

MATH 1040 – INTRODUCTION TO STATISTICS

Project #2

Due: Tuesday, August 7

CONFIDENCE INTERVALS (internet project for chapter 7, Triola)

In this project you will compute confidence intervals. In particular, you will compute confidence intervals for the same quantity measured at different times, and you will then compare these intervals. The subject is temperature and the patterns exhibited over several years.

WEATHER PATTERNS and THE WEATHER UNDERGROUND

Temperature patterns seem to be changing around the U.S. Winters seem shorter, summers seem hotter, and major storms seem more frequent. For this project we'll use the Weather Underground's page of weather data found at <http://www.wunderground.com/>. The Weather Underground was created by a student/professor team at the University of Michigan and shortly thereafter became a public company providing current and historical weather data for the United States and other countries.

At the top of the Weather Underground home page you will find a box for entering the name of a city, state or country. Enter your home city or a favorite city to see the current weather conditions there. Note that at the bottom of the current conditions table, there is a box marked Historical Conditions in which you can enter a date to see statistics for any day from the past five years. For example, the data on June 1, 2002 for New Orleans, LA looks like:

Mean Temperature	83.3 ° F
Max Temperature	91.4 ° F
Min Temperature	75.2 ° F
Cooling Degree Days	18

Experiment with this feature until you are comfortable with finding historical weather data. Now collect the Max. Temperature reading for each day in your home city or a city of your choice in

1. February and August of 2006.
2. February and August two years previous (2004)
3. February and August 4 years previous (2002)

WHAT TO INCLUDE IN YOUR REPORT

1. Compute 99% confidence intervals for the average daily maximum temperature in February for each of the three years in which you collected data. How do they compare?
2. Compute 99% confidence intervals for the average daily maximum temperature in August for each of the three years in which you collected data. How do they compare?

Write a report presenting your findings and conclusions about temperature change in your chosen city. You may include appropriate graphical summaries and any other analyses you feel are important to presenting your case. Treat this as a formal report; I expect beautiful grammar, etc. It will probably take about 2 pages to adequately report on this issue.

While you may (and should) work with other students in analyzing the data and finding important results to focus on, your report must be your own work. Any plagiarism will have severe consequences.