STATISTICAL METHODS II
ASSIGNMENT 09
DUE: 22 MARCH 2011

As we are now in a different part of the course, we have now changed our usual assignment patterns. This homework has no problem with a lengthy written answer. They are all short answers and graphs. The first three need to be answered with a paragraph. As these are review questions, make sure you perform the appropriate tests and draw the appropriate conclusions. Test the conclusions, even with the non-parametric tests.

You still need to include your `R` script as an appendix and make sure that there is no `R` code outside the appendix *unless* I specifically request it.

Finally, as usual, if you have any questions or issues, let me know as soon as possible.

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For these problems, you will be using the `ssm` dataset. This data set consists of data at the state level for 34 votes on limiting single sex marriage in the United States. The variables you will need are `year` (the year the vote took place), `pctfavor` (the percent of the electorate who voted in favor of the bill), `religiosity` (the level of religiousness in the state), `south` (whether the state is in the South), and `civilunion` (whether the ballot measure also restricted civil unions).

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Good luck!

Problem 09.1 ⟦6⟧

Use the `ssm` dataset to answer the following questions in a paragraph each.

(1) Do the states in the South (in this sample) have a significantly higher level of religiosity than the other states?

(2) Was the proportion of the vote in favor of limiting single sex marriage significantly higher in the South?

(3) Was the proportion of the vote in favor of limiting single sex marriages significantly higher when the ballot measure also included restrictions on civil unions?

Problem 09.2 ⟦4⟧

Fit the following research model appropriately:

$$\texttt{pctfavor} \sim \texttt{year} + \texttt{civilunion} + \texttt{religiosity}$$

- You do not need to check any assumptions.
- You do, however, need to predict the proportion of the vote in favor of limiting single sex marriage rights in a state with religiosity level 3, holding a vote in 2011, and with a ballot measure that also limits civil unions.
- You also need to create a scatterplot of `pctfavor` against `year`.
- Finally, to this scatterplot, add a prediction line for `year`, with `civilunion` $= 1$ and `religiosity` $= 3$.
- For some extra credit, to this scatterplot, add a prediction line for `year`, with `civilunion` $= 0$ and `religiosity` $= 3$. Add an appropriate legend.

Please be aware that I *do* want the graph to be `pctfavor` against `year` (so, `pctfavor` is the Y and `year` is the X).