

MA289 Intro to Statistical Learning Project 1: Statistical Resampling

MAJ Patrick Kuiper

DUE No Later Than 10 FEB 2026 Latex Document PDF in Canvas.

In this project, you will analyze a **student-selected dataset** using **statistical resampling techniques** such as the bootstrap or permutation methods. You will choose a **statistic of interest** (e.g., mean, median, proportion, difference in means, correlation) and investigate its variability, uncertainty, or stability using resampling.

The goal of this project is to build intuition for statistical inference by using computation rather than closed-form formulas. You should clearly explain what question you are asking, how resampling is used to answer it, and how the results should be interpreted.

Grading Rubric

Criterion	Points	Score
1. Problem Setup and Explanation	100	
– Clear description of the dataset and context	25	_____
– Clear definition of the statistic of interest	25	_____
– Clear statement of the question being investigated	50	_____
2. Resampling Methodology	100	
– Correct implementation of resampling procedure	40	_____
– Appropriate number of resamples and justification	30	_____
– Correct summaries or visualizations of resampled statistics	30	_____
3. Statistical Reasoning and Interpretation	100	
– Correct interpretation of resampling results	40	_____
– Discussion of variability or uncertainty in the statistic	30	_____
– Connection between results and the original question	30	_____
Total	300	_____