

Demystifying Graduate Education

What is a PhD?

- A PhD (Doctor of Philosophy) is the highest academic degree, focused on producing new knowledge through original research. In STEM fields, it often combines theory with technical skills to solve real-world problems. A traditional PhD often leads to academic careers, while an applied PhD emphasizes practical problem-solving for industry, government, or nonprofit sectors.

What an Applied PhD Offers

- Opportunity to work on interdisciplinary, high-impact research
- Hands-on experience with technical tools, data, and systems
- Connections to industry/government labs (e.g., NASA, Sandia, NIH, DoD)
- Access to roles in R&D, tech, policy, national labs, and startups

Application Motivation

Why Pursue a PhD?

- Research-intensive careers (academia, R&D)
- Create knowledge, lead innovation
- Unlock high-level leadership roles

Key Questions to Ask Yourself

- Do I enjoy long-term independent projects?
- Am I motivated by curiosity and problem-solving?
- Am I comfortable with uncertainty and delayed gratification?

Core Application Components

- Statement of Purpose
- Letters of Recommendation
- Resume/CV with Research Experience
- Transcript
- GRE scores (if required)

Typical Timeline

- **Junior Year:** Research programs, reach out to potential advisors, gain research experience
- **Summer before Senior Year:** Draft personal statement, take GRE (if required)
- **Fall of Senior Year:** Apply to PhD programs (Nov-Jan deadlines)
- **Spring:** Interviews and offers
- **Fall:** Matriculate into program

Application Preparation

Key Undergraduate Preparation Steps:

- **Research Experience:** Get involved in faculty-led research or apply to REUs (Research Experiences for Undergraduates).
- **Courses That Matter:** Prioritize linear algebra, calculus, statistics, programming (Python, R), numerical methods, and applied modeling.
- **Faculty Relationships:** Build mentoring connections with professors early. Ask about their research and express interest in participating.
- **Professional Development:** Attend research conferences, write abstracts, and present posters. Participate in programs like LSAMP, McNair, or MARC.
- **Skills Building:** Strengthen your scientific writing, coding, teamwork, and public speaking.

Strengthening Your Application

- **Undergraduate Research:** Seek out REUs, work with professors, contribute to publications
- **Relationships:** Build mentoring relationships for strong letters of recommendation
- **Coursework:** Excel in advanced STEM classes (e.g., Linear Algebra, Differential Equations, Programming, Data Analysis)
- **Extracurriculars:** Leadership in clubs, tutoring, outreach all help tell your story

Demystifying Graduate Education: A Roadmap for the Future

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1 Project Summary

This project addresses the critical lack of accessible, organized, and inspiring information about graduate education for undergraduate students, especially those navigating college without a clear path toward advanced degrees. While the pursuit of a bachelor's degree is heavily emphasized and supported throughout a student's academic journey, the trajectory toward graduate education, whether a Master's, PhD, EdD, JD, or MD, is often vague or not largely encouraged due to a lack of tangible guidance and strategic planning.

My project provides a comprehensive, narrative-based roadmap for students considering graduate education. It compiles essential planning information about application timelines, academic expectations, career paths, and post-graduate outcomes, alongside a curated collection of anecdotal testimonies. These testimonies come from six key perspectives: recently admitted graduate students, first-year students, recent graduates in industry and academia, professors and advisors actively conducting research, postdoctoral researchers, and individuals who chose not to pursue further graduate studies. This tool will serve as a living resource, designed to support undergraduates as they begin envisioning their futures in graduate school, offering both information and human connection.

Collaboration has been central to this project's development. I have gathered insight and support from a growing network of academic professionals and graduate students, including:

- Dr. J. Burrow (PhD, Morgan State)
- Dr. E. Biondi (PhD, Stanford)
- Dr. G. Tepp (PhD, CalTech)
- K. Scroggins (PhD Candidate, University of Florida)

These collaborators will contribute to building the roadmap and provide the initial testimonies. As the project grows, this network will expand into a powerful space for peer mentorship, support, and inspiration.

This project embodies the spirit of **Afrofuturism** by creating a visionary space where Black students—and all students of marginalized backgrounds—can see themselves in futures shaped by academic excellence, research, leadership, and innovation. Afrofuturism imagines liberated, empowered futures driven by access to knowledge, ancestral wisdom, and communal uplift. By demystifying the path to graduate education, this project actively resists the systemic barriers that limit Black futures in academia. It empowers students to step confidently into those futures, equipped with insight, strategy, and community. So far this summer I have been able to speak with many of the undergraduates who are providing research support to the lab I am working in. Their contributions mostly by being test subjects for us to collect data. I have also been able to speak with the other students who are participating in the REU. Since the interns are all in different academic years, the responses I have received about this work has varied. So far the reaction from everyone I have collaborated with has been positive. I am excited to continue getting feedback about this tool and leveraging my network across campuses to inspire a community that supports the ambitions of highly capable, interested, and technically inclined Black students.