Tips for Your

Research Statement / Personal Statement
A research statement / personal statement tells about yourself, your research interests, background, and why you are a good fit for the research opportunity

It Includes:

• An explanation of why the program is a good fit for your interests
• Positive tone, active voice, and first person (“I” not “we”)
• Concrete examples and stories. Be clear and concise
• Specific details about outcomes/achievements. Brag a little!
• If there are specific prompts, address and emphasize them directly

Format:

• Typically in an essay style format
• 1 - 2 pages long (unless otherwise indicated)
• Proofread! Proofread! Proofread! And have a friend/mentor review your draft
A GENERAL RESEARCH STATEMENT FORMAT

Introduction:
- Introduce the reader to your research interests, major, and career goals
- Hook the readers in!

Body Paragraphs:
- Talk about your experiences. What have you completed and why do you think it’s important for them to know/what does the experiences tell them about you?
- Relate your experiences to your research interests
- Be specific about what YOU did on projects
- Share challenges you’ve faced and what it taught you
- Describe relevant activities/leadership experiences you have
- List Skills you have that you’ll bring to them and what skills you want to learn and utilize more
- Explain what about the program excites you
- Explain why is the program a good fit for you
- State how this research will impact your future and goals

Conclusion
- Bring it all together into a final summary statement that reiterates the points you made above
- Give them one last reason why you are a good fit for the program
RESOURCES

**Undergraduate Research Ambassadors:**
Need help creating or want feedback on your research statement? Meet 1:1 with an Undergraduate Research Ambassador in person or over Zoom to get support!

You can also email us at undergradresearch@arizona.edu

**Think Tank Writing Center:**
Want someone to review your research statement as a second set of eyes? The Writing Center tutor can give you recommendations on grammar, spelling, and the overall flow of your statement.

**Writing Skills Improvement Program (WSIP):**
WSIP offers Drop-In tutoring! This is a free service for UA undergraduate and graduate students. Students can meet with a WSIP professional tutor to receive focused feedback on a shorter sample of writing.
I can't quite recall when my fascination with astrophysics started. Perhaps it was when I was awestruck by the dazzling Gargantua black hole in the movie “Interstellar” and engulfed in my own black hole of imagination in the cinema. [...] 

Throughout the journey from the tiniest particles to the greatest architecture of the universe, I am perplexed by the question: “How can a singular reality be dictated by both a deterministic theory of General Relativity and a probabilistic quantum world?” By triple-majoring in Astronomy, Physics, and Mathematics, I am comprehensively prepared for Ph.D. studies and a lifelong career in High Energy Astrophysics and/or Cosmology research to unveil the true nature of reality as both a theorist and an experimentalist. I really hope to answer some of the greatest questions of Astrophysics, including the real nature of dark matter and dark energy, [...].

My general interests in the interface between theory and experiments in Astrophysics have brought me to my current research project about the gravitationally-lensed images of Kerr naked singularities (KNSs), super-spinning gravitational singularities without an event horizon. The main motivation behind this project is [...] In this project, I contributed to FADGE, a vectorized differential geometry computation library in Python, and adapted the library to perform numerical ray-tracing calculations of KNSs. Then, I ran FADGE on supercomputers and simulated gravitationally-lensed images of KNSs. I also analytically study the shadow geometry of KNSs. The primary challenge was that KNSs are still not well-studied. I spent a lot of time trying to understand the theory behind the black hole shadow and discussing it with my research mentors so I could adapt the derivations to KNSs. Finally, I succeeded in identifying certain conditions for KNSs to produce a fully circular shadow like black holes, a shadow with a gap, or no shadow, and the critical parameters where the shadow changes its geometry. [...] 

Through the project, I have learned various skills in computational physics like Python, numerical analysis, and high-performance computing. With these skills, I am confident that I can quickly become proficient in analyzing large datasets from particle physics experiments. I presented this project at the American Physical Society’s “Quarks to Cosmos” conference in April 2022. I am currently writing a paper on the results of this research as the first author. I expect to submit the paper to a peer-reviewed journal in February 2023. This project is a great fit for my professional goals because it bridges theoretical physics and observational astronomy, a balance I strive for in my future career. It has laid the foundation of my scientific mindset: being inquisitive about theoretical science but still being grounded in testable and observable predictions.
This mindset informs my interest in cosmological projects at Fermilab which lie at the interface between theoretical and observational cosmology. I especially want to work with Fermilab scientists leading the Dark Energy Survey (DES) and the Axion Dark Matter Experiment (ADMX). I hope to analyze DES observations of supernovae, galaxy clusters, and the large-scale structure of the universe to gain insights into the expansion of the universe and the constraints of dark energy particle candidates. [...]

As a global leading particle accelerator laboratory, Fermilab provides the perfect research environment for me to explore and study particle physics and its astrophysical applications. I will be exposed to a wide range of physics subfields, which is very helpful in guiding me toward my future graduate studies and career. Besides, at Fermilab, I have rare access to some of the most cutting-edge particle detectors and accelerators. Because particle physics research technologies are widely applied in other fields like biomedical engineering, medicine, computer science, and security, among many more, a Fermilab internship would prepare me well for both academia and industry. In addition, I hope to work with some of the leading particle physicists where I gain insights into how researchers collaborate in a major project and how they become who they are today.