

Project 5: Simulation and Informal Inference

Objective: Learn how to use simulation to approximate a probability, and then analyze sample data to see if the results are reasonable.

Procedure: You may work alone, or in groups of up to four people. Everybody must participate and contribute to the project. Class time will be allotted for this project, but you may also spend time outside of class as necessary.

Requirements:

1. Situations will be randomly assigned to each group. If you want to create an alternate situation, then it must be approved by Ms. Weinstein before you can begin.
2. **Manual simulation:** Develop a simulation using dice, cards, or slips of paper, to approximate the probability of the situation described. You need 20 trials in your simulation. Make a dotplot of the results of your simulation.
3. **Software simulation:** Develop a simulation using Minitab or Google sheets to approximate the probability of the situation described. You need at least FIVE HUNDRED trials in your simulation. Learn how to let the software do this for you!
4. Create a report of the descriptive statistics of your simulations results (using Minitab).
5. Take an actual sample of the scenario described. (More details on how to do this will be provided.)
6. Compare your sample results to your simulation results. Is the sample result reasonable? If the sample results are reasonable, we have no reason to question the assumptions underlying the simulation. If the sample results are not reasonable, we have reason to question the assumptions. Make a determination using your own judgment and justify your results.
7. Summarize your findings. Prepare a slide presentation of all the steps of your project to share with the class.

Due: Tuesday 1/13/15

Students will present their projects to the class. Class will provide feedback about a) the content and b) the project presentation. Feedback will be used to improve projects and as useful suggestions for future projects.

Project 5 Rubric:

Description of Project Presented	Grade
<p>All the requirements of the project are met beyond the minimum. Final result shows clear evidence of additional effort to expand on the project in keeping with the project objective. Final result shows evidence of thoughtfulness and clear attempt to produce an academically sound project. Evidence of extra care for precision, accuracy and clarity are also apparent.</p>	A
<p>All the minimum requirements of the project are met, with additional effort to expand on the project in keeping with the project objective. Final result shows evidence of thoughtfulness and clear attempt to produce an academically sound project. Evidence of extra care for precision, accuracy or clarity is also apparent.</p>	B
<p>At least the minimum requirements of the project are met. Final result shows evidence of thoughtfulness and clear attempt to produce an academically sound project.</p>	C
<p>Not all requirements met to at least the minimum level, and/or final result shows evidence of careless work, or lack of thoughtfulness, or lack of academic sincerity.</p>	D
<p>Project not submitted, or submitted with a majority of the requirements lacking.</p>	E