

JOSEPH TEMPLE

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PROFILE

Motivated third-year undergraduate physics student at Arkansas Tech University (ATU) pursuing graduate study and a career in research at the interface of physical science, life science, and engineering. Research interests span from theoretical biophysics to nanobiotechnology to complex systems and nonlinearity. Known for effectively balancing multiple responsibilities, demonstrating an intrinsic motivation to learn, and engaging in collaborative problem-solving.

EDUCATION

Bachelor of Science (BS) in Physics <i>with minor in Mathematics</i> <i>Arkansas Tech University, GPA: 4.0</i>	<i>Expected May 2026</i> Russellville, AR
Bachelor of Arts (BMA) in Music Arts <i>Arkansas Tech University, GPA: 4.0</i>	<i>Expected May 2026</i> Russellville, AR
Undergraduate Certificates of Proficiency (CP) <i>Arkansas Tech University</i>	Russellville, AR
<ul style="list-style-type: none">• Computer Programming• Vocal Performance	<i>Expected May 2026</i> <i>December 2024</i>

RESEARCH EXPERIENCE

ATU, Department of Mathematical and Physical Sciences <i>Guided Independent Project (Optical Trap Design)</i> <i>Advisor: Jessica Young</i>	Russellville, AR <i>January 2025 - Present</i>
<ul style="list-style-type: none">• Designing and constructing an optical tweezer for the department's optics laboratory.• Exploring theoretical and practical aspects of optical trapping, including laser alignment, and calibration methods	
University of Texas at Dallas, Department of Physics <i>Summer Researcher (NSF REU in Physics)</i> <i>Advisor: Andrés Cisneros</i>	Richardson, TX <i>May 2024 - August 2024</i>
<ul style="list-style-type: none">• Explored machine learning methods to generate molecular potential energy surfaces as a function of atomic coordinates, with hopes of performing geometry optimization for large biomolecules.• Utilized LICHEM, Psi4, NWChem, and Tinker to perform mixed quantum/classical molecular dynamics simulations and geometry optimization with established methods (NEB and QSM).• Participated in Python workshops, machine learning seminars, biweekly presentations over research progress, and poster session at culminating summer research symposium.	

RELATED ACTIVITIES

Physics Laboratory Teaching Assistant
ATU Dept. Mathematical and Physics Sciences

August 2023 - Present
Russellville, AR

- Guided student peers through difficulties encountered in introductory mechanics experiments.
- Graded assignments and lab reports, providing constructive feedback to help students improve their understanding of physical principles.

Peer Tutor
ATU Tech Learning Center

August 2024 - Present
Russellville, AR

- Provided individualized tutoring in math, physics, chemistry, computer science, and music theory.
- Demonstrated strong communication and interpersonal skills in building rapport with students and addressing their academic concerns effectively.
- Lead weekly group review sessions of both introductory and intermediate physics courses through the “Physics Power Hour.”

ATU Physics Club
President
Vice President
ATU Dept. Mathematical and Physics Sciences

August 2022 - Present
May 2024 - Present
August 2023 - May 2024
Russellville, AR

- Designed and presented an introductory L^AT_EX lecture series for undergraduate STEM students.
- Facilitated discussions to generate ideas for club events, projects, and outreach initiatives.
- Showcased physical demonstrations to inspire interest in science among the wider campus community.

TECHNICAL SKILLS

Programming Languages: Python (Intermediate), C++ (Intermediate).

Operating Systems: Windows, Linux (Ubuntu).

Techniques: Numerical computing, machine learning, data visualization and analysis.

Software and Tools: LICHEM, Psi4, NWChem, Tinker, Visual Molecular Dynamics (VMD), L^AT_EX.

PRESENTATIONS

Poster

1. “Machine learning techniques for potential energy surface generation and geometry optimization of 3D biomolecules.” Presented at the University of Texas at Dallas Summer Platform for Undergraduate Research (SPUR), Richardson, TX, August 2024.

REFERENCES

Dr. Jessica Young , Associate Professor of Physics	jyoung35@atu.edu
Dr. Jon Clements , Professor of Music	jclements@atu.edu
Dr. Andrés Cisneros , Professor of Physics, Chemistry and Biochemistry	andres@utdallas.edu