

MGT 153: Business Analytics

Undergraduate Course: Spring 2021

PROFESSOR: Zal Phiroz, PhD
EMAIL: zphiroz@ucsd.edu
OFFICE HOURS: 24 hours by email. Phone/Zoom meetings by appointment.
OFFICE LOCATION: 3S152 (Otterson Hall) **Virtual office hours for W2021

TEACHING ASSISTANT: Olesia Altynbaeva
EMAIL: Olesia.Altynbaeva@rady.ucsd.edu

DESCRIPTION

Over the past 30 years, the amount of data available has increased tremendously. As a result of various forms of information technology progression, companies are able to collect data in many ways (POS data, supply chain data, web-traffic data etc.), which can be used to further customer engagement, segment markets, analyze consumer behavior and optimize product development. Often, analytics allow managers to ask the right questions and make critical business decisions, by interpreting data.

The role of data analysis is crucial, as it enables the disruption of previously traditional industries, and creates demand for various types of management processes based on data analytics. With this shift comes an increased need for “data-savvy” managers; managers who are not necessarily data-science experts, but understand what analytics can and cannot do, how to ask the right questions, and, most importantly, how to interpret data to make better decisions.

OBJECTIVES

1. Explain in your own words the key ideas behind fundamental techniques in data analytics (including dashboarding, classification, clustering and AB-testing)
2. Identify new opportunities to use these techniques across business domains to guide decision making
3. Confidently apply these techniques to novel problems using a combination of Excel and JMP.
4. Formulate and communicate actionable business recommendations based upon your analysis and conclusions.
5. Assess the validity of analytics-based recommendations in the context of specific business decisions

MATERIALS

Required

- A laptop computer with access to MS Excel (2010 or higher). Please do not use Excel 365.
- Access to SAS JMP (<http://www.onthehub.com/jmp/>). **Please note, a 6-month License would suffice for this course.**

Recommended

Case Pack: can be purchased at: <https://hbsp.harvard.edu/import/765361>

CLASSROOM PROCEDURE

The course meets for 10 sessions for 3 hours each session, with a 15-minute break. Class sessions will begin and end on time. Please be punctual to minimize the disturbance to others and so that you do not miss the initial thrust of the session.

LAP TOP COMPUTERS/TABLETS

The uses of Laptop Computers and/or Tablets is required and expected during class sessions.

CLASS ASSIGNMENTS

For certain class sessions, I shall provide a set of guiding questions, discussion points, and goals for the lecture. These will be given in the previous session. You are expected to prepare answers to these questions and be able to provide substantiated arguments on discussion points.

HOMEWORK ASSIGNMENTS

There will multiple lab submissions (homework) required. Details on the expectations of the expectations of each lab submission will be communicated accordingly.

Although you may work in your study group on the individual homework assignment, you must individually write up and submit your own solution.

CLASS PARTICIPATION AND ATTENDANCE

You are expected to be an active participant throughout the entire class and to contribute to the quality of the discussion. You are expected to attend all classes – if you are unable to attend all classes, you are expected to listen the recording of each class.

SCHEDULE

Date	Week	Due	Class Topic & Activities	Assignments / Readings (Complete Before Class)
March 29, 2021	1		Introduction and Overview / Excel Workshop Assignment (Ungraded)	
April 5, 2021	2		The Fundamentals and Uses of A/B Testing “Why is A/B Testing important?” “How can A/B Testing be used in industry?” “What is the significance of an A/B test?”	Case: A/B Testing at Vungle Case: Dropbox: 'It Just Works'
April 12, 2021	3	A/B Testing Lab	Lab Study 1: A/B Testing Case Discussion Tutorial and Lab Implementation of A/B Testing	
April 19, 2021	4	KPI Intro and Lab	Lab Study 2: Dash boarding and Key Performance Indicator Calculation Generating Dashboards in Excel and the Value of KPI's “What is a KPI?” “Where do we find KPI's used in Industry?” “When are dashboards effective?”	Case: Applichem (A) Article: Guiding Your Flight Progress: The Power of Dashboards-- Building a Better Business Model Through Trial and Error
April 26, 2021	5		Mid Term 1	
May 3, 2021	6		The Introduction and Benefit of Data Classification and Statistical Prediction “How is Classification used?” “When is Classification used?” “What is the benefit of Classification in Industry?”	Case: A Dean's Dilemma: Selection of Students for the MBA Program
May 10, 2021	7	Classification Lab	Lab Study 3: Classification Modeling Case Discussion Tutorial and Lab Implementation of Classification Methodology	Case: HR Analytics at ScaleneWorks: Behavioral Modeling to Predict Renege

May 17, 2021	8	Segmentation Intro	Introduction to Segmentation Methodology “What is Segmentation?” “What are the different types of Segmentation models?” “Why is Segmenting beneficial?”	Case: • Cluster Analysis for Segmentation • Aldi: A German Retailing Icon • Eco7: Launching a New Motor Oil
May 24, 2021	9	Segmentation Lab	Lab Study 4: Segmentation Case Discussion Tutorial and Lab Implementation of Segmentation	
May 31, 2021	10		UCSD Observed Holiday (No Class)	
June 7, 2021	11	Group Presentations and Review Take-home Final Exam Write-Up (Individual)		

ASSIGNMENTS

Assignment	Date/Time
Lab Study 1: A/B Testing	April 13, 2021 at 11:59pm
Lab Study 2: Dash boarding and Key Performance Indicator Calculation	April 20, 2021 at 11:59pm
Mid-Term Exam	Due April 26, 2021 at 11:59pm
Lab Study 3: Classification Modeling	May 11, 2021 at 11:59pm
Lab Study 4: Segmentation	May 25, 2021 at 11:59pm
Presentation (Group)	June 7, 2021 * during class
Take-home Final Exam Write-Up (Individual)	Due June 11, 2021 at 11:59pm

GRADING

Component	Percentage of Final Grade
Rady School Research Participant Pool	5
Lab Submissions (4)	35
Group Presentation	10
Mid-Term Exam	20
Final Exam (Written Report – Take home)	30
Total	100

Participation in Experiments

Participation in Experiments: Part of your grade is based on participation in an experiment offered by the Rady School Research Participant Pool. Each experiment will take up to one hour. If new to lab participation, to register for an account and to receive additional information about upcoming lab studies, visit: <http://radyclasscredit.sona-systems.com> and click "New Participant? Request an account here." When you register, you will be assigned a unique ID – you will need to provide this ID each time you participate in a study. Make sure to keep track of it!

If you have served as a participant before, you will need to update which classes you are registered for in order to receive credit. Log in to your account here: <http://radyclasscredit.sona-systems.com> and go to the "My Profile" page. There is an option near the bottom of the page to "Change Courses." Questions about lab studies can be directed to RadyClassCredit@ucsd.edu. Studies will shortly after the quarter begins

Homework Assignments (Lab Submissions)

Your homework (lab submissions) count accounts for 35% of your grade regardless of how you perform on the exams. The Homework Assignments will typically include problems and short case situations, and are individual assignments. The homework is an important learning tool designed to increase your knowledge of operations and, most importantly, is a required component of the course.

The first assignment of the course is the Excel Workshop and is not graded. For this assignment, students are expected to go to support.office.com (or any other resource you choose) to understand the basic functions of Excel including how to execute the following:

Autofill

Relative and Absolute Referencing

Basic Formulas and Functions (focus on AND, IF statements and VLOOKUP statements)

Pivot Tables (focus on basic Pivot Table uses)

As long as you have a basic functional understanding of the above, you should be fine as we will be going through these processes within the lab (this assignment is designed to ensure you have a basic familiarity with these areas).

Group Presentation

There is a final project and presentation requirement.

ACADEMIC INTEGRITY

Integrity of scholarship is essential for an academic community. As members of the Rady School, we pledge ourselves to uphold the highest ethical standards. The University expects that both faculty and students will honor this principle and in so doing protect the validity of University intellectual work. For students, this means that all academic work will be done by the individual to whom it is assigned, without unauthorized aid of any kind.

The complete UCSD Policy on Integrity of Scholarship can be viewed at:
<http://senate.ucsd.edu/Operating-Procedures/Senate-Manual/Appendices/2>

How the Honor Code applies to this course:

You can work with anyone in the class on Class Assignments. While you may discuss the work on Homework Assignments with your assigned teams, you must individually write-up your own solutions to be submitted.

STUDENTS WITH DISABILITIES

A student who has a disability or special need and requires an accommodation in order to have equal access to the classroom must register with the Office for Students with Disabilities (OSD). The OSD will determine what accommodations may be made and provide the necessary documentation to present to the faculty member.

The student must present the OSD letter of certification and OSD accommodation recommendation to the appropriate faculty member in order to initiate the request for accommodation in classes, examinations, or other academic program activities. **No accommodations can be implemented retroactively.**

Please visit the [OSD website](#) for further information or contact the Office for Students with Disabilities at (858) 534-4382 or osd@ucsd.edu.

TITLE IX

The Office for the Prevention of Harassment & Discrimination (OPHD) provides assistance to students, faculty, and staff regarding reports of bias, harassment, and discrimination. OPHD is the UC San Diego Title IX office. Title IX of the Education Amendments of 1972 is the federal law that prohibits sex discrimination in educational institutions that are recipients of federal funds. Rady students have the right to an educational environment that is free from harassment and discrimination.

Students have options for reporting incidents of sexual violence and sexual harassment. Sexual violence includes sexual assault, dating violence, domestic violence, and stalking. Information about reporting options may be obtained at OPHD at (858) 534-8298, ophd@ucsd.edu or <http://ophd.ucsd.edu>. Students may receive confidential assistance at CARE at the Sexual Assault Resource Center at (858) 534-5793, sarc@ucsd.edu or <http://care.ucsd.edu> or Counseling and Psychological Services (CAPS) at (858) 534-3755 or <http://caps.ucsd.edu>.

Students may feel more comfortable discussing their particular concern with a trusted employee. This may be a Rady student affairs staff member, a department Chair, a faculty member or other University official. These individuals have an obligation to report incidents of sexual violence and sexual harassment to OPHD. This does not necessarily mean that a formal complaint will be filed.

If you find yourself in an uncomfortable situation, ask for help. The Rady School of Management is committed to upholding University policies regarding nondiscrimination, sexual violence and sexual harassment.