

# Hailey Doyle

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## EDUCATION

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**Rutgers University**, B.S. in Applied Physics - *New Brunswick, NJ*

**Present**

- Activities: Society of Physics Students, Rutgers Astronomical Society, Society of Women Engineers, Learning Assistant Program (Peer Leader)
- Relevant Coursework: Computational Physics, Differential Equations, Principles of Astrophysics 1&2, Thermal Physics, Modern Instrumentation, Analytical Physics 1-4 (Electromagnetism, Mechanics, Modern Physics), Analytical Physics 1-4 Lab, Data Literacy, Multivariable Calculus

## EXPERIENCE

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**Rutgers Astronomical Society**, Vice President & Robert A. Schommer Observatory Volunteer & Astrophotography Team Member - *New Brunswick, NJ*, **2024-present**

- Operating and managing astronomy equipment & software such as the Celestron NexStar SE6 Telescope, 20-inch OGS Ritchey-Chrétien Telescope, Seestar S50, mounts, PixInsight, DeepSkyStacker, Siril, Registax 6, PIPP, Autostakkert
- Assisting with setting up, leading, and closing up the observatory
- Vice President for the Rutgers Astronomical Society, facilitating observing sessions and lectures for members of the university and public, overseeing finances, socials, operations, and planning for the society

**Rutgers University**, Learning Assistant for Mathematics - *New Brunswick, NJ*, **2024-present**

- Assist weekly recitations of 20-25 students to guide and assess their learning in precalculus through worksheets made exclusively for each chapter
- Lead weekly study groups of 10-15 students to review and solidify concepts from precalculus course
- Create my own lesson plan and problems for individually-led study groups

**Rutgers Recreation**, Aquatics Manager - *New Brunswick, NJ*, **2024-present**

- Manager for aquatics operations at 3 Rutgers Recreation facilities, in charge of overseeing operations involving but not limited to swim meets, swim practices, scuba diving, birthday parties, recreational swim, pool maintenance and safety, etc.
- Overseeing lifeguard team by leading monthly training in CPR, first aid, and lifeguard skills
- Oversee and build scheduling of lifeguards

## PROJECTS

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**Analyzing Interactions of Antennae Galaxies**, Project Leader - *New Brunswick, NJ*, **Present**

- Developed analysis of planet and galaxy interaction using Jupyter Notebook and Python libraries such as Scipy, Numpy, and Rebound
- Developed graphical simulations of the Antennae Galaxies (NGC 4038 and NGC 4039) interaction using GADGET-2 and Galpy, specifically using PyNBody to analyze results
- Analyzed simulation results to identify emergent patterns in galactic behavior

## SKILLS & RECOGNITIONS

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- **Languages:** Python, MATLAB, R
- **Additional Software/Hardware:** Thermal Desktop, SDK Flight Simulator, Multimeters, Signal Generators, Oscilloscopes, AC/DC Circuits, SOLIDWORKS, PixInsight, DeepSkyStacker, Siril, Registax 6, PIPP, Autostakkert, Jupyter Notebook, GADGET-2, Galpy
- **Other Skills:** Collaboration, Leadership, Adaptability, Communication, Problem-Solving
- **Recognitions:** Bell Award in Mathematics, Dean's List, FIRST Robotics Competition State Competitor (2020)