

# Alyssa Vanerelli

PHD STUDENT · COMPUTATIONAL AND INTEGRATIVE BIOLOGY

Rutgers University Camden

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## Education

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### Rutgers University Camden

PHD IN COMPUTATIONAL AND INTEGRATIVE BIOLOGY

- Advisor: Dr. Anthony Geneva

Camden, NJ

2022 - present

### University of North Carolina at Asheville

B.S. IN BIOLOGY, MINOR IN MATHEMATICS

- 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, NC

2018 - 2021

### Asheville-Buncombe Technical Community College

COURSEWORK, NON-DEGREE SEEKING

- GPA: 3.824

Asheville, NC

2016 - 2018

## Research Training and Experience

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### PhD | Rutgers University Camden

ADVISOR: DR. ANTHONY GENEVA

- **Dissertation:** “Evolutionary genomics of Caribbean *Anolis* Lizards”

Camden, NJ

2022 - Present

### Post-Baccalaureate Research | Rutgers University Camden

ADVISOR: DR. ANTHONY GENEVA

- 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.

Camden, NJ

2021 - 2022

### Field Research: Phylogeography of Jamaican Anoles

FIELD LEADER: DR. INBAR MAAYAN

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

Jamaica

Summer 2022

### Undergraduate Research | UNC Asheville.

ADVISORS: DR. GRAHAM REYNOLDS

- **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.

Asheville, NC

2019-2021

### Field Research: Biology and Conservation of Turks Island Boas | UNC Asheville

FIELD LEADER: DR. GRAHAM REYNOLDS

- 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.

Turks and Caicos

March 2020

### NSF REU | Harvard University.

ADVISORS: DR. HOPI HOEKSTRA, DR. BROCK WOOLDRIDGE

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

Cambridge, MA

Summer 2019

## Publications

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### 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

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

## Presentations

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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

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- 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

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### 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

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**Anthony J. Geneva, PhD | [anthony.geneva@rutgers.edu](mailto: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](mailto: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](mailto: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](mailto:jrward@unca.edu)**

UNDERGRADUATE ACADEMIC PROFESSOR

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