

MASTER OF SCIENCE IN ANALYTICS

The Master of Science in Analytics is an interdisciplinary program that combines statistics, operations research, computing, and business by melding the world-class expertise of the College of Engineering's Stewart School of Industrial & Systems Engineering, the College of Computing's School of Computational Science and Engineering, and the Scheller College of Business. By combining the strengths of these nationally ranked programs, graduates will be afforded the opportunity to integrate analytic skills in a unique and interdisciplinary way that yields deep insights into analytics problems.

Analytics is defined as "the scientific process of transforming data into insight for making better decisions." Tying together the new opportunities made possible by big data and computing, advanced quantitative methods from statistics and operations research, and the need for better business intelligence and decision support, analytics has quickly become a key facet of business strategy. The MS Analytics program's graduates will be able to move directly into business, industry, and government positions where they can apply the practical knowledge they have gained to immediately benefit their employers.

Students earning the MS Analytics degree will be able to understand and integrate fundamental principles and advanced concepts across the core analytics disciplines of computing, statistics, operations research, and business. Trained by world-class faculty in all of these areas, students will learn

- identification and framing of problems;
- acquisition, management, and utilization of large and fast-moving streams of data;
- creation, analysis, solution, and interpretation of mathematical models using appropriate methodology; and
- the integration of these interdisciplinary skills to enable graduates to successfully develop and execute analytics projects.

In addition to an integrated breadth of study covering the core areas of analytics, students will satisfy one of the specialized tracks to give them depth in an analytics area of specialization:

Analytical Tools Track

The Analytical Tools track provides students with a greater understanding of the quantitative methodology of analytics: how to select, build, solve, and analyze models using methodology such as parametric and non-parametric statistics, regression, forecasting, data mining, machine learning, optimization, stochastics, and simulation.

Business Analytics Track

The Business Analytics track provides students with a deeper understanding of the practice of using analytics in business and industry: how to understand, frame, and solve problems in marketing, operations, finance, management of information technology, human resources, and accounting in order to develop and execute analytics projects within businesses.

Computational Data Analytics Track

The Computational Data Analytics track provides students with a deeper understanding of the practice of dealing with so-called "big data": how to

acquire, preprocess, store, manage, analyze, and visualize data arriving at high volume, velocity, and variety

Prerequisites

The prerequisites of the MS Analytics program include:

1. Interest in analytics, and a high level of ability that has been demonstrated within past performance on appropriate coursework and/or industry experience as well as standardized testing (GRE or GMAT);
2. Basic mathematical background - at least one college-level course in each of calculus, basic linear algebra, and probability and statistics;
3. Basic computing background - at least one college-level course (or equivalent basic knowledge) in computer programming using a high-level language such as Python;
4. A bachelor's degree or equivalent; and
5. Institute requirements for admission to graduate study.

Applicants who do not satisfy these prerequisites might still be admitted, as long as they will have all of the prerequisites by the time they start the program.

Code	Title	Credit Hours
Introductory Core Requirements ¹		
CSE 6040	Computing for Data Analysis: Methods and Tools	3
MGT 8803	Special Topics in Management (Introduction to Business for Analytics)	3
	or MGT 620 Foundations of Business	
	or MGT 675 Principles of Management for Engineers	
ISYE 6501	Intro Analytics Modeling	3
Advanced Core		
CSE 6242	Data and Visual Analytics	3
MGT 6203	Data Analytics in Business	3
Statistics		
Select two courses from the approved list ²		6
Operations Research		
Select one course from the approved list ²		3
Elective Courses		
Select 6-15 credit hours. ^{1,3}		6-15
Applied Analytics Practicum		
Select one of the following:		6
ISYE 6748	Applied Analytics Practicum	
CSE 6748	Applied Analytics Practicum	
MGT 6748	Applied Analytics Practicum	
Total Credit Hours		36

¹ Students with sufficient background in this area may be allowed to substitute additional elective hours.

² See <http://analytics.gatech.edu> for the full list. Online MS in Analytics see <http://omsanalytics.gatech.edu> for the full list

³ For the 6-15 semester hours of electives, students choose coursework to satisfy at least one of the three track requirements in analytical tools, business analytics, and computational data analytics. Students

are encouraged to choose electives to develop specific expertise within an area of analytics where they have career interests. Courses available to the students either as core requirements or elective options include topics such as forecasting, regression analysis, data mining, statistical learning, machine learning, computational data analytics, design of experiments, simulation, optimization, probabilistic models, data analytics, visualization, databases, text mining, algorithms, high performance computing, graph analytics, business intelligence, pricing analytics, revenue management, business process analysis, financial analysis, decision support, privacy and security, and risk analytics. See <http://analytics.gatech.edu> for the full list. Online MS in Analytics see <http://omsanalytics.gatech.edu> for the full list.

The Master of Science in Analytics is also offered online.

For more information, visit: Online Master of Science in Analytics.