrey Wilson Mantilla)
EARTH 536: Paleontology Seminar (FA 2019–present; WN 2020–present)

Guest instructor for BIO 173: Introductory Biology Lecture (2020–present, lecture and UMMP collections tours); EAS 442/Environ 442/EEB 440: Biology of fishes EEB 516 (2018–present, lecture on non-teleosts); EEB 516: Principles of Evolution (2020, lecture on rates of evolution)

Nominee, Golden Apple Award (2017; student-given award for outstanding professors at U-M)

University of Oxford

Building a Habitable Planet (first-year course, 2015–2016)
Evolution (second-year course, 2011–2016)
Fossil Records (second-year course, 2011–2016)
Quantitative Reasoning in the Earth Sciences (second-year course, 2011–2014)
Vertebrate Palaeobiology (third-year course, 2012–2016; co-taught with Roger Benson)
Controversies in Palaeobiology (fourth-year course, 2010–2016)

University of Chicago

Teaching assistant, Chordate Evolutionary Biology (2004–2008)
Teaching assistant, Systematic Biology (2005)

02.01.24

University of Rochester

Teaching assistant, Evolution of the Earth (2002)
Teaching assistant, Animal Behavior (2001)
Teaching assistant, Genetics (2000)
Workshop leader, Organic Chemistry I (2000)

SERVICE

University of Michigan

2023–present	DEI Lead for College of LSA, UMMP
2023–present	DEI committee, EES
2023	Promotion review panel (Passey), EES
2022–present	Launch committee, Mónica Carvalho, EES
2022–present	Launch committee, Thais Vasconcelos, EEB
2022–present	Graduate admissions committee, EES
2021–2022	Standing prelim committee member, EES
2020	Tenure review panel chair (Smith), EES
2018–2020	Graduate admissions committee, EES
2018–present	Director, UMMP
2017–2018	DEI committee, EES
2016–present	Student awards committee, EES
2016–present	Faculty liaison, Friends of the UMMP
2016–2019	Faculty advisory committee, U-M Museum of Natural History

University of Oxford

2013–2016	Undergraduate advisor, Earth Sciences
2013	College representative, faculty search for Chair in Geochemistry
2010–2012	Undergraduate admissions coordinator, Earth Sciences

Professional

2023–present	Ethics committee, Paleontological Society
2022–present	Lead organizer, North American Paleontological Convention 2024
2021–2023	Nominations committee, Paleontological Society (chair from 2022–2023)
2012–2016	NERC Peer Review College
2011–2014	Council, Palaeontographical Society

Manuscript reviewer for *Acta Palaeontologica Polonica*, *Acta Zoologica*, *Alcheringa*, *Biological Reviews*, *Bollettino della Società Paleontologica Italiana*, *Canadian Journal of Earth Sciences*, *Cell*, *Comptes Rendus Palevol*, *Contributions from the University of Michigan Museum of Paleontology*, *Cretaceous Research*, *Current Biology*, *Cybium*, *Earth and Environmental Science Transactions of the Royal Society of Edinburgh*, *eLife*, *Evolution*, *Evolution & Development*, *Evolution: Education and Outreach*, *Fishery Bulletin*, *Geodiversitas*, *Geologica Belgica*, *Geological Magazine*, *Geoscience Frontiers*, *International Journal of Developmental Biology*, *Journal of African Earth Sciences*, *Journal of Anatomy*, *Journal of Experimental Zoology Series B*, *Journal of Paleontology*, *Journal of Systematic Palaeontology*, *Journal of Vertebrate Paleontology*, *Kansas Academy of Science Transactions*, *Methods in Ecology and Evolution*, *Nature*, *Nature Communications*, *Nature Geosciences*, *Nature Scientific Reports*, *Naturwissenschaften*, *New Mexico Museum of Natural History Bulletin*, *New Zealand Journal of Geology and Geophysics*, *Papers in Palaeontology*, *Paläontologische Zeitschrift*, *Palaeontology*, *Palaeontologica Electronica*, *Paleobiology*, *Paleontological Research*, *PeerJ*, *PLoS ONE*, *PNAS*, *Proceedings of the Royal Society B*, *Royal Society Open Science*, *Science*, *Scientific Reports*, *Systematic Biology*, *Zoological Journal of the Linnean Society*, *Zootaxa*.

Proposal reviewer for Austrian Science Fund, Deutsche Forschungsgemeinschaft, Estonian Research Council, European Research Council, French National Research Agency, National Geographic Society, National Science Foundation, National Museum of Natural History Science Programs, Natural Environment Research Council, Swiss National Science Foundation.

ADDITIONAL AFFILIATIONS

Professional

Member of AAAS, Palaeontological Association, Paleontological Society, Society for the Study of Evolution, Society of Systematic Biologists, Society of Vertebrate Paleontology.

Museums and research institutes

2009–present	Research Associate, Natural History Museum, London
2009–present	Research Associate, American Museum of Natural History, New York
2022–present	Research Associate, Field Museum, Chicago