University of Toronto

Summer 2014

STA304H1F:
Surveys, Sampling, and Observational Data

COURSE PROJECT

The course project is a group project and will require you to:

- Choose a target population and question(s) of interest
- Create a questionnaire to answer these questions
- Collect data from a sample
- Analyze the data and report statistics
- Make conclusions/inferences based on the data
- Discuss findings and comment on methods

Details are below:

Student Groups – Due May 22nd by 6:10pm

Each group should have 5 or 6 students. Submit names of group members by email to the TA at shiva.ashta@mail.utoronto.ca on or before due date - your submission should include the full name and student number of each member in the group.
We will assign you to a group if you do not put yourself into a group.

Proposal – Due June 3rd at 6:10pm

Include all of the following in your proposal :

1. Define your target population (it cannot be the STA304 class) and state your question(s) of interest.
2. Describe the mean, proportion, or total you will estimate.
3. Describe the sampling frame and state how you will access the sampling frame. ***OR*** Explain why you are not using a sampling frame.
4. Propose your sample size.
5. Name the sampling method you will use (Simple Random, Stratified, Systematic, Cluster, etc). If necessary, describe clusters and/or strata you will use.

6. Outline your data collection methodology. You cannot use pre-existing data, you have to collect the data yourself as a group. You may instead train a team to do the data collection (rather than your group collecting data) - you must be involved from the beginning of the process even before the data collection occurs.
7. Describe how variables will be measured. If you are using a questionnaire, provide a copy of it.

You do not have to collect the data or implement the methods yet. This is just a proposal of what you intend to do.

NOTES:

- Read ahead about all the above types of sampling methods so that you can make a choice on which to use for the project.
-Choose a topic that you are interested in analyzing or that has practical applications that are important - think of this as a consulting project. The population does not have to be a human population.
-The proposal will not be marked but you will receive feedback, suggestions, comments that will be helpful for the final project.
-After receiving proposals back, you may ask TA and/or Instructor for suggestions or help. We can give guidance but of course we cannot solve the actual project for you.
- **Late Proposals and Projects will NOT be accepted**. No extensions.
-For confidentiality purposes, when you do the actual data collection after receiving proposals back, do not collect any personal information from respondents such as name, phone numbers, etc.

Written Report of Project – June 19th at 6:10pm sharp

Provide a written summary of your project. Reports should be word processed and organized appropriately with a proper title, headings, and sections. It is not appropriate to put code and all output in the body of the report - required ones should be in the body with labeled figures and code and extra output should be in the appendix.
The use of LaTex to write reports is recommended but not required. Marks will be given for presentation. Your report should be no longer than 5 pages. Use either Arial 10 pt or Times New Roman 12 pt and use 2.5 cm margins around the page.

Include all of the following in your report:

1. A description of your goal/questions of interest, your target population, sampling method, and data collection methodology.

2. The questionnaire. Statistics/summary of data. The mean, proportion, or total that you estimated. Include your sample size and provide appropriate confidence interval(s). Interpret the results in practical terms.
3. Discuss any sources of bias in your data.
4. Any other relevant information such as difficulties faced during data collection or analysis, use of sensitive questions, how you adjusted for non-response or other biases, other information relevant to the topic or background information on the field of study.
5. Discuss limitations and how the study could be improved (if you had the requirements needed to do so).
6. Overall conclusion - include the relevance of your results to the field of study, applications, etc.

In addition to the 5 page report, please include:

- The posted cover sheet, signed by all group members.
- Your proposal (with the comments you received after submitting it)
- An appendix containing your raw data, code, and output (code should be commented).

Project Topic Suggestions

1. Total number of customers at Sidney Smith Tim Horton's per week
2. Total number of STA-- students who have ever cheated on an U of T exam
3. Proportion of students who voted in the spring SAC elections
4. Mean number of pictures per page of a specific textbook
5. Total number of books in a specific library
6. Proportion of students who drink alcohol and relationship to smoking
7. Proportion of days the Weather Network accurately predicts (at 10pm) the next day's high temperature (within 2 ^{o}C)
8. Mean number of advertising minutes per hour of prime time television
9. Proportion of shoppers in the GTA who prefer organically grown vegetables to non-organic ones

You do NOT have to choose from this list, in fact it is better to choose your own topic. ***Pick a Meaningful Topic of Personal Interest OR a Topic from your own Field of Study!***