

## Frequently Asked Questions

### 1. What is Data Science?

Data Science is the art and science of solving problems and shaping decisions through the precise analysis of information. It requires a blend of critical skills in three major areas: mathematics & statistics, computation, and business. Professionals understand data science as a business process with an arc from acquisition to analysis to storytelling and decision-making. Data scientists are critical team members in major industries and fields, including technology, software, healthcare, financial services, biomedical engineering, management, and education. The program fosters analytical precision and creative problem solving, with an emphasis on applied projects and case studies informed by exclusive industry insights.

### 2. How is the program structured?

The program is completed in 21 months of half-time enrollment (2 courses at a time per semester over 5 semesters). The class beginning in August 2023 will graduate from Notre Dame in May of 2025. Students earn 30 credits at Notre Dame to complete the degree. The program is designed to allow students to remain fully employed while making steady academic progress.

Our data science program features small classes taught live by Notre Dame faculty, in-person exclusive immersion weekends, and the personal attention to student success for which Notre Dame is known. This program is designed as an “on-ramp” to a career in data science for students with all undergraduate backgrounds. Students need not have studied statistics, computer science, or mathematics as undergraduates. English majors are welcome!

At the start of the program in August, participants are required to attend 3 days of intensive onboarding and training at Notre Dame’s campus in South Bend, Indiana. Thereafter, all required coursework can be completed online from any location. Additional exclusive immersion weekends in cities across the country are offered on a regular schedule. Immersion weekends are optional and not included in the program cost.

### 3. Why Notre Dame?

Notre Dame’s Data Science online master’s degree, offered by the Department of Applied and Computational Mathematics and Statistics, upholds the University’s high standards of academic excellence, offering small classes with faculty, access to industry experts, and a personal, student-centered approach to online learning. As a graduate of the Notre Dame Data Science degree program, you will become part of our global network of exceptional alumni.

#### 4. What are the Courses and Topics?

In addition to the necessary technical, statistical, and computational foundations, this program is built around case studies and projects informed by industry. Students understand data science as a business process, tackle the complex ethical dimensions of the field, and learn the art of storytelling and communication with data in a business context. The program is an integrated offering, featuring courses such as:

- Probability & Statistics for Data Science
- Python Programming for Data Science
- R Programming for Data Science
- Introduction to Machine Learning
- Big Data
- Linear Models
- Storytelling & Communications for Data Scientists
- Ethics and Policy in Data Science
- Behavioral Data Science
- Advanced Machine Learning
- Advanced Data Visualization
- Advanced Linear Models
- Data Science Capstone

#### 5. What are the Admissions Requirements and Prerequisites?

Notre Dame will admit students to the program who demonstrate those academic, personal, and professional characteristics that indicate a commitment to, and capacity for success in, a rigorous multidisciplinary graduate program.

International students may need to present minimum TOEFL or IELTS scores. A minimum undergraduate GPA of 3.0 in the major field of study is expected. Students do not need to present significant experience with statistics, mathematics, or computer science in order to be considered.

Because data science is a complex technical field, some prerequisite training in mathematics and computer science is essential for success in the program. These prerequisites may be achieved through an undergraduate program, professional experience, recommended online self-study resources, or a combination of the above. The prerequisites for the program are:

- **Mathematics/Calculus**
  - Calculus, preferably acquired through a university-level course, including topics such as:
    - Differentiation rules for single variable calculus; Integration rules for single variable calculus;
    - Mathematical functions; Basic vector and matrix skills; Intermediate matrix skills.
  
- **Computational Skills**
  - Basic programming in a language such as Python or R.
  - Basic familiarity with data structures.
  
- **Communication**
  - The ability to communicate clearly, coherently, and professionally in spoken and written form.

## 6. What Makes An Application Strong?

A strong application will present a full picture of who you are as an applicant--how you are prepared to succeed in our program, your past and present experience, and why our data science program is the right fit for you as you reshape your professional trajectory or plan for career growth.

Below are the elements that make up an application, and our tips on the best ways to prepare each of those elements:

### ***Personal Statement***

This brief written account (between 250 and 500 words) introduces you to the admissions committee. In the personal statement, you should describe your motivation for enrolling in the program, your relevant academic background and professional experience as well as any qualifications, skills, or achievements that relate to your preparation to succeed in the program. It would also be helpful to provide an account of why you are interested specifically in data science as a subject for graduate study.

### ***Professional Resume or CV***

An updated resume or CV will provide useful information about your professional achievements and activities. We recommend adding brief contextual information to communicate in detail those positions or experiences that, in your view, are especially relevant to your readiness to succeed in this program.

### ***Letters of Recommendation***

Applicants should submit three (3) letters of recommendation, although only two (2) letters are required. At least one of these letters should be from a person who has supervised you in a professional

or academic context. All letters should speak to your ability to succeed in a graduate program with quantitative and technical content. Writers should know you well enough to describe your professional achievements, academic preparation, and any other relevant details with candor, detail, and objectivity.

### ***Transcripts***

Unofficial transcripts from all educational institutions you have attended are acceptable for the preliminary admissions review. Official transcripts will be requested and are required to be submitted after the admissions decision.

### ***TOEFL/IELTS***

International students whose native language is not English must also submit scores on the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). Minimum TOEFL/IELTS scores depend on the type of test you're taking. If you are taking the TOEFL IBT, then the minimum score is a total of 80 points, with a minimum of 23 on the Speaking section. If you are taking the IELTS, the minimum score is 7.0.

Notre Dame's Graduate School will waive the TOEFL/IELTS requirement for non-native English speakers who spent a minimum of two years at an academic institution whose primary language of instruction was English. In certain circumstances, applicants may need to provide a letter from the institution's Registrar's Office (or the office responsible for academic records) confirming English as the language of instruction.. For more information on Notre Dame's TOEFL / IETLS requirements, [please visit the Graduate School FAQ website.](#)

### ***Additional Documentation***

We encourage applicants to share any additional credentials relevant to their qualifications or readiness for graduate study in data science. These credentials may include:

- Certificates of free or non-credit online course completion
- Credentials earned through continuing professional education
- Documentation of professional certifications not suitably captured on the resume any awards or recognitions relevant to the application

Students who have experience with programming languages not otherwise documented (on the academic transcript or on the professional resume) are encouraged to provide such documentation or credentials, including for example evidence of completion of a basic online programming course.

Notre Dame does not require the GRE scores for your application. In this program, we review applications holistically and believe that the GRE is a good way for someone that does not have strong evidence of academic preparation to show that they are qualified for this program. If you have taken

the GRE, we encourage you to submit your scores to your application, however, it is not a requirement.

- If you do decide to submit your GRE score, please note that ETS will not report GRE scores that are more than five years old. We will also accept GMAT scores in place of the GRE General Test.
  - *What if you're still waiting on your test scores?* GRE test scores can be uploaded after you submit your application.
  - *What if you're still waiting to take the test?* Although you can send us your GRE scores later, if you haven't already done so, we recommend scheduling a GRE test date online as soon as possible.

Please note that we review applications holistically, with an aim to understand you as an individual candidate. No one element of the application will make or break a strong file.

## **7. How do I apply?**

If you are ready to apply for the online data science program, begin your application at the [Notre Dame Graduate School's admissions portal](#).

## **8. I am an AT&T Employee. What do I need to do?**

AT&T employees should navigate to the "AT&T University" pages here for detailed information about policies and benefits related to the collaboration between the company and the University of Notre Dame.