



There is more data than ever before, and the urgency of making data usable for decision-making is evident in every industry. As a result, demand is on the rise for skilled data scientists, knowledge engineers and machine learning specialists who can harness complex data and convert it into meaningful information to feed systems supporting human decisions. Intended to meet this need for professionals who can harness complex data and convert it into meaningful information, the systems analytics program at Stevens enables students to extract, manipulate and visualize key elements from systems data and complement it with traditional systems decision-making.

# SYSTEMS ANALYTICS

*Big Data Visualizers  
Analytical Thinkers  
21st Century Systems Builders*





# MASTER OF ENGINEERING

Evidence-based decision-making is driving the growth of fields of data science and visualization in today's markets. The Master of Engineering (M.Eng.) in systems analytics equips students with state-of-the-art data visualization and knowledge extraction techniques for the purpose of analyzing trends, assessing risk, discovering patterns, and building decision models that can better develop, maintain and improve complex engineering systems and enterprises.

Taught by renowned faculty who are practitioners and researchers, on graduation, our students are well prepared to work for data-rich environments including science, technology, engineering, financial services, government, education, healthcare, consulting and media/entertainment.

The master's degree consists of 10 courses; six required core courses, one lab and four electives.

### Required Core Courses

- EM 622** Data Analysis and Visualization Techniques for Decision-Making  
or **ES 630** Modeling and Visualization of Complex Systems and Enterprises
- SYS 660** Decision and Risk Analysis
- SYS 670** Forecasting and Demand Modeling Systems
- ES 660** Multi-Agent Socio-Technical Systems
- SYS 611** Modeling and Simulation or **SYS681** Dynamic Modeling of Systems and Enterprises
- EM 623** Data Science and Knowledge Discovery in Engineering Management  
or **FE 582** Foundations of Financial Data Science (2 credits) and  
**FE 513** Practical Aspects of Database Design Lab (1 credit)

### CAREERS ▶

- Data Scientist
- Data Analyst
- Visualization Designer
- Machine Learning Engineer
- Data Visualization Engineer

### TOP HIRING FIRMS ▶

- Accenture
- AT&T
- Cisco
- Google
- IBM
- Prudential
- UBS

*"By 2018 the United States will experience a shortage of 190,000 skilled data scientists, and 1.5 million managers and analysts capable of reaping actionable insights from the big data deluge..."*

*...driving the demand for skilled data practitioners in the next decade will be the wide range of economic sectors that will leverage big data analytics, including retail, manufacturing, healthcare and government services."*

McKinsey Global Institute

## THE STEVENS SYSTEMS ANALYTICS ADVANTAGE

**Our Program:** Rigorous hands-on, project- and team-based program supported by the state-of-the-art Center of Complex Systems & Enterprises (CCSE) lab where real data and visualizations are developed and merged

**Our Faculty:** Distinguished, experienced faculty from industry and academia

**Our Location:** Positioned minutes from New York City, the world's financial hub and home to thousands of tech companies

**Our Industrial Relationships:** Internships and graduate placements at major institutions: Accenture, AT&T, Cisco, IBM and Verizon.



# GRADUATE CERTIFICATES

All courses taken as part of a graduate certificate can be applied toward a master's degree.

## DATA EXPLORATION AND VISUALIZATION FOR RISK AND DECISION-MAKING



With Big Data being a universal priority in the world today, organizations are constantly collecting and analyzing data sets to extract valuable information and subsequently they require tools that can disseminate the information simply and accurately. Through data exploration and visualization, large amounts of complex information can be communicated clearly via graphic designs.

This certificate introduces students to the latest data manipulation, extraction and visualization techniques that can enhance their decision-making and risk-analysis skills. It covers modern techniques in data analysis and visualization, data science and knowledge discovery, informatics and decision-making and risk analysis.

**EM 622** Data Analysis and Visualization Techniques for Decision-Making

**EM 623** Data Science and Knowledge Discovery in Engineering Management

**EM 624** Informatics for Engineering Management

**SYS 660** Decision and Risk Analysis

*Full course listings for graduate certificates can be found at [stevens.edu/sse/graduate-certificates](http://stevens.edu/sse/graduate-certificates).*

*A faculty advisor must approve all other graduate certificate options for the systems analytics program.*

## SYSTEMS SECURITY ENGINEERING



This certificate integrates crucial topics spanning the lifecycle of secure systems. Participants are provided hands-on assignments focusing on: technology governance, security requirements, secure system architecture, security system engineering and information assurance.

Select four of the following five courses:

**SES 602** Secure Systems Foundations

**SES 622** Fundamentals of Systems Engineering Security

**SES 623** Systems Security Architecture and Design

**SYS 660** Decision and Risk Analysis

**SSW 689** Engineering of Trusted Software Systems

## URBAN SYSTEMS INFORMATICS



This graduate certificate will provide students with the necessary introductory educational background both to understand urban systems problems and to analyze large-scale data using a variety of techniques. Upon completion, students will be able to contribute to addressing challenges facing cities including managing disasters, improving public health, and improving quality of life.

**EM 622** Data Visualization for Decision-Making

**EM 624** Informatics for Engineering Management

**EM 655** Sustainable Transportation Systems

**EM 599** Introduction to Smart Cities

## RELEVANT CURRICULUM

Stevens graduate courses are designed to solve real problems supported by a robust theoretical foundation. The School of Systems and Enterprises (SSE) leverages global partnerships with industry and government to provide a highly relevant and engaged curriculum tailored to the real world and the skill competency needs of practitioners.

## UNIQUELY QUALIFIED FACULTY

Stevens Institute of Technology brings together institute-wide faculty who are industry experts and practitioners, researchers and academics, with students who are committed to learning in a dynamic, diverse and engaged community. Stevens faculty possess a wealth of industry and government experience, and expertise across diverse domains, including aerospace, healthcare, security, telecommunications, finance and defense.

## FLEXIBLE DELIVERY OPTIONS

Stevens Institute of Technology delivers its courses in convenient, flexible delivery formats including:

- Traditional semester courses held one evening a week for 15 weeks, on-campus at Stevens in Hoboken, NJ
- Online via our award-winning Stevens WebCampus
- On-site at industry locations worldwide

## ADMISSION REQUIREMENTS

Applicants may apply online at [stevens.edu/applications](https://stevens.edu/applications)

- Completed application for admission
- \$60 non-refundable fee
- An undergraduate degree with a “B” average or better from an accredited college or university. Undergraduates with a strong background in mathematics, probability and statistics are encouraged to apply
- Official transcripts from all institutions attended
- Two letters of recommendation
- GRE /GMAT scores (Part-time students do not require GRE/GMAT scores)



CODE: 071119t



### CONTACT

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