

## Allison R. Tumarkin-Deratzian

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

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### **Summary of Research Interests:**

Vertebrate taphonomy  
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.** Accepted pending revision. 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 21<sup>st</sup> 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

- Shreero, M.\*, **Tumarkin-Deratzian, A.**, Ullman, P.V., Grandstaff, D.E., and Terry, D. Accepted. Stable isotope and rare earth element signatures of fossil bone as a resource protection tool and paleoclimate proxy. Journal of Vertebrate Paleontology, SVP Program and Abstracts Book.
- Ullmann, P.V., Drewicz, A.\*, Goldsmith, E.R.\*, Gallucci, J.\*, **Tumarkin-Deratzian, A.**, Terry, D.O., Ash, R.A., and Grandstaff, D.E. 2024. Illuminating the variability, utility, and limitations of diffusion modeling of trace element concentration profiles in fossil bones. Journal of Vertebrate Paleontology, SVP Program and Abstracts Book, 2024, 542-543.
- Goetcheus, G.A.\*, Feng, G., Wang, Z., **Tumarkin-Deratzian, A.**, and Daeschler, T. 2024. Nanoindentation of *Alligator mississippiensis*: a case study for estimating the material properties of extinct archosaur vertebrae. Journal of Vertebrate Paleontology, SVP Program and Abstracts Book, 2024, 223-224.
- 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. 5<sup>th</sup> 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. 4<sup>th</sup> 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). 4<sup>th</sup> 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, MT, 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).
- Kopczynski, 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. 3<sup>rd</sup> 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. 6<sup>th</sup> 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. 10<sup>th</sup> 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* (7<sup>th</sup> 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* (6<sup>th</sup> 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

### **Curriculum Development, Instructional, and Mentoring Experience:**

#### **Temple University, Department of Earth and Environmental Science**

*Programs* (\* indicates new program design)

\*Paleontology Minor

*Courses* (\* indicates new course design or substantial revision)

\*Dinosaur Paleobiology

\*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*

Cove Bereszaszi – Project: Phytoliths from the Eocene-Oligocene Transition in the White River Group

Rebecca Fish, B.S. 2021 – Project: Osteological pathology in a raccoon (*Procyon lotor*)

Clinton Casey, B.S. 2020 – Project: Osteohistology of fossil vertebrates

Kaileigh Murphy, B.S. 2021 – Project: Vertebrate microfossil recovery from anthill sediments, Lance Formation, Park County, Wyoming, USA

Clinton Casey, B.S. 2020 – Project: Vertebrate microfossil recovery from anthill sediments, Lance Formation, Park County, Wyoming, USA

Hannah Feldman, B.S. 2021 – 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 Griffiths, 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*

Mattison Shreero – Dissertation topic in development

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

*Student Advising—External*

*M.S. Thesis External Examiner*

Jessica Lee Logie, Department of Biological Sciences, University of Cape Town, M.S. 2025 – Thesis: Unravelling the palaeobiology of the dinosaurian post crania and associated carnivore teeth from the Early Jurassic, Elliot Formation in the Eastern Cape

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, Ph.D. 2025 – Dissertation: Investigating the connection between

paleopathology, histology, and caudal biomechanics of diplodocids (Dinosauria: Sauropoda).

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: Paleocology 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:**

Soils and Paleosols – EES 5725 graduate course, College of Science and Technology, Temple University, Spring 2026, Philadelphia, PA  
 Digital Accessibility Micro-Credential – Center for the Advancement of Teaching, Temple University, August 2025, Philadelphia, PA  
 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 21<sup>st</sup> 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 21<sup>st</sup> 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, 4<sup>th</sup> 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, Dean’s Advisory Committee, College of Science and Technology. Fall 2025 – present  
 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, Assessment Committee, Department of Earth & Environmental Science. Fall 2014 – Fall 2023

Faculty Advisor, Geological Society of Temple University, Department of Earth and Environmental Science. Fall 2025 – present

Member, Inclusive Field Camp Committee, Department of Earth & Environmental Science. Fall 2020 – Summer 2024

Member, Schedule, Curriculum, and Assessment Committee, Department of Earth & Environmental Science. Fall 2025 – present

Head, Schedule, Curriculum, and Assessment Committee, Department of Earth & Environmental Science. Spring 2024 – Summer 2025

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

Member, Teaching Assistant Oversight Committee, Department of Earth & Environmental Science. June 2017 – 2025

### **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, 4<sup>th</sup> International Symposium on Paleohistology 2017

### **Peer Reviewer**

The Anatomical Record

Biological Reviews

Clinical Anatomy

Johns Hopkins University Press

Journal of Analytical Science & Technology

Journal of Anatomy

Journal of Morphology

Journal of Vertebrate Paleontology

Lethaia

PeerJ

PLoS One

Proceedings of the 8<sup>th</sup> International Meeting of the Society of Avian Paleontology & Evolution

Proceedings of the Royal Society B

Scientific Reports

South African Journal of Science

Swiss National Science Foundation

Vertebrate Zoology

Zoological Journal of the Linnean Society

### **Public Outreach**

Invited Guest, “Preserving the Academy of Natural Sciences”, WHYY *Studio 2* Broadcast September 2026

Participant, Career Day, Alliance for Progress Charter School, The School District of Philadelphia, 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 (4.5 units), Temple University, Academic Year 2023-2024

Merit Award (4 units), Temple University, Academic Year 2015-2016

Merit Award (3 units), Temple University, Academic Years 2012-2013, 2018-2019, 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, 2024-2025

Merit Award (1.5 units), Temple University, Academic Year 2022-2023

Merit Award (1 unit), Temple University, Academic Years 2008-2009, 2010-2011, 2011-2012

Finalist Speaker for Alfred Sherwood Romer Prize, 63<sup>rd</sup> 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