

Math Analysis CP- Unit 3
Extra Credit
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This is due by Thursday 10/11/18. It will not be accepted late, regardless of your attendance on or prior to the due date. You may turn it in early or have a friend submit it for you. It must be handed directly to the teacher, not placed in my mailbox in the office. It is worth a maximum of 5 points and completion does not necessarily guarantee any points.

In this problem you will model the number of daylight hours each month in a city of your choice using data from <http://www.sunrisesunset.com>. Your report must include:

1. The name of your city. You must choose a city that begins with the first letter of your first or last name. (For example, Betty Smith might choose Bangkok or Shanghai). If the city you want is not on the list, you can go to the custom calendar page for even more city choices!
2. A table showing the number of daylight hours each month for 12 consecutive months. You do not have to calculate the number of daylight hours for every day of the month; just do the first day of every month or the tenth day of each month or a day of your choice. Be sure to report which day you've chosen. Stay consistent...if you choose the 5th of January, it must be the 5th for every month.
3. A scatter plot of your data points with month on the x-axis and number of daylight hours on the y-axis. Your graph should be drawn on graph paper and be large enough to clearly show the data.
4. A sinusoidal equation (both a sine and cosine equation) to model the data, including the work necessary to find the amplitude, frequency, phase shift, and vertical shift of the function. Your work must be visible.
5. A sketch of your equation on the scatter plot. If you wish, this can be done on your calculator and you may print a screen capture.
6. A prediction of the number of daylight hours in your city in the month and year of your graduation from high school.