

Carter E. Watson

Odum School of Ecology • University of Georgia • Athens, GA 30602
cwat@uga.edu

EDUCATION

- 2023 - PRES **M.S., Ecology**, the Odum School of Ecology,
Certificate of Atmospheric Science, the College of Engineering,
University of Georgia, Athens, GA
Advisor: Dr. Ford Ballantyne
Committee: Drs. Marshall Shepherd, Anna Harper, and Alicia Peduzzi
GPA: 4.00
- 2019 - 2023 **B.S., Physics**, the Department of Physics and Astronomy,
B.A., English (Emphasis: **Medieval Literature**), the Department of English,
B.S., Ecology, the Odum School of Ecology,
Certificate of Interdisciplinary Writing, the Office of the Vice President for Instruction,
Minor in Biology, the Department of Biological Science,
University of Georgia, Athens, GA
GPA: 3.61 [*cum laude*]

PAPERS/PUBLICATIONS

- 202X **Watson, C.E.**, Ballantyne, F., Shepherd, M., Peduzzi, A., & Harper, A. (*Master's Thesis, in progress*). Modeling the Impact of Theoretical Large-Scale Deforestation in Central Appalachia on Land-Atmosphere Carbon Dynamics Using WRF with CTSM and Noah-MP (*working title*).
- 2024 **Watson, C.E.**, Ellis, W., Massey, K., English, T., & Resetarits, E.J. (*Accepted, awaiting publication*). Context-Dependent Effects of Trematode Parasites on Snail Host Movement and Behavior. *Journal of Parasitology*.

CONFERENCE PRESENTATIONS

- 2023 **Watson, C.E.** & Resetarits, E.J. (2023, January 27-28). "Context-Dependent Effects of Trematode Parasites on Snail Host Movement and Behavior" [Poster Presentation]. *The Odum School of Ecology Graduate Student Symposium (GSS)*, Athens, GA.
- 2022 **Watson, C.E.** & Scales, W. (2022, July 28). "Compromising Quantum Cybersecurity Undetected: Impacts of a Polarizer on One-Time Pad Creation" [Poster Presentation]. *Virginia Tech 2022 Summer Research Symposium*, Blacksburg, VA.
- 2022 **Watson, C.E.** & Resetarits, E.J. (2022, April 4-5). "The Influence of Parasitism on Behavior and Movement in a Snail-Trematode System" [Oral Presentation]. *Center for Undergraduate Research Opportunities (CURO) Research Symposium*, Athens, GA.
- 2022 **Watson, C.E.** & Resetarits, E.J. (2022, March 25-27). "The Influence of Parasitism on Behavior and Movement in a Snail-Trematode System" [Poster Presentation]. *Southeastern Population Ecology & Evolutionary Genetics Conference (SEPEEG)*, Eatonton, GA.

PROFESSIONAL EXPERIENCE

- 2023 - PRES *Research Assistant, Sikora Lab*, Department of Computer Science @ Virginia Tech
- Teach quantum cryptography basics to high schoolers and underclassmen.
 - Create keynotes & teaching materials for four Quantum CS courses at Virginia Tech:
 - CS 4134: *Quantum Computation and Information Processing*
 - CS 5914: *Emerging Topics in Computer Science*
 - CS 5984: *Special Study*
 - CS 6604: *Quantum Information & Semidefinite Programming*
 - Create materials for Quantum Information Paris Summer School (Sept. 2023)
 - Work with Dr. Jamie Sikora to develop quantum cryptography algorithms.
- 2019 - 2023 *Student Assistant & Technician, the Center for Teaching and Learning @ UGA*
- Provided first line of technical support for AV equipment for most classrooms on the UGA campus.
 - Managed help desks, key systems, and student printers at the Miller Learning Center and the Science Learning Center.
 - Trained new and current employees to manage day-to-day operations.

TEACHING EXPERIENCE

Currently pursuing a non-academic teaching certificate via the Center for Teaching and Learning at the University of Georgia.

- 2024 - PRES **Conservation Biology (ECOL 3530) @ UGA** [Graduate Teaching Assistant]
- 2023 - 2024 **Concepts in Biology Lab (BIOL 1103L) @ UGA** [Graduate Laboratory Assistant]
- *Instructor of Record*
 - Taught four sections. Curriculum part of UGA's Writing Intensive Program.

ACADEMIC SERVICE (SELECTED)

- 2024 - PRES **Odum School of Ecology Graduate Student Organization (GSO) Officer @ UGA**
- *Undergraduate Program Committee (UPC) Representative*
 - Represent the GSO and the graduate student body's interests on the UPC.
 - Help facilitate interaction and community between Odum School undergraduate and graduate students.
 - *Webmaster*
 - Maintain the Odum School of Ecology Graduate Student Database, the GSO website, and Slack workspaces.
- 2024 **Graduate Student Symposium (GSS) @ UGA**
- Assisted as a *judge* during the undergraduate poster presentations.
- 2024 **The Recruitment Event in Ecology (TREE) @ UGA**
- Served as a *panelist* during the Graduate Student Panel Discussion.
 - Acted as a *graduate student buddy* for a prospective graduate student.
- 2024 **Quantum Cybersecurity Summer Camp Series @ Virginia Tech** [Visiting RA]
- Modeled after pedagogy described in *Q is for Quantum* by Terry Rudolph, taught basic principles of quantum physics & emerging quantum technology.
 - 4 total sessions (2 offered through Virginia Tech's College of Engineering, 2 offered through Virginia Tech's Department of Computer Science).

AWARDS & GRANTS (SELECTED)

- 2021 & 2022 Center for Undergraduate Research Opportunities (CURO) Research Grant (2 x \$1,000)
2022 Sigma Tau Delta English Honor Society
2020 - 2023 Dean's List at the University of Georgia (six semesters)

UNDERGRADUATE RESEARCH EXPERIENCES

- 2021 - 2022 **Byers/Resetarits Lab**, the Odum School of Ecology @ University of Georgia
- Designed, led, completed, and published (under review) an academic research project aimed at scrutinizing how Trematoda parasites affect the movement and behavior of *Elimia proxima*, a species of freshwater snail.
 - Trained other undergraduate students to run experimental procedures.
- 2022 **Center for Space Science / ICTAS**, the College of Engineering @ Virginia Tech
- Designed and completed a research project utilizing state-of-the-art quTools technology aimed at determining how "secure" quantum encryption methods can be disrupted without detection via an intentionally flawed design.
 - Received one-on-one tutoring on quantum information, optics, computing, and cybersecurity while helping faculty design Virginia Tech lab course, ECE 4984: "Quantum Information Engineering Laboratory."
- 2020 - 2021 **Wurzburger Lab**, the Odum School of Ecology @ University of Georgia
- Aided in research examining how decreases in fire disturbance in Southern Appalachia correlates to declining oak populations and increasing nitrogen availability and how it affects the formation of root nodules on black locust trees.
 - Participated in fieldwork at the USDA Forest Service Coweeta Hydrologic Laboratory in Coweeta, North Carolina.
- 2019 - 2020 **Rosemond Lab**, the Odum School of Ecology @ University of Georgia
- Assisted in graduate research examining how environmental fluid dynamics of detrital carbon in freshwater systems are shifting due to warming temperatures by measuring leaf litter breakdown and carbon loss.
 - Wrote weekly essays and profiles about scientific studies, ongoing research, and university faculty in coordination with the interdisciplinary writing program.

TECHNICAL COMPETENCIES

Ecosystem and Climate Modeling:

- The Advanced Research Weather Research and Forecasting (WRF-ARW) Model (with Chemistry)
- Community Earth Systems Model (CESM) ⇔ Community Terrestrial Systems Model (CTSM)
 - Includes CLM5 (The Community Land Model, Version 5) with FATES
- The Earth System Modeling Framework (ESMF) (running locally)
- Bash, C, Fortran, NCAR Command Line, netCDF Operations (NCO)

Statistical Analysis @ Computational Physics Software

- Rstudio, ImageJ, Python, Mathematica, MATLAB, LaTeX

Other Relevant Computational Skills

- HTML/CSS, Adobe Suite, Final Cut & Logic, and QuTools Technologies