MASTER OF SCIENCE IN DATA SCIENCE AND ANALYTICS - ENGINEERING ANALYTICS CONCENTRATION

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Bradley University offers an interdisciplinary graduate program leading to the degree of master of science in Data Science and Analytics. This course of study is designed to prepare students for professional careers in the field or for further study and research.

The Data Science and Analytics graduate program provides students with the necessary skills to effectively use large data sets to solve problems and potentially find new insights.

Students can concentrate their study in various application areas including: 1) business analytics, 2) computational data science, 3) engineering analytics and 4) logistics analytics.

Admission requirements to the Data Science and Analytics program are given below:

- completed at least one semester of calculus
- for the computational data science and engineering analytics concentration, applicants must submit GRE General Test scores taken within the last five years. The applicant may request a GRE waiver under certain circumstances.

The Engineering Analytics concentration provides students with the skills to analyze and process large-size and complex data, to utilize proper methodology in identifying problems, formulating mathematical or algorithmic models, and to solve problems arising from engineering applications, including product design, process design, manufacturing execution, inventory management, production planning, quality control, economic analysis of engineering decision

In addition to satisfying all the Graduate Education requirements for the degree, all candidates for the master's degree must satisfy the following departmental requirements:

- At least 30 hours of graduate-level coursework.
- No "D" grades can be counted in the completion of requirements for the degree.
- Every student must take a comprehensive exam as defined and administered by the concentration department that the student is in.
- Students may register for only three courses per semester. Any exceptions must be approved by the appropriate department chair.
- To satisfy the core (breadth) requirement, five courses or 15 credit hours must be taken:

Core (Breadth) Requirements

Code	Title	Hours
IME 511	Probability and Statistics for Analytics	3.0
CS 541	Python Programming for Data Science	3.0
or CS 560	Fundamentals of Data Science	
CS 571	Database Management Systems	3.0
or IME 568	Engineering Analytics 1	
MIS 573	Data Visualization for Business Analytics	3.0
Select one of the following:		3.0
MIS 590	Capstone Project for Business Analytics	3.0
CS 594	Capstone Project for Data Science	3.0
or CS 699	Thesis in Computer Science	
IME 690	Engineering Data Analytics Capstone	3.0
or IME 691	Research	

To satisfy depth requirements, the student must take 15 credit hours from the concentration listed below. No course used to satisfy the core requirement may be counted as one of the courses in this requirement.

Concentration Requirements

Code	Title	Hours
Required Courses		
Select three of the following: [1]		9.0
IME 514	Introduction to Operations Research	
IME 561	Simulation of Manufacturing & Service Systems	
IME 586	Logistics & Supply Chain Systems	
ECE 565	Engineering Applications of Machine Learning	
Select two electives approved by the student's graduate advisor [2]		6.0
CIS 576	Data Management	
CIS 580	Digital Society and Computer Law	
CS 541	Python Programming for Data Science	
CS 560	Fundamentals of Data Science	
CS 561	Artificial Intelligence	
CS 562	Machine Learning	
CS 563	Knowledge Discovery and Data Mining	
CS 571	Database Management Systems	
CS 572	Distributed Databases and Big Data	
ECE 565	Engineering Applications of Machine Learning	
ECO 519	Introduction to Econometrics	
IME 501	Engineering Cost Analysis	
IME 514	Introduction to Operations Research	
IME 526	Reliability Engineering	
IME 561	Simulation of Manufacturing & Service Systems	
IME 568	Engineering Analytics 1	
IME 578	Engineering Analytics 2	
IME 583	Production Planning and Control	
I B 502	Global Trade Management and Analysis	
MTG 502	Logistics Tools and Techniques	
MTG 506	Marketing Analytics	
MTG 507	Customer Analytics	
MTG 624	Marketing Decision Making	
MTG 640	Obtaining, Analyzing, and Applying Marketing Information	

MTH 510	Numerical Methods I	
Q M 526	Business Forecasting	
Q M 564	Decision Support Systems	
Total Hours		**15**

[1] Three out of the following four courses, that you have not taken to fulfill the common core.

[2] For those who choose the thesis option instead of capstone, one elective (3 ch).