Answer any three of the following:

   
   (a) Using software, calculate the best curve fit of the form $a + b \sin((2\pi)/12(x - d))$ as we did in class. Give your output.
   
   (b) Explain the meaning of the parameters $a$, $b$, and $d$. Discuss the variation in the values of the three parameters and the relationship to where the cities are located.

2. Consider the curve-fitting of the climate data of Clemson. We noted in class that the peak and trough do not appear to be exactly half-a-year apart.
   
   (a) Try to quantify this difference. E.g. fit a curve (e.g. parabola) to only the summer months and to only the winter months.
   
   (b) Suggest a mathematical model for the overall data that allows for the peak and trough to not be exactly half-a-year apart.

3. Find a recent paper by Abramowitz that builds on the model that we discussed in class. Prepare a brief summary discussion of this new paper, and what it says about the accuracy of the original model. (Say 1 page.)

4. Consider the senate forecasting model that we discussed in class.
   
   (a) By reading their websites, discuss the ways that Silver and others combine polls and other data to produce the prediction for a particular state.
   
   (b) Suggest factors that a more complicated national model should consider.

Due: Tuesday Sept 9.