

Skylar Grayson

(541) 588 - 0245

skylar.grayson7259@gmail.com

www.linkedin.com/in/skylar-grayson

Research Interests

I am broadly interested in many fields of astrophysics. My current work focuses on dark matter and particle physics, although I am also interested in observational astronomy, stellar astrophysics, cosmology, and galactic and extragalactic astronomy.

Education

Whitman College Aug. 2017 - May 2021
Walla Walla, WA
Bachelor of Arts in Physics-Astronomy, Minors in Mathematics and French
Average unweighted GPA: 3.966/4.0

Universite de Nantes/IES Abroad Jan. 2020 - May 2020
Nantes, France
Average unweighted GPA: 4.0/4.0

Awards and Honors

Academic Distinction every semester 2017-2021
Walter Brattain Merit Scholarship (\$16,000) 2017-2021
Bates Foundation Music Scholarship (\$4,000) 2018-2021

Research Experiences

Asymmetric Dark Matter June 2020 - Present
Whitman College
Mentored by Dr. Moira Gresham

- Studied potential bottleneck scenarios in bound states of asymmetric dark matter
- Used Mathematica to determine conditions in our parameter space where energy conservation and cosmological requirements were met
- Calculated cross-sections and reaction rates for the formation of 2-body bound states
- Showed that if the conditions for forming a two-body state were met, there would be not bottlenecks in forming larger bound states
- Research currently being continued in calculating cross sections outside the coulomb limit
- Will be worked into a Senior Honors Thesis along with a review of the implications of an asymmetric dark matter model

Simulations of Physical Vapor Deposition May 2019 - August 2019
Sandia National Laboratories
Mentored by Dr. Remi Dingreville

- Ran 10,000+ simulations of physical vapor deposition
- Studied the impact of a range of variables on a resulting surface roughness
- Wrote final report and gave a presentation on method/results

Late Stage Pharmaceuticals May 2018 - August 2018
Lonza Bend

- Assisted with client projects including running HPLC, dissolution, and purity tests

- Developed a research project determining the robustness of a Pion Rainbow dissolution test by testing the impact of a wide range of variables
- Wrote final report and gave a presentation on method/results
- Did outreach to local elementary schools and children's fairs to generate interest in studying science

Relevant Work Experience *Physics Fellow* January 2019 - Present
Whitman College

- TA for introductory physics courses and 300-level Particle Physics course
- Met weekly with students to work on group homework assignments
- Helped students develop good homework and collaboration strategies

Peer Tutor August 2018- Present
Whitman College

- Met weekly with students in physics, astronomy, and mathematics courses
- Helped with homework, developing good study habits, and tailoring practices to specific classes
- Included professional development work, meetings with professors, and providing reports on sessions

Relevant Coursework

Physics: Classical Mechanics, Thermal Physics, Acoustics, Particle Physics

Astronomy: Stellar Astrophysics, Cosmology, Galactic Astronomy

Mathematics: Calculus, Differential Equations, Linear Algebra, Statistics

Anticipated Spring 2021: (Taken later due to study abroad Spring 2020) Quantum Mechanics, Electricity and Magnetism, Observational Astronomy

Skills

- Programming languages: Python, Wolfram
- Operating systems: Windows, Mac OS, Linux
- Software: LaTeX, Mathematica, ParaView
- Soft Skills: Communication, Leaderships, Problem Solving, Teaching/Tutoring
- Languages: French-Proficient

Professional Memberships Phi Beta Kappa National Honor Society

Extracurricular Activities *Percussionist:* Whitman College Music Department

- Leader of the Percussion Ensemble: planned and led rehearsals, arranged pieces and put on a concert for the community Fall 2019, Anticipated Spring 2021
- Section Leader in Wind Ensemble Fall 2019-Spring 2021