MARKETING ANALYTICS (MAX)

MAX 501
Digital Marketing
The course examines digital marketing strategy, implementation and executional considerations for BtoB and BtoC brands and provides a detailed understanding of all digital channels and platforms. Participants will complete the course with a comprehensive knowledge of and experience with how to develop an integrated digital marketing strategy, from formulation to implementation. Using a variety of practical tools and techniques in practical exercises and projects, students will gain an understanding of using digital channels to achieve their marketing goals. Student teams will gain practical experience in usage of channels such as Search – SEO and SEA, Optimization and Marketing Display – Banners, Video and Beyond, Advanced topics Email – Design and Deployment Social – Networks, Media, and Content - Inbound Marketing Mobile and Emerging – Mobile Web, Apps and Ecosystems, Gaming, and beyond.
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 502
Analytics for Decision Making
Spreadsheets are a popular model-building environment for managers. Add-ins and enhancements to Excel have made powerful decision-making tools available to the manager. This course covers how to use the spreadsheet to develop and utilize some of these decision-making aids. Visual Basic for Excel allows the nonprogrammer to create modules for functions, subroutines, and procedures. Topics include forecasting (both regression and time series), decision-making under uncertainty and decision trees, using SOLVER for optimization, and probabilistic simulation using @RISK.
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 503
Marketing Research and Engineering
Modern Marketing Research reflects the increasing sophistication of Marketing practice and the data rich environment that confronts market researchers. Throughout this course, we develop a basic knowledge of the use of data in order to understand customers and make marketing decisions ~ practical marketing problem solving. This course introduces the tools that managers use to develop consumer-centric marketing strategies and techniques to make better marketing plans, better product designs, and better decisions. Marketing engineering focuses on specific data-driven marketing tools, regression, cluster analysis, conjoint, Principal Component Analysis (PCA), Exploratory Factor Analysis (EFA), etc., and their application to specific marketing problems (segmentation and targeting, new product design, and forecasting) utilizing power of R language.
Lecture: 1.5 **Lab:** 1.5 **Credits:** 3

MAX 504
Marketing Strategy
This course provides an introduction to the practice and strategy of marketing. Marketing activities are those processes and functions that enable managers and policy-makers to identify and serve the values and needs of a customer given the capacities of the company, activities of competitors, and inherent constraints in the business environment. Marketers typically refer to these concepts as the "four C's." Based on their understanding of the "four C's," students will then learn how to implement strategy by applying the levers of the marketing mix. These elements are known as the four P's (product, price, place/channels of distribution, and promotion). The treatment of marketing constraints and marketing mix will be motivated by essential foundations from economics, sociology, and consumer behavior. Over the course of the semester, students are expected to transition from thinking about these concepts in isolation to a dynamic, integrative framework. This process includes using the marketing strategy framework to assess business and policy problems from a "multiple objective" perspective: that is, the student will be asked to think about how marketing activities along with those of competitors and collaborators will affect the profitability, sustainability, social, and ethical standing of the firm. The synthesis of these concepts will be carried out through the use of case studies, problem sets, classroom lectures, discussions, and a field project. There will also be a midterm and final exam. The pedagogical style of the course emphasizes the students' role in applying the concepts discussed in the lectures to the situations at hand. The role of the instructor is to provide tools to structure thinking and to stimulate and facilitate analysis of the cases.
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 505
Strategic Marketing Management
In this course, we will emphasize both marketing strategy formulation and execution and the management of the marketing function. This includes the integration of marketing mix decisions, the longer-term effects of marketing mix decisions, and changes in the mix over time. For example: "Price" becomes "Price Policy", value-in-use, and price discrimination; "Product" becomes product line breadth and variety and product life cycle choices; "Place" becomes the design and control of single or multiple channels of distribution; and "Promotion" becomes communications, customer loyalty, and brand equity. The course will emphasize segmentation of the market, positioning the marketing mix to meet the needs of the market segment, sustaining an 'integrated' marketing mix over the product life cycle, and organizing the 'Strategic Business Unit' to implement the strategy. In addition to the development of a marketing strategy that 'positions' the product/service to the needs of one or more target markets (segmentation), the execution of a marketing strategy will require a marketing plan that includes the economic and financial analysis of the costs and potential profits of the strategy and an implementation plan including an organizational structure. This will often be an iterative process to find an optimal combination of costs and pricing and volume to maximize profits. This course will use readings, simulations, and cases for about half its content. The other half of the course will be a team consulting project for an external client.
Prerequisite(s): MAX 504 with min. grade of C
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 506
Database Design and SQL
This course covers the fundamentals of relational databases including its design and provides an in-depth coverage of SQL which is the de-facto language used to manipulate relational databases. This course places emphasis on understanding the concepts and principles of both relational database design and SQL in a platform/software neutral manner which equip students to work with most database systems used in the modern workplace.
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 507
Visual Analytics - Data Analytics & Visualization
This course provides an introduction as well as hands-on experience in data visualization. It introduces students to design principles for creating meaningful displays of quantitative and qualitative data to facilitate managerial decision-making . Analytics involves the extensive use of computer applications, data (both "big" and "small"), and quantitative methods to help drive business decisions. Students will learn essential theories, concepts, methodologies, and use leading computer tools to visualize and analyze real world data.
Lecture: 1 **Lab:** 2 **Credits:** 3

MAX 511
Integrated Marketing Communication Strategy
In this course, students learn how to identify and evaluate the full gamut of competitive strategic alternatives in both business-to-business and business-to-consumer marketing using a wide variety of analytic tools to develop and analyze consumer insights. Based on this analysis, the major elements of a communication plan are put in place: media, message, target audiences, testable objectives, and budgets. Students learn to measure consumer and business target audiences by their demographic, psychographic, and attitudinal characteristics and to analyze the style and appeal of messages within campaigns. Students also learn how to develop a balanced marketing communication plan utilizing the multitude of vehicles available to reach a target audience using the latest technological tools and media.
Prerequisite(s): MAX 504 with min. grade of C
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 512
Customer Touch Points
This course focuses the massive transformations based on new technologies that are occurring in today's communication environment and the wide variety of consumer contact points it generates. Students will develop an understanding of how the industry is organized and how marketing communications flow from the source company to the target audience. The course examines the major aspects of developing and evaluating media plans beginning with the development of media strategies that flow from overall marketing communication goals. The course analyzes various media from the perspectives of cost, targeting, audience characteristics, and the nature of product/service.
Prerequisite(s): MAX 512 with min. grade of C
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 513
Managing Sustainable Brands
This is a traditional brand management course applied to green or sustainable brands which are becoming more and more important in the global economy. The most valuable assets that a company has are the brands that it has developed and invested over time. Students will explore the components of a brand, its equity, and emotional benefits and gain an understanding of how to develop a meaningful brand relationship with the customer or prospect to optimize the brand or brand portfolio. The class will also explore the various aspects required to champion a new product or service from development to launch by optimizing the execution through all the marketing efforts of the firm. Students will address positioning, channel strategies, trade promotion, budgeting as a part of the planning process, new product development, packaging and merchandising, and the management of agency relationships. Like people, brands have unique personalities that differentiate them and drive their ability to grow or limit their ability to expand.
Prerequisite(s): MAX 511 with min. grade of C
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 514
Customer Relationship Management
In a world where it costs five times as much to acquire a new customer as it does to keep an existing relationship, companies are learning that they must manage those current customer relationships in order to survive. Around this insight, a new discipline has emerged, using some of the tools of database management and some of the new tactics of digital communication to reduce attrition and to maximize the lifetime value of a customer. Customer relationship management (CRM) is making fundamental changes in the way companies operate. It is a critical point of merger where e-business becomes a part of all business. This course will engage the student in the diagnosis of CRM issues, the building of CRM plans, the measurement of their effectiveness, and the new tools available to get all these things done economically in internet time.
Prerequisite(s): BUS 550 with min. grade of C
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 515
Database and Direct Marketing
This course introduces students to the critical nature of information gathered in real time directly from important constituencies of third party sources. It explores the ability of data-based marketing to match consumers with products based on behaviors. Students learn to access and analyze database information as well as develop programs to elicit a direct and immediate response using a variety of direct-to-consumer/direct-to-business tools including electronic marketing.
Prerequisite(s): MAX 511 with min. grade of C
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 516
Social Media Mktg Strategy
The area of online marketing continues to develop at a rapid pace. Social media (including tools like Facebook, Twitter, LinkedIn, blogs, websites, e-mail, etc.) is no longer a passing fad but an essential component of the marketing mix. As the platforms evolve and expand, so do the strategies required to leverage them properly. The increased demand for this specialized knowledge creates abundant opportunities for career development, heightened visibility, and market leadership. Companies that fail to capitalize on social media to attract quality people, penetrate new markets, and engage with customers on a meaningful level will most certainly be left out in the cold. This class will explore the core strategies used by companies today to leverage the marketing power of social media to grow their businesses. Students will learn what makes each platform unique and how they contribute to an overall social media campaign.
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 521
Qualitative Research Methods
This is an introductory course in qualitative and survey methods relevant to basic and applied research problems in businesses (with a focus on marketing). Although this is an introductory course, students should be prepared to engage seriously in how qualitative research is conceived, conducted, implemented, and interpreted in business contexts. The course does not emphasize statistical methods, and ability to quickly acquire working knowledge of basic statistics is assumed. The instructor will make an effort to work with students to cover essentials. Students will also require a good understanding of substantive business contexts. In short, while the course accomplishes several objectives, it will focus on the skills required to design and conduct research studies using qualitative and/or survey methods.
Prerequisite(s): BUS 550 with min. grade of C
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 522
Predictive Analytics
The digital enterprise captures significantly more data about its customers, suppliers, and partners. The challenge, however, is to transform this vast data repository into actionable business intelligence. Both the structure and content of information from databases and data warehouses will be studied. Basic skills for designing and retrieving information from a database (e.g., MS Access) will be mastered. Data mining and predictive analytics can provide valuable business insights. A leading data mining tool, e.g., IBM/SPSS Modeler, will be used to investigate hypotheses and discover patterns in enterprise data repositories. Analysis tools include decision trees, neural networks, market basket analysis, time series, and discriminant analysis. Both data cleaning and analyses will be discussed and applied to sample data. Applications of data mining in a variety of industries will be discussed. Software exercises, case studies, and a major project will prepare the students to use these tools effectively during their careers.
Prerequisite(s): BUS 550 with min. grade of C
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 523
Social Media Marketing Analytics
The course examines digital marketing analytics strategies, platforms for data ingestion, preparation, and reporting. The course focuses beyond social media marketing analytics. Digital marketing analytics is foundational to Digital Marketing because analytics is the language used to optimize and connect results across all digital marketing tactics – search, social media, email marketing, display ads, video ads, etc. An effective digital marketer is well versed in data and is a data translator for a business. Becoming well versed in analytics and data requires the cultivation of both technical and soft skills. This course aims to arm students with such skills.
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 524

Advanced Predictive Analytics

This continuation of MAX 522 Predictive Analytics addresses complex data preparation methods and working with an enterprise data base system, e.g., DB2. More advanced variations of models from MAX 522 will be addressed, e.g., neural networks and cluster analysis. New models will be studied, e.g., Bayesian, Support Vector Analysis, and Time Series. Further big data analysis will be included, e.g., streaming sensor data. Web, audio, and video mining applications will be reviewed. More sophisticated visual analytics will be studied to improve the understanding of complex modeling results. A major project will provide a synthesis of the course learnings. Leading edge tools, e.g., IBM/SPSS Modeler, SAS Enterprise Miner, WATSON Analytics, IBM Streams, and Tableau will be used. These methods, models, and exercises will enhance significantly the mastery of predictive analytics.

Prerequisite(s): MAX 522 with min. grade of C
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 525

Cognitive Computing and AI

Our complex and dynamic world generates more data and potential information than the human mind alone can recognize, digest, analyze, and offer actionable insights. The IBM WATSON cognitive computing engine can offer significant intelligence amplification for individuals and their organizations to prosper in this challenging environment. This course will provide a complete journey from idea generation to completing a prototype application with WATSON. Student teams will identify a business opportunity, locate the relevant knowledge and load it into WATSON, prepare question-and-answer sets to train WATSON's ability to provide accurate responses to user queries, and develop friendly interfaces for user queries (natural language processing) and WATSON responses. After satisfactory training has been completed, a business and marketing plan for the application will be created. As new knowledge is fed into WATSON and new queries occur, WATSON's response performance will improve. Some experience with an object-oriented programming language is necessary to load knowledge, questions, and answers into WATSON. The commercialization of WATSON applications already has begun. This course provides the concepts, methods, skills, and experience to build a WATSON application that offers business value.

Prerequisite(s): MAX 522 with min. grade of C
Lecture: 2 **Lab:** 1 **Credits:** 3

MAX 526

Quantitative Marketing Models

Over the past few decades, many quantitative models have been developed to analyze fundamental problems in marketing. This course will introduce a selection of important models which are used for marketing tasks such as demand modeling, elasticity analysis, price response analysis, and promotion planning. The underlying econometric theory of these models will be presented with emphasis on gaining hands-on experience in implementing and running these models on real marketing data. This course will provide a solid foundation to perform advanced marketing analytics.

Prerequisite(s): BUS 550 with min. grade of C
Lecture: 2 **Lab:** 1 **Credits:** 3

MAX 595

Special Topics in Marketing Analytics

This course covers contemporary or cutting edge topics in the marketing analytics field offered on an irregular basis typically in a seminar style. Instructor permission is required.
Lecture: 3 **Lab:** 0 **Credits:** 3

MAX 597

Independent Study in Marketing Analytics

Students can conduct in-depth research, usually on an independent and solo basis, under the guidance of a full-time faculty member. Typically, a student signs up with a faculty member who is willing to supervise his/her independent research on a particular marketing analytics-related topic. The student has to complete the independent study form, develop a one-page proposal outlining the purpose, process, and product (expected outcomes) of the independent research project, and submit it to the program director and instructor for approval.
Lecture: 0 **Lab:** 3 **Credits:** 3