

QM - QUANTITATIVE METHODS (QM)

QM 580. Regression and Time Series Analysis. (3 Credits)

Extensive analysis of simple and multiple regression in both linear and nonlinear forms. Techniques of instrumentation variables and model building. Extensions of regression to time-series and econometrics. Emphasis is on application of models to actual business problems. Prerequisite: six hours of statistics or equivalent.

QM 590. Experimental Design and Advanced Statistical Process Control. (3 Credits)

Basic experimental design and statistical process control methods, including randomized block, factorial, nested, repeated measures, and Shewhart, CUSUM, EWMA, and retrospective control charts. Emphasis is placed on techniques commonly used in industrial data analysis. Prerequisite: QM 292, or equivalent.

QM 662. Analytical Tools for Strategic Decision Making. (2 Credits)

QM 662 presents sophisticated analytical tools for making effective short- and long-term business decisions. Topics covered include: regression, forecasting, framing, scanning, visioning, and planning. The course employs elements of traditional Decision Theory and Foresight methodology. Prerequisite: MG 600 or MBA 601 or QM 291. (Fall, Spring)

QM 669. Quantitative Techniques in Business. (3 Credits)

Matrix algebra, differential calculus, optimization techniques for functions of several variables and integral calculus. Prerequisite: MA 112 or equivalent.

QM 670. Decision Theory. (3 Credits)

Quantitative techniques for decision making and optimization in business and economics; use of Bayesian Analysis; game theory; queuing theory; linear programming theory; inventory control and simulation. Prerequisite: QM 295 or equivalent.

QM 688. Quantitative Finance. (3 Credits)

This course introduces the fundamental mathematical tools and financial concepts needed to understand quantitative finance, portfolio management and derivatives. Key topics include: the random behavior of asset prices, the Black Scholes model, the Black-Scholes formulae and the Greeks, early exercise and American options, how to delta hedge, fixed-income products and analysis: yield, duration and convexity, swaps, the binomial model and financial modeling in Excel VBA. It is expected that students will have significant experience using Excel spreadsheets. Also listed as FI 688 but creditable only in field for which registered. Prerequisite: FI 630 or approval by department chair.

QM 698. Independent Study/Research. (3 Credits)

Guided independent study and/or research in an area related to quantitative methods. Prerequisite: approval of the department chair.