



Sofaer Global MBA

1238.2211.01 - Statistics for Business & Market Research

Prerequisites: None

Module 1&2 – 2020/21

Course Section Details

Section	Day	Hour	Lecturer	
Class	Wednesday	09:00-11:45	Liat Hadar	lhadar@tauex.tau.ac.il
Tutorial: Module 1	Tuesday	12:15-13:30	Muhammad Zidani	Muhammadzidani@gmail.com
Tutorial: Module 2	Sunday	13:30-14:45		

Liat's office hours (Recanati room 328): By appointment

Muhammad's office hours: after the tutorials, contingent upon an appointment

Course Units

2 course units = 8 ECTS units

The ECTS (European Credit Transfer and Accumulation System) is a framework defined by the European Commission to allow for unified recognition of student academic achievements from different countries.

Course Description

The course setting: Companies must understand their business environment and stakeholders to create value and a competitive advantage to succeed. Understanding the market in which they operate, may help managers make informed, data-driven, decisions that tend to be objective and reliable, and avoid reliance on intuition, or choice heuristics.

The course goal: The main goal of this course is to provide individuals who may have their own venture and limited research budget with tools that will allow them to conduct basic research in order to understand their business environment, to test basic hypotheses, and to critically examine research findings. For larger businesses that hire the services of a market research firm, the knowledge and skills taught in this course will assist in understanding the company's research needs, in choosing between different market research firm, and in identifying the best practices in market research. The knowledge you gain in Statistics will help you to analyze problems that you will encounter across business domains (accounting, finance, etc.).

How? The course will focus on both qualitative and quantitative aspects of market research, and how they help executives deal with managerial challenges such as: market segmentation, market potential assessment, forecasting, advertising and pricing policy development, and new product design and positioning.

To achieve these goals, the course will combine lectures, case studies, exercises, and guest lectures. The case studies will illustrate the application of the ideas learned in the real world. I expect you to arrive ready for these discussions. By doing the exercises you will gain practical experience dealing with real issues related to market research.

We will use Excel to analyze data.

Course Objectives

Upon completion of the course, you will be able to:

1. Understand the basic tools available for systematic and integrative problem analysis.
2. Translate and synthesize managerial challenges into business research questions.
3. Critically evaluate market research, as well as its contribution and limitations.
4. Use statistics to analyze business related questions.
5. Lead and conduct the entire business research process: formulating the research question, planning the research, collecting data using various methods, analyzing data, and applying the findings to business-action.

Assessment and Grade Distribution

Grade weight	Assignment	Requirements
10%	Literature search exercise	2-3 members per group. Description at the end of the syllabus
5%	Survey exercise	
10%	Case Study: Ohio Art Company	
10%	Nike Users Survey Exercise	
15%	Case Study: Hollywood Rules	
40%	4 short quizzes	4 quizzes, 10-20 minutes each, will be administered during the tutorials. The 4 highest grades will count toward the course's grade.
10%	Class participation	Read mandatory articles for class, participate in in-class exercises and discussions. Complete assignments in and out of class.

Course Assignments

Assignment notes: You will complete assignments in self-selected groups of 2-3 individuals. You will submit each assignment by the beginning of the class on each assignment's due date. The instructions for the assignments appear at the end of this document.

Quizzes: You will complete 4 short (10-20 minutes) quizzes during the tutorials.

Attendance: Each person brings a unique set of experiences, a unique perspective and knowledge to the classroom, and I would like all class participants to tap into this diverse pool of resources and benefit from it. Therefore, we will have in-class discussions. Constructive contribution to the class discussions and active listening are important elements of this course. It is therefore essential that you be fully prepared to participate actively in class. This means you must read the assigned material prior to the class session. Effective participation includes: (1) providing insightful questions and comments on concepts from lectures and readings; (2) sharing your experience or point of view with the class; (3) building on points raised by others; (4) clarifying issues; and (5) relating ongoing topics to previous class discussions. Please keep in mind that I will base your score on the quality of your comments and not their quantity.

Should a student become unable to complete an assignment or course requirement, s/he must notify the TA of the course in advance via email

Grading Policy

As of the 2008/9 academic year the Faculty has implemented a grading policy for all graduate level courses. This policy applies to all graduate courses in the Faculty, and will be reflected in the final course grade. Accordingly, the final average of the class for this course (which is a core course) will fall between 78-82.

Additional information regarding this policy can be found on the Faculty website.

<https://coller.tau.ac.il/MBA-students/programs/2019-20/MBA/regulations/exams>

Evaluation of the Course by Student

Following completion of the course students will participate in a teaching survey in order to evaluate the instructor and the course for the benefit of the students and the university.

Course Site (Moodle)

The course Moodle site will be the primary tool used to communicate messages and material to students. It is, therefore recommended to periodically check the course site in general, periodically, before each lesson, at end of the course as well. (For example: exam details and updates regarding assignments)

Course slides will be available on the course site.

Please note that topics which are not covered in the slides, but are discussed in class are considered an integral part of the course material and may be tested in examinations.

Implications for Business Ethics

Issues in business ethics will be discussed on the 5th meeting. Specifically, we will discuss ethical issues pertaining to market research, such as consumers' consent to participate in experiments, guaranteeing participants' anonymity, allowing participants to withdraw from studies, etc.

Course Outline*

Session	Date	Topic(s)	Submissions
1	Oct 21, 2020	Introduction Case Study: The coop	
2	Oct 28, 2020	Exploratory research Descriptive research	
3	Nov 4, 2020	Guest Lecturer, David Horesh – Exploratory research in BTB Descriptive research – cont.	Literature search exercise
4	Nov 11, 2020	Experimental research	Survey exercise
5	Nov 18, 2020	Case study: Ohio Art Company Ethics in market research	Case Study: Ohio Art Company
6	Nov 25, 2020	Hypotheses testing	
7	Dec 2, 2020	Hypotheses testing – cont.	
8	Dec 16, 2020	Sampling methods Calculating requested sample size	
9	Dec 23, 2020	Basic data analysis: t-tests, Chi square	
10	Dec 30, 2020	Analysis of variance: One-way ANOVA, Two-way ANOVA	Nike Users Survey Exercise
11	Jan 6, 2021	Correlations Simple regression	
12	Jan 13, 2021	Multiple regression, dummy variables, interaction terms	
13	Jan 20, 2021	Factor analysis and cluster analysis	
14	Jan 27, 2021	Case study: Hollywood Rules Course summary	Case Study: Hollywood Rules

Tutorial outline:

Session	Date	Topic(s)	Quiz
1	Oct 20, 2020	Descriptive statistics Summarizing categorical and quantitative data	
2	Oct 27, 2020	Measures of location Measures of variability	

3	Nov 3, 2020	Continuous variables Uniform distribution Normal distribution	Quiz 1
4	Nov 10, 2020	Normal distribution – cont.	
5	Nov 17, 2020	Confidence intervals	Quiz 2
6	Nov 24, 2020	Confidence intervals	
7	Dec 1, 2020	Experimental research	Quiz 3
8	Dec 20, 2020	Sampling	
9	Dec 27, 2020	Single average, z-test	
10	Jan 3, 2021	One-way ANOVA	
11	Jan 10, 2021	Two-way ANOVA	
12	Jan 17, 2021	Linear regression	Quiz 4
13	Jan 24, 2021	Multiple regression	

* note the coverage of these topics may change slightly.

Required Reading

- (1) Power-point presentations in PDF format that accompany the course will be available on Moodle. Please bring the notes to class.
- (2) “The Coop” case study. Please read before the first class.

Recommended Reading

Textbook: Marketing Research International Edition (11th-13th edition), Aaker, Kumar, Leone, & Day, Wiley.

Assignment 1: Literature search exercise

Length: Up to 5 pages
 2-3 Students per group
 Submission date: Nov 4, 2020

Purpose?

Market research should always begin with a review of what has already been done. In this exercise you will search for relevant literatures and create a summary of this literature. Based on your review you will examine whether your research questions should be changed, and whether conducting additional research is necessary.

How?

Step 1: Select a research question

Choose a research question that interests you. It can be anything business-related. For example, you may focus on your own venture and ask how likely are potential customers to adopt your new product or service, which features they may prefer over others, what would be the best pricing policy, or which marketing message would work best. Make sure your research question is well defined and focused. For example, instead of asking “Which marketing messages work best?” ask “which of the following marketing messages would work best – one that emphasizes the technological innovation of the product or one that emphasizes its benefits to the consumer?”

Step 2: Search

Search available resources for any information that may be relevant for your research question. You may use search engines for relevant news articles or data/articles provided by companies offering a similar product/service. You may also search the academic literature for relevant academic findings. The easiest way is to search on Google Scholar.

Step 3: Summarize

Create an integrative summary of the information you collected. In other words, the goal of this step is to provide a summary that integrates the different sources, and not to provide individual summaries of the different sources of information you found. For example, you may find that one company used a certain pricing scheme that proved more successful than a competing company that used another pricing scheme. Or, you may find that certain marketing messages work for the type of service you provide, but that this finding is inconclusive because other research finds that other types of messages are more efficient.

Step 4: Conclude

What can you recommend for your own research based on the summary of the findings? For example, does the review of the literature answer your research question or do you believe more research is needed? If so, what elements are still missing? Do you expect to change your research question (and how) based on your findings from the literature review?

What to submit?

Your written assignment should include:

1. **Background:** a description of the topic you are investigating (e.g, your business venture) and the problem that instigated the research question. The background section should end with a clear and focused description of your research question.
2. **Method:** a description of how you conducted the literature review. Specifically, which information sources you searched (e.g., google, and a company’s data base available online), and what type of information your literature summary is based on (e.g., a similar company’s 2019 sales data, 4 academic papers).
3. **Literature summary:** an integrative summary of the literature, as described above.
4. **Conclusions:** as described above.

Assignment 2: Survey exercise

Length: Up to 2 pages
2-3 Students per group
Submission date: Nov 11, 2020

Designing a good survey is a difficult, but is a very important process. The survey you will examine (uploaded to the course website on Moodle) was conducted by a household appliance manufacturer. Consumers who were asked to complete the survey were buyers who purchased a product in the store.

The questionnaire violates a number of principles of questionnaire design, but it also has good parts. Evaluate and critique the questionnaire: What are its strengths? What are its weaknesses? What will you tell researchers to do in order to improve their questionnaire?

Assignment 3: Case Study - Ohio Art Company

Length: Up to 3 pages
2-3 Students per group
Submission date: Nov 18, 2020

The case study description is in the course booklet. An Excel file that includes the relevant data may be found on the course website.

The case describes two advertising experiments conducted by Ohio Art in 2006 and 2007. Ohio Art is a company known for its classic drawing game - Etch A Sketch (EAS). Before it spends a total of \$ 4 million (\$ 2 million for EAS advertising and another \$ 2 million for Betty Spaghetti doll advertising), the company is interested in examining the economic value of television and radio advertising through two field studies.

Prepare a report that will contain recommendations for Ohio Art Company's executives based on the marketing research data. The report should rely on case analysis as well as data to support your recommendations.

Use the following questions as guidelines for analysis:

1. Based on the data in the Excel sheet, evaluate whether EAS's and Betty Spaghetti's campaigns are effective in raising sales.
2. How is the EAS experiment different from the Betty Spaghetti experiment on? In your opinion, which experiment is more suitable for evaluating the effectiveness of advertising?

Assignment 4: Nike Users Survey exercise

2-3 Students per group

Submission date: Dec 30, 2020

In a pretest, data were obtained from 45 respondents on Nike. These data include the usage, sex, awareness, attitude, preference, intention, and loyalty toward Nike of a sample of Nike users. Usage has been coded as 1, 2, or 3, representing light, medium, or heavy users. The sex has been coded as 1 for females and 2 for males. Awareness, attitude, preference, intention, and loyalty are measured on seven-point Likert type scales (1 = very unfavorable, 7 = very favorable).

Note that five respondents have missing values that are denoted by “.”.

A) Analyze the Nike data to answer the following questions (you can find the data file on the course website). In each case, formulate the null and the alternative hypotheses, conduct the appropriate statistical test(s), report each test's output, and your conclusion.

1. To get a sense for the data, obtain a frequency distribution for each of the following variables and calculate the relevant statistics: awareness, attitude, preference, purchase intention, and loyalty toward Nike.
2. Can we conclude from the survey that usage varies by sex? If so, which sex has higher usage?
3. The Marketing department claims that as soon as the average awareness goes above 4.0, it's time to reduce the TV ads frequency. Is it time for a new ad campaign?
4. For the next ad campaign, the Marketing department is wondering if they should target males or females. Do males and females differ in their awareness for Nike? If so, which sex should they target?
5. What about their attitude toward Nike? Their loyalty for Nike?
6. Do the respondents in the pretest have a higher level of awareness than loyalty?
7. Do the three different usage groups differ in terms of their awareness for Nike? If they are different check which of the specific usage levels are different from each other.
8. What about their attitude towards Nike? Their Preference?

B) The data is based on the responses of 45 participants. Is this sample size adequate for drawing conclusions regarding the preference ratings, assuming that the population mean falls no more than ± 0.05 the sample mean? Explain your answer.

Assignment 5: Case Study – Hollywood Rules

Length: Up to 3 pages

2-3 Students per group

Submission date: Jan 27, 2021

Wall Street hedge fund manager Kim Meyer is considering investing in an SFA (Slate Financing Arrangement) in Hollywood, and Dave Griffith, a Hollywood producer, is pitching for the investment. In order to prepare for an upcoming meeting with Meyer, Griffith will be

conducting a broad analysis of recent movie data to determine the drivers of a movie's success. The data set includes, among other pieces, information on the movies' respective titles budgets, domestic and foreign gross, time of release, ratings, and so on. In order to convince Meyer to invest in an SFA, Griffith must anticipate possible questions to maximize his persuasiveness.

For each of the following points, conduct the appropriate statistical test(s), report each test's output, and your conclusion.

1. To obtain an initial overview of the data, calculate the minimum, average, and maximum values of the following variables: opening gross, total U.S. gross, total non-U.S. gross, and opening theatres. Also, calculate how many of the movies in the data set are comedies and how many moves are R-rated.
2. Michael London (of *Sideways* fame) declared in the *Hollywood Reporter*, "The studio business historically returns around 12 percent a year." Griffith knew any investor would want justification for such a statement.
 - a. Calculate the U.S. return on investment (ROI) for each movie in the data set. ROI is defined as the difference of total U.S. box-office gross and budget divided by budget, ignoring any form of discounting.
 - b. Provide a 95% confidence interval for the mean U.S. ROI of movies.
 - c. Show that the mean U.S. ROI is significantly larger than the 12% London cited.
3. Prevailing wisdom maintained that R-rated movies performed better than other movies. Is there a statistically significant difference between the total U.S. gross of R-rated movies and movies with other ratings?
4. Believed to be among the reproduction factors driving success were budget (which expresses both the cost of the film and the quality of the actors as expressed by their fee), genre (comedy vs. non-comedy), MPAA rating (E-rated vs. other rating), and audiences' familiarity with the story (whether the film is a sequel or an adaption of a known story).
 - a. Based on the described beliefs, determine a regression model predicting total U.S. box-office gross of movies prior to production.
 - b. Holding all other explanatory variables in your regression fixed, which movies have higher total U.S. gross, those that are a sequel or those that are not?