

Alyssa Hartzheim

My research examines the tradeoffs within the chelonian immune system of both wild and captive populations. Outside of research I am fascinated by Human-Animal interactions in the age of the Anthropocene and how this shapes our relationship with nature.

Education	<i>North Carolina State University</i> Raleigh, NC Zoology BS, GPA 3.954/4.0 Zoology Honors Program Arts Village Resident Dean's List: All Semesters	<i>August 2015 – December 2018</i>
	<i>Arkansas State University</i> Jonesboro, AR Biology MS, GPA 4.0/4.0 Expected Graduation May 2022 SUPERB Scholarship Recipient Dr. Lori Neuman-Lee's Lab Thesis: <i>Under Pressure: Quantifying the Effect of Stress on the Innate Immune Response of Various Chelonian Species</i>	<i>August 2019 –</i>
Funding & Scholarships	<i>Conservation Action Network Grant</i> <i>Memphis Zoo</i> <ul style="list-style-type: none">Received \$1,260.50 to fund the study "Influence of Microhabitat on Tortoise Physiology" <i>SUPERB Scholarship</i> <i>Arkansas State University</i> <ul style="list-style-type: none">Received \$5000 semesterly as a recipient of the Students United in Preserving, Exploring, and Researching Biodiversity (SUPERB) Scholarship. <i>NC State Undergraduate Research Grant</i> <i>North Carolina State University</i> <ul style="list-style-type: none">Received \$490 to fund Blood Lactate Study (See below).	<i>Spring 2021</i> <i>Fall 2019 – Spring 2022</i> <i>Fall 2017 – Spring 2018</i>
Extracurricular	<i>AState Bird Observatory</i> <i>Arkansas State University, Jonesboro, AR</i> <ul style="list-style-type: none">Aided in removal of birds from mist netting, morphometric data collection, and banding. <i>Turtle Rescue Team</i> <i>North Carolina State University College of Veterinary Medicine</i> <ul style="list-style-type: none">Aided in daily care and husbandry of various native turtle species. Gained experience performing various veterinary tasks including administering intramuscular and subcutaneous injections, applying topical treatments, and assisting with physical therapy. Performed multiple necropsies to extract eggs from deceased gravid females.	<i>Fall 2019</i> <i>Spring 2017 – Summer 2018</i>

	<ul style="list-style-type: none"> Received Wild Chelonian Rehab Certificate (Completed over 300 volunteer hours) 	
	<i>Living Conservatory Volunteer</i>	<i>Spring 2016 – Summer 2018</i>
	<i>North Carolina Museum of Natural Sciences, Raleigh, NC</i>	
	<ul style="list-style-type: none"> Acted as a public educator, providing information on the various components of the exhibit including both flora and fauna. 	
	<i>Zoology Club at North Carolina State University</i>	<i>Fall 2015 – Spring 2018</i>
	<i>North Carolina State University College</i>	
	<ul style="list-style-type: none"> <i>General Member (2015 – 2016 AY)</i> <i>Activities Coordinator (2016 – 2017 AY)</i> <i>President (2017 – 2018 AY)</i> 	
Relevant Coursework	<i>BIO 680V Hematology of Vertebrates, ASU</i>	<i>Spring 2021</i>
	<ul style="list-style-type: none"> <i>Independent study of vertebrate leukocytes</i> 	
	<i>BIO 5813 Curation of Collections, ASU</i>	<i>Fall 2019</i>
	<i>ZO 333 Captive Animal Biology, NCSU</i>	<i>Spring 2018</i>
	<ul style="list-style-type: none"> Learned ZIMS and created instructional PowerPoints for LearnZIMS. 	
	<i>ZO 486 Capstone Course in Zoology, NCSU</i>	<i>Spring 2018</i>
	<ul style="list-style-type: none"> <i>"Welcome to the Anthropocene"; Created a podcast about epizootic diseases</i> 	
	<i>ZO 410 Animal Behavior (Honors), NCSU</i>	<i>Fall 2017</i>
Teaching Experience	<i>Anatomy and Physiology II, ASU</i>	<i>Spring 2021</i>
	BIO 2221; Laboratory Coordinator: Dr. Julie Huggins	
	<i>Human Structure and Function I, ASU</i>	<i>Fall 2019 – Spring 2021</i>
	BIO 3221; Course Instructor: Dr. Diane Gilmore	
	<i>Human Structure and Function II, ASU</i>	<i>Spring 2020</i>
	BIO 3231; Course Instructor: Dr. Diane Gilmore	
	<i>Embryology, ASU</i>	<i>Spring 2020</i>
	BIO 4341; Course Instructor: Dr. Ronald Johnson	
	<i>Anatomy and Physiology I, ASU</i>	<i>Fall 2019</i>
	BIO 2201; Laboratory Coordinator: Dr. Julie Huggins	
	<i>Animal Phylogeny and Diversity Teaching and Lab Assistant, NCSU</i>	<i>Spring 2018</i>
	ZO 350; Course Instructor: Dr. Jennifer Landin	
	<i>Human Animal Interaction Teaching Assistant, NCSU</i>	<i>Fall 2017</i>
	ZO 233; Course Instructor: Dr. Jennifer Campbell	
Mentorship Experience	<i>Graduate Mentor</i>	
	<i>Arkansas State University</i>	
	<ul style="list-style-type: none"> Meghan Hughes – Undergraduate; identifying turtle leeches Shawn King – Undergraduate; examining leukocyte counts and morphology Samantha Burnett – Undergraduate; investigating anomalous turtle scutes 	
Graduate Research Experience	<i>Assessment of Fecal Glucocorticoids and Innate Immune Function in a Zoo Tortoise Population</i>	<i>Summer 2020 –</i>
	<i>Arkansas State University, Jonesboro, AR & Memphis Zoo, Memphis, TN</i>	

- Collect blood and fecal samples from Indian Star Tortoise (*Geochelone elegans*) and Northern Spider Tortoise (*Pyxis arachnoides brygooi*) housed at the Memphis Zoo. Created and fixed whole-blood blood smears.
- Performed microbiocidal killing assays and manual white blood cells counts.
- Have made preparations to conduct corticosterone radioimmunoassays upon completion of sample collection.

Immune System Tradeoffs in North American Freshwater Turtles *Fall 2019 – Arkansas State University, Jonesboro, AR*

- Deployed and maintained fyke nets, hoop nets, and box traps in riparian areas to collect endemic freshwater turtle species.
- Collect blood samples and morphometric data on captured turtles. Created and fixed whole-blood blood smears.
- Performed microbiocidal killing assays and manual white blood cells counts.

Undergraduate Research Experience *Wildlife Aerial Observatory Study Abroad* *August 2018 – October 2018*
N/a'an ku sê Wildlife Sanctuary, Namibia

- Participated in the Namibia Wildlife Observatory Study Abroad Research program, conducting population counts of species on the property using unmanned aerial vehicles in interdisciplinary research groups.
- Assisted in deployment, operation, and maintenance of fixed wing and quadcopter drones.
- Performed tasks including data collection and organization, photo analysis, animal species identification, track identification, radio telemetry, blood draws, and vitals monitoring of immobilized carnivores.

Common Snapping Turtle Blood Lactate Study *May 2017 – December 2018*
NCSU CVM Turtle Rescue Team

- Conducted original research on blood lactate levels of Common Snapping Turtles (*Chelydra serpentina*) admitted as patients to the NCSU CVM Turtle Rescue Team. The goal of this research was to determine whether blood lactate levels could be used during triage as an injury severity/morbidity indicator.
- Cataloged and performed a retro-analysis on two decades of patient data regarding morbidity and patient outcome.

Eastern Box Turtle Temperature Study *Summer 2017 – Fall 2017*
NCSU CVM Turtle Rescue Team

- Assisted veterinary student Paige (Harrelson) Sarvo in conducting her research.
- Recorded various temperature readings of Eastern Box Turtles (*Terrapene carolina carolina*) as well as recorded data on the admittance record to the NCSU CVM Turtle Rescue Team lab.

Internship Experience *Live Animal Teaching Collections Intern* *May 2018 – August 2018*
North Carolina Museum of Natural Sciences, Raleigh, NC

- Completed daily husbandry tasks and prepared diets for various taxa including reptiles, invertebrates, mammals, amphibians, and birds.
- Learned and practiced handling techniques for all animals in the collection.
- Assisted in creating enrichment items and implementing said items.
- Conducted behavioral observations and developed ethograms to monitor Eastern Box Turtles (*Terrapene carolina carolina*) in the collection.

Work
Experience

Live Animal Teaching Collections Assistant Curator December 2018 – August 2019
North Carolina Museum of Natural Sciences, Raleigh, NC

- Completed daily husbandry tasks, prepared diets, and administered medications for various taxa including reptiles, invertebrates, mammals, amphibians, and birds.
- Designed enrichment plans and protocols. Created and maintained enrichment items used in the collection.
- Oversaw and trained both interns and volunteers working in the collection.
- Completed venomous animal handling training and assisted in the husbandry and feeding of venomous snakes and lizards.
- Conducted water quality on aquatic systems including temperature, pH, and nitrogen panels.

Living Conservatory Weekend Captain January 2017 – 2018
North Carolina Museum of Natural Sciences, Raleigh, NC

- Completed tasks including basic animal husbandry, temperature monitoring, and butterfly identification and release.
- Carried out both opening and closing procedures of the exhibit during weekend operational hours.