

# FinTech Academy (FTA)

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## **FTA 3100. Introduction to Data Analysis. 3 Hours.**

An introduction to a variety of modeling and analytic methods using data including Bloomberg to describe, diagnose, predict, and prescribe real world decisions and processes. Topics include finding data, cleaning data, visualizing data, and making statistical inferences.

## **FTA 3200. Data Visualization and Analytics. 3 Hours.**

A study of data manipulation, linear regression, forecasting and prediction, data mining, linear programming, decision theory, simulations, and machine learning.

## **FTA 3360. Advanced Financial Management with Digital Transformation. 3 Hours.**

An integrative examination of the theory, practice, and applications of managerial finance, including investment and financing decisions as affected by timing, risk, financial markets, and digital transformation.

## **FTA 3810. Payment Processing. 3 Hours.**

This course focuses on the payment process ecosystem, lifecycle, regulation, security, fraud protection, and payment networks. The student will learn the products and services of the payments, fraud and risk reduction strategies, and roles & responsibilities of card issuers, acquirers, merchants, and strategies for maximizing card usage while minimizing loss associated with card use. The student will also learn about payments negotiations, risk management, customer relationships, principles of authorization, settlement, charge back, and procedures, strategies, and best practices for acquiring merchants.

## **FTA 3850. Digital Payment Security. 3 Hours.**

This course examines security issues in the Payments vertical. Students explore application security addressing the challenges and weak points of applications, learn the tools and techniques of machine learning as a defensive security strategy overcoming the continuous automatic attack generated by machines, and engage in hands-on practice in penetration testing. Payments framework and standards including NIST cybersecurity framework, ISO 27001 information security management, and Payment Card Industry Data Security Standards (PCI DSS) will be discussed. Administration of the information security function including strategic planning process, policies, procedures, and staffing functions necessary to organize and administer ongoing security functions will be discussed. In addition, fraud, regulation, security practices, security architecture, competitive intelligence, and operating environments are emphasized throughout the course.

## **FTA 4000. Data Analysis in Finance and Economics. 3 Hours.**

An introduction to applied research and quantitative analysis. The course includes the components of a research paper, including sources such as Bloomberg data, software used for empirical research, and basic statistical and econometric techniques widely used in modern economic research.

## **FTA 4001. Foundations of Fintech. 3 Hours.**

The financial services industries are changing rapidly with the emergence of financial technology (FinTech). The objective of the course is to provide students with an overview of FinTech and introductions to its applications in financial services, such as commercial and investment banking, digital investing, financial advising, and insurance. Students are expected to develop a broad understanding of the recent FinTech development and its impact on different parts of the financial world. Students will also have hands-on problem-solving experiences that can be useful in FinTech applications and innovation. Topics may include but are not limited to: blockchain and cryptocurrencies, smart contracting, payments, digital banking, P2P lending, crowdfunding, robo-advising, and InsurTech.

## **FTA 4002. Financial Technologies. 3 Hours.**

This course examines the information and communications tools, technologies, and standards integral to consumer, merchant, and enterprise services in the payments and financial service sectors. Explores technology's role in reshaping FinTech businesses. Technologies span messaging, communication networks and gateways, core processing, mobile and online software, and application program interfaces (APIs). Includes the challenges, standards, and techniques associated with securing systems and data.

## **FTA 4003. Commercial Banking and FinTech. 3 Hours.**

The FinTech revolution is creating significant disruption to the traditional processes of managing and regulating financial institutions, especially banks. Digital technology is increasingly altering basic financial intermediation functions such as payment processing, risk management, information dissemination, price discovery, capital raising, and consumer expectations concerning access to funds and the timing of loan decisions. Understanding, assessing and forecasting FinTech's impact on banking is particularly important because proper management and oversight of financial institutions is essential to the efficient operation of the national, as well as global, economy. In this course, students will learn about the principles and practices of commercial bank management, bank regulation, and the tradeoffs between risk and return. Challenges presented by the FinTech evolution, including traditional and emergent competitors as well as demographic, social, and technology forces driving change in the industry, will be integrated throughout the entire course.

## **FTA 4005. Introduction to Financial Data Analytics. 3 Hours.**

This course provides the foundation for financial data analytics used in business and FinTech applications. The objective of this course is for students to gain experience in analyzing financial data using modern machine learning techniques, statistical methods, and prediction models. Students will develop computational skills to perform data analysis using a modern statistical programming environment, and apply these skills to address a range of problems encountered by business firms, including those in the FinTech industry. The topics discussed include an introduction to R language, visualization of financial data, cluster analysis, simple and multiple linear regression, classification models, high dimension data analysis using Lasso, and model assessment and selection using cross validation. Students will have hands-on experience in the development of data analytics applications to analyze real world financial problems.

**FTA 4100. Introduction to Information Security for FinTech. 3 Hours.**

The purpose of this course is to introduce the business student to the rapidly evolving and critical international arenas of privacy, information security, and critical infrastructure. This course is designed to develop knowledge and skills for security of information and information systems within organizations. It focuses on concepts and methods associated with security across several systems platforms, including internal and Internet-facing systems. The course utilizes a world view to examine critical infrastructure concepts as well as techniques for assessing risk associated with accidental and intentional breaches of security in a global network. It introduces the associated issues of ethical uses of information and of privacy considerations.

**FTA 4800. Financial Analytics & Data Visualizations. 3 Hours.**

Prerequisites: FIN 3360 with a grade of "C" or better. This course presents an overview of information systems in a modern organization and their strategic importance in supporting financial business processes. The rationale for business computing will be discussed, along with the underlying financial concepts needed to understand and guide system implementation. Additional business processes such as the procurement process, sales order process, and production process will be presented and modeled using SAP® software. Students will engage in collaborative experiential learning by managing a Muesli cereal manufacturing company based in Germany; complexity is scaled in three scenarios – Introduction (sales, production, procurement, and planning), Extended (product design, finance, and investment strategies), and Advanced (transportation logistics). Students will develop analytical tools and use real-time information to analyze BI and forecast financial outcomes.

**FTA 4810. FinTech in Asia. 3 Hours.**

Prerequisites: FIN 3360 with a grade of "C" or better. Companies using innovative technologies digitally transform business models, operations, and customer experiences. FinTech companies monetize data using analytics and technological innovation to improve the customer experience building trust, loyalty, and consequently, revenue streams. These transformative customer experiences proffered by FinTech companies also create social good by advancing financial inclusion in society. Minorities and other underrepresented populations accrue proportionally larger marginal benefits from FinTech companies offering low-cost access to high-quality services and products. This course presents an overview of the drivers of FinTech in Asia. Domestic course work will be enriched with an Asian study abroad experience that includes discussion with local business leaders via a conference-like environment that includes variations of Asian culture/business depending on geographic location, e.g. Hong Kong vs. Singapore.