Marketing Analytics Certificate Courses

MKTG 4510: Consumer Behavior (4 credit hours)
What makes consumers tick? This course draws on a variety of sources, including concepts and models from psychology, sociology, anthropology, and economics, to offer helpful frameworks for understanding why consumers buy what they buy. These concepts are applied to real-world situations to give students practice at making better product, promotion, pricing, and distribution decisions based on consumer insights.

MKTG 4530: Marketing Research & Analytics (4 credit hours)
Understanding consumers requires careful observation and thoughtful questions. Marketing research represents a methodology for getting the answers needed to be successful in business. This course introduces students to a broad array of marketing research tools, including focus groups, ethnographic studies, survey research, and experiments. Students will learn how and when to apply these tools, as well as how to interpret the results to make sound marketing decisions.

STAT 4610 Business Statistics (4 Credit-Hours)
This course introduces students to the basic analytical tools in statistics and business analytics, and provides the 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 and communicating 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.

Learning Outcomes:

1. Learn and understand the basic tenets of probability distributions, and be familiar with the distributions most often used in business modeling.
2. Conduct and interpret various statistical hypothesis testing techniques on single and multiple populations.
3. Construct analytic models, to include multiple regression and optimization or simulation models, and apply them in the functional areas of business such as finance, accounting, marketing, and operations.
4. Use the results of statistical analysis and analytic modeling to support business decisions, and communicate those results effectively to business leaders.
5. Demonstrate proficiency in performing data management, statistical analysis, and analytic modeling in a spreadsheet environment.

INFO 4300 Predictive Analytics (4 Credit-Hours)
This course is designed to prepare students for managerial data analysis and data mining, predictive modeling, model assessment and implementation using large data sets. The course addresses the how, when, why, and where of data mining. The emphasis is on understanding the application of a wide range of modern techniques to specific decision-making situations, rather than on mastering the theoretical underpinnings of the techniques. The course covers methods that are aimed at prediction, forecasting, classification, clustering, and association. Students will gain hands-on experience in using computer software to mine business data sets. Prerequisite: STAT 4610.

Learning Outcomes:

1. Identify and perform the steps in the data mining process.
2. Explain, apply and interpret forecasting models, component analysis, and classification methods.
3. Explain, apply, and interpret regression models, generalized linear models, logistic regression models, and hierarchical linear models.
4. Understand the various time series analysis techniques available to the business modeler, and conduct time series analysis to improve business decision-making.

6-Course Certificate Courses:

INFO 4120 Python Programming (4 Credit-Hours)
Python is a popular general purpose programming language which is well suited to a wide range of problems. With the right set of add-ons, it is comparable to domain-specific languages such as R and MATLAB. Python is a scripting language. The following topics will be covered: Importing data, Reading and writing files, Cleaning and Managing Data, Merging and joining DataFrame objects, Plotting and Visualization, Statistical Analysis, Fitting data to probability distributions and Linear models. Packages: Pandas, NumPy, matplotlib, statsmodels, Scikit-learn, and IPython.

Learning Outcomes:

1. Understand and use the basic components of coding (sequential, conditional, and looping structures) using the Python language.
2. Be able to perform basic and advanced data management tasks using Python including reading and writing data, cleaning, and reshaping datasets.
3. Use Python to perform exploratory and statistical analysis of data, to include the techniques taught in STAT4610.
4. Use Python to create analytic models to analyze data and to produce results and insights that can be used in the business decision-making process.

MKTG 4520: Marketing Metrics (4 credit hours)
There's no escape; even marketing managers need to understand financials. This course is designed to introduce MS Marketing students to the principles of financial decision-making and the use of marketing metrics, including customer lifetime value (CLV). Students will learn how to compute marketing ROI and how to make marketing decisions that enhance the bottom line.