DATA SCIENCE FOR BUSINESS

An eleven-week program covering data science and Big Data principles and techniques for IT professionals and business decision-makers

DePaul University's Data Science for Business Program is designed for IT professionals and business decision makers to understand the fundamental principles of data science and be able to apply them to their business. These principles underpin the processes and strategies necessary to solve business problems through “data-analytic thinking”—necessary for extracting useful knowledge and business value from Big Data. Participants will learn about and understand many different data mining techniques in use today. The program provides a broad overview of concepts, techniques, and algorithms in Machine Learning, Natural Language Processing (NLP), data analysis, R language, Recommender systems, cloud computing, and data visualization for business. The program aims to prepare students with analytical and practical skills emphasizing breadth and depth in a range of relevant disciplines and capabilities in data sciences and Big Data analytics for the business.

Program content consists of lectures and demonstrations complemented with hands-on labs. Students will use a variety of tools and techniques such as Microsoft Azure™/Cortana® Intelligence Suite, IBM Bluemix®, and AWS Machine Learning modules to learn best practices and real-world scenarios. Reading assignments, case studies, group discussions, and projects will be assigned. Exploration of some cloud services may only be accessible via the use of a student’s own credit card. Students should expect to spend a small fee to access these services.

YOU WILL LEARN TO:

- Understand business challenges and determine the most appropriate type of analysis to solve problems
- Describe the role and responsibilities of a data scientist. Explain several ways in which data scientists create value for organizations across many industry sectors.
- Experiment with different open source software products and technologies
- Have a good understanding of the capabilities provided by various data analysis methods and apply the appropriate ones to provide end-to-end solutions for the business
- Gather social media data for text analysis and sentiment analysis
- Use various data visualization tools to present correlations and patterns
**DATA SCIENCE FOR BUSINESS PROGRAM**

**CURRICULUM**

Each student will have a flexible environment to access different tools along with sample code and scripts to learn best practices and real-world scenarios. In order to maximize learning, students will be required to bring their own laptop computer to every class session. Classroom lectures and demonstrations will be complemented by reading assignments, hands-on exercises, case studies, and projects. Students are required to complete a class project.

**DATA SCIENCE OVERVIEW**

Review the history of data-related technologies and usage, current state and future trends. Cover data science characters and vendor landscape. Discuss data science adoption, maturity level, market, and job opportunities.

**BUSINESS PROBLEMS AND DATA SCIENCE SOLUTIONS**

Concepts about how data science fits in the organization including ways to attract, structure, and nurture data science teams. General ways of thinking data-analytically and how data science leads to competitive advantages; and tactical concepts for doing well with data science projects.

**MACHINE LEARNING**

Supervised learning, unsupervised learning, and data mining. Naive Bayes, Logistic and Linear Regression, Neural Networks, Decision Trees, Nearest Neighbor, K-means clustering, etc.

**RECOMMENDER SYSTEMS**

Product and brand recommendations based on algorithms focused on historical data and social media. Case Studies: Netflix, Amazon, etc.

**DATA ANALYTICS AS A SERVICE**

Data Analytics as a Service (DAaaS) is a new approach to leverage scalable and pay-as-you-go cloud computing capabilities for intensive on-demand analytics.

**DATA VISUALIZATION**

Data visualization is the creation and study of the visual representation of the Big Data. Learn powerful features in different tools.

**R AND BASIC DATA ANALYSIS**

R is a free programming language for statistical computing and graphics. The R language is widely used among statisticians and data miners for developing statistical software and data analysis. An overview of R including readings, supplemental materials and how to use R for data analysis.

**MONETIZE BIG DATA**

How to get value from data, defining the big data strategy and obtaining the skills and capabilities needed to make sense of it in a meaningful way.

**CASE STUDIES AND INDUSTRY TRENDS**

Case studies and best practices. Discussion of technology and industry trends.
GENERAL INFORMATION

ADMISSION

The program is suitable for IT professionals and business decision-makers who will be working with data scientists, managing data science-oriented projects, or investing in data science ventures. Experience with Windows and business software applications is assumed. Programming and a background in statistics is helpful, but not required. In addition, students are required to bring their own laptop computers to class. Both Windows and Mac computers are acceptable.

A substantial commitment of time is required for this intensive course of study. Final admission will be determined by the admissions committee on the basis of an applicant's overall qualifications, including work history and educational background.

FACILITIES

To promote the learning process, the Institute maintains special-purpose laboratories as well as dedicated classrooms equipped with state-of-the-art audio/visual equipment.

In addition, the college’s unique Course OnLine (COL) technology allows students to replay classes over the Internet. COL captures and replays five components of the classroom experience—audio, video, PC screen, whiteboard, and document camera input—and incorporates them into one interface to provide an innovative rebroadcast system.

SCHEDULE

The Institute offers one section of the program each quarter. Classes meet one day per week. The option to take the program entirely online is also available.

FACULTY

The faculty consists of a team of instructors from the College of Computing and Digital Media and experts in industry. Faculty will be available throughout the program both in person and through electronic mail.
The college, through its School of Cinematic Arts, School of Computing, and its School of Design, offers a variety of programs at the undergraduate and graduate levels. Over 2,500 students are enrolled in the college’s bachelor’s programs and over 2,000 students are enrolled in the master's and Ph.D. programs making the college’s graduate program one of the largest in the country. The college offers more than 200 courses each quarter, many in the evening, and primarily in the Loop and Lincoln Park Campuses. Most of the degree programs are also available exclusively online.

Offerings at the undergraduate level include:
- Animation B.A. / B.F.A.
- Computer Science B.S.
- Computing B.A.
- Cybersecurity B.S.
- Film and Television B.A. / B.F.A.
- Game Design B.S.
- Game Programming B.S.
- Graphic Design B.F.A.
- Information Systems B.S.
- Information Technology B.S.
- Interactive and Social Media B.S.
- Math and Computer Science B.S.
- Network Engineering and Security B.S.

Offerings at the graduate level include:
- Animation M.A.
- Applied Technology M.S.
- Business Information Technology M.S.
- Cinema Production M.S.
- Computational Finance M.S.
- Computer Science M.S.
- Cybersecurity M.S.
- Digital Communication and Media Arts M.A.
- E-Commerce Technology M.S.
- Experience Design M.A.
- Game Programming M.S.
- Health Informatics M.S.
- Human-Computer Interaction M.S.
- Information Systems M.S.
- IT Project Management M.S.
- Network Engineering and Security M.S.
- Predictive Analytics M.S.
- Software Engineering M.S.
- J.D./M.S. in Computer Science Technology

Master’s of Fine Arts
- Animation
- Cinema
- Creative Producing
- Documentary
- Game Design
- Screenwriting

Ph.D. in Computer and Information Sciences
Ph.D. in Human Centered Design

The Institute for Professional Development was formed by the college in 1984 to assist both individuals and businesses in keeping pace with the rapid development of computer technologies. The Institute currently offers a variety of intensive certificate programs in these areas:

- Advanced SQL
- Big Data and NoSQL
- Big Data Using Hadoop
- Cloud Computing Technologies
- Data Science for Business
- IPv6
- Java™ Developer
- Java™ Web Development
- Modern Information Technology
- .NET Web Developer
- Ruby on Rails®
- SQL Server® Business Intelligence
- SQL Server® Database Administration
- Technology and Innovation
- Web Development with JavaScript and HTML5
- Web Development with Python®

APPLICATION PROCEDURE:
Complete the enclosed application and return it with a non-refundable $40.00 application fee (check or money order made payable to DEPAUL UNIVERSITY) to:

DePaul University
Data Science for Business Program
Institute for Professional Development
243 S. Wabash Avenue, Room 301
Chicago, IL 60604-2300

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