THE SCHOOL OF BUSINESS

GRADUATE CERTIFICATE PROGRAM IN BUSINESS ANALYTICS OF LARGE-SCALE DATA

The School of Business at the College of Staten Island is committed to excellence in teaching, research, and service. The School offers a rigorous business education to foster the intellectual growth and enhance the career advancement of students from culturally and academically diverse backgrounds.

All degree programs provide a broad foundation of business knowledge and skills as well as in-depth understanding of one or more business disciplines including Accounting, Economics, Finance, Information Management, International Business, Management, and Marketing. Through coursework and internships, students develop into critical and ethical thinkers who will make strong, lifelong contributions to their organizations and communities. The dedication of the School of Business to teaching excellence is supported by a strong commitment to research and scholarship that advances business knowledge and contributes to the academic community.

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The School of Business defines its mission as follows:

This interdisciplinary program addresses the need for skilled analytical researchers with experience in large-scale databases. The certificate consists of five courses, including two that focus on large-scale data analytical techniques and one devoted to forecasting. The first large-scale data analysis course introduces students to the supercomputing environment; the second course builds on the first by incorporating additional analytical techniques and spatial analysis. After students complete Forecasting for Managers and Researchers (third course), the research-based fourth course provides them with the opportunity to pursue independent research in their discipline using large-scale data, specializations in marketing, finance, data security, and other options are available. Finally, the fifth course is a flexible topics seminar incorporating timely industry cases and guest speakers.

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5. A cover letter describing the applicant's reason and motivation for applying for the Graduate Certificate.

2. An applicant must have earned a baccalaureate degree with a grade-point average of at least 3.0 in the undergraduate major and a minimum overall grade-point average of 3.0.

3. Two letters of recommendation.

4. Current resume detailing all relevant past and present professional employment, experience, memberships, and related service.

5. A cover letter describing the applicant's relevant experience as well as the reason and motivation for applying for the Graduate Certificate.

REQUIREMENTS

1. An applicant must have completed, as a minimum, an undergraduate degree in Business, Economics, or a related field, or be a current student in a graduate degree program (e.g., Environmental Science, Biology, Computer Science, or other related fields). Additional coursework may be required to make up for any deficiencies in background, as will be determined by an admissions committee for the program.

2. An applicant must have earned a baccalaureate degree with a grade-point average of at least 3.0 in the undergraduate major and a minimum overall grade-point average of 3.0.

3. Two letters of recommendation.

4. Current resume detailing all relevant past and present professional employment, experience, memberships, and related service.

5. A cover letter describing the applicant’s relevant experience as well as the reason and motivation for applying for the Graduate Certificate.

Expected Prior Knowledge and Experience

Prior to enrollment, students are expected to be familiar with computer methods using programming techniques of a high-level computing language (e.g., SAS, Matlab, R). In addition, undergraduate preparation in statistics, analytical methods, and calculus is required. Finally, students are also expected to have an understanding of economics at the principles level.

Pre-Certificate Preparation and Preparation Course

Before enrollment in the certificate program, an assessment test in statistical methods will be administered in order to determine preparation for the program. Students with insufficient knowledge in programming and statistical methods can prepare to participate in the Large-Scale Data Certificate Program by completing the preparation course BDA 651: Computational and Statistical Methods for Business and Economics.

Continuation Requirements and Award of Certificate

Each student must maintain a grade point average of 3.0 in the four core courses in order to be awarded the certificate. Students who drop below a 3.0 average may continue in the program but may not be awarded the certificate. No grade in an individual course may be below 2.0 for the certificate to be awarded. If a student earns a grade below 3.0 (and above 2.0) in one of the four core courses, s/he will be encouraged to retake the course in order to meet the minimum 3.0 average.

Each student must conduct him/herself in an ethical manner, both professionally and personally. Serious breaches in ethics or professionalism will result in expulsion from the program and denial of being awarded the certificate.

Business Analytics of Large-Scale Data Certificate Requirements

BDA 761: Big Data Management in a Supercomputing Environment
BDA 762: Analysis Techniques for Large-Scale Data – Spatial and Statistical Techniques
BDA 763: Forecasting for Managers and Researchers
BDA 764: Research Project in Large-Scale Data
BDA 765: Seminar in Big Data – Current Topics

COURSE DESCRIPTIONS

BDA 651: Computational and Statistical Methods for Business and Economics
Prepares students to move into more advanced computation classes in Business and Economics and provides them with the skills to advance in quantitative analysis courses. Topics include descriptive statistics, statistical inference, computational methods for business applications, statistical programming, variable creation, and database development. Course projects will use one or more of the following computational languages such as R, SAS, Matlab, and/or Stata.

BDA 765: Big Data Management in a Supercomputing Environment
Introduces the methods of supercomputing and systems. The course will provide direct experience with large-scale data sets in order for students to gain an understanding of the challenges and limitations of large-scale data formats. Upon course completion, students will be able to handle data in various formats in a supercomputing environment to perform a range of computational techniques including sorting, summarizing, tabulating, and outputting data in various formats.

BDA 762: Analysis Techniques for Large-Scale Data – Spatial and Statistical Techniques
Explores the methods, tools, and techniques that can be used for forecasting various economic and quantitative variables. Students will be exposed to and use established techniques of data analysis to project individual data series. This course will explore national and international economic trends over the short and long terms as well as performing business sales analysis for an individual firm and product.

BDA 764: Research Project in Large-Scale Data
Provides the opportunity to develop a significant research project that will examine a large-scale data source and use analytical methods to address different research issues. Utilizing the computational resources of the CUNY Interdisciplinary High-Performance Computing Center, students can develop a research project that is based on new and existing large-scale data sources. Projects will be focused on the student’s field of specialization and may focus on areas of marketing, finance, economics, data security, and other disciplines.

BDA 765 Seminar in Big Data – Current Topics
Explores current and emerging topics in big data analysis and the potential to develop additional computational and statistical methods for large-scale data. Industry and academic leaders in the field will be invited to lecture on various topics, and additional topics will be covered by recent academic publications on current methods.