

Statistics and Data Analysis, Fall 2016

Final Project

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1 Introduction

January 4 and 11 are the presentation days for the final project. Students should form teams of *four to six* members. Each team should select a topic with some questions that may be addressed with statistical data analysis. The team should then choose appropriate statistical methods to answer those questions, facilitate decision making, or obtain business insights. There is no restriction on the topic. However, it would be better if the topic can be easily understood by all the audience. All the statistical methods, introduced in this course or not, may be applied in this project. However, at least one methods introduced in this course must be adopted.

In most cases, as long as the topic is studied with hypothesis testing and/or regression analysis, it is an acceptable topic. Though preferred, it is not restricted to something related to business. For a topic to be a “good” one, typically it should be important and challenging:

- Important: The insights obtained by conducting the study is critical in making better decisions.
- Challenging: The study can be done only with a certain level of knowledge and efforts.

The study must include a sampling or data collection process. When you choose your topic, take the data collection process into consideration. It may not be a good idea to work on a topic for which relevant data are difficult to obtain. If you are uncertain about the appropriateness of your tentative topic, you are welcome to discuss with the instructor.

2 Project milestone

On *November 23*, the lecture time will be used for teams to talk about their plans for the project. Each team will be given around *20 minutes*, and they are allowed to use these 20 minutes in any way they like. The expectation is for each team to talk about their topic, background and motivation, research questions, (planned) data source, and expected results. Students may then provide feedback.

Nothing should be submitted for the project milestone. The presentation does not count for any grade. In fact, a team may choose to skip this presentation if they want.

3 Oral presentations

On each presentation date, there is no official break in the lectures. Each team will be allocated *around 30 minutes* for a presentation. Students in each team may decide who to present by themselves. Any number of presenters is allowed. Also, any format of presentations is allowed. Please use a comprehensible and interesting way to let the audience with no background knowledge understand your topic and conclusions. The audience should be convinced that the conclusions are made with the support of data analysis.

The order of oral presentations on each day will be randomly determined on site. Each team is responsible for preparing the devices for presentation (laptops, adopters, etc.). If a team needs to use the instructor's laptop, its members must make a clear request at least one day before the presentation.

Oral presentations are also graded by students in other teams (beside the instructor). Each student will be given an evaluation form to give grades to presenting teams. Of course, one cannot grade its own team. All grades within the 15th and 85th percentiles for an team will then be averaged as one grades for its oral presentation.

4 Written reports

Each team must submit a written report to summarize the study. The report should include the background and motivation of this study, description of the adopted methods and collected data, statistical conclusions based on the data, and business implications on decision making. You do not need to include all the details of the solution process. Leave only the critical information (e.g., statistics, p -values, regression report table, etc.), conclusions, and implications on the report.

The report, including the cover page (if there is one), cannot be longer than *twenty pages* (i.e., ten double-sided sheets). The written reports are graded by the instructor. A report is considered good if it addresses the topic correctly, precisely, and concisely. Obviously, a well-formatted report is expected.

5 Submissions and grading

A hard copy of the written report must be submitted to the instructor in class by **3:00 PM** on one's presentation day. Electronic copies of the report and slides should be uploaded to CEIBA by the same due time. For each team, only one member needs to upload the files. Submissions between 3:00 pm and 4:00 pm on the due date will get 20% off as a penalty. Submissions later than 4:00 pm are not accepted.

Each of the oral presentation and written report counts for 15% of the semester grade. For the oral presentation, the average of peer-review grades from students counts for 15% and that from the instructor counts for 15%.