Alyssa Vanerelli

PhD Student · Computational and Integrative Biology

Rutgers University Camden

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Education

Ruters University Camden — *Camden, NJ*

PhD in Computational and Integrative Biology — *2022 - present*

- Advisor: Dr. Anthony Geneva

University of North Carolina at Asheville — *Asheville, NC*

B.S. in Biology, Minor in Mathematics — *2018 - 2021*

- Valedictorian of the Class of 2021 | GPA: 3.967
- Senior thesis: Complete Protein-Coding Mitochondrial Genomes of 13 West Indian Boas
- Advisor: Dr. Graham Reynolds

Asheville-Buncombe Technical Community College — *Asheville, NC*

Coursework, non-degree seeking — *2016 - 2018*

- GPA: 3.824

Research Training and Experience

PhD | Rutgers University Camden — *Camden, NJ*

Advisor: Dr. Anthony Geneva — *2022 - Present*

- **Dissertation:** "Evolutionary genomics of Caribbean *Anolis* Lizards"

Post-Baccalaureate Research | Rutgers University Camden — *Camden, NJ*

Advisor: Dr. Anthony Geneva — *2021 - 2022*

- Analyzing next-generation sequence data to study the evolutionary genomics of *Anolis* lizards from the Caribbean.
- *Skills: DNA extraction and purification, computing cluster, next-generation sequence data prep and analysis, genome assembly and annotation.*

Field Research: Phylogeography of Jamaican Anoles — *Jamaica*

Field Leader: Dr. Inbar Maayan — *Summer 2022*

- Collecting data to study the phylogeography of Jamaican *Anolis* lizards.
- *Skills: Anole data collection, transect sampling, lizard pole catching.*

Undergraduate Research | UNC Asheville. — *Asheville, NC*

Advisors: Dr. Graham Reynolds — *2019-2021*

- **Senior Thesis:** "Characterized Complete Mitogenomes of the Critically Endangered Silver Boa and other Neotropical Boids using sequence data from UCE enrichment"
- Researched the ecology, evolution, and conservation of Caribbean boas and anoles using laboratory genetic methods.
- *Skills: Geneious, MITOS Web Server, R, next-generation sequence data analysis, DNA extraction and purification, PCR, gel electrophoresis.*

Field Research: Biology and Conservation of Turks Island Boas | UNC Asheville — *Turks and Caicos*

Field Leader: Dr. Graham Reynolds — *March 2020*

- Radio tracked, captured, and collected morphological and spatial data from boas to inform conservation efforts of boa home ranges on Ambergris Cay, TCI.
- *Skills: Remote island fieldwork, radio telemetry, animal handling and data collection.*

NSF REU | Harvard University. — *Cambridge, MA*

Advisors: Dr. Hopi Hoekstra, Dr. Brock Wooldridge — *Summer 2019*

- Investigated the extent of arboreal adaptation in rodents through a computational analysis of museum records.
- *Skills: R (multivariate statistical analysis, phylogenetic comparative methods), Excel.*

Publications

Published

Reynolds RG, Reger ME, Peek KJ, Raphael BL, Colosimo G, Miller AH, **Vanerelli AA**, Gerber GP. 2024. Spatial ecology of the Turks and Caicos Boa, *Chilabothrus c. chrysogaster* Cope, 1871 (Serpentes: Boidae) on Ambergris Cay, Turks and Caicos. *The Herpetological Journal* 34: 22-34.

Vanerelli AA, Miller AH, Comsa LC, Geneva AJ, Reynolds RG. 2022. Mitochondrial genome of the critically endangered Silver Boa (*Chilabothrus argentum*; Squamata: Boidae). *Mitochondrial DNA Part B* 7(6): 1180-1182.

Reynolds RG, Colosimo G, Peek K, **Vanerelli AA**, Bradley K, Gerber GP. 2020. *Chilabothrus chrysogaster chrysogaster* (Turks Island Boa). Diet. *Herpetological Review* 51(3): 610–611.

In Prep

Vanerelli AA, Maayan I, Taft JM, Bock D, Losos JB, Geneva, AJ. In preparation. High-quality genome assembly of the Jamaican turquoise anole (*Anolis grahami*).

Reynolds RG, McNeil W, **Vanerelli AA**, Miller AH. In preparation. Phylogenomic data resolve the West Indian Boa (Genus *Chilabothrus*) tree of life.

Awards, Fellowships, & Grants

2024	**Chancellor's Student Research Grant**, Rutgers Camden	*$ 7,950*
2023	**National Research Training Fellowship**, CCIB	*$ 38,000*
	Third Place PhD Poster Award, CCIB	*$ 50*
	Travel Award, CCIB	*$ 1000*
	JMIH Travel Award, Society for the Study of Amphibians and Reptiles	*$ 500*
	Graduate Research and Travel Grant, Rutgers Camden	*$ 500*
2022	**GRFP Honorable Mention**, National Science Foundation	
2021	**REPS Post Baccalaureate Fellowship**, Rutgers Camden	*$ 64,882*
	Manly E. Wright Valedictory Award, UNC Asheville	
	Harry Johnston Biology Award, UNC Asheville	
	University Research Scholar, UNC Asheville	
	Distinction in Biology, UNC Asheville	
	Chancellor's List (GPA 4.0), UNC Asheville	
2020	**Chancellor's List (GPA 4.0)**, UNC Asheville	
2019	**Research Experience for Undergraduates Fellowship**, National Science Foundation	*$ 5000*
	Dean's List (GPA >3.5), UNC Asheville	
2018	**Chancellor's List (GPA 4.0)**, UNC Asheville	
	Dean's List (GPA >3.5), UNC Asheville	
	President's List (GPA 4.0), AB Tech	
2017	**President's List (GPA 4.0)**, AB Tech	
	Dean's List (GPA >3.75), AB Tech	

Presentations

2023. **Vanerelli AA**, Maayan I, Taft, JM, Bock D, Losos J, Geneva AJ. High-quality Reference Genome for *Anolis grahami*. ***Presented at*** *CCIB Fall Seminar Series* ***Oral Presentation****, CCIB Fall Poster Session* ***Poster***.

2023. **Vanerelli AA**, Reynolds RG, Losos JB, Geneva, AJ. Parallel Evolution of Large Body Size in *Anolis sagrei*. ***Presented at*** *Joint Meeting of Ichthyologists and Herpetologists* ***Oral Presentation***.

2022. **Vanerelli AA**, Maayan I, Taft, JM, Bock D, Losos J, Geneva AJ. High-quality Reference Genome for *Anolis grahami*. ***Presented at*** *Joint Meeting of Ichthyologists and Herpetologists* ***Oral Presentation***.

2021. **Vanerelli AA** and Reynolds RG. Mitochondrial Genomes of 13 West Indian Boas. ***Presented at*** *University of North Carolina at Asheville Spring Research Symposium* ***Oral Presentation***.

2020. **Vanerelli AA**, Wooldridge TB, and Hoekstra HH. Finding Evidence for Arboreal Adaptation in Rodents Through an Unbiased Computational Analysis of Museum Records. ***Presented at*** *4th Standalone Meeting of the Society of Systematic Biologists* ***Poster***.

2019. **Vanerelli AA**, Wooldridge TB, and Hoekstra HH. Finding Evidence for Arboreal Adaptation in Rodents Through an Unbiased Computational Analysis of Museum Records. ***Presented at*** *University of North Carolina Asheville Fall Undergraduate Research Symposium.* ***Poster****, Hoekstra Lab Wondergrad Symposium at Harvard University.* ***Oral Presentation****, Summer Undergraduate Research Programs at Harvard University.* ***Poster****, Leadership Alliance National Symposium.* ***Poster***.

Teaching Experience

FA 2022	**General Biology I Lab** | **Rutgers Camden**, Teaching Assistant	
SP 2023	**General Biology II Lab** | **Rutgers Camden**, Teaching Assistant	
2020-2021	**Principles of Zoology** | **UNC Asheville**, Teaching Assistant	

Outreach & Professional Development

Service and Outreach

2022	**Rutgers–Camden Driving Change Initiative**, Team of faculty and students committed to driving genuine and lasting change so that STEM students from all backgrounds, especially historically excluded groups, will excel and graduate from college	*Camden, NJ*
2019	**Full Moon Farm**, Animal care and husbandry. Non-profit organization committed to the rescue and care of wolfdogs.	*Black Mountain, NC*

Professional Memberships

2024	**Open Consortium of Squamate Genomics**, A global initiative to increase both quality and quantity of lizard and snake genomic resources and their utility through collaboration and training efforts.
2024	**Society for the Study of Evolution**, Scientific society dedicated to the promotion of the study of organic evolution and the integration of the various fields of science concerned with evolution.
2023	**Society for the Study of Amphibians and Reptiles**, Scientific society dedicated to the research, conservation, and education concerning reptiles and amphibians.

References

Anthony J. Geneva, PhD | *anthony.geneva@rutgers.edu*

PhD and Post-Baccalaureate Research Advisor

Assistant Professor of Biology, Center for Computational and Integrative Biology, Rutgers University Camden

R. Graham Reynolds, PhD | *greynold@unca.edu*

Undergraduate Academic and Research Advisor

Associate Professor of Biology, Department of Biology, University of North Carolina at Asheville, Associate of Herpetology, Museum of Comparative Zoology, Harvard University

Hopi Hoekstra, PhD | *hoekstra@oeb.harvard.edu*

NSF REU Research Advisor

Professor of Molecular and Cellular Biology, Professor of Organismic and Evolutionary Biology, Howard Hughes Medical Institute Investigator, Harvard University

Jennifer Ward, PhD | *jrward@unca.edu*

Undergraduate Academic Professor

Professor of Biology, Department of Biology, University of North Carolina at Asheville