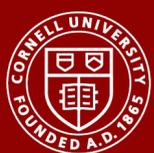


MASTER'S VS. PH.D.: WHICH PATH SHOULD YOU CHOOSE?



Cornell Bowers C-IS
College of Computing and Information Science



Cornell Bowers C·IS

College of Computing and Information Science

If you are considering a graduate degree in statistics or data science, it can be challenging to determine which degree and program will best support your career aspirations.

The [Cornell Ann S. Bowers College of Computing and Information Science](#) has two paths worth considering: the **Master of Professional Studies (MPS) in Data Science and Applied Statistics**, and the **Ph.D. in Statistics**. While both options are housed in the same department, they differ widely in program length and focus of study.

The following resource will explore the similarities and differences of these programs so you can make an informed choice that aligns with your goals and interests.

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UNDERSTANDING THE DIFFERENCE BETWEEN A PH.D. AND A MASTER'S IN STATISTICS AT CORNELL BOWERS CIS

To help you better understand the difference between a Ph.D. and a Master's in Statistics at Cornell Bowers CIS, let's break down the main features of each program.

The MPS in Data Science and Applied Statistics is a professional Master's degree designed for students who wish to specialize further before starting or continuing their career in data science or statistics, either in industry or government work.

The Ph.D. in Statistics is intended for students interested in pursuing an academic and research-intensive career, often leading to university-level teaching and advanced research positions.

MPS VS. MS

At Cornell, there is no separate, terminal Master of Science (MS) degree specifically for statistics or data science. Instead, the MS component is part of the Ph.D. program, and involves two years of graduate-level coursework focused on statistics and probability as a preparatory stage.

The MPS is not equivalent to an MS in several respects. Unlike an MS, which typically includes a thesis or qualifying exam and serves as the foundation for the Ph.D. program, the MPS program focuses on practical application by including a large-scale data analysis project in the curriculum. Additionally, the mathematical probability and statistics component is less extensive than that of an MS program.

To paint a clearer picture, let's explore the specific features of the MPS and Ph.D. programs.



IS THE PH.D. OR MASTER'S RIGHT FOR YOU?

	MPS in Data Science and Applied Statistics	Ph.D. in Statistics
Program Length	MPS students are expected to complete the one-year program in two semesters, though an additional semester extension is available with the department and graduate school's approval.	Ph.D. students typically complete their degrees in 3-5 years, with an average time to completion of 4.82 years. Additionally, Ph.D. attrition over the past decade is 13.2% with most of those students earning non-thesis terminal MS degrees.
Funding	The MPS program does not offer financial aid, fellowships, or assistantships.	All admitted Ph.D. students are guaranteed 5 years of funding, which often takes the form of either a teaching or research assistantship. Assistantships provide tuition, health insurance, and a stipend for the academic year. Fellowships may also be available through the University or externally, along with summer funding for eligible students.

	MPS in Data Science and Applied Statistics	Ph.D. in Statistics
Career Goals	The program is intended for those interested in professional careers related to business, industry, government, or scientific research, with fields spanning finance, artificial intelligence, and biomedical research.	While the Ph.D. program is for students interested in pursuing an academic career in statistics, more than half of recent graduates pursued positions at big tech companies like Amazon, Google, Microsoft, and Apple.
Cohort Size	The MPS program enrolls about 75 students per year.	The Ph.D. program enrolls about 7-10 students per year, but enrollment varies based on number of recent graduates and available funding.
Necessary Background Education	While the MPS program is intended for students with a quantitatively oriented bachelor's degree in the agricultural, biological, computer, engineering, mathematical, physical, social, or statistical sciences, applications are open to any major as long as students meet the required mathematical and statistical background necessary to keep up with coursework.	<p>Most Ph.D. students entering the field are assumed to have a background in mathematics, computer science, statistics, or related fields. For example, coursework in mathematical analysis, algebra, advanced calculus, probability, and applied statistics are expected, along with programming skills and experience in data analysis and research.</p> <p>Courses taken in topics such as measure theory, stochastic processes, functional analysis, numerical analysis, and parallel computing are a bonus and will act as evidence of your aptitude for research.</p> <p>Students from outside statistics may still be admitted to the Ph.D. program, making up any important deficiencies during the first year.</p>

	MPS in Data Science and Applied Statistics	Ph.D. in Statistics
Curriculum	<p>The MPS program includes core courses, an in-depth statistical analysis project, a professional career development course, and elective courses from the Department of Statistics and Data Science and related departments.</p> <p>Core Courses include:</p> <ul style="list-style-type: none"> • Linear Models with Matrices • Probability Models and Inference • Project Development & Professional Communication • Realtime Project Management <p>Elective offerings include:</p> <ul style="list-style-type: none"> • Python Programming and its Applications in Statistics • Big Data Management and Analysis • Required statistical science electives • Optional non-statistical science electives 	<p>The Ph.D. program includes core courses from various core areas, a two-semester teaching requirement, an external minor, the A exam, and a thesis.</p> <p>Core Courses include:</p> <ul style="list-style-type: none"> • Linear Models • Probability • Statistical Computing • Theory of Statistics • Asymptotic Statistics • Statistical Consulting <p>External minors can be completed in closely related fields such as:</p> <ul style="list-style-type: none"> • Cognitive Studies • Communication • Computer Science • Science & Technology Studies • Economics • Linguistics • Mathematics • Operations Research • Psychology • Sociology
Exam Requirements	N/A	<p>A-Exam (Admission to Candidacy Exam): Students must pass their A-Exam at least two semesters before their B-Exam.</p> <p>B-Exam (Oral Defense of Dissertation): B-Exam will be taken upon completion of all degree requirements. Students are expected to schedule and pass their B-Exam within 5 years of entering the Ph.D. program.</p>

APPLYING TO THE MASTER'S OR PH.D. PROGRAM

Both the MPS in Data Science and Applied Statistics and the Ph.D. in Statistics offer exceptional value, delivering high-quality, information-rich experiences that will prepare you for success in the field. However, your choice will depend on your goals, time commitments, educational background, and financial considerations.

It's important to note that each degree has a separate admissions process, so be sure to apply directly to the program that aligns with your aspirations. If you start with the MPS and later decide to pursue a Ph.D., you'll need to reapply as a new candidate, and while some MPS coursework might transfer, it's not guaranteed.

[Apply to the MPS Program](#)

[Apply to the Ph.D. Program](#)

No matter which direction you take, your graduate degree in statistics or data science will be instrumental in realizing your career aspirations. We can't wait to see where you land.

