



The University of Notre Dame is a private research and teaching university inspired by its Catholic mission. Located in South Bend, Indiana, its faculty advance human understanding through research, scholarship, and creative endeavor in order to be a powerful means for doing good in the world. Founded in 1842, the Notre Dame of today is an internationally recognized research university with over 12,000 undergraduate, graduate, and professional students enrolled in seven colleges and schools.

~7,500
employees worldwide

~7,400
employees in Indiana


Why is data science/analytics important to your organization?

Data science is integral to Notre Dame's research ethos. Not only does Notre Dame have significant existing technical talent and capability in this area, driving both domain informed and data-driven science and engineering, it also has the wider ethical purview upon which to study and act on issues related to responsible and ethical use of data science, especially in the context of addressing society's most pressing questions. Notre Dame is also recruiting in this area, with several new faculty lines in data science/analytics and has recently launched the Lucy Family Institute for Data and Society.

Data science opens a new frontier for analyzing and diagnosing complex research questions that will enhance our understanding of society, scientific phenomena, and engineered and complex systems, driving positive impact on society and individual lives. During the past decade Notre Dame has made significant investments in data science research and academic programs, including research initiatives that focus on real-world problems in global development, health, energy, public safety, economic development, and the environment. Notre Dame is also continuing to grow in the areas of advanced manufacturing, AI, machine learning, and analytics; cyber security, AI ethics, chemical synthesis and drug discovery, and computational biology.

With the power of data also comes great responsibility. To reap the benefits of innovations stemming from data science, there needs to be a framework that demonstrates alignment with societal needs and grand challenge problems, algorithmic and data responsibility, and knowledge of and compliance with best practices, coupled with a human-driven value system of sound judgment. To that end, the University is educating students at all levels in order to become future leaders regarding socially responsible data science.





The University is committed to building on this already strong foundation and catalyzing new directions to pursue a data science leadership role, at home in Indiana, as well as around the globe, at the interface of social, economic, and political complexities.

What programs at your organization focus on data science and analytics?

The University of Notre Dame has significant existing talent and capability in the areas of artificial intelligence and machine learning (AI/ML), data science, and advanced analytics, as detailed in the [Report on Artificial Intelligence and Advanced Analytics in Indiana](#) commissioned by BioCrossroads and executed by Teconomy.

Recognizing its own strategic imperative to further grow our AI/ML and advanced analytics capability, the University of Notre Dame has recently initiated a University-wide cluster hiring initiative in Data Science and Society which is broadly interpreted to emphasize hiring in AI/ML and advanced analytics applied to areas related to data science and societal needs. This strategic cluster hiring effort will be focused in disciplines such as:

- Applied and Computational Mathematics and Statistics: <https://acms.nd.edu/>
- Business - IT, Analytics, and Operations: <https://mendoza.nd.edu/research-faculty/academic-departments/information-technology-analytics-operations/>
- Computer Science and Engineering: <https://cse.nd.edu/>
- Economics: <https://economics.nd.edu/>
- Quantum Computing: <https://crc.nd.edu/>
- Digital Humanities: <https://cde.library.nd.edu/expertise/digital-humanities/>
- Social Sciences
- AI & Technology Ethics: <https://techethics.nd.edu/>

In addition, as a result of Notre Dame's commitment to the Lilly Endowment for the LIFT Network grant and the generous support of benefactors, the University has several additional initiatives underway, including:

- Faculty hiring in the area of Industry 4.0 (the digital transformation of advanced manufacturing).
 - Launching the new \$25M Lucy Family Institute for Data and Society, which includes the Lilly Endowment LIFT Grant-funded Applied Analytics & Emerging Technology Lab (AeTL): <https://lucyinstitute.nd.edu/>
 - Expanding core research capabilities including Engineering Innovation Hub (EIH) and the hiring the technical director of the EIH: <https://industrylabs.nd.edu/facilities/future-industry-labs-facilities/>
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In addition to our undergraduate teaching, Notre Dame has many educational opportunities in this area, including:

- In collaboration with AT&T, Notre Dame established an online Masters of Data Science program several years ago. The program curriculum includes 14 credit bearing classes (30 credit hours) delivered over 21 months. Feedback on the program has been excellent. <https://datascience.nd.edu/programs/masters/>
- Notre Dame also offers an Executive Certificate in Data Science. This seven-week program introduces participants to the basic methods of machine learning and big data, as applied to process improvement challenges. This program utilizes asynchronous eLearning combined with live meetings with the professors and other students. <https://datascience.nd.edu/programs/executive-certificate/>
- A new Office of Professional Studies and LifetimeND initiative is being launched to provide new academic offerings including professional certificates, degrees, and continuing education opportunities, particularly in advanced industry related areas, such as data science, business analytics, health technology, and computer science.

As evidenced by the resources above, Notre Dame has long been committed to developing its capability in the areas of AI/ML, data science, and advanced analytics and looks forward to continuing to expand as the fields grow.

