The Graduate Certificate in Financial Technology deals with the aim of making financial systems more efficient. It exists at the intersection of information systems and finance. Financial Technology (FinTech) is a range of disruptive technological approaches within the money, market, marketplace, and financial infrastructure spheres. From cryptocurrencies and blockchain to enterprise software and asset management via robo-advisors, financial service functions are increasingly based on growing and innovative technology.

**Admission requirements**

Prospective students may apply at any time by completing the Graduate Application for Admission found online at apply.mst.edu.

The graduate certificate program is open to all individuals holding a bachelor’s, master's or Ph.D. degree in areas such as business, social sciences, technology, engineering, or related disciplines. Students must also have the required prerequisites for the courses in the program.

In order to receive a Graduate Certificate, the student must have an average graduate cumulative grade point of 3.0 or better on a 4.0 scale in the certificate courses taken. Students admitted only to the certificate program will have non-degree graduate status but will earn graduate credit for the courses they complete. Students will be given three years to complete the certificate as long as a B or better average is maintained in the courses taken.

If a student completes the four graduate certificate courses with a grade of B or better in each of the courses taken, the student will, upon application, be admitted to the Master of Business Administration or to the Master of Science in Information Science and Technology. The certificate courses taken by students admitted to the program will count toward the student’s MBA or M.S. degree.
COURSE DESCRIPTIONS

REQUIRED CORE COURSES

FINANCE 5310 Financial Technology and Analytics
This course is built on finance theory, financial analysis, and quantitative methods from prerequisite courses. Students will design and construct integrated financial models. The objective is to offer students opportunities to experience hands-on numerical analyses, company valuation, and dynamic projections.
Prerequisite: Finance 2150 or Graduate Standing and basic corporate finance knowledge.

IS&T 5420 Business Analytics and Data Science
Analysis of large business data sets via statistical summaries, cross-tabulation, correlation, and variance matrices. Techniques in model selection, prediction, and validation utilizing general linear and logistic regression, Bayesian methods, clustering, and visualization. Extensive programming in R is expected.
Prerequisite: Calculus, Statistics, and Programming knowledge.

ELECTIVE COURSES (CHOOSE ONE)

FINANCE 5160 Corporate Finance II
This course provides a rigorous and consistent presentation of the theory of financial decisions. Capital markets are analyzed under assumptions of risk aversion and uncertainty. Models of modern portfolio theory are discussed including the CAPM and the Modigliani-Miller analysis.
Prerequisite: Finance 2150 or graduate standing and basic corporate finance knowledge.

FINANCE 5260 Investments I
Introduction to fundamental elements of investment analysis. Students learn financial tools and gain necessary knowledge to select among alternative financial assets. Real world experience includes stock analysis, portfolio simulations and interactions with professionals in the securities industry.
Prerequisite: Finance 2150 or graduate standing and basic corporate finance knowledge.

ELECTIVE COURSES (CHOOSE ONE)

BUS 6723 AI, Robotics, and Information Systems Management
The course, designed for business executives, covers management of information to revitalize business processes, improve business decision-making, embrace emerging and disruptive technologies, and gain competitive advantages. The course also covers implications of AI, automation, machine learning, and robotics on business and society.
MBA core. (Co-listed with IS&T 6723)
Prerequisite: Graduate standing.

IS&T 5450 Introduction to Information Visualization
Topics include: the visualization development framework, traditional presentations of data, human perception and aesthetics, colorspace theory, visualization algorithms and software, modern visualizations of large data sets. Application of R packages will be emphasized throughout.
Prerequisites: Statistics, Calculus, and Programming Knowledge.

IS&T 5520 Data Science and Machine Learning with Python
Examines data science methodologies for scraping, manipulating, transforming, cleaning, visualizing, summarizing, and modeling large-scale data as well as supervised and unsupervised machine learning algorithms applied in various business analytics and data science scenarios. Python libraries such as Pandas, NumPy, Matplotlib, and Scikit-learn are utilized.
Prerequisites: One of Stat 3111, Stat 3113, Stat 3115, or Stat 3117; one of IS&T 1552, IS&T 1562, Comp Sci 1575; for Graduate Students: knowledge of calculus, statistics, and programming.

IS&T 5780 Human and Organizational Factors in Cybersecurity
In-depth examination of human and organizational factors in cybersecurity and information assurance. Study of how to protect information integrity, availability, and confidentiality, as well as tools, methods, principles, and analytics for fraud prevention, insider threat detection, and forensic investigations. Assumes prior exposure to cybersecurity or IA.

ERP 5210 Performance Dashboard, Scorecard & Visualization
This course will study different performance management systems including dashboards, management cockpit, scorecards, and strategy maps in an organization. SAP’s BW, Business Objects Xcelsius, Crystal Reports, Sybase Unwired Platform will be used to develop the applications.
Prerequisite: ERP 2110 or preceded or accompanied by ERP 5110.