Tal Lucas

(919) 717-5755 | tallucas@unc.edu |

Education

University of North Carolina at Chapel Hill — Chapel Hill, NC
Bachelor of Science in Physics, Bachelor of Science in Math — *August 2023 – Present*

East Chapel Hill High School — Chapel Hill, NC
National Honor Society, National Technical Honor Society, North Carolina Scholar — *August 2019 – June 2023*

Experience

Teaching Assistant — August 2025 – Present
University of North Carolina — *Chapel Hill, NC*

- Introductory Calculus-based Mechanics and Relativity - Fall 2025 and Sprint 2026. Taught sections of 45 students for two semesters
- Astrophotography of the Multi-Wavelength Universe - Sprint 2026. Mentor small student groups and grade assignments

Undergraduate Research on EMF Interference — August 2024 – August 2025
University of North Carolina with Dr. Reyco Henning — *Chapel Hill, NC*

- Built a system with USRP N210 and Raspberry Pi 4 to monitor electromagnetic signals
- Implemented an RTL-SDR solution on Raspberry Pi which reproduced core functionality at 1/60th of the price

Educational Research in Radio Astronomy — June 2024
Green Bank Observatory with Dr. Dan Reichart — *Green Bank, VA*

- Used a radio telescope to image Jupiter and combined those observations with historical data to show that it emits blackbody radiation
- Measured the intensity of the supernova remnant Cassiopeia A, confirming that its dimming matches recent trends
- Constructed an antenna which received signals from the International Space Station as well as other satellites
- Used readings of the sun's intensity to predict the number of sunspots on a specific day to reasonable accuracy

BeAM Makerspace Floor Staff — December 2023 – December 2024
University of North Carolina — *Chapel Hill, NC*

- Performed maintenance on tools such as 3D printers and lasercutters at each of the UNC makerspaces
- Helped makerspace users with technical issues

Projects and Extracurriculars

Rocketry Club at UNC | *OpenRocket, 3D Printing, Lasercutting* — November 2024 – Present

- Cofounder and executive member of the Rocketry Club at UNC, one of the school's first technical engineering clubs
- Secured $3,000 in recurring funding per semester
- Helped design and teach a training course for 50+ inexperienced members
- Launched two high powered rockets and multiple low powered model rockets
- Currently in preparation for the NASA Student Launch competition

Environmental Sensing Device | *Python, C++, Circuitry, Soldering, 3D Printing, Lasercutting* — July 2022

- Designed and built a small and portable device which monitors temperature, humidity, smoke, carbon monoxide, and LPG
- Worked with a team to display measurements on a live updating website

Relevant Coursework

Physics: Electronics, Electromagnetism, Mechanics, Quantum Mechanics, Quantum Computing
Mathematics: Linear Algebra, Multivariable Calculus, Differential Equations, Discrete Mathematics, Real Analysis, Mathematical Methods for the Physical Sciences, Probability, Functions of Complex Variables

Technical Skills

Machining and Fabrication: Lasercutter, 3D Printer, Woodworking, Metalworking, CNC Machine, Soldering, Circuitry
Software: Python, C, C++, Autodesk Fusion 360, Onshape, Autodesk Inventor, Adobe Illustrator