Financial Engineering and Risk Management

**FERM 6009** Financial Engineering and Risk Management Internship (0 semester credit hours) Student gains experience and improves skills through appropriate developmental work assignments in a real business environment. Student must identify and submit specific business learning objectives at the beginning of the semester. The student must demonstrate exposure to the managerial perspective via involvement or observation. At semester end, student prepares an oral or poster presentation, or a written paper reflecting on the work experience. Student performance is evaluated by the work supervisor. Pass/Fail only. Prerequisites: (M AS 6102 or MBA major) and department consent required. (0-0) S

**FERM 6301** Financial Accounting Information and Analysis (3 semester credit hours) This course discusses the fundamental concepts of accounting and financial reporting as presented from the perspective of the outside investor, and so focuses on the construction, analysis, and projection of financial information. (3-0) Y

**FERM 6302** Financial Forecasting, Planning, and Analysis (3 semester credit hours) This course focuses on the application of predictive analytics for financial forecasting, planning and analysis, and the use of simulation models of companies for risk assessment. (3-0) Y

**FERM 6303** Financial Assets and Markets (3 semester credit hours) This course develops the fundamental concepts of finance by examining financial assets and their markets, their participants and their operation with emphasis on the valuation and management of different financial assets. (3-0) R

**FERM 6305** Introduction to Mathematics in Finance (3 semester credit hours) The objective of this course is to introduce the essentials of mathematical finance and its applications. (3-0) Y

**FERM 6306** Advanced Mathematics in Finance (3 semester credit hours) This course focuses continuous time finance and its applications to the pricing of financial derivatives and their use in risk management. Prerequisite: **FIN 6305**, (3-0) Y

**FERM 6310** Financial Information and Analytics (3 semester credit hours) This course develops the use of different software tools to collect, manage, and analyze data from different sources in order to solve financial problems. (3-0) Y

**FERM 6311** Financial Technology (3 semester credit hours) This course builds on financial information and analytics to understand and develop new financial technologies. Prerequisite: **FERM 6310**, (3-0) Y

**FERM 6319** Mathematics and Statistics for Risk Management (3 semester credit hours) This course develops the basic mathematical and statistical concepts used in risk management. (3-0) Y

**FERM 6320** Statistical Methods for Financial Analytics (3 semester credit hours) This course develops the fundamental statistical concepts and tools used in the analysis of financial data. (3-0) Y

**FERM 6321** Advanced Statistical Methods for Financial Analytics (3 semester credit hours) This course builds on statistical methods for financial analytics to develop and apply more advanced statistical concepts and tools to the analysis of financial data. Prerequisite: **FERM 6320**, (3-0) Y

**FERM 6330** Insurance and Risk Management (3 semester credit hours) This course introduces insurance and its use in risk management with emphasis on the use by companies of different insurance products and their
pricing. (3-0) R

FERM 6331 Risk Evaluation and Management (3 semester credit hours) This course develops essential techniques for evaluating and managing the risks of various types of business. Prerequisites: FERM 6320 and FERM 6321. (3-0) R

FERM 6332 Financial Risk Management (3 semester credit hours) This course examines financial risk management issues and how they are addressed. Corequisite: FERM 6306. Prerequisite: FERM 6305. (3-0) T

FERM 6333 Enterprise Risk Management (3 semester credit hours) The course examines enterprise risk management in all of its various dimensions and how it is used to increase firm value. Prerequisite or Corequisite: FERM 6321 or FERM 6330. (3-0) R

FERM 6334 Financial Applications of Machine Learning (3 semester credit hours) This course examines the use of machine learning techniques in finance, with a particular attention to their use in risk assessment. Prerequisite: FERM 6320. (3-0) R

FERM 6V98 Financial Engineering and Risk Management Internship (1-9 semester credit hours) Student gains experience and improves skills through appropriate developmental work assignments in a real business environment. Student must identify and submit specific business learning objectives at the beginning of the semester. The student must demonstrate work on significant projects. At semester end, student prepares an assignment reflecting on the work experience. Student performance is evaluated by the work supervisor. Pass/Fail only. May be repeated for credit as topics vary (9 semester credit hours maximum). ([1-9]-0) R

FERM 6V99 Special Topics in Financial Engineering and Risk Management (1-9 semester credit hours) May be lecture, readings, or individualized study. May be repeated for credit as topics vary (9 semester credit hours maximum). Instructor consent required. ([1-9]-0) R