

STAT157 HW 12

April 11, 2022

Predictions due Monday, April 18 at 11:59pm

Gradescope submission due 15 min after

This is the last homework for the semester. Please use spend the remaining weeks of the semester to work on your final projects.

Deliberate Practice: Forecasting Pandemics

Expected completion time: 90 minutes

This week's deliberate practice forecasting question comes from our guest lecturer, Juan Cambeiro:

Will Omicron be the most dominant sequenced strain of SARS-CoV-2 on Dec 31, 2022?
([link](#) to Metaculus question)

Generate your own forecast for this question, including a mean and an 80% confidence interval. Please use at least 4 techniques from previous lectures, from this list:

- Fermi estimation
- Zeroth and first order forecasting
- Base rates and reference classes
- Generating “other” options
- Combining forecasts
- Approximating with common probability distributions
- Prioritizing information and analyzing relative uncertainties
- Bayesian aggregation of evidence

In your writeup, discuss how you created your forecast. You may write a holistic summary of your thought process, with a small note each time that you used techniques from lecture, or you may write a separate section for each of the techniques you chose, detailing how you incorporated it into your forecast. Your writeup should be at least 300 words. If your write-up would be much longer than 300 words to address every consideration you analyzed, it is okay to summarize some parts instead of providing exhaustive reasoning.

On Gradescope, please also submit the time it took to complete this exercise.

Predictions

Expected completion time: 30 minutes

Register the following predictions. You can submit them by going to [this URL](#) and following the form's instructions. For these predictions, (and all predictions about the future throughout this class), we encourage you to use external sources – by googling things, reading news articles, talking to friends who follow politics or music stats, etc.

1. Will Macron win the second round of the 2022 French presidential election?

For each question, submit a mean and inclusive 80% confidence interval or your probabilities, as well as an explanation of your reasoning (1-2 paragraphs). **Please include a copy of your google form responses with your Gradescope submission.** On Gradescope, please also submit the time it took to complete this exercise.

Extra Credit

You can earn extra credit for doing one or both of the following tasks:

1. (2 points). Propose a prediction question for a future homework. Your question should have a fully specified resolution criteria, such that it would be clear to the course staff how to resolve it.
2. (2 points). Write down 5 “calibration-app” style questions (and answers), for a domain that is not trivia.

For the first part, you will get extra credit if we either use your question on a future homework, or like it enough to add it to our question bank for future classes.

For the second part, you will get extra credit if we think they are at least as interesting as the questions currently in the calibration app, and well-written enough to be used as a calibration question. (We may submit them to the app creator and suggest they include them!)