



MSBA CAPSTONE
SPONSORSHIP

Providing MSBA students opportunities to tackle
your big data-driven, business analytics challenges



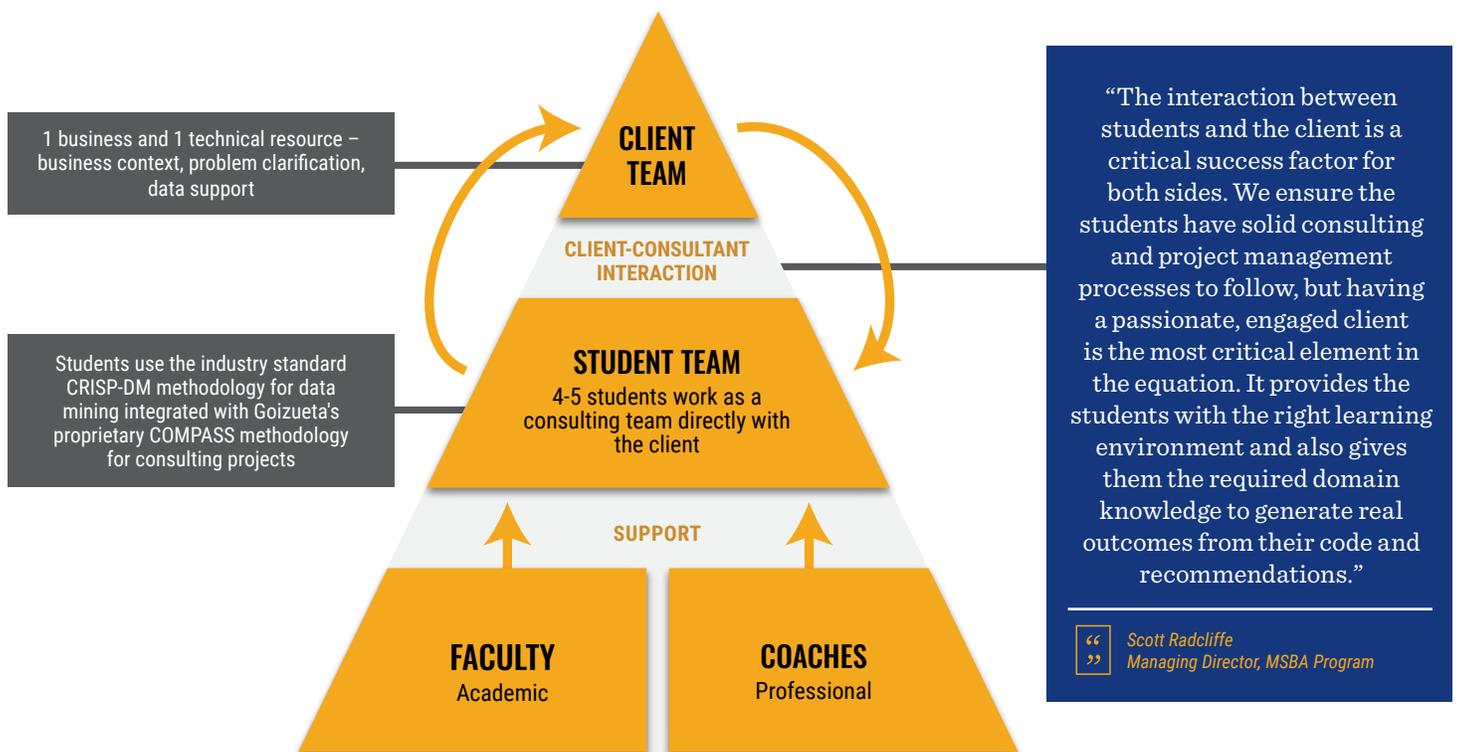
EMORY

GOIZUETA
BUSINESS
SCHOOL

Master of Science
in Business Analytics
MSBA

WHAT IS THE CAPSTONE PROJECT?

The STEM-designated MSBA program culminates with a spring capstone project building on students' foundational training in the areas of **Data Science, Managing Big Data, Machine Learning, and Data Visualization**. Student teams apply these skills to solve sponsor firms' business problems using the firm's proprietary data, possibly integrating with public datasets. Deliverables include a robust technical handover package with empirical models, code and cleansed data, a business deck explaining the benefits and methodology, and an executive dashboard developed on a visualization platform such as Tableau.



“We see the Capstone Project as an integral part of any student education program, as they transition from an educational setup to helping solve a real-life problem. We invest in identifying an opportunity that’s challenging enough yet somewhat achievable where we can take that foundation and solve real problems that we have for our customers and consumers.”

“ Saurabh Parikh, Chief Data and Innovation Officer, CONA Services

MSBA CURRICULUM OVERVIEW



WHY MSBA?

Emory University Goizueta Business School's Master of Science in Business Analytics (MSBA) program imparts strong technical and quantitative training plus comprehensive business acumen, all within a top 25 business school.

"This intense program is purposefully designed to produce a business data scientist, one who can speak the language of business, technology, and data! We developed the program keeping in mind data-analytic needs across different functions in an organization as well as heterogeneity in sector-specific requirements. Our students will excel in any organization and in any function!"

“ Prof. Ramnath K. Chellappa, Associate Dean & Academic Director, MSBA ”



SUMMER SEMESTER (0 CREDITS)

ISOM 660: MATH BOOTCAMP	ISOM 662: BUSINESS BOOTCAMP
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PRE-FALL SEMESTER (3 CREDITS)

ISOM 661: TECHNOLOGY BOOTCAMP	ISOM 670: BUSINESS STATISTICS
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FALL SEMESTER (15 CREDITS)

ISOM 672: INTRO TO BUSINESS ANALYTICS	ISOM 673: SOCIAL NETWORK ANALYTICS	
ISOM 671: MANAGING BIG DATA*	ISOM 674: MACHINE LEARNING I	ISOM 675: DATA VISUALIZATION

SPRING SEMESTER (15 CREDITS)

ISOM 676: MACHINE LEARNING II	ISOM 689: CAPSTONE	ISOM 677: DECISION ANALYTICS & OPTIMIZATION
MKT 680: MARKETING ANALYTICS	MKT 681: SPORTS ANALYTICS	OAM 680: HUMAN RESOURCES ANALYTICS

- - Full semester course
- - Half semester course
- - 0 credits

Bootcamp is 0-credit course
All other courses are 3 credits

ISOM 663: BUSINESS PROBLEM SOLVING BOOTCAMP

MSBA CLASS OF 2022
KEY STATS

640-740
80% RANGE GMAT/
GRE CONVERTED

55
STUDENTS
ENROLLED

49%
WOMEN

27%
STUDENTS WITH
WORK EXPERIENCE

HOW THE PROJECT WORKS:

SPONSORS PROVIDE:

- » A business problem requiring a combination of technical, business, and data science skills to solve
- » Access to the firm's data relevant to the business problem
- » Commitment in the form of a business mentor and a technical resource to work closely with student groups and faculty advisor(s)
- » A tax deductible sponsorship as a gift to support the academic objectives of the MSBA Program to support student/faculty engagement and project deliverable

SPONSORS RECEIVE:

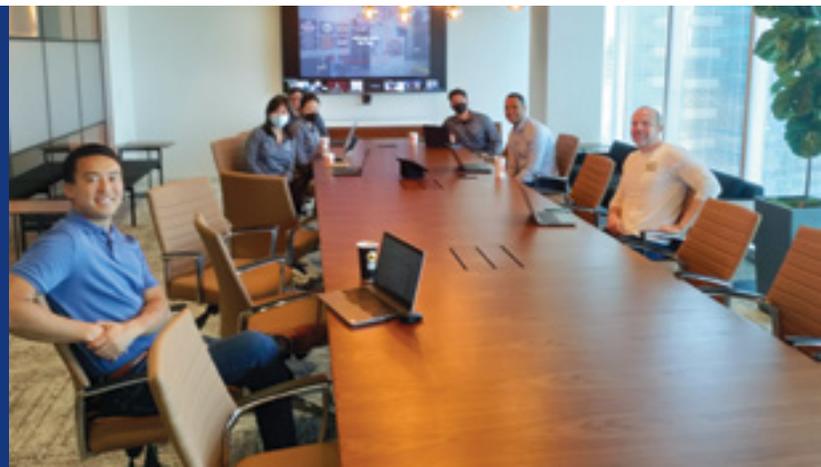
Recruiting Access	Access for recruitment of MSBA students through our dedicated MSBA Career Center
Capstone Project	Opportunity to provide a data-based project for MSBA student teams using company-specific data and defined parameters for deliverables
Annual MSBA Conference	Event-focused on enhancing the dialogue around analytics in business
Logo Usage	Mutually provided ability for sponsors and program to feature written and graphic logos, wordmarks, and trademarks in collateral

» KEY DATES

NOVEMBER	"Client Pitch Day" - sponsors present projects to students
DECEMBER	PII removed from data as needed and data made accessible
JANUARY	Initial client meeting day with student teams
FEBRUARY	Formal mid-point reviews
APRIL	Final presentations and deliverables due

THE IDEAL PROJECT:

- » Good Business Question
- » Rich Data
- » Accessible Data
- » Complex Analytical Requirements
- » Strong Sponsor Engagement
- » Desire to Operationalize





REALTOR.COM:

Personalized Search Refinements to Help Customers Find their Dream Home

Business Problem:

Realtor.com's mission is to make buying, selling, renting, and living in homes easier and more rewarding for everyone. A keystone of that experience is making a visit to the site personalized and guided so that visitors find what they're looking for quickly and have the information they need to make decisions about buying, selling, or renting a home. Leveraging cutting-edge data science techniques and models, continuous user experience improvement is a priority. What additional behavioral features can improve property recommendations?

Technical Approach & Outcome:

The team consulted with the client to understand the application architecture of the Realtor.com site, a product with over 100 million active monthly users. The project objective also required the team to quickly grasp the principles of user experience design, and their relationship to business outcomes. Utilizing the Google Cloud Platform, they created new personalized features from user browsing activity data. They used Bayesian hyperparameter tuning to find the optimal weights for the twenty-three new features prior to testing them for incremental benefit to the existing model using XGBoost.

Business Outcome:

The students provided an improved personalization model using new features derived from user searching and dwelling behavior. For the top five ranking results the enhanced personalized model achieved: 9.72% increase in total clicks, 9.49% increase in average CTR (click-through rate) and 4.96% increase in average dwell time.



TRUIST:

Identifying Bust-Out Fraud to Reduce Risk and Target

Business Problem:

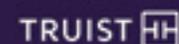
A bust-out is a type of credit card fraud where an individual applies for a credit card, establishes a normal usage pattern and solid repayment history, then racks up numerous charges and maxes out the card with no intention of paying the bill. Banks need to implement cost-effective controls that can reduce fraud risk without slowing sales or driving away legitimate customers. What behaviors and event triggers can be used to identify potential fraudsters before the bust-out occurs? What actions can be taken to manage the number of alerts and manual investigations?

Technical Approach & Outcome:

The student team mapped out the relevant source systems and data needed to assemble the set of relevant features. Working in an Amazon Web Services (AWS) environment, models were built using six different machine learning techniques. These included: Random Forests, XGBoost, Decision Trees, Adaboost, Light GBM and Logistic Regression. Because Truist will require concrete reasons to shut down an account the team built a surrogate model using only those features that can be used to tell a customer why you are closing their account.

Business Outcome:

The student Truist team delivered a model that can detect 75% of fraudsters by investigating just the top 0.3% of accounts. Deployment of the model into decision engine technology to score each customer would enable Truist to specify trigger scores/events, significantly reducing the number of manual investigations, and thereby the cost of bust-out fraud mitigation.



RECENT CAPSTONE SPONSORS:

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realtor.com

TRUIST



“The partnership that we have with Emory and MSBA, it’s amazing. The students bring data science and actionable business insights. That’s a key differentiator of the Goizueta MSBA program. It’s very rewarding being a capstone sponsor...The advantage is not only that the students get to learn a real-world problem, but also the company gets to see a different perspective from the students. They come from different backgrounds.”

“ ” *Mia Dantas, SVP, Lead Data Scientist (Talent, Learning & Community), Truist*

“What is rewarding about being a Capstone sponsor is really just the opportunity to engage with the Emory program, the students, the professors, and bringing a new perspective into our organization. One of the hardest things about being in data and analytics is there’s just such a huge scarcity of talent and finding vehicles where you can tap into new knowledge, new experience, and new perspectives is very valuable and one that we think is worth the investment.”



“ ” *Kurt Kendall, Chief Analytics Officer, Publishers Clearing House*



“The most rewarding thing I think is that we encounter a real-world business problem. So first we map out the business problem, build a problem specific model, and make recommendations to the business from that model we built.”

“ ” *Shaun Xu, MSBA 22, Software Strategy Group Associate, Ernst & Young*

INTERESTED IN BECOMING A CAPSTONE SPONSOR?

For opportunities, contact: MSBA Program | goizuetamsba_capstone@emory.edu
Scott Radcliffe, Managing Director, MSBA Program | scott.radcliffe@emory.edu



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