Big Data Essentials

Big Data embraces technology, decision-making and public policy. Supplying the technology is a fast-growing market, increasing at more than 30 percent a year and likely to reach $24 billion by 2016, according to a forecast by IDC, a research firm. Big Data is poised to be the next big trend in management.

This certificate will focus on managing Big Data analytics to understand customers, develop new products and cut operational costs. Learn how to gather and analyze large amounts of data, and how to use that data to manage and make important financial decisions.

Most of the jobs emerging in Big Data require knowledge of programming and the ability to develop applications, as well as an understanding of how to meet business needs. This certificate will provide entrepreneurs or managers the opportunity to advance in a strong new growth area, and provide consulting services to companies expanding into Big Data.

Who would be suited to take this program?

People currently working in computing who want to advance their knowledge and catch up in the growing field of Big Data. Skills most often mentioned in connection with Big Data jobs include math, statistics, data analysis, business analytics and even natural language processing.

Demand is brisk for people with data skills. The McKinsey Global Institute, the research arm of the consulting firm, projects that the United States needs 140,000 to 190,000 more workers with "deep analytical" expertise and 1.5 million more data-literate managers, whether retrained or hired, by 2020.

What Will I Learn?

Efficiency, powerful programming techniques and algorithms to transform large quantities of information into business intelligence.

In this program you'll gain 12 credits that can be applied to NJIT master's programs, and learn:

- Mathematical properties and usage of database programming languages.
- Methods of database design, conceptual modeling, and physical storage for Big Data sets.
- Fundamental notions of concurrency control and recovery in database systems.
- Goal tree search, logic and deduction, uncertainty, fuzzy logic, knowledge representations, machine learning, vision, and action planning.
- Methods for association and dependency analysis, classification and predication, and clustering analysis.
- Current trends in data mining, and data mining for scientific, medical and engineering applications.

Why Study Big Data Essentials at NJIT?

One of the nation's leading public technological universities, New Jersey Institute of Technology (NJIT) prepares students to be leaders in the technology-dependent economy of the 21st century. The university's multidisciplinary curriculum and computing-intensive approach to education provides the technological proficiency, business know-how and leadership skills that future CEOs and entrepreneurs will need to succeed. With an enrollment of almost 10,000 graduate and undergraduate students, NJIT offers small-campus intimacy with the resources of a major public research university.

The graduate certificate's narrow focus allows you to dig deep into this specific topic, and start applying your knowledge sooner. It's possible to earn the certificate entirely through online courses, so you can more easily fit it into your busy life. And whether you take courses online or on campus, you'll learn from NJIT's distinguished professors and instructors of the Department of Computer Science.

Prerequisites

An undergraduate Computer Science degree from an accredited institution is recommended. Three years or more in programming or database work.

NJIT's standard admission requirements apply to this graduate certificate.

Related Degree Programs

Credits from this graduate certificate can be applied toward the NJIT MS in Data Science (https://catalog.njit.edu/graduate/computing-sciences/computer-science/data-science-ms/) or the MS in Computer Science (http://cs.njit.edu/academics/graduate/mscs.php).

What are the Required Courses?

Code	Title	Credits
Core Courses		**6**
CS 644	Introduction to Big Data	3
CS 636	Data Analytics with R Program	3
Electives		**6**

Select two of the following:

CS 675	Machine Learning	3
CS 670	Artificial Intelligence	3
CS 732	Advanced Machine Learning	3
CS 735	High Performance Data Analytics	3
MATH 661	Applied Statistics	3
IS 601	Web Systems Development	3
IS 650	Data Visualization and Interpretation	3
IS 657	Spatiotemporal Urban Analytics	3
IS 665	Data Analytics for Info System	3
Total Credits:		**12**