

# Homework 1

Read Chapter 3.

Do problems 2.3, 2.4, 2.6, MO Elections, 3.7, 3.5, Brucellosis, 3.3 and 3.10.

## MO Elections

Here is a table of Missouri voter turnout percentages over 9 recent national elections:

Year	2008	2010	2012	2014	2016	2018	2020	2022	2024
Turnout	70	47	66	35	67	58	70	51	68

Compute a 2x2 moving average of this time series.

Why is a 2x2 moving average the right choice to find the trend for this series?

## Brucellosis

The data set `brucellosis.csv` is available on our course data page. This gives the monthly number of cases of brucellosis in China.

Use `gg_season` to make a seasonal plot of the brucellosis data. What are the high and low seasons for brucellosis cases?

Apply a Box-Cox transformation to stabilize the variance and make an STL seasonal decomposition. Plot your results.