

Analytics Co-Major

33-38 credit hours

Note: In addition to the common core, each co-major is required to complete a particular track of study. These tracks reflect a focus on a particular area of application of analytics or advanced methods.

Required Core Courses (18-19)	Data Management - Structured
Data Description & Summarization <i>Choose One Course: (3-4)</i>	<i>Choose One Path: (9-12)</i>
ISA 225 (3) Principles of Business Analytics <i>Requires ISA 125; MTH 151</i>	1) CSE 148 (3) Business Computing
STA 261 (4) Statistics	2) ISA 235 (3) Information Technology and the Intelligent Enterprise <i>Requires BUS 101; CSE 148</i>
STA 301 (3) Applied Statistics <i>Requires Calc I or II</i>	3) ISA 245 (3) Database Systems and Data Warehousing <i>Requires ISA 235</i>
Regression Models <i>Choose One Course: (3-4)</i>	1) CSE 174 (3) Fundamentals of Programming and Problem Solving <i>Requires MTH 102 or equivalent</i>
ECO 311 (3) Examining Economic Data and Models <i>Requires ECO 201; ECO 202; ISA 225, STA 261, STA 301, or STA 368; MTH 151</i>	2) CSE 271 (3) Object-Oriented Programming <i>Requires CSE 174</i>
ISA 291 (3) Applied Regression Analysis in Business <i>Requires ISA 225</i>	3) CSE 274 (3) Data Abstraction & Data Structures <i>Requires CSE 271; ECE 287; MTH 222 or 251 or equivalent</i>
STA 363 (3) Introduction to Statistical Modeling <i>Requires STA 261, STA 301, STA 368, or ISA205/225</i>	4) CSE 385 (3) Database Systems <i>Requires CSE 274</i>
STA 463 (4) Regression Analysis <i>Requires MTH 222 or 231; STA 401</i>	Visualizing Data and Digital Dashboards
	STA/IMS/JRN 404 (3) Advanced Data Visualization <i>Requires STA 261, 301, 368, or 671, or IMS 261, or ISA 205/225</i>

TRACK 1: Business Analytics

*must take ISA 291 as core course

Required Courses: (9)

ISA 401 (3)
Business Intelligence and Data Visualization
Requires ISA 245 or CSE 385

STA 414 (3)
Managing Big Data
Requires ISA 245 or CSE 385; either ISA 281, 401, 491, STA 402 or 404
Spring-only

ISA 491 (3)
Introduction to Data Mining in Business
Requires ISA 291, ECO 311, or STA 463

Choose Two Electives: (6)

ISA 281 (3)
Concepts in Business Programming

ISA 321 (3)
Quantitative Analysis of Business Problems
Requires ISA 291, ECO 311, or STA 463
Fall-only

ISA/STA 333 (3)
Nonparametric Statistics
Requires ISA 205/225
Offered once a year

ISA 365 (3)
Statistical Monitoring and Design of Experiments
Requires ISA 205/225 or STA 301, 363, or 368

ISA/STA 432 (3)
Survey Sampling in Business
Requires ISA 291, ECO 311, or STA 363, 401, or 463

ISA 444 (3)
Business Forecasting
Requires ISA 291, ECO 311, or STA 463

ISA 480 (3)
Topics in Decision Sciences
Professor-determined

ISA 496 (3)
Business Analytics Practicum
Requires ISA 404 or 491

STA 402 (3)
Statistical Programming
Requires ISA291, ISA/STA333, or STA363, 463, or 672

STA 427 (3)
Introduction to Bayesian Statistics
STA 463 recommended

TRACK 2: Predictive Analytics

Required Courses:

STA 402 (3)
Statistical Programming
Requires ISA291, ISA/STA333, or STA363, 463, or 672

STA 427 (3)
Introduction to Bayesian Statistics
STA 463 recommended

STA 467 (3)
Statistical Learning
Requires STA 463

STA 414 (3)
Managing Big Data
Requires ISA 245 or CSE 385; either ISA 281, 401, 491, STA 402, or 404

Choose One Elective:

ISA 321 (3)
Quantitative Analysis of Business Problems
Requires ISA 291, ECO 311, or STA 463

MTH 432 (3)
Optimization
Requires MTH 222 and 252 (or equivalents)

CSE 372 (3)
Stochastic Modeling
Requires STA 301 or 368; STA 401

TRACK 3: Geospatial Analytics

Required Courses:

GEO 441 (3)
Geographic Information Systems

GEO 442 (3)
Advanced Geographic Information Systems
Requires GEO 441

GEO 460 (1-4)
Advanced Systematic Geography

Choose Two Electives:

GEO 443 (3)

Python Programming for ArcGIS
Requires GEO 441

GEO 444 (3)
GIScience Techniques in Landscape Ecology

GEO 448 (3)
Techniques and Applications of Remote Sensing

GEO 460G
Tools

IMS 461 (3)
Advanced 3D Visualization and Simulation
IMS 222, 259, or 319 recommended

ISA 414 (3)
Managing Big Data
Requires ISA 245 or CSE 385; either ISA 281, 401, 291, STA 402 or 404
Spring-only