BACHELOR OF SCIENCE IN FINANCIAL TECHNOLOGY

MARTIN TUCHMAN SCHOOL OF MANAGEMENT

CURRICULUM COURSES

ACCT 115 - Fundamentals of Financial Accounting

Description: This is an introductory-level financial accounting course designed to develop fundamentals of financial accounting. This course will help students develop skills in applying financial accounting principles to record basic economic transactions, summarize and present such transactions in financial statements as well as to analyze reported accounting information from a user's perspective to make informed financial decisions. Students will also learn to appreciate accounting as a dynamic, changing discipline rather than an inflexible set of rules.

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: None   **Technology:** Excel

CPT 373 – Web App Development for Mobile

Description: Mobile platforms are becoming ubiquitous and software development for these devices is becoming an essential skill for technical professionals. This software/App development course integrates software and web skills with cross platform open source tools that allow developers to write apps for multiple platforms. Course topics will include PhoneGap and open course development software, App layout, CSS (styling) and navigation (transition animations), JavaScript and native functions, geolocation listeners and Asynchronous JavaScript and XML (AJAX) skills. A class project will incorporate skills introduced in this course. Medical informatics majors will design and build an Electronic Medical records Apps. Other projects will be tailored to the interest of other majors.

Credits: 3 credits   **Contact Hours:** 4 contact hours

Prerequisites: basic program course/intro web programming   **Technology:**

CS 103 – Computer Science with Business Problems

Description: An introductory course in computer science, with applications to business and managerial decision making. Topics include basic concepts of computer systems, software engineering, algorithm design, programming languages and abstraction, with applications.

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: None   **Technology:** None

CS 113 – Introduction to Computer Science

Description: Intensive introduction to computer science. Problem solving decomposition. Writing, debugging, and analyzing computer programs. Introduction to arrays and lists. Iteration and recursion. The Java language is introduced and used to highlight these concepts. A student receiving degree credit for CS 113 cannot receive degree credit for CS 115.

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: CS 100 or CS 103   **Technology:** None

CS 114 – Introduction to Computer Science II

Description: A study of advanced programming topics with logical structures of data, their physical representation, and the design of computer algorithms operating on the structures. Course covers program specifications, correctness and efficiency, data abstraction, and algorithm analysis. Students receiving degree credit for CS 114 cannot receive degree credit for CS 116 or CS 505.

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: CS 113   **Technology:** None

ENTR 320 - Financing New Venture

Description: The course is organized around three fundamental issues that entrepreneurs need to understand: 1) how innovations evolve over time, 2) how and whys some innovations are successful and some are not and 3) how one manages a new venture that was formed to develop new technologies. It is intended to help students understand the issues associated with a new venture and to develop a business plan to launch a technology-based firm.

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: ENTR 210   **Technology:** Excel

ECON 265 - Microeconomics

Description: The theory of price determination and resource allocation under various market structures. The theory of demand, production, costs, factor and product pricing, income distribution, market failure, implications of government intervention in the market, and comparison of the free enterprise and alternative systems. Students who have received credit for ECON 201 may not subsequently receive credit for ECON 265.

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: MATH 135   **Technology:** None

ECON 266 - Macroeconomics

Description: The theory of national income determination. The determinants of aggregate production, employment, and prices, as well as money and banking, business cycles and monetary and fiscal policy. Students who have received credit for ECON 201 may not subsequently receive credit for ECON 266.

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: None   **Technology:** None

FIN 218 - Financial Markets and Institutions

Description: This course provides an overview of the main features of financial markets and institutions in the United States, including interest rates and rates of return and how they are determined. It also covers securities traded on the U.S. financial markets including bonds, stocks, and derivatives and discusses how financial institutions, especially commercial banks work, along with the role of government in regulating financial markets and institutions.

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: **Technology:** Excel, Bloomberg

FIN 306 – Blockchain Technology for Business

Description: In this course, students will delve into the world of blockchain technology and the promise it holds for business. In particular, students will study how cryptocurrencies like Bitcoin make use of the blockchain to facilitate peer-to-peer digital transactions. With a solid understanding of the mechanics of the cryptocurrency blockchain protocol, students will discover the problems blockchain technologies aim to solve and determine how they can support the business goals. Student will do this by learning about smart contracts and the most important use cases. Students will analyze how smart contracts work, how they're used today, and how to reason about their capabilities, and what ongoing technical challenges they pose. In the course project, students will come up with their own application and outline the challenges that might exist in its adoption. For the practical skill of Blockchain leverage, the blockchain techniques and system development will be illustrated by IBM Skills Academy Platform through Blockchain Design and Lab sessions.

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: MGMT 216 and FIN 218   **Technology:** Hyperledger Fabric related programs from IBM website, Etherium and Excel

FIN 310 - Data-Driven Financial Modeling

Description: This course equips students with new analytic and modeling tools to tackle rapidly changing and dynamic financial markets. In particular, this course delivers modelling frameworks such as regression analysis, forecasting, Monte-Carlo simulation, optimization, and binomial trees; and it illustrates how to apply these frameworks in financial contexts such as portfolio management, term-structure estimation, capital budgeting, risk measurement, risk analysis in discounted cash flow models, and pricing of European, American, exotic, and real options.

Credits: 3 credits

Prerequisites: MGMT 216, MGMT 316, FIN 218, FIN 315

Contact Hours: 3 contact hours

Technology: R, SAS, Python, MATLAB

FIN 315 - Fundamentals of Corporate Finance

Description: This course focuses on how companies invest in real assets and how they raise the money to pay for those investments. Topics covered include the firm and the financial manager, time value of money, bonds, stocks, and net present value. International finance, risk management, capital structure strategy and case studies of technology-based companies will be introduced.

Credits: 3 credits

Prerequisites:

Contact Hours: 3 contact hours

Technology: None

FIN 320 - Financial Data Analytics

Description: This course covers data analytics for common finance applications using Python as primary languages. It consists of two stages: Stage1 for introducing Python programming basics; Stage2 for covering commonly used analytical skills for applications in finance. Two real-data applications will strengthen the students' hands-on experiences. The course provides students with essential analytics training as needed for financial applications.

Credits: 3 credits

Prerequisites: CS 100 or CS 103, MGMT 216, FIN 218

Contact Hours: 3 contact hours

Technology: Python

FIN 410 - Data Mining and Machine Learning

Description: Provides an in-depth study of data mining and machine learning, with a focus on finance applications. This course is practice-oriented and develops the required skills to apply contemporary analysis tools of data mining & machine learning tools in financial data and facilitate decision making in stock market. Coverage includes data mining and machine learning concepts, processes, methods, and techniques; tools and metrics; and integration with Big Data.

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: MATH 135, FIN 310, FIN 320   **Technology:** Python

FIN 417 – Investments Management

Description: The course is intended to introduce students to key concepts, valuation methods and models and practical issues in investments from an investor's perspective. The course has two main components. First, the course will cover the theories of investments where the students will learn the main ideas proposed in academic literature to construct well-diversified portfolios. Second, the course will provide students the necessary tools to put the theoretical concepts covered in this course into practice.

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: FIN 315   **Technology:** Excel

FIN 430 - Options and Future Markets

Description: This course covers options, forward contracts, futures contracts and swaps, and will give students a working knowledge of how these contracts work, how they are used, and how they are priced. Students will learn how corporations and portfolio managers can hedge different kinds of risks or alter the distribution of returns on their portfolios using various techniques.

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: FIN 218, FIN 315, MATH 135   **Technology:** None

HRM 301 - Organizational Behavior (GER)

Description: A foundation course in individual and group behavior in organizations. Processes such as perception, motivation and leadership are examined with a focus on issues central to technology-based organizations (innovation, creativity, managing technical professionals).

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: Upper Division Standing   **Technology:** None

MGMT 116 - Quantitative Analysis with Business

Description: This course introduces statistical concepts, basic optimization modeling and tools that can be leveraged for business data analytics. The emphasis is on knowing what analytical techniques to use to address specific business questions, on the use of computer software to perform statistical analysis, and on the interpretation and communication of the results of such analysis. The use of Excel and other software tools is emphasized. The course covers statistical techniques that are often used to solve problems in business areas such as finance, marketing, and operations management.

Credits: 4 credits   **Contact Hours:** 4 contact hours

Prerequisites: None   **Technology:** Excel

MGMT 190 - Introduction to Business

Description: Introduction to the Martin Tuchman School of Management and the Business major. Foundations of the business enterprise and ecosystem. Organizational structures, governance, financial systems, marketing, and government interactions. Economic, political, psychological, and social influences on business. This course is restricted to freshmen BUSINESS and FinTech majors only except with permission of MTSM's undergraduate advisor.

Credits: 3 credits   **Contact Hours:** 4 contact hours

Prerequisites: None   **Technology:** None

MGMT 216 - Business Data Analytics

Description: This course introduces statistical concepts and tools that can be leveraged for business data analytics. The emphasis is on knowing what analytical techniques to use to address specific business questions, on the use of computer software to perform business statistical analysis. In particular, it covers descriptive statistics, confidence interval estimation, hypothesis testing, inferential statistics, and regression analysis. It ends with a brief introduction to time- series analysis and forecasting.

Credits: 3 credits

Contact Hours: 3 contact hours

Prerequisites: MGMT 116 or MATH 105

Technology: Minitab, R, Excel

MGMT 290 - Business Law I

Description: The basic principles of common and statutory law applicable to business and professional relationships, emphasizing contracts, negotiable instruments, sales of goods, agency and business organizations.

Credits: 3 credits

Contact Hours: 3 contact hours

Prerequisites: None

Technology: None

MGMT 399 - Career Planning and Major Field Test

Description: A one credit, satisfactory/unsatisfactory course that will allow students to get the career training they need prior to entering work force, as well as review for the Major Fields Test and to actually take the Major Field Test in the course. This course runs for the first 10 weeks of the semester.

Credits: 1 credit

Contact Hours: 1 contact hour

Prerequisites: Junior Standing

Technology: None

MGMT 416 – Artificial Intelligence for Business Decisions

Description: Every industry is being affected by AI including finance, cybersecurity, manufacturing and services. The course explores common uses of AI in enterprises using Natural Language Processing (NLP), Chatbots (very useful in marketing and customer service), computer vision, and big data. Course content and exercises are focused on providing a business manager with understanding and tools to effectively use Artificial Intelligence systems to solve business problems and aid in decision-making. This course focuses on using AI systems from a manager's perspective.

Credits: 3 credits

Prerequisites: MIS 245 and MGMT 216

Contact Hours: 3 contact hours

Technology: IBM AI platform and programs from Amazon Web Services (AWS)

MGMT 480 – Managing Technology and Innovation

Description: Introduction to an array of technologies affecting management functions to provide an appreciation and understanding of the importance of new technologies as critical success factors for modern organizations. An integrative approach is taken in analyzing how changes in technology affect individual, group, and organizational effectiveness.

Credits: 3 credits

Prerequisites: Junior Standing

Contact Hours: 3 contact hours

Technology: None

MIS 245 - Introduction to Management Information Systems

Description: Concepts of information systems, business process, hardware, software, systems analysis, e-commerce, enterprise systems and computer applications in organizations, techniques of systems analysis, systems designs, implementations, and information management (both technical and behavioral) are studied in the organizational context of management information needs.

Credits: 3 credits

Prerequisites: None

Contact Hours: 3 contact hours

Technology: Excel, SPSS Modeler, IBM Watson, Tableau

MIS 385 - Database Systems for Managers

Description: This course introduces fundamentals of database systems for business applications. The course will also introduce the concepts of database evaluation, assessment and governance issues for business needs, as well as, database privacy, security and visualization for managerial applications. Students will gain hands-on experience on database systems management through course assignments.

Credits: 3 credits

Prerequisites: CS 103, MIS 245

Contact Hours: 3 contact hours

Technology: None

MRKT 330 - Principles of Marketing

Description: Provides an understanding of how environmental factors (political, legal, economy, competition, socio-cultural, and technology) influence the design of product, pricing, promotion and distribution strategies. Topics discussed include strategies to satisfy target markets, market segmentation, buyer behavior, marketing ethics, and an introduction to global marketing issues. Fundamentals of marketing are integrated using cases, videos, and class projects.

Credits: 3 credits

Prerequisites: MGMT 190

Contact Hours: 3 contact hours

Technology: Salesforce, Simulations

OM 375 - Management Science

Description: The course emphasizes decision modeling and how to apply modeling and process simulation techniques to solving various classes of problems that arise in operational functions in business settings. It covers decision modeling techniques that range from deterministic to probabilistic models. It also emphasizes the ability to recognize what modeling skills and techniques to use to answer specific business operation and process questions, the use of computer tools and process simulation techniques to solve problems, and on the interpretation and communication of model solutions.

Credits: 3 credits   **Contact Hours:** 3 contact hours

Prerequisites: MGMT 216   **Technology:** Excel, Lingo