

# MASTER OF SCIENCE IN MANAGEMENT SCIENCE AND ANALYTICS

The Master of Science in Management Science and Analytics is a rigorous program that prepares students to successfully analyze and solve complex business problems.

The program's **emphasis on quantitative methods, analytical tools, and computer models**, with a choice of specializations in either quantitative finance or analytics, helps students master a data-intensive approach to management science **attuned to the demands of the industry**.

Stuart School of Business is a global leader in bridging technology and business, offering distinctive education that provides students with the knowledge and skillsets to become outstanding professionals in economics, finance, analytics, marketing, business, public administration, operations, and management.

Business at Illinois Tech has a prestigious history that dates back to the late 1890s, with some of the nation's first courses in "Home Economics" and "Household Management" ("Family and Consumer Science") being offered by the Lewis Institute, Stuart's original home, and the Institute's subsequent formation of the university's Department of Business and Economics in 1926. Combined with the merger of the Lewis Institute with the Armour Institute, and the earlier pioneering works of Philip D. Armour, a merchant financier, Julia A. Beveridge, a librarian turned public administrator, and Frank W. Gunsaulus, an entrepreneurial preacher in the 1880s, the Department Business and Economics ultimately grew into a separate school at Illinois Institute of Technology – the Stuart School of Business, in 1969, with a gift from Lewis Institute alum and renowned financier Harold Leonard Stuart. Harold L. Stuart himself was a national leader in the field of investment banking in the first half of the 20th century, and his Chicago investment bank played a pivotal role in establishing the city as a global financial hub.

Over a period of more than 125 years, harnessing curricular innovations by Julia A. Beveridge and George N. Carman, and incredible scholarly works by trailblazing Illinois Tech scholars Herb A. Simon (author of Administrative Behavior, later awarded the Nobel Prize in Economics), Karl Menger (developer of the St. Petersburg paradox in economics) and Abe Sklar (developer of the Copula in financial modeling), the Stuart School of Business has refined education in the disciplines of economics, finance, analytics, business and public administration, marketing, and management.

A long-standing leader in curricular innovation, in 1990, building on the foundational works of numerous Illinois Tech scholars, and Harold L. Stuart's own contributions to finance and the broader business community, the Stuart School of Business established quantitative finance as an academic discipline, with a world's first postgraduate Master's program in Financial Markets and Trading – a program that highlighted a new model for embedding into a postgraduate academic program the emphases on career readiness and connectedness with the business community, and transformed business school education.

Today, the Stuart School of Business continues to be a frontier innovator in accredited education, offering academic programs and co-curricular opportunities that place students on the path to self-actualization and career success. Leadership, entrepreneurship, experiential learning, positive societal impact, and connectedness to the business community, combined with a human-centered approach to student development, and an unyielding focus on student success, continue to be core pillars at Stuart. Stuart is accredited by the Association to Advance Collegiate Schools of Business (AACSB) – an accreditation achieved by fewer than 6% of business schools worldwide.

## Curriculum

To earn a Master of Science in Management Science and Analytics degree, students must successfully complete 33 credit hours (11 courses).

Code	Title	Credit Hours
<b>Core Courses</b>		<b>(12)</b>
MSC 511	Mathematical Economics I - Microeconomics	3
MSC 512	Econometrics and Statistics I	3
MSC 514	Mathematical Economics II - Microeconomics and Macroeconomics	3
MSC 515	Econometrics and Statistics II	3
<b>Specialization Courses</b>		<b>(12)</b>
Select twelve credit hours (see Specializations tab for required courses)		12
<b>Elective Courses</b>		<b>(9)</b>
Select a minimum of nine credit hours from any 500-level BUS, EMS, MAX, MBA, MSC, MSF, or PA courses. <sup>1</sup>		9
Students who plan to apply for admission to the PhD in Management Science and Analytics program are encouraged to select elective courses appropriate for their chosen concentration from the following list: MBA 532 Artificial Intelligence, MBA 534 Blockchain, MSF 547 Machine Learning, MAX 506 Database Design and SQL, MAX 501 Digital Marketing, MSF 577 High Frequency Finance, and MSF 591 Global Financial Markets		
<b>Total Credit Hours</b>		<b>33</b>

<sup>1</sup> Registration in these courses requires prior approval of program director.

## Management Science Specializations

### Analytics

Code	Title	Credit Hours
<b>Required Courses</b>		<b>(12)</b>
MSC 615	Predictive Analytics	3
MSC 616	Social Media Marketing Analytics	3
MSC 651	Quantitative Marketing Models	3
MSC 655	Visual Analytics - Data Analytics & Visualization	3
<b>Total Credit Hours</b>		<b>12</b>

### Quantitative Finance

Code	Title	Credit Hours
<b>Required Courses</b>		<b>(12)</b>
MSC 631	Theory of Finance I	3
MSC 633	Theory of Finance II	3
MSC 614	Quantitative Investment Strategies	3
MSC 613	Structured Fixed Income Portfolios	3
<b>Total Credit Hours</b>		<b>12</b>