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| C:\Users\gps329\AppData\Local\Microsoft\Windows\INetCache\Content.MSO\5499F650.tmp | Marketing Analytics I |
| Fall 2021 |

**Professor** Garrett P. Sonnier

**Office** CBA 7.256

**Office Hours** Monday 2:30 PM - 3:30 PM or by appointment

**Phone** 512-471-9197   
**E-Mail** [garrett.sonnier@mccombs.utexas.edu](mailto:garrett.sonnier@mccombs.utexas.edu)

**Course Web Page** via Canvas

**Section Times** Tue and Thu, 3:30 PM - 4:45 PM

**Classroom** GSB 3.138

# Course Overview and Objectives

Marketing is the business function that addresses the design and implementation of strategies that create, build and sustain value for the firm’s customersand captures a portion of that value for the firm. Successful design and implementation of marketing strategies involve the identification and measurement of customers’ needs and wants, selection of appropriate customer segments for targeting the firm’s marketing efforts, and the development and delivery of strategies that satisfy customers’ needs and achieve the firm’s performance objectives. This course will provide students with an introduction to the marketing function in contemporary business management with a focus on understanding and analyzing firm marketing actions. Specific topics include preference measurement, market segmentation and targeting, customer economics, product and brand policies, pricing, advertising, and digital marketing. In Marketing Analytics II, students will be given the opportunity to further explore some of the methods we introduce here.

Our specific learning objectives in this course include the following:

1. Develop a comprehensive understanding of the marketing function in business organizations
2. Engage with real-world business cases and data to study marketing strategies and tactics
3. To understand the benefits and limitations of using data and models to make marketing decisions

**Materials**

*Coursepack (required):* The coursepack, which contains the cases and readings we will use in the course will be available on the web from Harvard Business Publishing (HBP) at the following link.

<https://hbsp.harvard.edu/import/964274>

Instructions for obtaining the coursepack from HBS can be found at the following link.

<https://help.hbsp.harvard.edu/hc/en-us/articles/360001262588-How-To-Access-and-Purchase-a-Coursepack-Assigned-to-You>

Everyone must purchase their own copy of the packet. **Please do not share copies of the packet as this is a violation of copyright.** HBP is notified of the number of students enrolled in the course and monitors the number of coursepacks purchased.

*Textbooks:* There is no required textbook for this course. Students looking for more background material may find the following widely available textbooks of use.

Introductory Econometrics: A Modern Approach (6th Edition) by Jeffery Woolridge

The course makes much use of linear and generalized linear models. This text provides a thorough introduction to linear regression models for cross sectional and time series data as well as coverage of a number of more advanced topics. In addition, the appendices review concepts in probability and statistics and matrix algebra that students may find useful. Most introductory econometrics textbooks contain similar material.

Database Marketing: Analyzing and Managing Customers by Robert Blattberg, Byung-Do Kim, and Scott Neslin

This textbook contains in depth treatment of customer lifetime value (LTV) as well as many data driven techniques introduced in the course, including RFM analysis, market basket analysis, collaborative filtering, and cluster analysis. A number of other topics are also included.

*Software (required):* We will make use of XLSTAT Premium when performing analyses both in and out of the classroom. Although you may use R, Python, MATLAB or other software to complete class exercises if you wish, we use XLSTAT and Excel in this course for two reasons. First, our objective in this Marketing Analytics I is to focus on concepts rather than programming. In Marketing Analytics II and other courses programming will be more of a central focus. Second, this course is intended to give you a high degree of familiarity with Excel, which is useful for any student wishing to pursue a career in industry.

The MS Program Office has purchased licenses for use in conjunction with this course.

1. Go to <https://www.xlstat.com/en/download/xlstat> to download and install the free trial version. Note there are separate versions for Mac and PC. During the install you will be prompted to enter a license key. The license key for our class is

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1. **Please do not use the license for more than one installation. We have only enough licenses for a single install for each student.**
2. **If you already have the trial version installed, simply click on the XLSTAT button under the XLSTAT tab (pictured below). Choose “About XLSTAT” from the menu and follow the prompts to activate your license.**

In addition, please make sure that the **Analysis Toolpak** and **Solver** are enabled in your version of Excel. If you are unfamiliar with how to do this a quick Google search will eliminate any uncertainty. Please bring your laptop to every class meeting.

*Lecture Notes:* PowerPoint slides and data sets for the lectures will be posted to Canvas.

**Course Components and Grading**

Your final grade will be determined as follows:

1. Class Contribution 5%
2. Individual Homework Exercises
   * Exercise 1 5%
   * Exercise 2 5%
   * Exercise 3 5%
   * Exercise 4 5%
3. Group Project 15%
4. Exam 1 30%
5. Exam 2 30%

A. CLASS CONTRIBUTION (5%)

You will be evaluated on your contribution to the in-class learning environment. You may think of this as an incentive to attend class sessions synchronously and to behave responsibly when doing so. Some of general criteria for evaluating effective class contribution include but are not limited to the following:

* Is the student present and on time? Regular attendance is required to receive credit.
* Does the student participate? To earn contribution points you must actively offer your insights, thoughts and constructive criticism.
* Is the student texting or using laptop for non-class purposes?
* ***Please use your laptop for the intended class purposes. Cell phones should be put away. Observed use of electronic devices for purposes other than engagement with course materials will result in a negative impact on your contribution score.***
* ***Please note that missing more than three classes may have a significant negative impact on your contribution score.***

B. INDIVIDUAL HOMEWORK EXERCISES (20%)

You will complete four individual homework exercises (each contribute 5% to your overall grade) throughout the term (see the schedule for more details). You should attempt the assignments on your own but feel free to discuss problems with your classmates. The assignments will be posted to Canvas with additional instructions, including formatting and submission instructions.

C. GROUP PROJECT (15%)

You will work with your classmates on a group project which contributes 15% to your overall grade. ***Please note that in order to receive full credit your attendance at all group project presentations is required.***

*Teams:* Students will form teams of 4-6 people (pending class size) in order to complete a group project on a marketing analytics topic of your choosing. *You may select yourselves into groups so long as you do so by Wed Aug 31st at 5:00 PM. A link to a shared Google sheet is on the Canvas class homepage under the Assignment tab. Please record your team membership there.* I will randomly assign the remaining students into teams and notify everyone of team membership in the class meeting on Thursday September 1st.

*Project Topics*: You are free to generate your own project ideas but you should clear them with me before you incur a substantial time investment. The important criteria are 1) that the project is feasible to complete by mid-November, 2) that the project address a marketing question/topic (which is not limited to advertising questions!) and 3) that the project contains a major data analytic and modeling component. I would encourage you to use the project as a way to go deep on a topic of interest to you. Feel free to look at topics outside the syllabus.

*Project Timeline and Deliverables*: Below is the timeline for the group project. It is not too early to start thinking about the project. A detailed proposal, which should include the research question, methodology to be employed to address the question, and a description of the data to be used in the project, is due at the end of September. The final report is due at 5:00 P.M. Mon November 7th. The proposal and final report are all to be written in Powerpoint and submitted to Canvas on the due date. Teams will be randomly assigned a presentation date and will deliver a 20 minute presentation using the deck submitted on November 7th. You may wish to include additional findings/material that are of interest but that cannot be covered in the 20 minutes of allotted presentation time in an Appendix.

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| Item | Due |
| Form Project Teams | Wed Aug 31st |
| Detailed Project Proposals | 5:00 PM on Mon Sep 26th |
| Final Report (including any Appendices) | 5:00 PM on Nov 7th |
| Presentations | Nov 8th, 10th, 15th, 17th and Nov 29th |

I strongly encourage you to meet with me during office hours or by appointment sometime in early to mid September to discuss projects.

D. EXAMS (60%)

Exam 1 is scheduled for **Tuesday October 11th** during the class session. The exam will be based on the material covered in class through Session 10. Exam 2 is scheduled for **Thursday December 1st** during the class session. This exam will draw more heavily on material covered over the second half of the course but some questions may be drawn from earlier material. More details will be provided as the semester progresses.

**Class Schedule and Background Reading**

**Tuesday 8/23/22---Session 1: Introduction to Marketing Analytics**

Reading: *Marketing Economics*

**Thursday 8/25/22---Session 2: Creating Value for Customers**

Reading: *Polyphonic HMI*

**Tuesday 8/30/22---Session 3: Customer Mindset Metrics**

Reading: *Methods for Producing Perceptual Maps from Data*

**Thursday 9/1/22---Session 4: Measuring Customer Preferences**

Reading: *Managerial Overview of Conjoint Analysis*

*(available in Session 4 folder on Canvas)*

**Tuesday 9/6/22---Session 5: Generalized Linear Models**

Reading: *Modeling Discrete Choice*

**Thursday 9/8/22---Session: 6: Choice-Based Conjoint Analysis**

Reading: *Choice Based Conjoint Technical Paper*

*(available in Session 6 folder on Canvas)*

**Tuesday 9/13/22---Session 7: Attitudinal Market Segmentation**

Reading: *Cluster Analysis for Segmentation*

**Thursday 9/15/22---Session 8: Session 8: Preference Segmentation**

Reading: *Hierarchical Bayesian Analysis of CBC Data*

Reading: *Hierarchical Bayes Technical Note*

*(both available in Session 8 folder on Canvas)*

***NOTE: Choice Based Conjoint Homework Due***

**Tuesday 9/20/22--- Session 9: Recommendation Systems**

# Reading: *Collaborative Filtering Gives Customers What They Want*

Reading: *Market Basket Analysis 101* available at

[*https://smartbridge.com/market-basket-analysis-101/https://smartbridge.com/market-basket-analysis-101/*](https://smartbridge.com/market-basket-analysis-101/https:/smartbridge.com/market-basket-analysis-101/%20)

**Thursday 9/22/22--- Session 10: Heuristic Approaches to Behavioral Targeting**

Reading: *Using RFM to Identify Your Best Customers* available at[*https://www.eightleaves.com/2011/01/using-rfm-to-identify-your-best-customers*](https://www.eightleaves.com/2011/01/using-rfm-to-identify-your-best-customers)

**Tuesday 9/27/22--- Session 11: Scoring Models for Prospect Targeting**

Reading: *Managing* *Customer Acquisition*

**Thursday 9/29/22------Session 12: Scoring Models for Customer Retention**

Reading: *Managing Customer Retention*

Reading:*Retail Relay (C)*

**Tuesday 10/4/22------Session 13: Applications of Customer Lifetime Value**

Reading: *Customer Profitability*

***NOTE: List Scoring Homework Due***

**Thursday 10/6/22---FLEXTIME FOR EXAM PREP OR GROUP PROJECT WORK**

**Tuesday 10/11/22---EXAM I (material through Session 10)**

**Thursday 10/13/22---Session 14: Market Sizing and New Product Adoption**

Reading: *Forecasting the Adoption of a New Product*

**Tuesday 10/18/22---Session 15: Forecasting**

Reading: *Holt Winters Forecasting* available at

[*https://grisha.org/blog/2016/01/29/triple-exponential-smoothing-forecasting/*](https://grisha.org/blog/2016/01/29/triple-exponential-smoothing-forecasting/)

Reading: *Yahoo’s Acquisition of Tumblr*

**Thursday 10/20/22------Session 16: Price and Advertising Response Models**

Reading: *Design of Price and Advertising Elasticity Models*

***NOTE: New Product Adoption/Forecasting Homework Due***

**Tuesday 10/25/22---Session 17: Response Models to Assess Marketing Effectiveness**

Reading: *Three Faces of Consumer Promotions*

Reading: *Practical Regression: Building a Model*

**Thursday 10/27/22---Session 18: A/B Testing of Advertising Effectiveness**

Reading: *The Power of Online Experiments*

Reading: *Rocket Fuel*

**Tuesday 11/1/22---Session 19: Search Marketing**

Reading: *Paid Search Advertising*

***NOTE: Response Modeling Homework Due***

**Thursday 11/3/22---Session 20: Social Media Marketing**

Reading: *What is Social Media Marketing?*

**Tuesday 11/8/22---Project Presentations**

**Thursday 11/10/22---Project Presentations**

**Tuesday 11/15/22--- Project Presentations**

**Thursday 11/17/22--- Project Presentations**

**Tuesday 11/22/22---Thanksgiving**

**Thursday 11/24/22---Thanksgiving**

**Tuesday 11/29/22--- Project Presentations/Flex Time**

**Thursday 12/1/22---Exam II (material from Sessions 11-20)**

### Diversity and Inclusion

It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students’ learning needs be addressed and that the diversity that students bring to this class can be comfortably expressed and be viewed as a resource, strength and benefit to all students. Please come to me at any time with any concerns.

### Name and Personal Pronoun Preference

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Class rosters are provided to the instructor with the student’s legal name. I will gladly honor your request to address you by a name different than what appears on the roster, and by the gender pronouns you use. Please advise me of any preferences early in the semester so that I may make appropriate changes to my records.

**Guidance for Fall 2022 Semester**

This course is scheduled to be delivered in person. However, all classes will be recorded on Zoom so that any students who may fall ill will have the opportunity to view the class synchronously or asynchronously. Please note that the stream/recording is not intended to facilitate consumption of the course material remotely/asynchronously on a regular basis. Your class contribution score depends on your synchronous participation in class assuming your health allows it. With respect to class materials and class recordings the University has provided the following guidelines. Please read each of these carefully.

**Sharing of Course Materials is Prohibited**

No materials used in this class, including, but not limited to, lecture hand-outs, videos, assessments (quizzes, exams, papers, projects, homework assignments), in-class materials, review sheets, and additional problem sets, may be shared online or with anyone outside of the class unless you have my explicit, written permission. Unauthorized sharing of materials promotes cheating. It is a violation of the University’s Student Honor Code and an act of academic dishonesty. I am well aware of the sites used for sharing materials, and any materials found online that are associated with you, or any suspected unauthorized sharing of materials, will be reported to Student Conduct and Academic Integrity in the Office of the Dean of Students. These reports can result in sanctions, including failure in the course.

**FERPA and Class Recordings**

Class recordings are reserved only for students in this class for educational purposes and are protected under FERPA. The recordings should not be shared outside the class in any form. Violation of this restriction by a student could lead to Student Misconduct proceedings.

## University Policies

### Academic Integrity

I have no tolerance for acts of academic dishonesty. Such acts damage the reputation of the school and the degree and demean the honest efforts of the majority of students. Each student in the course is expected to abide by the University of Texas Honor Code: “As a student of The University of Texas at Austin, I shall abide by the core values of the University and uphold academic integrity.” You are responsible for understanding UT’s Academic Honesty and the University Honor Code which can be found at the following web address: [deanofstudents.utexas.edu/conduct](http://deanofstudents.utexas.edu/conduct/)

### University Resources for Students

There are a range of resources on campus that provide a range of services to students.

*Students with Disabilities*

Upon request, the University of Texas at Austin provides appropriate academic accommodations for qualified students with disabilities. Services for Students with Disabilities (SSD) is housed in the Office of the Dean of Students, located on the fourth floor of the [Student Services Building](http://www.utexas.edu/maps/main/buildings/ssb.html). [Information on how to register](http://deanofstudents.utexas.edu/ssd/register.php), [downloadable forms](http://deanofstudents.utexas.edu/ssd/downloads.php), including [guidelines for documentation](http://deanofstudents.utexas.edu/ssd/doc.php), accommodation request letters, and releases of information are available online at http://diversity.utexas.edu/disability/. Please do not hesitate to contact D&A at (512) 471-6259 or via [e-mail](mailto:ssd@uts.cc.utexas.edu?subject=question%20or%20comment%20about%20SSD) if you have any questions.

##### *Counseling and Mental Health Center*

Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone. There are many helpful resources available on campus. Asking for support sooner rather than later is often helpful. If you or anyone you know experiences any academic stress, difficult life events, or feelings like anxiety or depression, we strongly encourage you to seek support. [cmhc.utexas.edu/individualcounseling.html](http://cmhc.utexas.edu/individualcounseling.html)

*Student Emergency Services:*

If at any time you experience an emergency that necessitates your absence from a class requirement (e.g., attendance, assignment submission, or exam), please report your circumstances and absence via the Student Emergency Services website: [deanofstudents.utexas.edu/emergency](http://deanofstudents.utexas.edu/emergency/)

## Important Safety Information

If you have concerns about the safety or behavior of fellow students, TAs or Professors, call BCAL (the Behavior Concerns Advice Line): 512-232-5050. Your call can be anonymous. If something doesn’t feel right – it probably isn’t. Trust your instincts and share your concerns.

### Title IX Reporting

Title IX is a federal law that protects against sex and gender-based discrimination, sexual harassment, sexual assault, sexual misconduct, dating/domestic violence and stalking at federally funded educational institutions. UT Austin is committed to fostering a learning and working environment free from discrimination in all its forms. When sexual misconduct occurs in our community, the university can:

1. Intervene to prevent harmful behavior from continuing or escalating.
2. Provide support and remedies to students and employees who have experienced harm or have become involved in a Title IX investigation.
3. Investigate and discipline violations of the university’s [relevant policies](https://titleix.utexas.edu/relevant-polices/).

Faculty members and certain staff members are considered “Responsible Employees” or “Mandatory Reporters,” which means that they are required to report violations of Title IX to the Title IX Coordinator. **I am a Responsible Employee and must report any Title IX related incidents** that are disclosed in writing, discussion, or one-on-one. Before talking with me, or with any faculty or staff member about a Title IX related incident, be sure to ask whether they are a responsible employee. If you want to speak with someone for support or remedies without making an official report to the university, email [advocate@austin.utexas.edu](mailto:advocate@austin.utexas.edu) For more information about reporting options and resources, visit [titleix.utexas.edu](http://titleix.utexas.edu/) or contact the Title IX Office at [titleix@austin.utexas.edu](mailto:titleix@austin.utexas.edu).

The following recommendations regarding emergency evacuation from the Office of Campus Safety and Security, 512-471-5767, [operations.utexas.edu/units/csas](http://operations.utexas.edu/units/csas/)

Occupants of buildings on The University of Texas at Austin campus are required to evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.

* Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.
* Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class.
* In the event of an evacuation, follow the instruction of faculty or class instructors. Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.
* Link to information regarding emergency evacuation routes and emergency procedures can be found at:

[emergency.utexas.edu](http://emergency.utexas.edu/)