

Today

- Recap & questions from homework
- Working on homework
- Prediction intervals

Algorithms in data science

- Inference algorithm
 - looking back: considering all the ways data could have happened
 - frequentist (sampling distribution)
 - likelihood (probability accounting)
 - Bayesian (likelihood + belief updating)
 - looking forward: predicting new data and testing against them
 - cross validation, AIC, machine learning

Plug in principle

- We don't know the true sampling distribution or its parameters
- Plug in the sample instead as an estimate
- Sex ratio example:
 - assume sampling distribution Normal
 - plug in the standard deviation of the sample

Open lab

- Problems from previous homework
- Prediction intervals
 - `lm()` with your dataset
 - prediction intervals for $y|x$
 - also plot confidence intervals for $y|x$