

*Curriculum Vitae*

**CHRISTOPHER THOMAS GRIFFIN**

**DEPARTMENT OF GEOSCIENCES**

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## Education

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*Virginia Tech*, Blacksburg, VA, U.S.A.

Ph.D. in Geosciences (2020, anticipated)

M.S. in Geosciences (2016)

*Cedarville University*, Cedarville, OH, U.S.A.

B.S. in Biology, Geology, and Molecular & Cellular Biology, with highest honor (2014)

## External Grants and Fellowships

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2018	<b>National Geographic Society Exploration Grant</b> \$27,390 (co-principal investigator)
2017	<b>Geological Society of America Graduate Student Research Grant</b> \$1,755
	<b>National Geographic Society Early Career Grant</b> \$4,980
2015	<b>National Science Foundation Graduate Research Fellowship Program</b> \$132,000
	<b>Geological Society of America Graduate Student Research Grant</b> \$1,607
	<b>Virginia Tech Graduate Student Assembly Research Grant</b> \$500
2014	<b>Jurassic Foundation Research Grant</b> \$2,356

## Internal Grants

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2018	<b>Virginia Tech Graduate Student Assembly Research Grant</b> \$1,000
2017	<b>Virginia Tech Graduate Student Assembly Research Grant</b> \$1,000
2015	<b>Virginia Tech Graduate Student Assembly Research Grant</b> \$500

## Awards, Scholarships, and Honors

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2019	<b>Charlotte Mangum Student Support Program</b> Society for Integrative and Comparative Biology
2018	<b>Charlotte Mangum Student Support Program</b> Society for Integrative and Comparative Biology

- 2017**      **Colbert Prize for Outstanding Student Poster Presentation**  
Society of Vertebrate Paleontology Annual Meeting  
**Taylor & Francis Award for Best Student Article in the *Journal of Vertebrate Paleontology*, Second Place**  
Society of Vertebrate Paleontology  
**Travel Grant**  
International Symposium on Paleohistology  
**Travel Grant**  
Last Days of Pangea Symposium
- 2016**      **Department Outstanding Master's Student**  
VT Department of Geosciences  
**College of Science Outstanding Master's Student**  
Virginia Tech  
**Graduate Student Assembly Travel Fund**  
Virginia Tech
- 2015**      **Graduate Student Assembly Travel Fund**  
VT Graduate Student Assembly  
**Charles E. and Frances P. Sears Research Scholarship**  
VT Department of Geosciences  
**Charles E. and Frances P. Sears Summer Scholarship**  
VT Department of Geosciences
- 2014**      **Graduate Student Assembly Travel Fund**  
Virginia Tech  
**CCCU Tuition Waiver**  
2010-2014, Cedarville University  
**Transfer Academic Excellence Award**  
2010-2014, Cedarville University  
**Transfer Academic Grant**  
2010-2014, Cedarville University  
**Dean's List**  
2010-2014, Cedarville University
- 2013**      **BIO-OCE REU Travel Scholarship**  
National Science Foundation  
**Alumni Honor Scholarship for Science and Mathematics**  
Cedarville University
- 2012**      **L. Bert Frye Geology Award**  
Cedarville University  
**Academic Excellence Geology Award**  
Cedarville University

## Research Interests

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- The relationship between evolution and development
- Intraspecific variation
- Evolutionary radiations and post-extinction ecological recovery
- Homology and mechanisms of convergent evolution

## Peer-Reviewed Publications

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**Total citations:** 46; **h-index:** 3 (Google Scholar); † = mentored undergraduate

- 11) **Griffin, C. T.** In press. Large neotheropods from the Upper Triassic of North America and the early evolution of large theropod body sizes. *Journal of Paleontology*.
- 10) **Griffin, C. T.**, L. S. Bano†, A. H. Turner, N. D. Smith, R. B. Irmis, S. J. Nesbitt. In press. Integrating gross morphology and bone histology to assess skeletal maturity in early dinosauromorphs: new insights from *Dromomeron*. *PeerJ*.
- 9) **Griffin, C. T.** and K. Angielczyk. In press. The evolution of the dicynodont sacrum: constraint and innovation in the synapsid axial column. *Paleobiology*.
- 8) **Griffin, C. T.** In press. Pathological bone tissue in a Late Triassic neotheropod fibula, with implications for the interpretation of medullary bone. *New Jersey State Museum Investigations* 6.
- 7) **Griffin, C. T.** and S. J. Nesbitt. In press. Does the maximum body size of theropods increase across the Triassic–Jurassic boundary? Integrating ontogeny, phylogeny, and body size. *The Anatomical Record*.
- 6) McLain, M., D. Nelsen, K. Snyder, **C. T. Griffin**, B. Siviero, L. Brand, A. Chadwick. 2018. Tyrannosaur cannibalism: A case of a tooth-traced tyrannosaurid bone in the Lance Formation (Maastrichtian), Wyoming. *PALAIOS* 33: 164–173.
- 5) **Griffin, C. T.** 2018. Developmental patterns and variation among early theropods. *Journal of Anatomy* 232: 604–640.
- 4) **Griffin, C. T.**, C. M. Stefanic, W. G. Parker, A. Hungerbuehler, M. Stocker. 2017. Sacral anatomy of the phytosaur *Smilosuchus adamanensis*, with implications for pelvic girdle evolution among Archosauriformes. *Journal of Anatomy* 231:886–905. doi:10.1111/joa.12681.
- 3) **Griffin, C. T.** and S. J. Nesbitt. 2016. Anomalously high variation in postnatal development is ancestral for dinosaurs but absent in birds. *Proceedings of the National Academy of Sciences, USA* 113: 14757-14762. doi:10.1073/pnas.1613813113.
- 2) Kuruvilla, H., B. Schmidt, S. Song, M. Bhajjan, M. Merial, C. Alley, **C. Griffin**, D. Yoder, J. Hein, D. Kohl, C. Puffenberger, D. Petroff, E. Newcomer, K. Good, G. Heston, A. Hurtubise. 2016. Netrin-1 peptide is a chemorepellent in *Tetrahymena thermophila*. *International Journal of Peptides* 2016: 7142868. doi: 10.1155/2016/7142868
- 1) **Griffin, C. T.** and S. J. Nesbitt. 2016. The histology and femoral ontogeny of the Middle Triassic (?late Anisian) dinosauriform *Asilisaurus kongwe* and implications for the growth of early dinosaurs. *Journal of Vertebrate Paleontology* 36: e1111224. doi: 10.1080/02724634.2016.1111224.

## Presentations

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\* = podium presentation, ° = poster presentation, † = mentored undergraduate

- 19) °**Griffin, C.**, J. Botelho, M. Hanson, M. Fabbri, B.-A. Bhullar. 2019. The avian pelvis possesses ancestral dinosaurian character states early in development. *Society of Integrative and Comparative Biology Annual Meeting, Tampa, FL*.

- 18) †Taruvinga, H., B. Wynd, S. Tolan, **C. T. Griffin**. 2018. A *Luangwa*-like cynodont from Northern Zimbabwe and endemism across the Carnian of Southern Africa. Society of Vertebrate Paleontology Annual Meeting, Albuquerque, NM. *Winner of the Scientists from Economically Developing Nations Award*.
- 17) \***Griffin, C. T.**, D. Munyikwa, T. J. Broderick, S. Tolan, M. Zondo, S. J. Nesbitt, H. Taruvinga. 2018. An exceptional new Late Triassic (Carnian) fossil assemblage from Zimbabwe and the biogeography of the earliest dinosaurs across Pangea. Society of Vertebrate Paleontology Annual Meeting, Albuquerque, NM.
- 16) Nesbitt, S. J., **C. T. Griffin**, E. Evans, R. T. Mueller, C. Pacheco, F. Preto, S. Cabreira, A. Marsh, B. M. Wynd, M. Langer. 2018. Prevalent ontogenetic changes characterize early dinosaurs and their closest relatives: implications for species identification, phylogeny, and the loss of these changes in later dinosaurs. Society of Vertebrate Paleontology Annual Meeting, Albuquerque, NM.
- 15) Evans, E. L., **C. T. Griffin**, N. Smith, A. H. Turner, R. B. Irmis, S. J. Nesbitt. 2018. Ontogenetic changes in the femur of *Tawa hallae* and implications for species diversity of Late Triassic dinosaurs. Society of Vertebrate Paleontology Annual Meeting, Albuquerque, NM.
- 14) \***Griffin, C.** and K. Angielczyk. 2018. The evolution of the dicynodont sacrum, and constraint on the axial column in crown Mammalia. Society of Integrative and Comparative Biology Annual Meeting, San Francisco, CA.
- 13) °**Griffin, C. T.** and K. D. Angielczyk. 2017. The evolution of the dicynodont sacrum, with implications for evolutionary constraint in the vertebral column of Mammalia. Society of Vertebrate Paleontology Annual Meeting, Calgary, Alberta. *Winner of the Colbert Prize for Outstanding Student Poster Presentation*.
- 12) °**Griffin, C. T.** 2017. Pathological bone tissue in a Late Triassic theropod fibula, with implications for the interpretation of medullary bone. 4<sup>th</sup> International Symposium on Paleohistology, Trenton, NJ.
- 11) \***Griffin, C. T.** and S. J. Nesbitt. 2017. Does the maximum body size of theropod dinosaurs increase across the Triassic-Jurassic boundary? Integrating ontogeny, phylogeny, and body size. Last Days of Pangea Triassic-Jurassic Research Symposium, Greenwich, CT.
- 10) \***Griffin, C. T.** and S. J. Nesbitt. 2016. Anomalously high intraspecific variation in ontogeny is the ancestral dinosaurian growth condition. Society of Vertebrate Paleontology Annual Meeting, Salt Lake City, UT.
- 9) \***Griffin, C. T.** and S. J. Nesbitt. 2016. Intraspecific variation and the evolution of the ancestral dinosaurian growth condition. 11<sup>th</sup> International Congress of Vertebrate Morphology, Washington, D.C.
- 8) †Bano, L. and **C. T. Griffin**. 2016. Integration of histology and morphology to assess the skeletal maturity of early-diverging dinosauriforms. 11<sup>th</sup> International Congress of Vertebrate Morphology, Washington, D.C.
- 7) \***Griffin, C. T.** and S. J. Nesbitt. 2016. The evolution of intraspecific variation in growth patterns among early dinosaurs and their relatives. Southeastern Association of Vertebrate Paleontology annual meeting, Martinsville, VA.

- 6) \*Griffin, C. T. and S. J. Nesbitt. 2015. Does the maximum body size of theropod dinosaurs increase across the Triassic-Jurassic boundary? Integrating phylogeny, growth, and body size. Society of Vertebrate Paleontology Annual Meeting, Dallas, TX.
- 5) \*Griffin, C. T. and S. J. Nesbitt. 2015. Does the maximum body size of theropod dinosaurs increase across the Triassic-Jurassic boundary? Using ontogeny and phylogeny to understand transitions in Earth history. Geological Society of America Annual Meeting, Baltimore, MD.
- 4) †Bano, L. and C. T. Griffin. 2015. Integrating histology and morphology to assess the skeletal maturity of early-diverging dinosauriforms. Geological Society of America Annual Meeting, Baltimore, MD.
- 3) °Griffin, C. T. and S. J. Nesbitt. 2014. The histology and femoral ontogeny of the Middle Triassic (?late Anisian) dinosauriform *Asilisaurus kongwe* and implications for the growth of early dinosaurs. Society of Vertebrate Paleontology Annual Meeting, Berlin, Germany.
- 2) \*Griffin, C. T. and S. J. Nesbitt. 2013. How to grow a dinosaur: the histology and femoral ontogeny of the Middle Triassic (?late Anisian) dinosauriform *Asilisaurus kongwe* and implications for the growth of early dinosaurs. Geological Society of America Abstracts with Programs 45:474.
- 1) McKevitt, D. J., C.T. Griffin, R. T. Gustafson, and J. H. Whitmore. 2013. Glacial outflow origin of Massie Creek Gorge, Greene County Ohio. Geological Society of America Abstracts with Programs 45:378.

## Research Experience

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### Graduate

- Visiting Researcher, Department of Geology and Geophysics, Yale University. Faculty advisor: Bhart-Anjan Bhullar. Fall semester, 2017.
- Member of the Paleobiology and Geobiology Research Group, Department of Geosciences, Virginia Tech. 2014-2020 (anticipated).

### Undergraduate

NSF REU research intern, Geology Department, Field Museum of Natural History, Chicago, IL. 2013.

- Project: The histology and ontogeny of the dinosauriform *Asilisaurus kongwe*. Advisor: Sterling Nesbitt

Independent research, Department of Science and Mathematics, Cedarville University, Cedarville OH.

Funded by the Department of Science and Mathematics, Cedarville University.

- The molecular paleontology and immunoreactivity of dinosaur osteocytes. 2013. Advisors: John Whitmore and Alicia Schaffner
- The origin and geomorphology of gorges in southwest Ohio. 2012. Advisor: John Whitmore  
Research assistant, Department of Science and Mathematics, Cedarville University, Cedarville, OH.
- The effect of vertebrate neuronal chemorepellents Semaphorin 3C and Netrin-1 on *Tetrahymena thermophila*. 2013. Advisor: Heather Kuruvilla
- Geochemistry of dolomite formation. 2011. Advisor: Aaron Hutchison

## Field Experience

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### Principal investigator:

2019 Mashonaland West, Zimbabwe (anticipated, fully funded)

2017 Mashonaland West and Mashonaland Central, Zimbabwe

### Participant:

2018 Apache County and Petrified Forest National Park, Arizona

2015 Fremont County, Wyoming  
Ghost Ranch, New Mexico  
Apache County, Arizona  
Anton Chico, New Mexico

2014 Ghost Ranch, New Mexico  
Geology Field Camp, Southern Utah University

## Invited Lectures

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- “Museum Collections, Expeditions, and One of Africa’s Oldest Dinosaurs”—Natural History Museum of Zimbabwe, Bulawayo (August 2017).
- “Using Emus to Understand the Dinosaur-to-Bird Transition”—American Emu Association Annual Meeting, Springfield, MO (July 2017).
- “The Dinosaurs of Zimbabwe”—Natural History Museum of Zimbabwe, Bulawayo (May 2015).

## Teaching Experience

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### **Virginia Tech**

#### Graduate Teaching Assistant:

- GEOS-1104 Physical Geology (Fall 2015; Student Perception of Teaching score: 5.8/6)
- GEOS-1014 The Earth and Life Through Time (Fall 2014; Student Perception of Teaching scores: 5.5/6; 5.6/6)

### **Cedarville University**

#### Presented lectures:

- GSCI 1010 Principles of Earth Science
- GEOL 1120 Historical Geology
- GEOL 3200 Invertebrate Paleontology
- GEOL 4200 Sedimentology and Stratigraphy

#### Teaching assistant/tutor:

- GSCI 1010 Principles of Earth Science
- GEOL 3300 Petrology
- CHEM 3510 Organic Chemistry

### **Undergraduate Mentoring**

- Lauren Bano—VT Biology class of 2019, continued to Physician Assistant program at Stony Brook University
- Hazel Tarvinga—Natural History Museum of Zimbabwe, continuing education in Zimbabwe

## Outreach

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- This & That Educational Summer Camp outreach, Lyric Theatre, Blacksburg (2018)
- Jurassic World Opening Night education display, Frank's Cinebowl, Blacksburg, VA (2018)
- Kindergarten 2 College (5<sup>th</sup> grade) paleontology lab tour (2017)
- Virginia Tech Museum of Geoscience GeoFair (2016)
- Living Library science outreach volunteer, Blacksburg Public Library (2016)
- Public Lecture, "When did the carnivorous dinosaurs first become giants?", VT Museum of Geosciences (2015)
- Virginia Tech Museum of Geoscience Display Design (Fall 2015)
- Virginia Tech Paleo Public Unwrapping Party (August 2015; August 2017; September 2018)
- Virginia Science Festival–Department of Geosciences Paleontology Lab (September 2014–2016; 6,000 attendees from >6 school systems)
- Science outreach talks to middle school and junior high school students, Redding, CA (2012-2014)
- Volunteer tutor for high school and college students in Algebra, Biology, and Geology (2010-2012)
- Volunteer, 7<sup>th</sup> Grade Ecology Camp, Redding CA (May 2014)

## Media Experience

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- "Bringing Fossils Back to Life." 3D film, Moss Arts Center, Virginia Tech
- "Virginia Tech geoscientists size-up early dinosaurs, find surprising variation." VT News, 12/7/2016. <https://vtnews.vt.edu/articles/2016/12/120616-fralin-dinosaurusize.html>
- Featured in *NSF Science Now* episode 43, 5/13/2016. <https://science360.gov/obj/video/97a7696e-afd1-48c4-9254-32b79b3a85d4/nsf-science-now-episode-43>
- "Bone scars' reveal varied growth in dinosaur cousins." Fox News, 4/6/2016. <http://www.foxnews.com/science/2016/04/06/bone-scars-reveal-varied-growth-dinosaur-cousins.html>
- "240-million-year-old fossils provide new insight into how dinosaurs grew from hatchling to adult." VT News, 4/4/2016. <https://vtnews.vt.edu/articles/2016/04/science-AsilisauruskongweGriffin.html>

## Professional Service

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- Journal Peer Reviewer
  - *Acta Palaeontologica Polonica* (1)
  - *Anais da Academia Brasileira de Ciências* (1)
- Grant Peer Reviewer
  - National Science Centre [Narodowe Centrum Nauki], Poland (2)
- Session Chair
  - "Technical Session I: Dinosaurs", Society of Vertebrate Paleontology Annual Meeting, Albuquerque, New Mexico (2018)
  - "Technical Session XV: Sauropods, etc.", Society of Vertebrate Paleontology Annual Meeting, Salt Lake City, Utah (2016)

- “Paleontology 3”, 11<sup>th</sup> International Congress of Vertebrate Morphology, Washington, D.C. (2016)
- Departmental Service
  - Liaison Committee, Paleobiology Research Group representative (2018-2019)

## **Professional Memberships**

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- Society for the Study of Evolution
- Society for Integrative and Comparative Biology
- Society for Developmental Biology
- Society of Vertebrate Paleontology
- Geological Society of America
- Paleontological Society

## **Professional Training**

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- Pedagogy in the Sciences (FIW 6004): 2018, Virginia Tech Department of Fish and Wildlife Conservation
- Mentoring Undergraduates Workshop: 2016, Virginia Tech Office of Undergraduate Research
- REU Phylogenetics Workshop Series: 2013, The Field Museum of Natural History, Chicago