B9651: MS MARKETING
ANALYTICS Fall 2022
Draft Syllabus

Professors:
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   & 3 Office Hours: By appointment

Teaching Assistant(s):
   To be determined.
   Office Hours: By appointment

Course Times:
   To be determined.

COURSE DESCRIPTION

Marketing activity is the core of operating a business. Marketing analytics supports marketing activity by providing the tools and frameworks for identifying, delivering, and capturing value from customers. The course is organized around four modules. Each module features a different set of quantitative tools and programs that ensure students are exposed to a range of resources utilized by marketing professionals. Python, R, and Excel will be used in the course.

- The **first module** focuses on segmentation-targeting-positioning (STP) analytics. In order to make effective strategic decisions, managers must identify and measure customers' wants, assess the competitive environment, select the most appropriate customer targets and then develop marketing programs that satisfy customers' needs better than the competition.
- The **second module** focuses on customer analytics. To deliver value to customers, managers must understand how to acquire new customers and retain existing customers, and especially the *right* customers.
- The **third module** focuses on 4P (product, place, promotion, price) analytics. To optimize marketing decisions and programs, managers must be able to quantify the impact of the marketing mix on the value captured from customers.
- The **fourth module** focuses on special topics in marketing. In particular, we'll discuss fairness, social networks, and market design.

Outline of the Course:

STP Analytics (Identify Value)	Customer Analytics (Deliver Value)	4P Analytics (Capture Value)	Special Topics
Weeks 1 - 4	**Weeks 5 - 7**	**Weeks 8 - 10**	**Weeks 11 - 12**
What datasets can we use? How can we segment and target our customers? How should we position our products/services? What is our brand's value?	How much are our customers worth? How do our customers make choices? Are our customers leaving?	How do we build a new product? How should we price our products? How do we distribute them? How do we quantify the impact of our promotions?	How do we incorporate notions of fairness into models? How can we leverage social network data? How do we design a marketplace?

STUDENT EVALUATION

(1) Midterm (15%) & Final Exam (25%)

The midterm (closed book) and final exam (open book) will be designed to test your understanding of the topics covered in the lectures, readings, and exercises. The midterm will be one hour and the final will be two hours.

(2) Assignments (50%)

There are two individual assignments and three group assignments (worth 10% each). The two individual assignments are to be completed individually without discussing the assignment or the solutions with other students. Failure to do so will result in a loss of all points allocated to the assignment for everyone who does not adhere to this guideline. The group assignments will be done in groups of 4 students that are randomly formed. See Canvas for group assignments.

No late assignments will be accepted and failure to submit an assignment on time will result in a zero for the assignment.

(3) Class Participation / Concept Checks (10%)

You are invited to highlight insightful linkages between class material and your experience as a professional and as a consumer, and to participate actively in class discussions. Class attendance will be required and will be monitored. Class preparedness will be assessed based on your responses to some short online pre-class surveys. You should fill out each survey before the start of the corresponding class. Note that the questions in these surveys typically do not have a unique correct answer. You will receive full credit for each survey if you fill it out and give some reasonable justification for your answers.

LAPTOP POLICY

All students should have a laptop with Python and Excel installed. Laptops will be utilized at designated times during class but **should otherwise remain closed**. Tablets are allowed for note taking. Cell phones and any other electronic devices are strictly prohibited.

HONOR CODE

You are expected to conform to the norms of behavior outlined in the Columbia Business School Integrity Code given below:

"As a lifelong member of the Columbia Business School Community, I adhere to the principles of TRUTH, INTEGRITY and RESPECT. I will not lie, cheat, steal or tolerate those who do."

Any allegation of academic dishonesty will be forwarded to the Dean's office for investigation. Any case of proven academic dishonesty will result in failure in the course. Simple things such as arriving on time to class, turning cell phones off during class time and not being tempted by the many distractions that the Internet offers can make the experience more enjoyable and rewarding.

OVERVIEW OF CLASS SCHEDULE

Module 1: STP Analytics

Session*	Topic	Key Questions/Readings	Due at 8 am day of class
Week 1 T: Sep 6 R: Sep 8	Course Introduction + Marketing Datasets	**Key Questions:** - *What is Marketing?* - *What data can we collect and how?* **Required reading:** Why Marketing Analytics Hasn't Lived Up to Its Promise	**Pre-class Introduction Survey (individual)**
Week 2 T: Sep 13 R: Sep 15	Market Segmentation + Targeting	**Key Questions:** - *How can we segment customers?* - *Which customers should we target?* **Required reading:** Python for Marketing Research and Analytics (chapter 10)	
Week 3 T: Sep 20 R: Sep 22	Market Segmentation + Positioning	**Key Questions:** - *How should we position our products/services?* **Required reading:** Python for Marketing Research and Analytics (chapter 9)	**Market Segmentation Concept Check (individual)**
Sun: Sep 25	**First (group) assignment due at 8:00 pm (STP Analytics: Ford Ka)**		
Week 4 T: Sep 27 R: Sep 29	Ford Ka + Branding + Text Analysis	**Key Questions:** - *What is our brand's value?* **Optional reading:** Mine Your Own Business: Market-Structure Surveillance Through Text Mining	**Positioning Concept Check (individual)**

* Note: Section 1 only meets on Tuesdays

Module 2: Customer Analytics

Session*	Topic	Key Questions/Readings	Due at 8 am day of class
Week 5 T: Oct 4 R: Oct 6	Customer Lifetime Value (CLV) + CRM	**Key Questions:** - *How much are our customers worth?* **Required reading:** Matrix Factorization Techniques for Recommender Systems [Link] **Optional reading:** Zero Defections: Quality Comes to Services	
Week 6 T: Oct 11 R: Oct 13	Customer Base Analysis – Modeling Customer Purchasing	**Key Questions:** - *How can we predict our customers' choices?* **Required reading:** Choice Modeling (chapters 2, 3 and 4 (up to and including section 4.3)) [Link] **Optional reading:** https://eml.berkeley.edu/books/choice2.html	**CLV Concept Check (individual)**
Sun: Oct 16	**First (individual) assignment due at 8:00 pm (Unstructured Data + Customer Analytics)**		
R: Oct 20	**Midterm (closed book, weeks 1-5, Kravis 420, 440, and 490, 6-7PM)**		
Week 7 T: Oct 25 R: Oct 27	Customer Base Analysis – Modeling Customer Churn + Guest Speaker	**Key Questions:** - *Are our customers leaving?*	

* Note: No class week of midterm

Module 3: 4P Analytics

Session*	Topic	Key Questions/Readings	Due at 8 am day of class
Week 8 T: Nov 1 R: Nov 3	Product – Conjoint Analysis & Diffusion of Innovation	**Key Questions:** - *How do we build a new product?* **Required reading:** - Note on Diffusion Models **Optional readings:** - [Fast Polyhedral Adaptive Conjoint Estimation](#) - [Improving Penetration Forecasts Using Social Interactions Data](#)	
Week 9 R: Nov 10 T: Nov 15	Price + Place - Measuring Willingness to Pay, Price Optimization, Channels of Distribution, Double Marginalization	**Key Questions:** - *How should we price our products and services?* - *How do we distribute them?* **Required readings:** - Montclair Video (case) - Glaubinger Tree Farm (case) **Optional readings:** - [Managing channel profits](#) - [Attention, Information Processing and Choice in Incentive-Aligned Choice Experiments](#)	**Conjoint Analysis Concept Check (individual)**
Mon: Nov 14	**Second (group) assignment due at 8:00 pm (New Product Design)**		
Week 10 R: Nov 17 T: Nov 22	Promotion - Measuring the Effectiveness of Promotions	**Key Questions:** - *How do we quantify the impact of our promotions?* **Required readings:** - Rocket Fuel: Measuring the Effectiveness of Online Advertising (case) - Chirpin' Tavern's Coupon Promotion **Optional readings:** - [Ghost ads: Improving the economics of measuring online ad effectiveness](#) - [A Semantic Approach for Estimating Consumer Content Preferences from Online Search Queries](#)	**Pricing Concept Check (individual)**

Module 4: Special Topics

Session*	Topic	Key Questions/Readings	Due at 8 am day of class
Mon: Nov 28	**Third (group) assignment due at 8:00 pm (Artea)**		
Week 11 T: Nov 29 R: Dec 1	Fairness + Social Networks	**Key Questions:** • *How to define fairness?* • *How to incorporate fairness into models?* • *How to leverage social network data?* **Required reading:** • Artea (case)	
Mon: Dec 5	**Second (individual) assignment due at 8:00 pm (4P Analytics)**		
Week 12 T: Dec 6 R: Dec 8	Market Design & Auctions + Review Session	**Key Questions:** • *How do I design a marketplace?*	
R: Dec 15	**Final Exam (open book)**		

Inclusion, Accommodations, and Support for Students

At Columbia Business School, we believe that diversity strengthens any community or business model and brings it greater success. Columbia Business School is committed to providing all students with the equal opportunity to thrive in the classroom by providing a learning, living, and working environment free from discrimination, harassment, and bias on the basis of gender, sexual orientation, race, ethnicity, socioeconomic status, or ability.

Columbia Business School will make reasonable accommodations for persons with documented disabilities. Students are encouraged to contact the Columbia University's Office of Disability Services for information about registration. Students seeking accommodation in the classroom may obtain information on the services offered by Columbia University's Office of Disability

Services online at www.health.columbia.edu/docs/services/ods/index.html or by contacting (212) 854-2388.

Columbia Business School is committed to maintaining a safe environment for students, staff and faculty. Because of this commitment and because of federal and state regulations, we must advise you that if you tell any of your instructors about sexual harassment or gender-based misconduct involving a member of the campus community, your instructor is required to report this information to a Title IX Coordinator. They will treat this information as private, but will need to follow up with you and possibly look into the matter. Counseling and Psychological Services, the Office of the University Chaplain, and the Ombuds Office for Gender-Based Misconduct are confidential resources available for students, staff and faculty. "Gender-based misconduct" includes sexual assault, stalking, sexual harassment, dating violence, domestic violence,

sexual exploitation, and gender-based harassment. For more information, see http://sexualrespect.columbia.edu/gender-based-misconduct-policy-students.

For COVID-19 protocol, please visit: https://covid19.columbia.edu/students