GILLISPIE, NATHAN

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https://nathangillispie.work
Memphis, TN

EDUCATION

University of Memphis – *Fall 2024 to Spring 2029 (expected)*
Ph.D. Chemistry with Computational Concentration

Western Kentucky University – *Fall 2021 to Spring 2024*
B.S. Chemistry (ACS-certified) with Honors – *Cum Laude*
Mahurin Honors College Thesis *"The Effect of Ions on the Adsorption of SO2 to a Water Nanoparticle"*

Gatton Academy of Mathematics and Science – *Fall 2019 to Spring 2021*
Graduated with Honors and Community Scholar recognition (Over two semesters of vetted research, 60 hours of community service and at least a 3.40GPA)

RESEARCH OUTCOMES

Oral

Gillispie, N. (2024). *Size Effects of SO2 in Water Nanoparticles: a Molecular Dynamics Perspective.* WKU Student Scholar Showcase, Bowling Green, KY

Gillispie, N. (2023). *Sulfur Containing Compounds and the Formation of Secondary Organic Aerosols.* Kentucky Academy of Science, Highland Heights, KY.

Gillispie, N. (2023). *Understanding Secondary Organic Aerosol Formation Through Chemical Kinetics Models.* WKU 2nd Annual Data Science Day, Bowling Green, KY

Gillispie, N. (2023). *Understanding Secondary Organic Aerosol Formation Through Chemical Kinetics Models.* WKU Student Scholar Showcase, Bowling Green, KY

Gillispie, N. (2021). *Knot Theory in Virtual Reality.* Presented at the 40th Annual Mathematics Symposium at Western Kentucky University, Bowling Green, KY. Made virtual due to COVID-19 pandemic.

Gillispie, N., Price, D. (2021). *Knot Theory in Virtual Reality.* Presented at the Virtual Gatton Research Showcase

Gillispie, N. (2020). Presentation accepted to the Kentucky Section of the Mathematics Association of America, Wilmore, KY. Canceled due to COVID-19 pandemic.

Gillispie, N. (2019). *Virtual Reality Meets Knot Theory.* Presented at the 39th Annual WKU Mathematics Symposium, Bowling Green, KY.

Poster

Gillispie, N. (2023). *Understanding secondary organic aerosol formation through chemical kinetics models*. ACS Fall 2023 Undergraduate Poster Section. San Francisco, CA.

Publications

Gillispie, N. (2024). *The Effect of Ions on the Adsorption of SO2 to a Water Nanoparticle.* Mahurin Honors College Capstone Experience/Thesis Projects.

RESEARCH FUNDING

Gillispie, N. **Gatton Academy & Craft Academy Graduates Research and Experiential Learning Award**, "Understanding secondary organic aerosol formation through kinetics and molecular dynamics." $1500, 2023.

Gillispie, N. **Gatton Academy & Craft Academy Graduates Research and Experiential Learning Award**, "An analytic method to quantify estrogens and their sulfonated conjugates from dairy practices." $3000, 2022.

Gillispie, N. **Gatton Academy & Craft Academy Graduates Research and Experiential Learning Award**, "Understanding secondary organic aerosol formation through kinetics and molecular dynamics." $3000, 2023.

Gillispie, N., Handshoe, B. **Gatton Research Supplies Grant**, "3D Visualization and Manipulation of Knots Using Virtual Reality" $400, 2020.

Gillispie, N. **Gatton Research Internship Grant**, "Manipulating Knots in Virtual Reality" $3000, 2020. (Award cancelled due to COVID-19)

EMPLOYMENT EXPERIENCES

Undergraduate Research Assistant at WKU Department of Chemistry – *Spring 2023 to Present*
- Molecular Dynamics simulations of atmospheric aerosols using Amber
- Python, Mathematica programming for data processing and kinetics simulations.

Undergraduate Research Assistant at WKU Department of Chemistry – *Spring 2023*
- Production of a low-cost, handheld, glucometer with low detection limits
- Soldering, microcontroller programming in C++

Undergraduate Research Assistant at Bowling Green USDA – *Spring 2022 to Fall 2022*
- Developing and optimizing HPLC-MS methods to detect estrogens in bovine waste
- Optimizing stir-bar sorptive extraction methods

Undergraduate Researcher (unpaid) at WKU Department of Mathematics – *Fall 2019 to Summer 2021*
- VR application development in C#/Unity with Git for online collaboration
- Development of topological theories using Mathematica

Gatton Research Internship – *Summer 2020 (officially cancelled; made online)*
- Heuristic code optimization for Mathematica functions
- Developing a performance-aware Mathematica package for knot theory calculations

CERTIFICATES AND AWARDS

ACS Division of Physical Chemistry Undergraduate Award – *Spring 2023*

WKU President's List (Semester GPA 3.80 or more) – *Fall 2019*

WKU Dean's List (Semester GPA 3.40 to 3.79) – *Spring 2020 to Fall 2021, Fall 2022 to Spring 2024*

Certified Wolfram Technology Associate – *Spring 2020*

President's Volunteer Service Award – *annually 2015 through 2019*