Ohio State University
Fisher College of Business
BUSML 4210 (5108)
Advanced Marketing Research and Analytics

Instructor:	Jiae Kim, Visiting Assistant Professor of Marketing
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Office Hours/location:	TBD @ FI (Fisher Hall) 544
Course Meeting Days/Times	T/Th 12:45 PM - 2:05 PM
Room	Gerlach Hall 375

Course Description
Data analytics comes in three varieties – descriptive, predictive and prescriptive. Prescriptive data analysis is concerned with identifying the best course of action to take in response to what is known about the business and its environment. Prescriptive analytics moves beyond the summary and discovery of interesting data patterns as in descriptive analysis, and the prediction of future events assuming that the basic nature (i.e., the correlational structure) of the data stays the same. Prescriptive analysis aims to analyze and predict interventions by management and others that are expected to influence the outcomes of interest. Prescriptive analysis seeks to generally determine causal effects and identify optimal decisions. Its domain is broader than the statistical analysis of data.

The course material will be taught within an experiential learning environment. Students will develop skills in translating strategic questions of firms into actionable data analysis. Students will also become be exposed to and become proficient with concepts spanning primary data creation using experiments and surveys, to the analysis of pre-existing, secondary data. Throughout, students will be asked to program their own data analysis using the R statistical language.

Prerequisites
BUSML 4201, 4202 and BUSMHR 2292 or equiv; or permission of the instructor. Not to open students with credit for BusMgt 3333; or permission of the instructor.

Textbooks
Allenby, Greg M. and Jeff D. Brazell (2016) Seven Summits of Marketing Research: Decision-Based Analytics for Marketing's Toughest Problems, self-published.
Angrist, Joshua D. & Jörn-Steffen Pischke (2014) Mastering Metrics: The Path from Cause to Effect. Princeton University Press.
Orme, Bryan K. (2020) Getting Started with Conjoint Analysis (4th Edition). Research Publishers, LLC.

Course Schedule
The first half of the course will be devoted to the creation and analysis of primary data using a case study by Ford SUVs (downloadable from CarmenCanvas).

We will be using Sawtooth's "Discover" software to produce a survey link for conjoint study (https://discover.sawtoothsoftware.com/). Please create an account by clicking on the following link: https://account.sawtoothsoftware.com/AccessLink/3d3b3fb212de4d198f15c44f49b55ec9

Topic A1: Introduction and R-basic (with Matrix Algebra)

Readings: Allenby, G. M., & Brazell, J. D. (2016). Seven summits of marketing research. Appendix B

Assignment 1: R: The basic R command for data analytics.

Topic A2: Market Segmentation – systematically understand the similarity of heterogeneous consumers, cluster analysis, factor analysis.

Readings: Allenby, G. M., & Brazell, J. D. (2016). Seven summits of marketing research. Chp2

Assignment 2: Market segmentation: making sense of multiple response data.

Topic A3: Market Assessment – defining a market by understanding how brands are currently positioned with regard to product features, prices, advertising, and distribution.

Readings:

- An integrated approach
- Multiple Perspectives

Assignment 3: Market Assessment: understanding the current state of the SUV market.

Topic A4: Conjoint survey – Screening questions, attitudes, beliefs, scaling, definitions, behavioral correlates, demographics.

Readings: Bryan K Orme (2020) Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research, Research Publishers, LLC. Chp1, 2, 3, 5, 6

Assignment 4: Conjoint Analysis: understand what consumers want?

Topic A5: Heterogeneity – mapping motivations and wants for each segment, conjoint analysis, choice model, hierarchical Bayes.

Readings: Bryan K Orme (2020) Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research, Research Publishers, LLC. Chp9

Assignment 5: Heterogeneity: mapping motivations and wants.

Topic A6: Economic Value of Analysis – Market simulator, monetized utility, WTP, WTB.

Readings:

- Bryan K Orme (2020) Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research, Research Publishers, LLC. Chp10
- Allenby, Greg M., Jeff D. Brazell, John R. Howell and Peter E. Rossi (2014) "Valuation of Patented Product Features," *Journal of Law and Economics*, 57, 3, 629-663.

Assignment 6: Economic Value of Analysis: a market simulator for estimating the WTP and WTB

Topic A7: Group Presentation

The second half of the course will focus on the analysis of secondary data. The weekly homework follow the textbook material from Angrist and Pischke.

Topic B1: Randomized trials - A/B testing

Intro to regression using matrices: 7 Summits Appendix B
Readings: Angrist and Pischke, Chapter 1
Assignment 7: Randomized trials - A/B testing

Topic B2: Regression, statistical matching, and propensity score

Readings: Angrist and Pischke, Chapter 2
Assignment 8: Regression and statistical matching

Topic B3: Regression discontinuities

Readings: Angrist and Pischke, Chapter 4
Assignment 9: Regression discontinuities

Topic B4: Differences-in-differences

Readings: Angrist and Pischke, Chapter 5
Assignment 10: Differences-in-differences

Review for Final

Evaluation

The course grade will be based on participation, a set of assignments, one course project and the final exam.

The final grade will be determined by the weighted average of the following:

Grade components	Percentage
Class attendance/participation	10%
Assignments	50%
Presentation	20%
Final exam April 18th	20%
Total	100%

Class Attendance/participation: Students are expected to attend all class meetings. If a student needs to miss a course session, they must inform the instructor via email before the class. Students who miss class sessions are still held wholly accountable for the material covered in that period, including announcements made to the class.

Students are expected to engage in class discussions actively. Effective participation demonstrates mastery of reading and class materials. Full attendance does not necessarily mean

earning all the points for participation. Your professional behavior and class participation/preparedness are also important. Each student is expected to conduct himself/herself professionally, as expected of business students who are future participants of the business world. Disruptive, inappropriate, and/or unprofessional behavior will not be tolerated.

The instructor reserves the right to take attendance unannounced. This is highly likely to happen if attendance drops.

Assignments: In most weeks, you will complete an assignment based on the topic of the lecture. All assignments should be submitted through Carmen and are due no later than 11:59 pm on the specified due date. Assignments turned in late will incur a penalty of 20% for each day they are overdue.

Presentation and Final exam: Further instruction will be given later in the semester.

Notes: Most of the assignments and course projects will be done using the R statistical software package (https://www.rstudio.com/). R is the most widely used software in commercial and academic data analytics. Students will be asked to code their analysis from scratch and report on the validity of their code with their own simulated data.

- R can be downloaded from http://www.r-project.org/.
    - A good reference for using R is *R by Example by Jim Albert and Maria Rizzo*
- The R studio user interface for R will be used and can be found at http://www.rstudio.com
- Best advice: copy example code I provide during the class and try to adapt it. If you do not understand something, please ask questions.

Grades will follow the standard rubric

A	93-100%	C	73-76%
A-	90-92%	C-	70-72%
B+	87-89%	D+	67-69%
B	83-86%	D	63-66%
B-	80-82%	D-	60-62%
C+	77-79%	E	0-59%

Disclaimer: The coverages/due dates are tentative and I reserve the right to change them; at least one week of notice will be provided during class in case of a change. If you find a discrepancy in the grading of an assessment (e.g., incorrect addition/subtraction, correct answer marked incorrect, etc.) then you must bring it to instructor's attention no later than one week from the day it is returned. After that no grade will be changed for any reason whatsoever.

Any student who fails to complete an assignment, without giving prior notification to the instructor, will be dis-enrolled after the third instructional day of the term, the first Friday of the term, or the second class meeting of the course, whichever occurs first.

Electronic devices: Use of communication devices and technology for activities other than class work disrupt the learning process for you and others in the class and will not be tolerated. Cell phones and other (unnecessary) electronic devices should be turned off or silenced during class.

Academic Misconduct

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's Code of Student Conduct and this syllabus may constitute "Academic Misconduct." The Ohio State University's Code of Student Conduct (Section 3335–23–04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an "excuse" for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct. If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Use of Artificial Intelligence (AI)

Unless the instructor specifically mentions otherwise (and in writing), the use of any AI-generated content in any deliverables in this course will be considered academic misconduct and will be acted on as such. Writing assignments will be turned in online and the instructor will be using Turnitin and other applications that have AI detection algorithms. Students need to complete the assignments using their own brain and thinking.

Safety and Health Requirements

All teaching staff and students are required to comply with and stay up to date on all University safety and health guidance, which includes wearing a face mask in any indoor space and

maintaining a safe physical distance at all times. Non-compliance will be warned first and disciplinary actions will be taken for repeated offenses.

Religious Accommodations

It is Ohio State's policy to reasonably accommodate the sincerely held religious beliefs and practices of all students. The policy permits a student to be absent for up to three days each academic semester for reasons of faith or religious or spiritual belief.

Students planning to use religious beliefs or practices accommodations for course requirements must inform the instructor in writing no later than 14 days after the course begins. The instructor is then responsible for scheduling an alternative time and date for the course requirement, which may be before or after the original time and date of the course requirement. These alternative accommodations will remain confidential. It is the student's responsibility to ensure that all course assignments are completed.

Weather or Other Short-term Closing

Should in-person classes be canceled, I will notify you as to which alternative methods of teaching will be offered to ensure continuity of instruction for this class. Communication will be via CarmenCanvas.

Additional Course Technology
For IT help contact the Ohio State IT Service Desk ocio.osu.edu/help servicedesk@osu.edu

1. Baseline technical skills for online courses.
    - Basic computer and web-browsing skills
    - Navigating Carmen: for questions about specific functionality, see the Canvas Student Guide.
2. Required Technology Skills
    - CarmenZoom virtrual meetings
    - Recording a slide presentation with audio narration
    - Recording, editing, and uploading video
3. Required Equipment
    - Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection
    - Webcam: built-in or external webcam, fully installed and tested
    - Microphone: built-in laptop or tablet mic or external microphone
    - Mobile device (smartphone or tablet) or landline to use for BuckeyePass multi-factor authentication. It is recommended that you register multiple devices in case something happens to your primary device.
4. Required Software.

- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft's Student Advantage program.
- R, R studio

5. Carmen Access. You will need to use BuckeyePass multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:
    - Register multiple devices in case something happens to your primary device. Visit the Duo Mobile application help article for step-by-step instructions.
    - Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click Enter a Passcode and then click the Text me new codes button that appears. This will text you ten passcodes good for 365 days that can each be used once.
    - Download the Duo Mobile application to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options meet the needs of your situation, contact the IT Service Desk at 614-688-4357 (HELP) and IT support staff will work out a solution with you.

Disability Service

The University strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Mental Health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614--292--5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614--292--5766 and 24 hour emergency help is also available 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

References

Allenby, Greg M. and Jeff D. Brazell (2016) Seven Summits of Marketing Research: Decision-Based Analytics for Marketing's Toughest Problems, self-published, http://fisher.osu.edu/7Summits.

Allenby, Greg M., Jeff D. Brazell, John R. Howell and Peter E. Rossi (2014) "Valuation of Patented Product Features," *Journal of Law and Economics*, 57, 3, 629-663.

Allenby, Greg M. and Peter E. Rossi (2006) "Hierarchical Bayes Models" in The Handbook of Marketing Research, Rajiv Grover and Marco Vriens, editors. Sage Publications.

Angrist, Joshua D., and Jörn-Steffen Pischke. *Mastering 'metrics: the path from cause to effect*. Princeton University Press, 2014.

Fennell, Geraldine and Greg M. Allenby (2014) "Conceptualizing and Measuring User Wants: Understanding the Source of Brand Preference," *Customer Needs and Solutions*, 1:23–39.

Fennell, Geraldine and Greg M. Allenby (2006) "Multiple Perspectives: Marketing Needs to Unambiguously Articulate its Role as a Business and Societal Function," *Marketing Research*, 18, 4, 26-31.

Fennell, Geraldine and Greg M. Allenby (2004) "An Integrated Approach: Market Definition, Market Segmentation and Brand Positioning Create a Powerful Combination," *Marketing Research*, 16, 4, 28-34.

Orme, Bryan K. (2020) *Getting Started with Conjoint Analysis*, Research Publishers LLC.