Allison R. Tumarkin-Deratzian

Professor of Instruction
Department of Earth and Environmental Science
Temple University
Beury Hall
1901 North 13th Street
Philadelphia, Pennsylvania 19122

Phone: (215) 204-2321
Fax: (215) 204-3496
E-mail: altd@temple.edu
Website: sites.temple.edu/vertpaleo

Summary of Research Interests:

Bone microstructure, paleopathology, and growth patterns of modern and fossil amniotes
Ontogeny and evolution of ornithischian dinosaurs
Cretaceous vertebrate faunas of North America

Academic Appointments:

2020 – present: Professor of Instruction, Earth and Environmental Science
2017 – 2024: Vice Chair, Earth and Environmental Science
2013 – 2020: Associate Professor of Instruction, Earth and Environmental Science
2008 – 2013: Assistant Professor of Instruction, Earth and Environmental Science
2006 – 2008: Lecturer, Earth and Environmental Science, Temple University
2007: Adjunct Instructor, Biodiversity, Earth, and Environmental Science, Drexel University
2003 – 2006: Visiting Assistant Professor, Earth Science and Geography, Vassar College

Education:

2003 Ph.D. University of Pennsylvania, Earth and Environmental Science
Dissertation: Bone surface textures as ontogenetic indicators in extant and fossil archosaurs: macroscopic and histological evaluations.
Advisor: Peter Dodson

1997 B.S. Lafayette College, Geology and Environmental Geosciences
Summa Cum Laude, Honors in Geology
Thesis: Sedimentology, taphonomy, and faunal review of a multigeneric bonebed (Bonebed 47) in the Dinosaur Park Formation (Campanian) of southern Alberta, Canada.
Advisor: Lawrence L. Malinconico, Jr.

Publications:

(Graduate Student research author; ** Undergraduate Student research author)*

Journal Articles

Fish, R.C.** and **Tumarkin-Deratzian, A.** In Review. Osteopathology in a wild eastern raccoon (*Procyon lotor lotor*). Proceedings of the Academy of Natural Sciences.

Gallucci, J.E.*, Woolslayer, G.**, Barker, K.*, Kibelstis, B.*, **Tumarkin-Deratzian, A.R.**, Ullman, P.V., Grandstaff, D.E., and Terry, D.O. 2024. Controls on soft tissue and cellular preservation in Late Eocene and Early Oligocene vertebrate fossils from the White River and Arikaree Groups of Nebraska, South Dakota, and Wyoming. Minerals. 14(5): 497

Hedrick, B.P., Goldsmith, E.*, Rivera-Sylva, H., Fiorillo, A.R., **Tumarkin-Deratzian, A.R.**, and Dodson, P. 2020. Filling in gaps in the ceratopsid histologic database: histology of two basal centrosaurines and an assessment of the utility of rib histology in the Ceratopsidae. The Anatomical Record. 303(4): 935-948.

Anné, J., **Tumarkin-Deratzian, A.R.**, Cuff, H.J., Orsini, P., and Grandstaff, B. 2019. Acromegaly in a hog badger (*Arctonyx collaris*). Proceedings of the Academy of Natural Sciences. 167(1): 49-56

Hedrick, B.P.*, Gao, C., **Tumarkin-Deratzian, A.R.**, Shen, C., Holloway, J.L., Zhang, F., Hankenson, K.D., Liu, S., Anné, J., and Dodson, P. 2016. An injured *Psittacosaurus* (Dinosauria: Ceratopsia) from the Yixian Formation (Liaoning, China): Implications for *Psittacosaurus* biology. The Anatomical Record. 299(7): 897-906.

Zhao, B., Hedrick, B.P.*, Gao, C., **Tumarkin-Deratzian, A.R.**, Zhang, F., Shen, C., and Dodson, P. 2016. Histologic examination of an assemblage of *Psittacosaurus* (Dinosauria: Ceratopsia) juveniles from the Yixian Formation (Liaoning, China). The Anatomical Record. 299(5): 601-612.

Frederickson, J.A.*, and **Tumarkin-Deratzian A.R.** 2014. Craniofacial ontogeny in *Centrosaurus apertus*. PeerJ. 2: e252;DIO10.7717/peerj.252.

Hedrick, B.P.,* **Tumarkin-Deratzian, A.R.**, and Dodson, P. 2014. Bone microstructure and relative age of the holotype specimen of the diplodocoid sauropod dinosaur *Suuwassea emilieae*. Acta Palaeontologica Polonica. 59(2): 295-304.

Anné, J., Edwards, N.P., Wegelius, R.A., **Tumarkin-Deratzian, A.R.**, Sellers, W.I., van Veelen, A., Bergmann, U., Sokaras, D., Alonso-Mori, R., Ignatyev, K., Egerton, V.M., and Manning, P.L. 2014. Synchrotron imaging reveals bone healing and remodelling strategies in extinct and extant vertebrates. Journal of the Royal Society Interface. 11: 20140277.

Chinsamy, A., Thomas, D.B., **Tumarkin-Deratzian, A.R**., and Fiorillo, A.R. 2012. Hadrosaurs were perennial polar residents. The Anatomical Record. 295(4): 610-614.

Tumarkin-Deratzian, A.R. 2009. Evaluation of long bone surface textures as ontogenetic indicators in centrosaurine ceratopsids. The Anatomical Record. 292(9): 1485-1500.

Chinsamy, A., and **Tumarkin-Deratzian, A.** 2009. Pathologic bone tissues in a turkey vulture and a nonavian dinosaur: implications for interpreting endosteal bone and radial fibro-lamellar bone in fossil dinosaurs. The Anatomical Record. 292(9): 1478-1484.

Tumarkin-Deratzian, A.R. 2007. Fibrolamellar bone in wild adult *Alligator mississippiensis*. The Journal of Herpetology. 41(2): 341-345.

Tumarkin-Deratzian, A.R., Vann, D.R., and Dodson, P. 2007. Growth and textural aging in long bones of the American alligator *Alligator mississippiensis* (Crocodylia: Alligatoridae). Zoological Journal of the Linnean Society. 150(1): 1-39.

Tumarkin-Deratzian, A.R., Vann, D.R., and Dodson, P. 2006. Bone surface texture as an ontogenetic indicator in long bones of the Canada goose *Branta canadensis* (Anseriformes: Anatidae). Zoological Journal of the Linnean Society. 148(2): 133-168.

Contributions to Edited Volumes

Tumarkin-Deratzian, A.R. 2012. Designing an upper-level-vertebrate paleontology and taphonomy course for undergraduate geoscience majors. pp. 43-58. In: Yacobucci, M.M. and Lockwood, R. (eds.), Teaching Paleontology in the 21st Century. The Paleontological Society Special Publications, vol. 12.

Tumarkin-Deratzian, A.R. 2010. Histological evaluation of ontogenetic bone surface texture changes in the frill of *Centrosaurus apertus*. pp. 251-263. In: Ryan, M.J., Chinnery-Allgeier, B., and Eberth, D.A. (eds.), New Perspectives on Horned Dinosaurs: The Royal Tyrrell Museum Ceratopsian Symposium. Bloomington: Indiana University Press.

Tumarkin-Deratzian, A.R. 2009. Pigeonholing the "dino-birds". pp. 59-74. In: Schneiderman, J.S. and Allmon, W.D. (eds.), For the Rock Record: Geologists on Intelligent Design. Berkeley: University of California Press.

Conference Proceedings

Tumarkin-Deratzian, A.R. 2007. Histology of *Centrosaurus* frill elements: implications for understanding ontogenetic bone texture change. pp.156-159. In: Ceratopsian Symposium, Short papers, Abstracts, and Programs, Royal Tyrrell Museum of Palaeontology, Drumheller, Alberta, Canada.

Tumarkin-Deratzian, A.R. 2002. Is bone surface texture an indicator of skeletal maturity in *Alligator mississippiensis*? pp. 141-151. In*:* Crocodiles. Proceedings of the 16th Working Meeting of the

Crocodile Specialist Group, IUCN—The World Conservation Union, Gland, Switzerland and Cambridge UK.

Abstracts

Ullmann, P.V., Drewicz, A.*, Goldsmith, E.R.*, Gallucci, J.*, **Tumarkin-Deratzian, A.**, Terry, D.O., Ash, R.A., and Grandstaff, D.E. Illuminating the variability, utility, and limitations of diffusion modeling of trace element concentration profiles in fossil bones. Submitted. Society of Vertebrate Paleontology.

Davatzes, A., Ravi, S., Toran, L., and **Tumarkin-Deratzian, A.** 2022. Development of an alternative inclusive field camp. Geological Society of America Abstracts with Programs. 54(5).

Peach, L.R.**, Casey, C.**, Feldman, H.**, and **Tumarkin-Deratzian, A.R.** 2019. Assessing vertebrate microfossil content of anthill sediments in Park County, WY. Geological Society of America Abstracts with Programs. 51(5).

Anné, J., Brassey, C.A., and **Tumarkin-Deratzian, A.R**. 2019. When to cut: difference between histological data obtained using virtual (MicroCT) vs. thin section analyses. 5th International Symposium on Paleohistology, Cape Town, South Africa.

Tumarkin-Deratzian, A.R. 2018. Pseudopathology revisited: Geological noise versus biological signal. Geological Society of America Abstracts with Programs. 50(5).

Goldsmith, E.R.*, **Tumarkin-Deratzian, A.R.**, Padalkar, M.V., Grandstaff, D.E., Fiorillo, A.R., Ash, R., Pleshko, N., and Chemtob, S.M. 2018. Bone histology and geochemical taphonomy of Arctic centrosaurine ceratopsids from the Kikak-Tegoseak Quarry (North Slope, Alaska). Journal of Vertebrate Paleontology, SVP Program and Abstracts Book, 2018, 135.

Goldsmith, E.R.*, **Tumarkin-Deratzian, A.R.**, Padalkar, M.V., Fiorillo, A.R., Pleshko, N., Chemtob, S.M., and Grandstaff, D.E. 2018. Bone histology and diagenesis of Arctic centrosaurine ceratopsids from the Kikak-Tegoseak Quarry (North Slope, Alaska). Geological Society of America Abstracts with Programs. 50(2).

Tumarkin-Deratzian, A.R. 2017. A review of paleohistology in Philadelphia: 1990's through present. 4th International Symposium on Paleohistology, Trenton, NJ.

Boles, Z.M.*, Lacovara, K.J., and **Tumarkin-Deratzian, A.** 2017. Shell bone histology and habitat preference of turtles from the K/Pg Hornerstown Formation, New Jersey (USA). 4th International Symposium on Paleohistology, Trenton, NJ.

Miranda, A.**, **Tumarkin-Deratzian, A.R.**, Schein, J., and Parris, D. 2017. Vertebrate microfossils from the Shield Wolf Quarry, Lance Formation (Maastrichtian), Carbon County, MY, USA. Geological Society of America Abstracts with Programs. 49(2).

Conwell, C.T.**, Terry, D.O., Jr., **Tumarkin-Deratzian, A.R.**, and Grandstaff, D.E. 2016. From bone to stone: the influence of depositional environments on the fossilization of vertebrate bone from the Paleogene White River Group, Badlands National Park, South Dakota. Geological Society of America Abstracts with Programs. 48(2).

Shackelton, A.L.*, **Tumarkin-Deratzian, A.**, Grandstaff, D., and Terry, D., Jr. 2016. Regional variability of microwear on the molars of *Leptomeryx* from Eocene-Oligocene strata of Wyoming and Nebraska. Geological Society of America Abstracts with Programs. 48(2).

Kopcznski, K.*, Buynevich, I.V., Hasiotis, S.T., and **Tumarkin-Deratzian, A.** 2015. *Scoyenia*-dominated Triassic riparian paleosols, Bucks County, Pennsylvania. Geological Society of America Abstracts with Programs. 47(3).

Tumarkin-Deratzian, A., Sertich, J., Lamanna, M., O'Connor, P., and Abdel-Ghany, M. 2014. A large-bodied crocodyliform from the Upper Cretaceous Bahariya Formation, Bahariya Oasis, Western Desert of Egypt. Journal of Vertebrate Paleontology, SVP Program and Abstracts Book, 2014, 242.

Buynevich, I.V., Wiest, L.A.*, Maza, Z.A.**, Rychlak, H.**, and **Tumarkin-Deratzian, A.** 2014. Vertebrate swim traces on a Late Triassic lacustrine paleosurface, Bucks County, Pennsylvania. Geological Society of America Abstracts with Programs. 46(2): 77.

Anné, J.*, **Tumarkin-Deratzian, A.R.**, Terry, D.O., Jr., and Grandstaff, D. 2010. Geochemical properties of pathological bone in extinct and extant archosaurs. 3rd International Palaeontological Congress, London, UK.

Anné, J.*, **Tumarkin-Deratzian, A.R.**, Terry, D.O., Jr., and Grandstaff, D. 2010. Using geochemical techniques to assess differences in crystallinity between normal and pathologic bone in modern and fossil specimens. Geological Society of America Abstracts with Programs. 42(5): 160

Chinsamy-Turan, A., **Tumarkin-Deratzian, A**., Thomas, D., and Fiorillo, A. 2010. The bone microstructure of the polar hadrosaurs from the North Slope of Alaska. Journal of Vertebrate Paleontology, SVP Program and Abstracts Book, 2010, 72A.

Davatzes, A.K., **Tumarkin-Deratzian, A.R.**, and Prince, S. 2010. Dialogues with Darwin: blogging as an educational tool in a general education course. Geological Society of America Abstracts with Programs. 42(5): 442.

Tumarkin-Deratzian, A.R. 2010. The museum gallery as anatomy classroom: teaching geology students comparative osteology without inciting mass panic. Geological Society of America Abstracts with Programs. 42(5): 69

Tumarkin-Deratzian, A.R., Davatzes, A.K., and Prince, S. 2010. Dialogues with Darwin: museum exhibits and primary sources in a general education course. Geological Society of America Abstracts with Programs. 42(5): 443.

Tumarkin-Deratzian, A.R. and Chinsamy, A. 2009. Avian and dinosaurian pathologies provide insight into unusual dinosaurian bone tissues. Journal of Vertebrate Paleontology. 29(supplement to 3): 193A

Anné, J.*, **Tumarkin-Deratzian, A.**, Terry, D.O., and Grandstaff, D. 2009. Histological and geochemical properties of pathological bone in *Allosaurus fragilis* and modern birds. 6th International Bone Diagenesis Meeting, Bonn, Germany.

Chinsamy, A., Fiorillo, A.R., and **Tumarkin-Deratzian, A.** 2009. Hadrosaurs from the North Slope of Alaska: biological insights from bone microstructure. 10th Symposium on Mesozoic Terrestrial Ecosystems, Teruel, Spain.

Tumarkin-Deratzian, A. 2008. Long bone surface textures as ontogenetic markers in centrosaurine ceratopsids. Journal of Vertebrate Paleontology. 28(supplement to 3): 154A.

Tumarkin-Deratzian, A. 2006. On the occurrence of fibrolamellar bone in *Alligator*. Journal of Vertebrate Paleontology. 26(supplement to 3): 133A.

Tumarkin-Deratzian, A. and Dodson, P. 2005. A new look at old faces: revisiting *Monoclonius* and *Brachyceratops*. Journal of Vertebrate Paleontology. 25(supplement to 3): 125A

Grandstaff, B., Smith, J., Lacovara, K., **Tumarkin-Deratzian, A.**, and Abdel-Ghani, M. 2005. Polypterids (Osteichthyes: Polypteridae) as environmental proxies in the Cenomanian (Late Cretaceous) of Egypt. Journal of Vertebrate Paleontology. 25(supplement to 3): 65A

Tumarkin-Deratzian, A., Grandstaff, B., Lamanna, M., and Smith, J. 2004. New material of *Libycosuchus brevirostris* from the Cenomanian Bahariya Formation of Egypt. Journal of Vertebrate Paleontology. 24(supplement to 3): 123A

Grandstaff, B., Smith, J., Lamanna, M., **Tumarkin-Deratzian, A.**, and Lacovara, K. 2004. Cranial kinesis and diet in *Mawsonia* (Actinistia, Coelacanthiformes). Journal of Vertebrate Paleontology. 24(supplement to 3): 66A

Tumarkin-Deratzian, A.R. 2004. Bone surface textures as ontogenetic indicators in Archosauria. Journal of Morphology (7th International Congress on Vertebrate Morphology). 260(3): 335

Tumarkin-Deratzian, A.R. 2003. Evaluation of textural aging as a method for determining relative ontogenetic age in modern and fossil archosaurs. Journal of Vertebrate Paleontology. 23(supplement to 3): 105A

Tumarkin, A.R., Chinsamy, A., and Dodson, P. 2001. Trauma in birds: is it reflected as interruptions in osteogenesis? Journal of Vertebrate Paleontology. 21(supplement to 3): 109A

Tumarkin, A.R. and Dodson, P. 2001. Evaluation of periosteal aging in Crocodylia and Aves. Journal of Morphology (6th International Congress on Vertebrate Morphology). 248: 292

Tumarkin, A.R. and Dodson, P. 2000. Ontogenetic bone texture change in extant crocodilians: implications for assessing maturity of fossil archosaurs. Journal of Vertebrate Paleontology. 20(supplement to 3): 74A

Tumarkin, A.R. and Dodson, P. 1999. On the use of bone surface texture as a proxy for age. Journal of Vertebrate Paleontology. 19(supplement to 3): 81A

Tumarkin, A.R., Dodson, P., Tanke, D.H., and Rothschild, B.M. 1999. Paleohistopathology? A preliminary consideration of modern fracture repair for interpreting dinosaurian thermophysiology. Geological Society of America, Abstracts with Programs. 31(2): A-73

Tumarkin, A.R. and Dodson, P. 1998. A heterochronic analysis of enigmatic ceratopsids. Journal of Vertebrate Paleontology. 18(supplement to 3): 83A

Tumarkin, A.R., Tanke, D.H., and Malinconico, L.L., Jr. 1997. Sedimentology, taphonomy, and faunal review of a multigeneric bonebed (Bonebed 47) in the Dinosaur Park Formation (Campanian) of southern Alberta, Canada. Geological Society of America, Abstracts with Programs. 29(2): A-86

Teaching, Instructional, and Mentoring Experience:

Temple University, Department of Earth and Environmental Science

Courses (* indicates new course design or substantial revision)

*Field Study in Paleontology
*Evolution of Earth & Its Life (general education)
Disasters: Geology vs. Hollywood (general education)
Physical Geology
*Paleontology and Stratigraphy (+ laboratory)
*Vertebrate Paleontology and Taphonomy (undergraduate; writing intensive)
*Vertebrate Paleontology and Taphonomy (graduate)

Student Advising—Temple University

Undergraduate Research Supervisor

Rebecca Fish – Project: Osteological pathology in a raccoon (*Procyon lotor*)
Clinton Casey – Project: Osteohistology of fossil vertebrates
Kaileigh Murphy – Project: Vertebrate microfossil recovery from anthill sediments, Lance Formation, Park County, Wyoming, USA
Clinton Casey – Project: Vertebrate microfossil recovery from anthill sediments, Lance Formation, Park County, Wyoming, USA
Hannah Feldman – Project: Vertebrate microfossil recovery from anthill sediments, Lance Formation, Park County, Wyoming, USA
Lulu Peach, B.S. 2019 – Project: Vertebrate microfossil recovery from anthill sediments, Lance Formation, Park County, Wyoming, USA
John Mangan, B.S. 2018 – Project: Vertebrate microfossil recovery from anthill sediments, Lance Formation, Park County, Wyoming, USA
Ariana Miranda, B.S. 2016 – Project: Preparation and analysis of vertebrate microfossils from the Shield Wolf Quarry (SWQ), Lance Formation (Maastrichtian), Carbon County, Montana, USA

M.S. Thesis Advisor

Erika Goldsmith, M.S. 2018 – Thesis: Bone histology and geochemical taphonomy of Arctic centrosaurine ceratopsids from the Kikak-Tegoseak Quarry (North Slope, Alaska)
Joseph Frederickson, M.S. 2013 – Thesis: Craniofacial ontogeny in *Centrosaurus apertus*
Jennifer Anné, M.S. 2010 - Thesis: Histological and geochemical properties of pathological versus normal bone in *Allosaurus fragilis* and modern avians

M.S. Thesis Committee Member

Brian Kibelstis – M.S. 2024 – Thesis: Investigation of controlling factors on cellular and soft tissue preservation in fossils from the White River Group of Nebraska and South Dakota
Peter Aubrey Balzani – M.S. 2023 – Thesis: Preservation and recognition of ungulate tracks in sand: Neoichnology of *Bison*
JoAnna Marlow– M.S. 2021: Thesis: Sources of uncertainty in remote stratigraphic observations

John Gallucci – M.S. 2020 –Thesis: Controls on soft tissue and cellular preservation in Late Eocene and Oligocene vertebrate fossils of the White River and Arikaree Groups
Allison Shackelton – M.S. 2016 – Thesis: Regional and stratigraphic variability of microwear on the molars of *Leptomeryx* from Eocene-Oligocene strata of Wyoming and Nebraska
Steven Booty – M.S. 2013 – Thesis: Paleopedology of the Late Triassic middle Passaic Formation, Newark Supergroup, Pottstown, Pennsylvania
Amanda Drewicz, M.S. 2012 – Thesis: Quantifying periods of diffusion in marine and nonmarine vertebrate fossils using Rare Earth Elements
Raymond Kennedy, M.S. 2011 – Thesis: Local variability of Early Oligocene paleosols as a result of ancient soil catenary processes
Allison Fang, M.S. 2010 – Thesis: A stream sedimentation and stabilization study using geophysical methods and a solute tracer test at Crabby Creek, Valley Forge, Pennsylvania
Neil Griffis, M.S. 2010 – Thesis: Late Eocene terrestrial paleoclimate record from the White River Formation at Flagstaff Rim, Wyoming, USA
Natasha Mitchell, M.S. 2008 - Thesis: Electrical resistivity as a tool for characterizing zones of underwater seepage at Mirror Lake, New Hampshire
Jesse Thornburg, M.S. 2008 - Thesis: Temporal variations in the paleopedology and paleoclimatology of the mid-Cretaceous Hope Plantation core, Bertie County, North Carolina

Ph.D. Dissertation External Examiner
Ramyasri Ailavajhala, Department of Bioengineering, Ph.D. 2019 – Dissertation: Near infrared spectroscopic assessment of bone water binding to collagen and mineral

Ph.D. Dissertation Committee Member
Katrina Korman, Ph.D. 2020 – Dissertation: Sedimentation surrounding the Neoarchean Paraburdoo spherule layer, Western Australia

Student Advising—External

M.S. Thesis External Examiner
Mohammed Fay-yaad Toefy, Department of Biological Sciences, University of Cape Town, M.S. 2023 – Thesis: Insights into the palaeobiology of sauropodomorph dinosaurs through an analysis of their bone histology

Ph.D. Dissertation Committee Member
Grace Goetcheus, Department of Biodiversity, Earth and Environmental Science, Drexel University— DissertationTopic: Sauropod senescence: The application of paleopathology and paleohistology to determine aging patterns in diplodocoid populations
Zachary Boles, Department of Biodiversity, Earth and Environmental Science, Drexel University, Ph.D. 2016 – Dissertation: Insights into the taphonomy, biomolecular preservation, and paleoecology of the Main Fossiliferous Layer of the Cretaceous/Paleogene Hornerstown Formation, New Jersey, USA
Brandon Hedrick, Department of Earth and Environmental Science, University of Pennsylvania, Ph.D. 2015 – Dissertation: A reexamination of *Psittacosaurus lujiatunensis* using modern techniques
Eric Morschhauser, Department of Earth and Environmental Science, University of Pennsylvania, Ph.D. 2012 – Dissertation: The anatomy and phylogeny of *Auroraceratops* (Ornithischia: Ceratopsia) from the Yujingzi Basin of Gansu Province, China

Drexel University, Department of Biodiversity, Earth and Environmental Science

Courses (* indicates new course design)
*Comparative Osteology (undergraduate and graduate)

Vassar College, Department of Earth Science and Geography

Courses (* indicates new course design or substantial revision)
Earth, Environment, and Humanity (+ laboratory)
*The Evolution of Earth and Its Life (+ laboratory)
Sediments, Strata, and the Environment (+ laboratory)
*Paleontology (+ laboratory)
*Dinosauria
*Topics in Vertebrate Paleontology

Student Advising
Advisor for Independent Study Projects
Yusuke Kumai, B.A. 2008 – Project: Paleoecology of *Carcharodon megalodon*
Christopher Szito, B.A. 2008 – Project: The Permian-Triassic extinction

University of Pennsylvania, Department of Earth and Environmental Science
Graduate Teaching Assistant, September – December 2002, September 1997 – May 1998

Courses (* indicates new course design)
Introduction to Geology (recitations)
*Introduction to Geology Laboratory
Earth and Life Through Time (recitations)

University of Pennsylvania, Department of Animal Biology, School of Veterinary Medicine
Graduate Instructor, September 1998 – December 2001

Courses
Gross Anatomy (lectures and dissection laboratory in team-taught course)

Lafayette College, Department of Geology and Environmental Geosciences
Undergraduate Teaching Assistant, January – May 1995

Courses
Historical Geology (laboratory assistant)

Professional Training and Development:

Online Teaching Certificate – Fox School of Business, Temple University, July 2020, Philadelphia, PA
Teaching Online Short Course – Center for the Advancement of Teaching, Temple University, April 2020, Philadelphia, PA
Pedagogy and Technology in the Modern Paleontology Classroom – The Paleontological Society Short Course, November 2018, Indianapolis, IN
GenEd Faculty Assembly – Temple University GenEd Program, January 2017, Philadelphia, PA
Project EDIT: "Embracing Diversity through Inclusive Teaching" – Temple University Teaching and Learning Center and Disability Resources and Service pilot program, 2009-2010 academic year, Philadelphia, PA.
Teaching Paleontology in the 21st Century – National Association of Geoscience Teachers *On the Cutting Edge* workshop, July 30-August 4. 2009, Cornell University, Ithaca, NY
Teaching What We Test, Testing What We Teach: Tools for Effective Assessment and Grading – Temple University Winter 2007 Faculty Teaching and Learning Conference, January 2007, Philadelphia, PA
Teaching Sedimentology in the 21st Century – National Association of Geoscience Teachers *On the Cutting Edge* workshop, July 14-19. 2006, University of Utah, Salt Lake City, UT

Standards-Based Diagnosis: A Vertebral Perspective (paleopathology) - Society of Vertebrate Paleontology workshop, October 2005, Mesa, AZ

Back to the Old Grind: Thin Sectioning Techniques (paleo-osteohistology) - Society of Vertebrate Paleontology workshop, October 2001, Bozeman, MT

Invited Presentations:

Keynote Speaker, 4th International Symposium on Paleohistology, Trenton, NJ (July 2017)

Delaware Valley Paleontological Society, Philadelphia, PA (January 2016)

Guest instructor for Astrobiology for Educators continuing education course for grades 4-12 teachers, Penn State University, Abington, PA (July 2013)

Philly Nerd Nite, Philadelphia, PA (December 2011)

National Fossil Day Keynote Speaker, Department of Earth Science and Geography, Vassar College, Poughkeepsie, NY (October 2011)

Delaware Valley Paleontological Society, Philadelphia, PA (June 2007)

Department of Earth and Environmental Science, University of Pennsylvania, Philadelphia, PA (March 2007)

Department of Geology, Dickinson College, Carlisle, PA (March 2007)

Philadelphia Grotto, National Speleological Society (February 2007)

Department of Geosciences, Indiana University-Purdue University, Fort Wayne, IN (March 2004)

Department of Geology and Environmental Geosciences, Lafayette College, Easton, PA (April 2001)

Department of Earth and Environmental Science, Temple University, Philadelphia, PA (March 2001)

Delaware Valley Paleontological Society, Philadelphia, PA (February 1999)

Professional Service and Public Outreach:

Temple University Administrative and Committee Service

Faculty Advisor, Department of Earth & Environmental Science, July 2011 - present

Member, Writing Intensive Course Committee, August 2015 – May 2018

Member, Bylaws Committee, College of Science and Technology. 2020

Member, Faculty Awards Committee, College of Science and Technology. Fall 2019

Member, Freshman Seminar Development Team, College of Science and Technology. Summer 2019

Member, Search Committee, Assistant Director of Advising, College of Science and Technology. Spring 2018, Spring 2017

Member, Undergraduate Curriculum Committee, College of Science and Technology, July 2011 – present

Member, Inclusive Field Camp Committee, Department of Earth & Environmental Science, Fall 2020 – present

Member, Teaching Assistant Oversight Committee, Department of Earth & Environmental Science, June 2017 – present

Member, Assessment Committee, Department of Earth & Environmental Science, Fall 2014 – present

Head, Schedule and Curriculum Committee, Department of Earth & Environmental Science, Spring 2024 – present

Member, Schedule and Curriculum Committee, Department of Earth & Environmental Science, Spring 2014 – Fall 2023

Professional Society Service

Co-Chair, Topical Session T135 Paleopathology: Incidences of Disease, Trauma, and Infection from Arthropods to Anthropology, Geological Society of America Annual Meeting, 2018

Member, Scientific Committee, 4th International Symposium on Paleohistology 2017

Peer Reviewer

The Anatomical Record

Biological Reviews

Clinical Anatomy
Journal of Analytical Science & Technology
Journal of Anatomy
Journal of Vertebrate Paleontology
Lethaia
PeerJ
PLoS One
Proceedings of the 8th International Meeting of the Society of Avian Paleontology & Evolution
Proceedings of the Royal Society B
Scientific Reports
South African Journal of Science
Vertebrate Zoology
Zoological Journal of the Linnean Society

Public Outreach

Participant, Career Day, Alliance for Progress Charter School, The School District of Phildelphia, PA 2022
Video Conference Lesson, "Dinosaurs in Your Backyard," Selinsgrove Area Intermediate School, Selinsgrove Area School District, PA February 2019
Video Conference Interactive Volcanic Hazards Lesson, Rebecca Boone Elementary School, Warren County R-3 School District, MO May 2018
Participant, Scientist Letter Exchange, Maple Avenue Middle School, Littlestown Area School District, PA 2017
Video interview for "How I Became a Paleontologist" web video series hosted by DinosaurChannel.tv 2015
Development of educational materials on the geology of the "Secret Valley Line" between Boyertown and Pottstown, PA for Colbrookdale Railroad Preservation Trust 2014-2015
Professional advising to Dinosaur Channel.tv on development of "Dippy, Allie, and Rap," a dinosaur puppet show designed to introduce earth science and evolution to preschool audiences 2013-2015

Other Academic Awards, Honors, and Fellowships:

The Italia-Eire Foundation Distinguished Teacher of the Year Award, College of Science and Technology, Temple University, 2015
Dean's Distinguished Teaching Award, College of Science and Technology, Temple University, 2009
Merit Award (4 units), Temple University, Academic Year 2015-2016
Merit Award (3 units), Temple University, Academic Years 2012-2013, 2019-2020, 2020-2021, 2021-2022
Merit Award (2.5 units), Temple University, Academic Year 2016-2017, 2017-2018
Merit Award (2 units), Temple University, Academic Years 2006-2007, 2007-2008, 2009-2010, 2013-2014, 2014-2015
Merit Award (1 unit), Temple University, Academic Years 2008-2009, 2010-2011, 2011-2012
Finalist Speaker for Alfred Sherwood Romer Prize, 63rd Annual Meeting, Society of Vertebrate Paleontology, 2003
Dean's Scholar, School of Arts and Sciences, University of Pennsylvania, 2003
National Science Foundation Graduate Student Research Fellowship, 1998
Delaware Valley Paleontological Society Paul Bond Scholarship, 1998

Professional Affiliations:

Geological Society of America
National Association of Geoscience Teachers
Phi Beta Kappa
Sigma Xi
Society for Sedimentary Geology

Society of Vertebrate Paleontology
The Paleontological Society

Grants Received:

Temple University, College of Science & Technology, Diversity & Inclusion Initiative Fund
Providing an Inclusive Alternative to Field Camp; Fall 2020; $3,500

Vassar College Dean's Fund
Effects of Protein Malnutrition on Limb Bone Microstructure during Growth in the Rat (*Rattus norvegicus*); Spring 2005; $2,082

Geological Society of America
Bone Surface Textures as Ontogenetic Indicators in Modern and Fossil Archosaurs; Spring 2002; $2,500

The Jurassic Foundation
Bone Surface Textures as Ontogenetic Indicators in Modern and Fossil Archosaurs; Spring 2002; $2,600

The Paleontological Society
Evaluation of Periosteal Aging in the Canada Goose (*Branta canadensis*); Spring 2002, $500
Evaluation of Bone Surface Textures as Ontogenetic Indicators in Centrosaurine Horned Dinosaurs; Spring 2001; $500
Fracture Repair in Extant and Extinct Archosaurs; Spring 1998; $500

University of Pennsylvania Summer Stipends in Paleontology
Bone Surface Textures as Ontogenetic Indicators in Modern and Fossil Archosaurs; Summer 2002; $1,700
Investigations of Bone Surface Textures as Ontogenetic Indicators in Horned Dinosaurs and Modern Birds; Summer 2001; $3,000
Investigations of Bone Growth in Modern and Fossil Vertebrates; Summer 1999; $2,000
Comparative Fracture Healing in Modern and Fossil Archosaurs; Summer 1998; $2,000

Sigma Xi
Evaluation of Periosteal Aging in Modern Archosaurs; Spring 2000; $300