

## CURRICULUM VITAE

# STEPHANIE L. BAUMGART, PH.D.

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## EDUCATION

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- Ph.D. Integrative Biology, University of Chicago Aug 2021  
Dissertation: Morphology and evolution of the avian flight apparatus and its relation to ecology and function; Advisor: Paul Sereno
- M.S. Integrative Biology, University of Chicago Mar 2018
- B.S. Biological Sciences, University of Chicago June 2014  
Specialization in Ecology and Evolution, General Honors, Biological Sciences Honors; Advisor: Paul Sereno

## RESEARCH EXPERIENCE

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- Postdoctoral Scholar**, Sereno Lab, Dept. of Organismal Biology and Anatomy, Sept 2021-Present  
University of Chicago, Chicago, IL
- Conduct research and writing on functional morphology of *Spinosaurus*, avian sternum morphology, and distribution of bone in avian humeri
  - Co-organized and participated in 3-month expedition to Niger to excavate Jurassic, Cretaceous, and Holocene fossils
- CT Technician**, openVertebrate (oVert) Thematic Collection Network (TCN) 2018-2021  
National Science Foundation project; Chicago CoPIs: Zhe-Xi Luo, John Bates
- CT-scanned, processed, and uploaded to Morphosource.org >600 avian and herpetological specimens from the Field Museum of Natural History
- Student Fossil Preparator**, Fossil Lab of Prof. Paul Sereno, University of Chicago 2012-2015
- Prepared fossils using manual and pneumatic tools
  - Assisted in CT scanning large specimens at the UChicago Hospitals
  - Assisted in dinosaur exhibit (National Geographic *Spinosaurus* exhibit)
  - Tended the dermestid colony for vertebrate skeletal preparation
  - Gave lab tours to school groups, families, and visiting researchers
  - Trained undergraduates to prepare fossils

## PUBLICATIONS

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- Sereno, P.C., Henderson, D.M., Vidal, D., Fish, F.E., **Baumgart, S.L.**, Keillor, T.K., Formoso, K.K., Myrhvold, N., Conroy, L.L. 2022. “*Spinosaurus* is not an aquatic dinosaur.” *eLife*. DOI: <https://doi.org/10.7554/eLife.80092>
- DeVries, R., Sereno, P.C., Vidal, D., **Baumgart, S.L.** 2022. “Reproducible digital restoration of vertebrate fossils using *Blender*.” *Front. Earth Sci.* **10** DOI: 10.3389/feart.2022.833379.

**Baumgart, S.L.**, Sereno, P.C., Westneat, M.W. 2021. “Waterbird wing shape: relationships with behavior, habitat, migration, and phylogenetic convergence.” *Int. Org. Bio.* **3** (1). DOI: 10.1093/iob/obab011.

Senevirathne, G., **Baumgart, S.**, Shubin, N., Hanken, J. & Shubin, N. H. 2020. “Ontogeny of the anuran urostyle and the developmental context of evolutionary novelty.” *Proc. Natl. Acad. Sci.* **117** (6) 3034-3044. DOI: 10.1073/pnas.1917506117.

Submitted Myhrvold N, Sereno P.C., **Baumgart S.L.**, Formoso K.K., Vidal D., Fish F.E., Henderson D.M. “Spinosaurids as ‘subaqueous foragers’ undermined by selective sampling and problematic statistical inference.” *bioRxiv*. DOI: 10.1101/2022.04.13.487781

In prep **Baumgart S.L.**, Claessens, L.P.A.M. “Three-dimensional avian sternum morphology and implications for ecology.”

## TEACHING EXPERIENCE

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**Lead Teaching Assistant**, From Fossils to Fermi’s Paradox: On the Origin and Evolution of Intelligent Life; Profs. Paul Sereno, Sarah London, Leslie Rogers 2021

- Created a template for speakers’ presentations to explicitly include context to help students connect the material to overall themes
- Assisted with converting the course to an accessible online format with Zoom links and recordings for lectures and discussions
- Generated/edited transcripts for the lectures
- Worked with four other TAs and Prof. Rogers to design weekly discussion sections to create an engaging environment for students to work with the material
- Gave feedback on the blog post and final project directions and rubrics

**Teaching Assistant**, From Fossils to Fermi’s Paradox: On the Origin and Evolution of Intelligent Life; Profs. Paul Sereno, Sarah London, Leslie Rogers 2019

- Helped design the course structure, policies, syllabus, and grading scheme
- Led weekly discussion sections with three other TAs (duties divided based on expertise needed for the week)
- Helped create a midterm and final exam, graded exams

**Peer Educator**, The Human Body; Prof. Callum Ross, Dr. Richard Madden 2018

- Guided Pritzker medical students through the osteology and cadaver labs
- Conducted review sessions before exams
- Helped design, set up, and grade practical exams

**Teaching Assistant**, Chordates: Evolution & Comparative Anatomy; Prof. Michael Coates 2018

- Gave two guest lectures
- Managed lab sessions
- Created and grade lab practical exams

<b>Teaching Assistant</b> , Mammalian Evolutionary Biology; Profs. Zhe-Xi Luo, Kenneth Angielczyk	2016
<ul style="list-style-type: none"> <li>• Gave one guest lecture</li> <li>• Managed lab sessions/discussion</li> <li>• Help set up and grade lab practical exams</li> </ul>	
<b>Teaching Assistant</b> , Vertebrate Structure and Function; Prof. Paul Sereno	2015 & 2013
<ul style="list-style-type: none"> <li>• Gave one guest lecture per year</li> <li>• Managed lab sessions</li> <li>• Designed lab quizzes</li> <li>• Proctored and graded exams</li> </ul>	
<b>Teaching Assistant</b> , UChicago Core Biology: Neuroscience; Prof. Megan McNulty	2014
<ul style="list-style-type: none"> <li>• Led weekly discussions</li> <li>• Gave feedback on and graded written assignments</li> </ul>	
<b>Teaching Assistant</b> , Dinosaur Science; Prof. Paul Sereno	2014
<ul style="list-style-type: none"> <li>• Gave a guest lecture</li> <li>• Designed review sessions</li> <li>• Proctored and graded exams</li> </ul>	
<b><i>Mentoring</i></b>	
Miss Raina DeVries, lab affiliate; feedback on manuscript, advice on publication and graduate school (publication: DeVries et al. 2022)	2020-Present
Miss Grace Broderick, lab affiliate; feedback on grant writing, graduate school applications (Masters from University of Bristol, research technician at Cambridge)	2019-Present
Miss Maria Viteri, University of Chicago undergraduate; feedback on senior thesis, grant writing, graduate school applications (recipient of NSF GRFP, PhD from Stanford)	2015-17
Miss Brigit Tronrud, University of Chicago undergraduate; feedback on senior thesis doing image analysis of CT data <i>Suchomimus</i> neck in Mimics	2016-17
Miss Samantha Baste, University of Chicago undergraduate; summer project conducting image analysis of bird CT scan data in Mimics	2016
Miss Shubha Vedula, University of Chicago undergraduate; image analysis of CT scan data of mammal teeth in Mimics	2016
Mr. Marciano Molzahn, high school student from France; job shadowing for fossil preparation and image analysis of CT scan data in Mimics	2015

## FIELDWORK

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- Field Assistant**, Sereno team, three months in Niger 2022
- excavating and prospecting in multiple Jurassic and Cretaceous paleontological beds and a Holocene archaeological bed
  - part of the organizing team: creating a food order list and tracking the food inventory throughout the expedition, tracking and logging receipts during trip
- Field Assistant**, Sereno team, five weeks in Niger 2018
- paleontology and archaeology excavation and prospecting; late Jurassic, early Cretaceous, and Holocene beds at multiple sites
  - Logged and stored >400 artifacts found in the Gobero site (Holocene)
  - Used the RTK GPS system for taking precision GPS coordinates
  - Entered human artifact information into the Online Cultural and Historical Research Environment (OCHRE) database
- Field Assistant**, Sereno team, one week in Jurassic Morrison Formation, Shell, WY 2013-18
- giving Sereno's Dinosaur Science college students hands-on experience with paleontological fieldwork
- Field Trip Leader**, University of Chicago Paleontology Club, Geology and invertebrate survey trip, Devonian and Ordovician formations near Toledo, Ohio 2017
- Field Trip Leader**, University of Chicago Paleontology Club, Geology and invertebrate survey trip, Ordovician formations near Cincinnati, Ohio 2016

## PROFESSIONAL DEVELOPMENT

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- Taught myself to use the Specify database software, logging the University of Chicago Research Collection and Niger's National Museum Boubou-Hama Collection 2021-Present
- Earned Diversity and Inclusion Certificate 2022
- Earned College Teaching Certificate 2021
- Trained to use the Electronic Museum (EMu) database (Ref: Kate Webbink) 2018
- Trained to use the Online Cultural and Historical Research Environment (OCHRE) database to store and organize information about archaeological artifacts (Ref: Sandra Schloen)
- Trained in medical human anatomy course in the Pritzker School of Medicine, University of Chicago (Course Director: Prof. Callum Ross) 2017
- Attended "How to Share your Science Story" webinar hosted by Space Time Labs
- Trained and certified for independent operation and basic maintenance of UChicago microCT (computed tomography) scanner (CT Manager: April Neander) 2015-17

### **Software**

- CT data imaging analysis software packages: VGStudio Max, Mimics, Avizo, Checkpoint
- R: geometric morphometrics, phylogenetic comparative methods, data processing and visualization
- Additional phylogenetics programs: TNT, PAUP\*

### **CONFERENCE PRESENTATIONS**

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**Baumgart, S.L.** Remote Presentation: “Comparative pneumaticity in the avian humerus and implications for pterosaurs.” Society of Integrative and Comparative Biology (SICB) Annual Meeting, Phoenix, Arizona. 2022.

**Baumgart, S.L.**, Claessens, L.P.A.M. Platform Presentation: “Avian sternum disparity and ecomorphological implications.” Society of Integrative and Comparative Biology (SICB) Annual Meeting, Austin, Texas. 2020.

Senevirathne, G., **Baumgart, S.**, Shubin, N., Hanken, J., Shubin, N.H. Platform Presentation: “Ontogeny of the anuran urostyle: the developmental context of evolutionary novelty.” Society of Integrative and Comparative Biology (SICB) Annual Meeting, Austin, Texas. 2020.

Early, C.M., Bates, J., **Baumgart, S.**, Peterson, A.T., Prestridge, H.L., Robbins, M., Watkins-Colwell, G.J., Blackburn, D.C. Platform Presentation: “Information Gaps in Digital Databases as Identified by a Multi-institution Initiative to Digitize Avian Specimens.” iDigBio Annual Summit, Gainesville, Florida. 2019.

**Baumgart, S.L.**, Sereno, P.C. Platform Presentation: “Phylogeny repetitively constrains bird morphology.” Society of Vertebrate Paleontology (SVP) Annual Meeting, Brisbane, Australia. 2019.

**Baumgart, S.L.** Platform Presentation: “Does body mass constrain wing shape or sternum shape?” Society of Integrative and Comparative Biology (SICB) Annual Meeting, San Francisco, California. 2018.

**Baumgart, S.L.** Platform Presentation: “Relating ecology to sternum morphology in ‘water birds.’” Society of Vertebrate Paleontology (SVP) Annual Meeting, Calgary, Alberta. 2017.

**Baumgart, S.L.**, Westneat, M.W. Poster: “Geometric morphometrics of the avian wing and sternum.” Society for Advancement of Chicanos/Hispanics and Native Americans in Science, Regional Conference, Chicago, Illinois. 2017.

**Baumgart, S.L.**, Westneat, M.W. Poster: “Geometric morphometrics of the avian wing and sternum.” Society of Integrative and Comparative Biology (SICB) Annual Meeting, New Orleans, Louisiana. 2017.

**Baumgart, S. L.**, Sereno, P.C. Poster: “Pneumaticity in modern birds compared to a large pterosaur.” Society of Vertebrate Paleontology (SVP) Annual Meeting, Dallas, Texas. 2015.

**Baumgart, S.L.**, Sereno, P.C., Platform Presentation: “Pneumaticity in a large pterosaur compared to modern birds.” 10<sup>th</sup> North American Paleontological Convention (NAPC), Gainesville, Florida. 2014.

## INVITED TALKS AND LECTURES

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### *Invited Talks*

Discussion: “A day in the life of a grad student,” University of Chicago Paleontology Club. 2019.

Lighting Talk: “Does foraging behavior constrain avian wing shape or sternum shape?”, 6<sup>th</sup> Annual Darwin Cluster Retreat, University of Chicago, Chicago, IL. 2018.

Oral Presentation: “Convergence in avian sternum morphology and relation to ecology”, 1<sup>st</sup> Annual Great Lakes Student Paleoconference, University of Michigan, Ann Arbor, MI. 2017.

Oral Presentation: “Comparing bat wings to bird wings”, Bat Symposium, Field Museum of Natural History. 2017.

Oral Presentation: “Patterns and constraints in the structural properties of vertebrate wings,” University of Chicago Paleontology Club. 2017.

Poster: “Wing pneumaticity in modern birds compared to a Cretaceous pterosaur,” **Baumgart S.L.**, Conroy, L.L., US-China Critical Transitions in the History of Life workshop (Field Museum of Natural History, sponsored by the National Science Foundation). 2015.

Oral Presentation: “Paleontology 101,” University of Chicago Paleontology Club. 2015.

Oral Presentation: University of Chicago Undergraduate Biological Sciences College Division Honors Symposium. 2014.

Oral Presentation: University of Chicago Undergraduate Research Symposium. 2014.

### *University of Chicago class lectures*

“Bones/cartilage”, Chordates: Evolution and Comparative Anatomy. 2018.

“Amniote Diversity II: Dinosaurs/Birds/Mammals”, Chordates: Evolution and Comparative Anatomy. 2018.

“Ecological adaptations,” Mammalian Evolutionary Biology. 2016.

“Early theropod dinosaurs,” Dinosaur Science. 2016.

“Editing Wikipedia articles,” Dinosaur Science. 2016.

“Gliding and flying,” Vertebrate Structure and Function. 2015.

“Digging and climbing,” Vertebrate Structure and Function. 2014.

“Marginocephalian dinosaurs,” Dinosaur Science. 2014.

“Gliding and flying,” Vertebrate Structure and Function. 2013.

## AWARDS AND GRANTS

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Graduate Assistance in Areas of National Need Fellowship (GAANN Program – US Federal Dept. of Education) Integrative and Comparative Neuromechanics (\$106,575: 4 quarters of tuition, stipend, and fees)	2017-18
Graduate Assistance in Areas of National Need Fellowship (GAANN Program – US Federal Dept. of Education) Integrative and Comparative Neuromechanics (\$101,937: 4 quarters of tuition, stipend, and fees)	2016-17
Henry Hinds Evolutionary Biology Graduate Student Research Award (\$1,784) Committee on Evolutionary Biology, University of Chicago	2016
University of Chicago Dean’s List	2013-14
<b><i>Student Travel Grants</i></b>	
Society of Integrative and Comparative Biology Annual meeting Charlotte Mangum Student Support Program Award recipient (hotel fee covered) University of Chicago Biological Sciences Division Dean’s Council Travel Grant (\$600)	2020
Jackson School of Geosciences Student Travel Grant for Society of Vertebrate Paleontology 79 <sup>th</sup> Annual Meeting (\$600)	2019
Charlotte Mangum Student Support Program Award recipient for the Society of Integrative and Comparative Biology Annual meeting (registration fee covered)	2018
North American Paleontological Convention (\$795) student travel grant funded by conference (\$395) iDigBio travel grant for North American Paleontological Convention funded by National Science Foundation (\$400)	2014

## OUTREACH AND SERVICE

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Field Museum of Natural History, Chicago, IL	2016-Present
<ul style="list-style-type: none"><li>• <i>Dozin’ with the Dinos</i> overnight program science showcase staff for birds or fossils tables, (8-10 two-hour events/year, none in 2021)</li><li>• Science Hub’s Meet a Scientist, pterosaur showcase; one 2-hour event (2018)</li><li>• Science Hub’s Meet a Scientist, bird showcase; one 2-hour event (2016)</li></ul>	
Skype-A-Scientist	2021
<ul style="list-style-type: none"><li>• Spoke to a dinosaur summer camp (kindergarten-5<sup>th</sup> grade) about dinosaurs and paleontology</li><li>• Lectured to Canadian fifth-grade class about my research on birds and flight</li></ul>	
School of Innovation gallery, Texas A&M University	
<ul style="list-style-type: none"><li>• Created an exhibit piece from CT data on the unique scute anatomy of <i>Alligator sinensis</i> containing a 2D image, 3D skull, and descriptive voice note</li></ul>	

Agitator Gallery Art and Science series, Chicago, IL	2018
<ul style="list-style-type: none"> <li>• Oral Presentation: “Reptiles in the Air”</li> </ul>	
Life Long Learning Series, program for senior citizens	2016-18
<ul style="list-style-type: none"> <li>• Oral Presentations: “Seeing by hearing: echolocation throughout the animal kingdom,” 2 events: Sulzer Public Library, Renaissance Court Senior Center</li> <li>• Oral Presentations: “Bones of Air,” 5 events: Harbor Point, Conrad Sulzer Library, Woodson Public Library, Renaissance Court Senior Center, Montgomery Place.</li> </ul>	
Museum of Science and Industry, Chicago, IL	2017
<ul style="list-style-type: none"> <li>• Showcase staff for the Paleontology table at “Science Works”</li> </ul>	
Little Chute Middle School, Little Chute, WI	2017
<ul style="list-style-type: none"> <li>• Held a Skype session about paleontology with two 6<sup>th</sup> grade classes</li> </ul>	
Monta Hernon’s homeschool group	2017
<ul style="list-style-type: none"> <li>• Workshop for junior high and high school students covering basics of anatomy, geology, paleontology with a lab tour</li> </ul>	
Expanding Your Horizons, Chicago, IL	2017
<ul style="list-style-type: none"> <li>• Workshop for underserved middle school girls covering basics of anatomy, geology, paleontology with a lab tour</li> </ul>	
Hamilton Elementary School, Chicago Public School system, Chicago, IL	2016
<ul style="list-style-type: none"> <li>• “Paleomicrobiology” school visit with a 4/5<sup>th</sup> grade class</li> <li>• “Paleogeology” school visit with a 6<sup>th</sup> grade class</li> <li>• “Paleoecology” school visit with a 7<sup>th</sup> grade</li> </ul>	
Andrew Jackson Language Academy, Chicago Public School system, Chicago, IL	2014-16
<ul style="list-style-type: none"> <li>• “Dinosaurs and prehistoric food webs” school visit with two 5<sup>th</sup> grade classes</li> <li>• “Paleontology and prehistoric food webs” school visit with two 5<sup>th</sup> grade classes</li> </ul>	
‘Splash! Chicago,’ program for underserved high school students in the Chicago area	2014
<ul style="list-style-type: none"> <li>• Workshop covering basics of anatomy, geology, paleontology with a lab tour</li> </ul>	
Friends of Washington Park, Chicago, IL	2012-14
<ul style="list-style-type: none"> <li>• After-school Pre-K tutor for underserved students in the Chicago area (Director: Audrie Mobley)</li> </ul>	

## PROFESSIONAL SERVICE

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Reviewed manuscripts for <i>Journal of Vertebrate Paleontology</i> , <i>Scientific Reports</i> , <i>Biological Journal of the Linnean Society</i> , <i>Communications Biology</i>	2021-now
Co-created and co-moderate a Discord server ("paleo hangouts") for the international paleontology community to connect, discuss papers, ask advice; 260+ members ranging from high school students to professors.	2020-now



Session Chair for Session 72: Evolutionary Morphology, Society for Integrative and Comparative Biology Annual Meeting, Austin, Texas	2020
Assembled and led an organization committee to host 2 <sup>nd</sup> Annual Great Lakes Student Paleoconference at the University of Chicago, Chicago, Illinois	2018
Co-organized 1 <sup>st</sup> Annual Great Lakes Student Paleoconference held at the University of Michigan, Ann Arbor, Michigan	2017
Session Moderator for Technical Session III: Neornithes, Society of Vertebrate Paleontology Annual Meeting, Calgary, Alberta	
Co-founded the University of Chicago Paleontology Club	2015
Co-organized 1 <sup>st</sup> Annual Biological Sciences College Division Research Honors Retreat	2013