

Project, IOE 591
Bayesian Data Analysis

Deadlines

Written Project Abstract: November 15th, email to mplumlee@umich.edu

Oral presentation: December 8th, in class

Written Report: December 13th, email to mplumlee@umich.edu

Guidelines

- Each project team will consist of 1 to 2 students.
- The goal of the project is to show that you know the material discussed in this course.
- It must address a real-world dataset using Bayesian Data Analysis. You will need to supply, in a separate file, the dataset.
- The length of the final report is limited to **5 pages**, including figures and references (single spaced).
- Things to avoid: (a) misuse of the methods or models and (b) misinterpretation of the results.

Abstract The project abstract shall specify the followings:

- The student names in the team
- A brief description of the observations you receive, including the response you are interested in along with explanatory variables that are associated with each response.
- A brief description of the fundamental descriptions of the underlying causes of randomness in your system. Recall Bayesian is predicated on randomness and probability distributions.
- A brief description of the question(s) that you would like to answer about your data

Report Your project report will be a thorough but concise report of your entire investigation and it should include:

- Description of the motivation for your study
- Appropriate Bayesian Data Analysis, which includes priors, likelihoods, and posterior distributions. Discuss this in a scientifically relevant manner as if an expert in statistics can read it. There is no reason to write the explicit form of the density if it is standard (Gaussian, Poisson, etc).
- Statement of the subject matter implications of your study, illustrated with correct, informative and aesthetically-minded figures.
- The report shall not contain programming codes or raw outputs. You may attach an appendix with the codes. Include only relevant figures in the report.

Presentation Oral presentations of project results will take place in class. These will involve presenting a clear and concise 5-10 minute summary of the project and its main results. Once again, conciseness will be key! Exact time limit will be known once the number of groups is known. All students must attend the presentations. There will be no extensions or make-ups with the exception of university-validated excuses.

Grading The final project grade is decided by several factors including **CREATIVITY USED, COMMUNICATION EFFICACY, and, of course, CORRECTNESS**. Abstract is 10% of the grade, presentation is 40% and the report is 50%. The more students in the group, the more that is expected in terms of results.