

STATISTICS (STAT)

STAT 3920 Strategic Management of Operations (4 Credits)

The operations function is the unit of the organization that produces the products and/or delivers the service for which the company earns revenue. It is the largest unit of the organization with which all other units interact. Therefore, efficient management of this function is a critical success factor for any company. This course focuses on an organization's management (planning, organizing, staffing, directing, and controlling) when converting inputs into products and services. Companies today must remain competitive in the global marketplace, and careful consideration of various options regarding cost containment and use of technology are required. This course will explore how operations managers meet these challenges in the manufacturing and services firms in response to changes in economic conditions. Students will be exposed to a number of quantitative tools as well as becoming familiar with new systems and methods in the operations management field. When appropriate, optimization software such as Microsoft Solver will be utilized to conduct analysis. Prerequisite: STAT 3900.

STAT 4040 Basic Math-Graduate Students (2 Credits)

STAT 4045 Basic Math-Evening MBA Stdnt (1 Credit)

STAT 4050 Basic Statistics-Grad Students (2 Credits)

STAT 4100 Quantitative Methods I (4 Credits)

An introduction to the methods of quantitative analysis commonly used in business, with an emphasis on finance applications. Topics include descriptive statistics, probability, probability distributions, fundamentals of statistical inference, correlation, and simple and multiple regression analysis.

STAT 4200 Quantitative Methods II (4 Credits)

STAT 4300 Production & Operation Mgmt (3 Credits)

STAT 4350 Statistical Computing (4 Credits)

Introduction to and training in the use of modern statistical software packages. Exposure to several of SAS, STATISTICA, S-PLUS, and SPSS with focus on one to best fit student needs. Data acquisition, management, graphs, analyses, reports, customizing and programming. Cross listed with STAT 3350.

STAT 4400 Risky Business (4 Credits)

An interterm travel course to Las Vegas that deals with the theory, practice, and business of gambling.

STAT 4500 Prob Thry Math Gamb (4 Credits)

This course covers the theory of probability and the formal study of mathematics underlying gambling and games of chance. Topics include probability concepts, probability rules, expectation, permutations and combinations, the law of large numbers, the law of "averages," history of gambling, house advantage, fallacies and betting systems, volatility and operations, game odds and price setting, games of pure chance, games with a skill component. Prerequisite: a previous course in statistics or permission of instructor. Cross listed with STAT 3500.

STAT 4510 Applied Decision Theory (4 Credits)

Application of classical and Bayesian decision theory and game theory to practical problems. Prerequisite: MBA 4111, MBA 4112, or permission of instructor.

STAT 4610 Business Statistics (4 Credits)

This course introduces students to basic analytical tools in statistics and operations management, and provides theoretical concepts and skills that are building blocks for future courses. The approach is to present students with a "corporate" view of how statistical tools are used to analyze data and facilitate business decision-making. Students will familiarize themselves with all of the statistical techniques and models presented in the course and will demonstrate knowledge in applying the appropriate techniques and models to various data sets and interpreting the results of the analysis. The Microsoft Excel Data Analysis and Solver Toolkits will be used to conduct statistical analyses, allowing students to become more proficient overall in using Microsoft Excel and to place their emphasis on applications to core business disciplines, statistical reasoning, and proper interpretation of results. A rich variety of such problems and settings will be discussed in class.

STAT 4640 Regrsn/Correlation Analysis (4 Credits)

Simple linear regression analysis, methods of estimation, multivariate multiple regression and correlation, tests of reliability and significance, simultaneous equations model and applications. Prerequisite: MBA 4111, MBA 4112, or permission of instructor.

STAT 4650 Applied Multivariate Analysis (4 Credits)

The introduction and application of multivariate analytical techniques and model building for problem solving in business and other settings. Cross listed with STAT 3650. Prerequisite: MBA 4111, MBA 4112, or permission of instructor.

STAT 4680 Sampling Theory & Application (4 Credits)

Simple and stratified random sampling; multistage, cluster, and sequential sampling; optimum allocation and economic efficiency; ratio estimation methods; design of sample studies of various human and physical populations; financial auditing by probability sampling. Prerequisite: MBA 4111, MBA 4112, or permission of instructor.

STAT 4687 Advanced Statistics (4 Credits)**STAT 4700 Intro Computer Simulation (4 Credits)**

Deterministic and probabilistic model structures, planning models, heuristics and artificial intelligence, Monte Carlo methods, simulation programming languages, model design, experimentation, and verification. Prerequisite: MBA 4111, MBA 4112, or permission of instructor.

STAT 4704 Topics in Statistics (1-5 Credits)

Various topics including travel courses.

STAT 4709 Computer Simulation Methods for Business (4 Credits)

Large-scale simulation in business and economics, deterministic and probabilistic model structures, corporate planning models, heuristics and artificial intelligence; Monte Carlo methods, model design, experimentation and verification, tactical problems in total systems simulation. Cross listed with STAT 3709.

STAT 4710 Statistical Quality Control (4 Credits)

Applies the basic concepts of statistics to quality improvement in the business environment. Topics include a summary of Total Quality Management (TQM) and where Statistical Quality Control fits in, the tools of Statistical Process Control, Deming's Continuous Improvement Cycle, as well as the evaluation of Process Capability and Sampling. Cross listed with STAT 3710. Prerequisite: MBA 4111, MBA 4112, or permission of instructor.

STAT 4780 Dsgn & Analysis Exp & Survey (4 Credits)**STAT 4783 Forecasting-Financial Envrn (4 Credits)**

Cross listed with FIN 3610, STAT 3620.

STAT 4793 Sem: Statistical Methods (1-5 Credits)**STAT 4794 Sem: Operations Research (1-5 Credits)****STAT 4795 Grad Research Sem-Statistics (1-5 Credits)****STAT 4800 Dsgn & Analysis Exp & Survey (4 Credits)**

Designing experiments, analysis of results of experiments, nonparametric and parametric tests, randomization, factorial and nonfactorial designs, Latin squares, survey methodology, survey techniques for field investigations. Prerequisite: MBA 4111, MBA 4112, or permission of instructor.

STAT 4810 Nonparametric Statistics (4 Credits)

Statistical procedures applicable in many situations where standard normal theory methods are not. Especially useful when data are of categorical or rank type or when sampled population is excessively skewed. Emphasis will be on applications, making use of the laws of probability. Cross listed with STAT 3110. Prerequisite: MBA 4111, MBA 4112, or permission of instructor.

STAT 4830 Stats-Econ & Bus Forecasting (4 Credits)

Methods to explain, discover, and predict business and economic forces, bases for evaluating such methods. Prerequisite: STAT 4100 or equivalent. Cross-listed with FIN 4620.

STAT 4840 Decision Sciences (4 Credits)

Decision-making techniques, processes, and support systems; basic decision models dealing with certainty, uncertainty, and static and dynamic time frames; emphasis on viewing all decision problems from perspective of a generalized decision-making structure; introduction to computerized decision support systems. Prerequisites: MBA 4111, MBA 4112, or permission of instructor.

STAT 4850 Operations Research I (4 Credits)

Linear programming, including transportation, warehousing, assignment models, and sensitivity analysis, integer programming and game theory. Permission of instructor required.

STAT 4860 Operations Research II (4 Credits)

Non-linear models and optimization, Kuhn Tucker conditions, quadratic and dynamic programming, inventory and queuing models, simulation. Permission of instructor required.

STAT 4870 Advanced Statistics (4 Credits)

Discrete and continuous probability distributions, sampling distributions, estimation methods, moment generating functions, analysis of variance, test of reliability, and significance by parametric and non-parametric methods. Prerequisites: MBA 4111, MBA 4112, or permission of instructor.

STAT 4930 Sem: Statistical Methods (1-5 Credits)**STAT 4940 Sem: Operations Research (1-5 Credits)****STAT 4950 Grad Research Sem-Statistics (1-5 Credits)****STAT 4960 Intern/Case Study: Statistics (1-5 Credits)****STAT 4970 Intern/Case Study: Ops Res (1-10 Credits)****STAT 4980 Intern/Case Study: Statistics (0-10 Credits)**

Hours and times arranged by student.

STAT 4981 Intern/Case Study: Ops Res (4 Credits)**STAT 4991 Independent Study (1-4 Credits)**

Individual research and report. Hours and times arranged by student.

STAT 4995 Independent Research (1-10 Credits)