
Caitlin Colleary

Department of Geosciences
Virginia Tech, Blacksburg, VA 24060
(310) 606-0076

Email: colleary@vt.edu
Website: caitlincolleary.com
Twitter: @hypotheacait

Education

PhD, Department of Geosciences Virginia Tech	Expected November 2018
Visiting Research Fellow Smithsonian National Museum of Natural History, Dr. Behrensmeyer	2017-2018
MSc, Palaeobiology University of Bristol	October 2013
BA (honors), Anthropology University of California, Los Angeles	June 2010

Awards

Tillman Teaching Award, Introductory and Advanced Labs Virginia Tech, Department of Geosciences	Spring 2018
Winifred Goldring Award Association of Women Geoscientists	Spring 2017
Roundtable Dean's Scholarship, Finalist Virginia Tech, College of Science	Spring 2017
Nutshell Games (90 second talk), First place Virginia Tech, Center for Communicating Science	Spring 2017
Best Talk Award Geosciences Student Research Symposium, Virginia Tech	Spring 2016
Best Full Talk Award Progressive Palaeontology Conference, Bristol	Spring 2015
David Dineley Prize, Best MSc Thesis University of Bristol	January 2014
Poster Prize, Honourable Mention Palaeontological Association Annual Meeting, Zurich	Fall 2013

Grants and Fellowships

- External -

Instrument Time (40 hours) Pacific Northwest National Laboratory, EMSL	Spring 2018 <i>Instrument time</i>
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Graduate STEM Research Fellowship Renewal NASA Virginia Space Grant Consortium	2017-2018 \$6000
Graduate STEM Research Fellowship NASA Virginia Space Grant Consortium	2016-2017 \$6000
Graduate Student Research Grant Geological Society of America	Spring 2016 \$1375
Stan Wood Award Palaeontological Association	Fall 2015 \$2100
Dr. Larry Agenbroad Legacy Fund for Research The Mammoth Site of Hot Springs, SD	Fall 2015 \$500
Travel Grant, Progressive Palaeontology Conference The Paleontological Society	Fall 2015 \$1000
- Internal -	
Doctoral Fellowship Virginia Tech Graduate School	Fall 2016 <i>Stipend</i>
Aubrey and Eula Orange Summer Scholarship Virginia Tech Department of Geosciences	Summer 2016 \$614
Graduate Research Development Fund Virginia Tech Graduate Student Assembly	Fall 2015 \$750
Charles J. Gose, Jr. Research Scholarship Virginia Tech Department of Geosciences	Summer 2015 \$1000

Peer-reviewed Papers Published

3. A. Muscente, A. Czaja, L. Riedman, **C. Colleary**. 2017. Organic Matter in Fossils. Earth Science Series, Encyclopedia of Geochemistry. Springer.
2. T. Clements, **C. Colleary**, K. DeBaets, J. Vinther. 2016. Buoyancy mechanisms limit preservation of coleoid cephalopod soft tissues in Mesozoic Lagerstätten. *Palaeontology*. 60 (1), 1-14
1. **C. Colleary**, A. Dolocan, J. Gardner, S. Singh, M. Wuttke, R. Rabenstein, J. Habersetzer, S. Schaal, M. Feseha, M. Clements, B. Jacobs, L. Jacobs, R.L. Sylverstensen, S. Gabbot, J. Vinther. 2015. Chemical, experimental and morphological evidence for diagenetically altered melanin in exceptionally preserved fossils. *Proceedings of the National Academy of Sciences*. 112 (41), 12592-12597

Peer-reviewed Papers Submitted

1. **C. Colleary**, H. Lamadrid, S.S. O'Reilly, A. Dolocan, S.J. Nesbitt. 2018. Corroborating organic preservation, bone degradation and burial environments in mammoth fossils. *Scientific Reports*.
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Abstracts Talks

- 2017: **C. Colleary** et al. Biomolecule preservation in vertebrate fossils from different burial environments. *Society of Vertebrate Paleontology Annual Meeting, Calgary, Canada*
- 2017: **C. Colleary** et al. Similarly-aged mammoth fossils preserve organic material differently based on burial environment. *Geoscience Student Research Symposium, Virginia Tech*
- 2016: **C. Colleary**. Biomolecule degradation in terrestrial vertebrates in deep time. *Geoscience Student Research Symposium, Virginia Tech (Best Talk Award)*
- 2015: **C. Colleary** et al. Chemical and morphological evidence for diagenetically altered melanin in exceptionally preserved fossils. *Progressive Palaeontology, Bristol, England (Best Full Talk Award)*
- 2015: **C. Colleary**. The diagenetic alteration of biomolecules in deep time. *Geoscience Student Research Symposium, Virginia Tech*
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Abstracts Posters

- 2018: **C. Colleary** et al. Chemically characterizing organic preservation in terrestrial vertebrates from the Late Triassic Hayden Quarry (~212 Ma) at Ghost Ranch, New Mexico. *Society of Vertebrate Paleontology Annual Meeting, Albuquerque, NM*
- 2016: **C. Colleary** et al. Chemically characterizing the diagenetic alteration of biomolecules in proboscideans. *Society of Vertebrate Paleontology Annual Meeting, Colbert Prize Poster Session, Salt Lake City, UT*
- 2016: **C. Colleary** et al. Chemically characterizing biomolecular degradation in proboscideans. *Southeastern Association of Vertebrate Paleontology 9th Annual Meeting, Martinsville, VA*
- 2014: **C. Colleary**, J. Vinther, A. Dolocan, J. Gardner. A statistical and mass spectrometric characterization of the molecular preservation of melanin. *Society of Vertebrate Paleontology Annual Meeting, Berlin, Germany*
- 2014: **C. Colleary**. The chemical characterization of melanin. *Smithsonian Tropical Research Institute Fellows' Symposium, Panama City, Panama*
- 2013: **C. Colleary**, J. Vinther, A. Dolocan, J. Gardner. A statistical and mass spectrometric characterization of the molecular preservation of melanin. *Palaeontology Association Annual Meeting, Zurich, Switzerland (Honourable Mention)*
- 2013: T. Clements, **C. Colleary**, J. Vinther, K. DeBaets. Taphonomic and phylogenetic biased preservation of coleoid cephalopod muscle tissue in Lagerstätten formations. *Palaeontology Association Annual Meeting, Zurich, Switzerland*
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Invited Talks

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| How to give a conference talk
Virginia Tech, GSRS Conference workshop | Spring 2018 |
| Science on Tap
Virginia Tech, Center for Communicating Science | Spring 2017 |
| What is molecular paleontology?
Virginia Tech, Research a la mode | Spring 2017 |
| Chemically characterizing melanin
Smithsonian Tropical Research Institute, Panama | Spring 2014 |
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Popular Science Articles

- Patterns in Palaeontology: Palaeoproteomics April 2017
PALAEONTOLOGY[online] Volume 7, Article 4, 1-6
<https://www.palaeontologyonline.com/articles/2017/patterns-palaeontology-palaeoproteomics>
- SeAVP Conference 2016, Virginia Museum of Natural History June 2016
Palaeocast blogs
<http://www.palaeocast.com/seavp-conference-2016>
- Research: Unlocking the Color of Fossils December 2015
myFOSSIL Volume 2, Issue 4
<https://www.myfossil.org/featured-research-unlocking-the-secrets-of-fossil-color>
- Fossils help to reveal the true colours of mammals for the first time October 2015
The Conversation
<http://theconversation.com/fossils-help-to-reveal-the-true-colours-of-extinct-mammals-for-the-first-time-48294>
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Formal Manuscript Reviews

Number of times as a reviewer in parentheses

- Journal of Vertebrate Paleontology (2)
 - Science (1)
 - PeerJ (2)
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Internships

- Smithsonian Tropical Research Institute, Panama January – May 2014
Miocene vertebrate excavation and lab preparation
- The Mammoth Site of Hot Springs, South Dakota Summer 2012
Mammoth bone bed excavation, lab preparation, curation
- Natural History Museum of Los Angeles County January 2011 – August 2012
Mesozoic collections curation, exhibit development
- La Brea Tar Pits and Museum Summer 2008
Lab preparation of Pleistocene vertebrates and microfossils
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Teaching and Work Experience

- Virginia Tech, Department of Geosciences Fall 2014 - Present
Teaching Assistant
- GEOS1034: Earth's Natural Hazards Spring 2018
 - GEOS1024: Resources Geology Spring 2018
 - GEOS1104: Physical Geology Fall 2017, Spring 2015, Fall 2015
 - GEOS4234: Vertebrate Evolution Spring 2017
- The University of Bristol, Biology Department Fall 2013
Teaching Assistant
- Introductory Biology

California Institute of Technology, Chemistry Department <i>Dr. James Heath's Assistant</i>	September 2010 – May 2012
Los Angeles Valley College, Anthropology Department <i>Teaching Assistant</i>	Fall 2008 – Spring 2009
<ul style="list-style-type: none"> ▪ Biological Anthropology 	
Los Angeles Valley College, Earth Sciences Department <i>Department tutor</i>	Fall 2007 – Spring 2008

Museum, Field and Laboratory Experience

Museum Collections Experience

Virginia Tech Vertebrate Preparation Lab Triassic fossil preparation, bone thin sections	Fall 2014 – Present
Bristol City Museum, United Kingdom Pleistocene collection curation, databases, labeling	Fall 2012 – Spring 2013
Natural History Museum of Los Angeles County Dinosaur collection curation, databases, labeling	January 2011 – May 2012
The Mammoth Site of Hot Springs, South Dakota Created database, labeling, bone bed mapping in ARC-GIS	Summer 2012
The La Brea Tar Pits and Museum Pleistocene collection preparation and curation	Summer 2008

Field Experience

Triassic – Popo Agie Formation, Wyoming Excavation of phytosaur skeleton, prospecting, large jacket removal (helicopter)	Summer 2018
Triassic – Wyoming, New Mexico, Arizona Excavation of early dinosaurs and phytosaurs, prospecting	Summer 2015 and 2017
Triassic - Ghost Ranch, New Mexico Excavation of early dinosaurs and phytosaurs, fossil preparation, cataloguing	Summer 2014
Miocene - Panama Canal Excavation Excavation of different established sites, prospecting	January – May 2014
Jurassic - Morrison Formation, Utah Excavation of two sauropod sites, large jacket removal (excavator)	Summer 2011 and 2012
Pleistocene - Mammoth sink hole, South Dakota Excavation of mammoth bone bed, <i>in situ</i> preparation and preservation	Summer 2012
Quaternary - UCLA Archaeology Field School, Botswana, Africa	Summer 2009

Laboratory Experience

- Raman mass spectrometry (Virginia Tech)

- Thermal maturation experiments (Virginia Tech)
- Fossil bone thin sections (Virginia Tech)
- Molecular biology lab (University of Bristol)
- Controlled decay experiments of cephalopods and zebra finches (University of Bristol)
- Scanning electron microscopy (University of Bristol)
- Time-of-flight secondary ion mass spectrometry (University of Texas, Austin)
- Large vertebrate and microfossil preparation (La Brea Tar Pits, Mammoth Site, Virginia Tech)

Outreach and Service

- Current -

Science & Entertainment Exchange, National Academy of Sciences <i>Consultant</i>	Fall 2017 – Present
Virginia Tech Women’s Alliance for Graduate Students <i>Member</i>	Fall 2017 – Present
Kindergarten STEM Investigations Program, Giles County Schools <i>Founder</i>	Spring 2016 - Present
Palaeocast podcast <i>Associate producer</i>	Fall 2015 - Present
Virginia Tech Geosciences Undergraduate Mentorship Program <i>Founder</i>	Fall 2015 – Present
Women in (Geo)Sciences <i>Executive Board</i>	Fall 2014 – Present

- Past -

College of Science Undergraduate Research Mixer <i>Presenter</i>	Spring 2018
Conference talk judge <i>Virginia Tech Geosciences Student Research Symposium</i>	Spring 2018
Virginia Tech Graduate Student Assembly <i>Geosciences Delegate and Events Committee</i>	2017-2018
Virginia Science Festival <i>Fossil Identification in Action</i>	November 2017
Department of Geosciences Undergrad Research Opportunities <i>Organizer</i>	September 2017
Virginia Tech Museum of Geosciences <i>Fossil Unwrapping Party</i>	August 2017
Virginia Tech Museum of Geosciences <i>World Premiere of New Fossils from Africa and China</i>	April 2017
Kindergarten 2 College <i>Vertebrate Paleontology lab tour</i>	April 2017
Geosciences Student Research Symposium <i>Organizer and Abstract Book Editor</i>	February 2016
Virginia Tech Museum of Geosciences <i>Fossil Unwrapping Party</i>	August 2016

Geosciences Student Research Symposium <i>Session moderator</i>	February 2015
Virginia Tech Institute for Creativity, Arts and Technology <i>Tech-or-Treat</i>	October 2015
Virginia Science Festival <i>Bringing Fossils Back to Life</i>	November 2014
Royal Society Summer Science Exhibition, London <i>Exhibitor</i>	Summer 2013
Synapse Magazine, University of Bristol <i>Editor</i>	Spring 2013
Bristol Dinosaur Project <i>Excavation leader</i>	Fall 2012
Natural History Museum of Los Angeles County <i>Haunted Museum</i>	October 2011
Aleph Journal for Undergraduate Research, UCLA <i>Editor</i>	Spring 2010

Media Experience

Selected News Articles

- Roanoke Times "Understandable communication aim of first "Nutshell Games"
- Virginia Tech Magazine, Winter 2015-16 "Around the Drillfield"
- The Atlantic "How a Fossil Can Reveal the Color of a Dinosaur"
- Smithsonian "Researchers Devise Way to Determine Color from Fossils"
- The Guardian "Top fossils of 2016"
- The Christian Science Monitor "Color-coded fossils: Scientists can now find ancient creatures' true colors"
- Science Daily "Pigment from fossils identified, revealing color of extinct animals"
- Daily Mail "Fossilized fur reveals color of 49-million-year-old bats"
- Newsweek "What Lies Beneath"
- Florida Museum PIRE Newsletter: Horse Jaw Excavation: A Photo Essay

Interviews

- Palaeocast episodes (producer and interviewer):
 - Episode 79: Dr. Ted Daeschler, Academy of Natural Sciences, Drexel University
 - Episode 73: Dr. Ken Catania, Vanderbilt University
 - Episode 61: Dr. Larry Witmer, Ohio University
 - Conference Coverage: SVP 2015, GSA 2015, SVP 2016
- Palaeocast interview: Episode 52 "Melanin"
- NHPR "Word of Mouth" interview

Films

- Bringing Fossils Back to Life: 3D film, Moss Arts Center, The Cube, Virginia Tech
 - Los Angeles Museum of Natural History: Dinosaur Hunters, short film
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Memberships

Association for Women Geoscientists, The Palaeontological Association, Society of Vertebrate Paleontology, Geological Society of America, Paleontological Society