

Robert W. Burroughs
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Appointments

<u>NIH IRACDA Postdoctoral Associate</u> Stony Brook University Center for Inclusive Education Project: <i>Environmental Effects on Molar Morphology in Mouse Model Systems</i> Laboratories of Dr. Natasha S. Vitek and Dr. Christopher J. Percival IRACDA PI: Karian Wright (Director, Center for Inclusive Education)	2022-Present
<u>Designated Campus Colleague</u> University of Arizona Department of Cellular and Molecular Medicine	2022
<u>Postdoctoral Fellow</u> Seattle Children's Research Institute Center for Developmental Biology and Regenerative Medicine Project: <i>3D Quantitative Analysis of Mouse Models of Structural Birth Defects through Computational Analyses</i> Laboratory of Dr. A. Murat Maga	2021-2022

Education

<u>Ph.D. Evolutionary Biology</u> University of Chicago Committee on Evolutionary Biology Thesis: <i>Voles, Molars, and Molecules: Integrating Quantitative Morphology, Genetics, and Evo-devo to Study Evolutionary Processes</i> Laboratories of Dr. Kenneth Angielczyk and Dr. Zhe-Xi Luo	2014-2021
<u>M.S. Geological Sciences</u> The University of Texas at Austin Jackson School of Geosciences Thesis: <i>Fossils, Phylogeny, and Anatomical Regions: Insights Exemplified through Turtles</i> Laboratory of Dr. Christopher J. Bell	2010-2013
<u>B.A. Anthropology</u> The University of Texas at Austin College of Liberal Arts	2006-2010

Peer-Reviewed Publications

Summary - Since 2013 I have published five peer-reviewed publications.

Burroughs, R.W. 2019. Modeling rodent tooth morphogenesis reveals constraints on mammalian tooth evolution. *Scientific Reports* 9:10902 doi:10.1038/s41598-019-47469-x

Bell, C.J., C.N. Jass, and **R.W. Burroughs**. 2019. Dental variation in a collection of *Lemmiscus curtatus* from the northern plains of southern Saskatchewan: implications for morphological evolution. *Western North American Naturalist* 79:219–232.

Angielczyk, K. D., **Burroughs, R. W.**, Feldman, C. F. 2015. Do Turtles Follow Rules? Latitudinal Gradients in Species Richness, Body Size, and Geographic Range Area of the World's Turtles. *Journal of Experimental Zoology Part B* 324(3): 270-294.

Burroughs, R. W., Morris, Z. S., Marsh, A. D. 2014. *Trachemys scripta*, Red-Eared Slider, *Pseudemys texana*, Texas River Cooter, *Chelydra serpentina*, Common Snapping Turtle, Feeding Behavior and Scavenging. *Herpetological Review* 45(2): 321-322.

Burroughs, R. W., Bell, C. J., LaDuc, T. J., and Hendrickson, D. A. 2013. Morphological Variation in the Carapace and Plastron of *Terrapene coahuila* Schmidt and Owens, 1944. D. B. Brinkman, P. A. Holroyd, and J. D. Gardner (editors), "*Morphology and Evolution of Turtles: Origin and Early Diversification.*" Springer, Dordrecht: 535-566.

Published Abstracts

Summary - Since 2009 (as an undergraduate), I have regularly presented my research at a range of scientific meetings. For brevity, I have provided abstracts from only 2018-Present. Each abstract provided here was a presentation at a scientific conference.

Burroughs, R. 2022. INVESTIGATING THE ROLE OF DEVELOPMENTAL MODULARITY AS AN EVOLUTIONARY MECHANISM WITHIN RODENT MOLARS. SVP 2022 Program Guide: 95.

Burroughs, R. 2020. GLACIAL CYCLES DRIVE QUATERNARY POPULATION DYNAMICS IN THE SAGEBRUSH VOLE, *LEMMISCUS CURTATUS*(RODENTIA, ARVICOLINAE). *Journal of Vertebrate Paleontology, Programs and Abstracts 2020: No Page Number Available.*

Burroughs, R. 2020. Modeling rodent tooth morphogenesis reveals constraints on mammalian tooth evolution. *Integrative and Comparative Biology* Vol. 60 (Supplement to No. 1): e28.

Burroughs, R. 2019. Voles, Molars, and Molecules: Integrating Quantitative Morphology, Genetics, and Evo-Devo to Study Evolutionary Processes. *Geological Society of America Abstracts with Programs* Vol. 51, No. 5, ISSN 0016-7592 doi: 10.1130/abs/2019AM-332324

Burroughs, R. 2018. IDENTIFYING DEVELOPMENTAL CONSTRAINTS TO UNDERSTAND CONVERGENCE IN RODENT DENTITION. *Journal of Vertebrate Paleontology, Programs and Abstracts 2018: 99.*

Teaching

Summary - Since 2010, I have taught nine different courses a total of 12 times at two different institutions. I am currently certified in Freshman Education by The University of Texas School of Education Freshman Education Program.

In each course for which I was a teaching assistant, my duties were to aid the instructor, but also to independently instruct labs and develop course and laboratory materials.

In courses where I was a teaching specialist, lecturer, or assistant instructor, my duties were that of a full-time lab instructor and/or instructor of record (described below).

Assistant Instructor, University of Arizona, School of Medicine

2022

Assistant instructor for the **Human Gross Anatomy**. This is a 5-week (5-days a week), accelerated, course in human anatomy, via cadaver based dissection. The course is taught to a combination of pre-med (undergraduate), nursing, graduate, and medical students. I served as an assistant instructor responsible for cadaver dissection, exam preparation, and facilitative teaching via demonstrations and guided instruction.

Lecturer (Instructor of Record) for **Plate Tectonics and Earth and Life History**. This course serves as one of two options of historical geology for undergraduate geology majors at The University of Texas at Austin. My responsibilities included selection and creating new course materials, giving lectures, holding office hours, and being responsible for 74 undergraduate enrollees. I was also responsible for managing two graduate teaching assistants and worked with those TAs to update and construct new lab materials to match constructed lectures.

Teaching Specialist for **Freshman Research Methods**. My responsibilities for this course were varied. I was responsible for managing eight laboratory sections for 94 undergraduate freshmen. The core goal of FRM is to provide freshmen students interested in STEM research-based careers to learn how to become scientists. Over the course of 15-weeks students propose a research project (lab-based) with related hypotheses, order materials, collect data to address their hypotheses, write up their data, and present their research findings. Thus, my responsibilities included managing the laboratory, eight undergraduate teaching assistants, grading assignments, reviewing and providing feedback on written project proposals and written project results, teaching lab techniques, lab safety, managing lab inventory and budgets, and helping students develop quantitative and systematic ways to collect scientific data.

Grants and Awards

Summary - Since 2009 (beginning as an undergraduate) I have actively pursued funding to support my academic research. To date, I have had 7 awards funded for a total of \$16,055. In addition, I was a PI Collaborator who contributed a significant amount to the writing of an awarded NSF Proposal totalling \$495,880.

Funded

National Science Foundation

2015-2019

Ann Molineux* (PI), Rowan Martindale (Co-PI), James Sprinkle (Collaborator), **Robert Burroughs** (Collaborator). **Funded**. *Natural History: Critical infrastructure upgrades and expanded digital access to Non-vertebrate Paleontology Collections at the University of Texas at Austin*. NSF proposal number 1458198; Requested amount: \$495,880; Duration 36 months; Start date 7/1/2015; Solicitation NSF14-564 of DBI-Biological Research Collections unit.

*In March 2018, Dr. Ann Molineux passed away, prior to the completion of this grant. At present Co-PI Dr. Martindale has taken over the grant in conjunction with a new Co-PI, Dr. Lisa Boucher (Interim Curator and Collections Manager of Non-Vert Paleo Collections). In May 2018, we filed a No Cost Extension for 12-months to begin 7/1/2018. This work was completed in June of 2019.

Field Museum Women in Science and The Women's Board of the Field Museum

2017

Robert Burroughs (PI), Kelsey Stilson (Co-PI). **Funded**. *Tongue Twisters from the Triassic to Today: Studying the Evolution of the Modern Mammalian Tongue*. Award Amount: \$10,000 (Summer Salaries and Benefits for two interns). Start date 5/31/2017; End 8/15/2017.

Students Mentored

Summary - Since 2011 I have taken an active role in mentoring undergraduate and high school students in research (9 in total), primarily those conducting independent research. I have mentored 7 undergraduates and 2 high school students. Their individual successes reflect my mentorship, they have each contributed to my own academic and professional development.

Professional Service (Selected Entries)

University of Chicago

2014-2021

Multicultural Graduate Community - Served as official representative of the Multicultural Graduate Community (MGC) registered student organization within the University of Chicago (2015-2016).

Society of Vertebrate Paleontology

2012-Present

Diversity Committee (2017-2020) - Student/Contributing Member. I served as a co-host for 2017 Diversity Committee Workshop. And as a student ambassador for introducing first time members to the society.

Development Committee (2012-Present) – Student Member/Representative. My work with the development committee included regular interaction with donors to raise funds for a variety of awards funds given by the society. To date (May 2022) – I have helped raise in collaboration with other development committee members in excess of \$350,000 for the society. Primarily in support the Stephen Cohen Student Research Award and the SVP Futures Award. Both Awards are designed to support undergraduate and graduate students to conduct scientific research.