

**THE UNIVERSITY OF CONNECTICUT
SCHOOL OF BUSINESS**

MBA PROGRAM

BIG DATA AND STRATEGIC MARKETING
(Final version dated 8/30/21; a minor update made on 9/8/21)

Course Number:	MKTG 5220
Pre-requisite:	MKTG 5115
Term:	Fall 2021
Instruction Mode:	Hybrid/Blended (includes both in-person and online sessions)
Online Class Sessions:	Aug 30 to Sep 23 (10 hours asynchronous session for downloading course software, learning how to use the software, reviewing course materials, and preparing for the in-person sessions)
In-Person Sessions:	Sep 24 (6:00pm to 9:00pm), Sep 25 (10:00am to 4:00pm) Oct 1 (6:00pm to 9:00pm), Oct 2 (10:00am to 4:00pm)
Online Class Sessions:	Oct 3 to Nov 15 (25 hours asynchronous session for completing course assignments for modules 1-5, and reviewing all course materials to ensure that learning objectives listed below have been satisfied)
Classroom:	GBLC 502
Office Hours:	By Appointment (In-Person & Online)
Instructor:	Dr. Girish Punj Professor of Marketing
E-mail:	Girish.Punj@uconn.edu

CATALOG DESCRIPTION:

This course offers students the tools to analyze “big” data, to identify patterns that have actionable marketing value. Students will gain firsthand exposure to advanced analytical tools such as neural networks, market basket analysis, sequence detection, text mining, and use of state-of-the-art business modeling software to apply course concepts. Applications include financial services, retail, advertising, insurance, health care and human resources. This course is directed at students preparing for positions in digital analytics, digital marketing, marketing research, and consulting.

LEARNING OBJECTIVES:

By the end of this course, you should be able to:

- Explain the role of large datasets in making strategic marketing decisions
- Describe data science methodologies and tools used for analyzing large datasets
- Build predictive models using large datasets and data science methodologies
- Extract actionable marketing value from constructed predictive models

IS THIS COURSE SUITABLE FOR ME?

You will be expected to independently learn an unfamiliar software package and become proficient in using it to analyze data for extracting marketing intelligence. Prior experience with a statistical software package (e.g., SPSS, R, SAS, Jump, etc.) is a definite plus.

Due to the analytical nature of the course, you will be required to be knowledgeable of statistical concepts covered in the typical undergraduate statistics course that is required of all majors at any accredited university. No class time will be spent covering these concepts. If it has been a while since you have taken such a course, you are responsible for refreshing your knowledge of basic statistical procedures. For this reason, it is highly recommended that you complete BADM 5180 and/or OPIM 5181 before enrolling in this course.

The course is not suitable for students who plan to be concurrently enrolled in more than two other MBA courses due to the heavy workload. Students who have failed to make a fair assessment on whether the course is suitable for them at this time or do not have the necessary statistical background to complete course assignments have self-reported that “they learned nothing in the course” while also receiving a poor grade.

TIME COMMITMENT:

You should expect to be dedicate a minimum of nine hours a week to this course. This expectation is based on the various course activities, assignments, and assessments and the University of Connecticut’s policy regarding credit hours. If you are unable to make this time commitment, you should reconsider your enrollment in the course.

REQUIRED SOFTWARE:

The required software (IBM SPSS Modeler) will be made available to you at no cost through the IBM Academic Initiative program. Your official UConn license will extend until at least December 31, 2021. Please note that the above software is enterprise-strength state-of-the art business analytics and machine learning software. It is not to be confused with the base SPSS statistics package that you may have used in another course. The capabilities and functionalities of the software can be viewed at the following (and associated links).

<https://www.ibm.com/products/spss-modeler>

Documentation and the User Guide for using IBM SPSS Modeler software is available at the following links (and other related links)

<https://www.ibm.com/docs/en/spss-modeler/18.3.0>

Instructions for downloading the required software (IBM SPSS Modeler) will be sent to you by email by the instructor on or around August 23, 2021. If in the meantime if you are curious to learn about the functionalities and capabilities of the software there are several YouTube

videos that you can view for such a purpose, including on an IBM YouTube channel. You are required to complete the software download by 11:00pm on September 6, 2021. If you encounter any difficulties, seek the assistance of the IT Service Desk at the School of Business by sending them an email at help@business.uconn.edu

LAPTOP REQUIREMENTS:

A laptop is required for taking the course. If you plan to use a corporate laptop, please ensure that you have been granted “administrator rights” to it and any corporate firewall(s) have been disabled. Otherwise, you will not be able to download the required software.

Your laptop should comply with the minimum requirements created by the School of Business IT department for students enrolled in graduate courses. You are responsible for ensuring that your laptop meets these requirements. If it does not, you will not be able to download the software and datasets to be used in the course and therefore will be unable to complete the course assignments. Both the minimum and recommended laptop requirements can be viewed at the following link

<http://it.business.uconn.edu/student-laptop-recommendations/>

REQUIRED COURSE MATERIALS:

The required course materials are available within HuskyCT at no cost to you. These include IBM Course Guides, IBM Software Manuals, and Analytics-in-Practice Readings. The course guides and software manuals are intended to help you in developing expertise in using the required software to solve analytics problems, while the analytics-in-practice readings are intended to inform you about how companies use analytics to solve business challenges (or take advantage of business opportunities). The readings typically describe practices that are used to extract strategic marketing value from the data generated by its interactions with customers or other organizations. *Our HuskyCT site will activate on or around August 23, 2021.*

LEARNING MODULES & COURSE PROJECT:

The course content will comprise of the following learning modules.

Module 1: Introduction to Data Science & Strategic Marketing Decisions

Module 2: Predictive Modeling for Categorical Targets

Module 3: Predictive Modeling for Continuous Targets

Module 4: Clustering and Association Modeling

Course Project: Using Modeling Results for Strategic Marketing Decisions

COURSE ASSIGNMENTS:

Your final grade in the course will be based on the following course assignments, which are briefly described below.

Module Assignments:

Each student will be expected to work on assignments during the various modules of the course. These assignments have been designed to allow you to achieve proficiency in the stated learning objectives of the course. *Details on each module assignment, including submission format and due date, is available within HuskyCT through the link titled “Course Schedule.”*

The module assignments are individual assignments that are to be submitted by each student. However, it is permissible for students to consult with their teammate (two students in each team) while they work on them. The ground rules for such consultation are that the discussions between team members have to remain verbal, such as during a virtual, phone or in-person conversation, without the sharing of documents. No written material such as preliminary assignment drafts and/or IBM SPSS Modeler screen shots can be exchanged between team members, either electronically or by physical means.

Class Participation:

Due to the intensive nature of the course, you are expected to attend all classes and actively engage in all in-class activities and discussions. A portion of your class participation grade will be based on unannounced in-class assignments. There will be no opportunity to make-up for the grade assigned to an unannounced in-class assignment if you miss it.

Course Project:

Each team (two students in each team) will be expected to jointly work on a course project that is intended to consolidate their learnings from various modules of the course. The course project is a team assignment and only one submission per team is required. The course project has been designed to allow you to achieve proficiency in the stated learning objectives of the course.

GRADING:

The course assignments will be weighted as follows in determining your course grade:

Module 1 Assignment (due on Oct 10)	15 percent
Module 2 Assignment (due on Oct 17)	15 percent
Module 3 Assignment (due on Oct 24)	15 percent
Module 4 Assignment (due on Oct 31)	15 percent
Class Participation	10 percent
Course Project (due on Nov 14)	30 percent

Letter grades (e.g., A, A-, B+, B, B-, C+, etc.) will initially be assigned to individual grade components. Prior to final grade computation, the letter grades for all the individual components will be converted to numerical scores (A=93+, A- = 90-92, B+ =87-89, B=83-86, B- =80-82, C+ =77-79, C=73-76) so that they can be summed (i.e., added together) using the weighting scheme listed above, because no mathematical operations can be performed on alphabetical symbols.

Next, a frequency distribution of the overall numerical scores for the class will be computed and students will be given an overall class rank. The course grade (i.e., final letter grade) will then be based on the individual student's class rank, numerical score, and the statistical properties (i.e., mean, min, max, standard deviation) of the frequency distribution of numerical scores for the class.

Interpretation of Grading Scale (as per UConn Graduate Catalog):

The letter "A" represents work of distinction.

The letter "B" represents work of good quality, as is expected of any successful graduate student.

The letter "C" represents work below the standard expected of graduate students.

The letter "D" represents work of unsatisfactory quality.

The letters "F" and "U" signify failure in the course.

SCHEDULE FOR IN-CLASS SESSIONS:

Important: Please note that the schedule below is subject to change at the discretion of the instructor and the consent of student(s) affected by the change. The reason for any potential changes would be (a) better sequencing of course topics, and (b) more effective use of class time.

Date	Activities
24 Sep (pm)	Module 1: Introduction to Data Science & Strategic Marketing Decisions PPT: Big Data Analytics Dinner Break (approx. at 7:25pm for 20 minutes)
25 Sep (am)	Module 2: Predictive Modeling for Categorical Targets PPT: Decision Trees & Rule Induction Lunch Break (approx. at 12:25pm for 45 minutes)
25 Sep (pm)	Module 3: Predictive Modeling for Continuous Targets PPT: Neural Networks
1 Oct (pm)	Module 4: Clustering and Association Modeling (part 1) PPT: Market Segmentation PPT: Clustering Dinner Break (approx. at 7:25pm for 20 minutes)
2 Oct (am)	Module 4: Clustering and Association Modeling (part 2) Association & Affinity Models

Lunch Break (approx. at 12:25pm for 45 minutes)

2 Oct (pm) **Course Project:** Using Modeling Results for Strategic Marketing Decisions
PPT: Text Analytics
PPT: Social Network Analysis

MODULE ASSIGNMENTS:

It is okay to briefly explain (and replicate) the modeler stream(s) already shown in the course guide in your assignment write-up. But, your main focus should be on the refinements and extensions that you can make to the modeler stream(s) in the course guide that would improve the model in terms of its predictive performance and/or ability to better explain the phenomena being modeled.

There is a lot of leeway here in terms of what these additional refinements and extensions may be—as that where you have the opportunity to apply your creative thinking/modeling skills—which are going to be different for each student. Hence, there is no one set “correct” answer for the latter.

COURSE PROJECT: Using Modeling Results for Strategic Marketing Decisions

Goal: The purpose of the course project is for you to demonstrate your ability to build and validate predictive models using IBM SPSS Modeler software and interpret the results obtained. You will be using the Mobile Shopping Survey dataset that are posted on HuskyCT as a Statistics file (i.e., with the suffix .sav) to complete this course project. A data dictionary that describes the data fields (i.e., variables) in the datasets is also available on HuskyCT. While the task has been broken down into the following three questions, the main purpose of the course project is to assist you in learning how to build models that capture phenomena. The phenomena of interest here is “Mobile Shopping” as described in the relevance statement for this course project.

Task: The task for this course project is to answer the following three questions based on the Mobile Shopping Survey dataset:

Q1: What is the effect on purchase outcome for consumers who use their mobile devices in a store to primarily (a) call or text a knowledgeable friend or relative for advice about a purchase (b) look up reviews or ratings of the product on online review forums or social media (c) look up the price of a product online to compare prices (d) search for a coupon or special deal or promo code (e) look up the features of the product online to learn more about the product, and (f) scan a product bar code to get more information on the product. While assessing the effects of these six primary influences on purchase outcomes, it may also be necessary to consider the secondary influences created by important co-occurrences of the primary influences [e.g., (a) and (c) and/or (b) and (d), etc.]. Use your own criteria and judgment in choosing which secondary influences to consider.

Q2: How does the amount and type of mobile search while the consumer is shopping in a brick-and-mortar store influence purchase outcomes? To answer this question, you will need to develop (i.e., derive) measures of (a) amount of mobile search, and (b) type of mobile search, as these variables were not directly measured in the shopping survey. Use your judgment on how these measures are to be developed.

Q3: The predictive models you develop between the target and predictor variables specified in Q1 and Q2 could be potentially influenced by several other variables that are part of the shopping survey, such as type of information, sources of information, type of store, type of product, amount paid for the product, and demographic information on the shopper. Hence, it is important to selectively include these variables in your models if they moderate (i.e., change or modify) the relationships of interest.

Writing Style: Please use a written narrative (minimum length of 2000 words) to describe how the stated task was implemented and the results and outcomes obtained. You may use bullet points and summary statements, but there must be an accompanying written narrative. Conclude your report with an executive summary (minimum length 200 words) that is in plain easy-to-understand language and free of predictive modeling jargon and terminology. It should be easy to read for a brick-and-mortar store manager with zero modeling background.

Format of Deliverable: A PDF file submitted by above due date (time)

Recommended Length: 12-15 double-spaced pages (including figures, tables and readable “screen shots”) using a 12-point font and 1-inch margin on all sides. Please use a white background for your document with no watermarks or logos.

Software resources to be used: While the use of the models in IBM SPSS Modeler is highly recommended, there are no constraints on the software you use to implement some of the specific tasks listed. Use the software resources with which you are comfortable and believe are appropriate for some of the specific tasks listed.

FURTHER READING:

Listed below are five useful books on Data Science, Machine Learning and Artificial Intelligence. Please consider acquiring them, particularly if you seek a future career path in any of these areas and are a high achiever looking for a placement at a top technology firm (or a major career advance from your current position).

Data Science for Business: What you Need to Know about Data Mining and Data-Analytic Thinking (2013)

Foster Provost & Tom Fawcett

The Hundred-Page Machine Learning Book (2019)

Andriy Burkov

Artificial Intelligence: A Guide for Thinking Humans (2019)

Melanie Mitchell

Cognitive Computing with IBM Watson (2019)

Rob High and Tanmay Bakshi

Python For Everybody: Exploring Data in Python 3 (2009)

Charles Severance

COURSE POLICIES:

Professional Integrity: Students in this course are expected to abide by the highest standards of ethics and personal integrity, and to adhere to all university policies regarding academic honesty. Academic misconduct can result in a failing grade for the course. A student who knowingly assists another student in committing an act of academic misconduct shall be equally accountable for the violation.

Issues of academic misconduct are covered in The Student Code, Part IV: Student Conduct Policies and in Appendix A. (see <http://community.uconn.edu/the-student-code/>) and on the UConn Policy & Procedures website (see <https://policy.uconn.edu/2014/04/11/policy-on-scholarly-integrity-in-graduate-education-and-research/>)

Conflict with Course Dates: You may not concurrently enroll in any other course for which there is a conflict with the scheduled in-class course dates for this course. You may not enroll in the course if you are participating in a university event (e.g., a case competition) or work assignment (e.g., a business trip) or personal event (e.g., a wedding) that requires you to miss multiple class sessions (defined as more than two hours of in-class instruction).

Use of Laptops and Mobile Devices: Please bring a laptop to **all in-person sessions**, as you will need it to work on the course assignments. The use of mobile devices while class is in session is not permitted. If you have to immediately attend to an important message, please exit the classroom to do so.

Class Attendance: In-person attendance of all designated in-person class sessions is expected as per the latest guidance on instructional modality for Fall 2021 (dated August 16, 2021) from the UConn Provost's Office unless you have received an ADA accommodation.