Marketing Analytics II (Python)(MAR 6669-28574)

Spring 2023

Course Syllabus

Overview

Information.

Instructor: Dr. Mingzhang Yin

Email: mingzhang.yin@warrington.ufl.edu

Office Hour: Monday 2:55 to 3:50 pm on Zoom, or by appointment. The link is on Canvas.

Course time and location: Mon. / Wed. 11:45 a.m. to 1:40 p.m. at Stuzin Hall – Room 0102

Course website: https://mingzhang-yin.github.io/courses/analytics/spring23python/analytics23s-py.html

Course materials: On Canvas https://elearning.ufl.edu/

Course objective. Data and analytic methods are driving forces of modern marketing decisions. This course is an introduction to both principles and practice of marketing data analysis. We will study statistical and data science techniques to gain insights into consumer behaviors and make informed decisions about marketing strategies. In the course, we will complete all the analytics process steps. At the end of this course, you will be familiar with how to collect and visualize different types of data, analyze data with statistical and machine learning methods, and turn the numerical results into marketing actions.

We will study marketing actions such as prediction, segmentation, recommendation, and targeting. You will learn skills to deal with different data types such as structured tabular data, sequential data, panel data, and unstructured text data. This course prepares you with modern machine learning techniques such as supervised learning, unsupervised learning, reinforcement learning, and natural language processing algorithms for analyzing marketing data.

Communications.

Please send all course-related communications via the tool on Canvas. It ensures that your message will not be blocked by spam filters. If you wish to ask a question privately to the teaching team, please post a private note on Canvas; see instructions here; you can expect an answer within 24 hours during weekdays (except holidays). You are welcome to contact the instructor using the above email address in emergency or after the course is complete.

Class notes, codes, datasets, and assignments will be available on Canvas.

Course schedules and calendars are updated on the course website.

Prerequisite.

Although this course will focus on the logic and business applications of statistical and data science tools for marketing analytics, students are expected to have some mathematical and statistical backgrounds. Basic statistical and Python data analytics courses are essential. Basic integral calculus courses are highly recommended.

The class will extensively use Python and its scientific computing tools (Anaconda, Jupyter Notebook, Pandas, NumPy, etc.), so students will be required to have some familiarity with data analytics with Python and bring their laptops every class. The installation instruction of the essential environments will be handed out before class.

Textbooks and resources. There are no required textbooks for this class. Nothing to buy here. Here are some references:

- Schwarz et al. Python for Marketing Research and Analytics. Springer, 2020. Link. No need to buy the book; just a useful reference.

- James, Witten, Hastie, and Tibshirani. An Introduction to Statistical Learning. Springer, 2017. PDF. A great reference, and free online.

- Handbook of Marketing Analytics. Edward Elgar, 2018. Link. No need to buy the book; just a useful reference.

- A basic guide to Python. Link

AI tools. AI tools are welcome, and we will use them in a responsible way. We implement the following policy for ChapGPT and similar tools (kindly provided by Prof. Ethan Mollick at Wharton)

- Don't trust anything it says. If it gives you a number or fact, assume it is wrong unless you either know the answer or can check in with another source. You will be responsible for any errors or omissions provided by the tool. It works best for topics you understand.

- Al is a tool, but one that you need to acknowledge using. Please include a paragraph at the end of any assignment that uses AI explaining what you used the AI for and what prompts you used to get the results. Failure to do so is in violation of academic honesty policies.

- Be thoughtful about when this tool is useful. Don't use it if it isn't appropriate for the case or circumstance.

Technical Issues. For all technical issues (e.g., installing Python and Anaconda), you can contact UF helpdesk (helpdesk.ufl.edu, 352-392-4357).

Schedule (tentative).

Date	Topic	Assignments/Exams
Week 1 (Mar. 6, 8)	Class logistics, introduction to marketing analytics, software and AI tools; basics of data, model and learning, linear regression	
Week 2 (Mar. 20, 22)	Churn management, segmentation	Assignment 1 handed out
Week 3 (Mar. 27, 29)	Recommendation system, multi-arm bandit	
Week 4 (Apr. 3, 5)	Data compression and visualization	Midterm
Week 5 (Apr. 10, 12)	Factor model, User-generated content, text analysis	Assignment 2 handed out
Week 6 (Apr. 17, 19)	Topic modeling; Introduction to causal inference, uplift modeling	
Week 7 (Apr. 24, 26)	Panel data methods	Final project

* Please check the course website for the most updated schedule

Requirements and Grades

The course assessment is based on Attendance and Participation (10%), Midterm Exam (20%), Homework assignments (30%), and one Final project (40%). Please refer to UF grading policies.

Late submission. *You have two late days to use over the course of the semester.* For each late day you spend, you extend the deadline for the assignment by 24 hours. You may spend multiple late days per assignment. Once you have turned in your assignment you may not spend more late days to turn in your homework again. You may not use late days to extend the deadline of the final project. Each late assignment should be clearly marked as "Late" on the first page.

The purpose of late-day is to enable you to deal with unexpected circumstances (e.g., illness, family emergencies, job interviews) without having to come to me. If dire circumstances arise (e.g., long-term illness that causes you to miss multiple weeks of lectures) so you cannot submit your assignments or exams on time, please contact me as soon as possible.

Regrade Policy. You may submit a regrade request if you believe the course staff made an error in grading. Any regrade requests should be emailed to the course instructor within ten days of receiving your grade. Please try to be as specific as possible with your regrade request. For fairness, the regrade will be based on the original submission, and no additional explanations or materials will be considered. The new grade may be higher, lower, or the same as the original grade. The results of assignments and exams are finalized after ten days of delivery if no further concerns are raised.

Attendance. Since the course mainly relies on the instructor's lecturing and does not follow any textbooks, it will be important to attend the class to get the most out of this course. If you should need to be absent from a class, you need to contact the instructor before the class. The attendance policy will be consistent with the university. For more information, see https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/.

Attendance will be taken at three randomly selected sessions at the beginning or end of the class per the instructor's discretion. You will receive one free pass for absences. Beyond this, for every unexcused absence, you will lose 2 points in the overall course aggregate (out of 100).

Final letter grade. The final grades will be based on your relative performance in the class. The final grade will be set so that the distribution of final grades approximately matches that of previous offerings of the course. That said, your final grade is guaranteed to be the same as or better than the following assignment mechanism of letter grades: [1%, 20%]: A, [21%, 35%]: A-, (36%, 50%): B+, (51%, 85%): (B; B-); (86%, 99%): C+ or lower.

Support Resources

Course recordings. Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Academic integrity. UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honorcode/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor in this class.

Accommodations for students with disabilities. Students with disabilities requesting accommodations should first register with the Disability Resource Center (www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester. For more information, see https://disability.ufl.edu/students/get-started/.

Course Evaluation. Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are

typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

Additional Resources.

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website.

University Police Department: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website.

E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: Visit the Student Honor Code and Student Conduct Code webpage for more information.

Acknowledgments.

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