Excel for General Chemistry

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Physical chemistry is a quantitative science, meaning we use mathematical operations to explain and explore chemical phenomena. This math can be done by hand, but once you have more than one or two data points this gets very tiring and a spreadsheet can be a lifesaver! In this section we will talk about how to program mathematical equations into Excel, how to use common mathematical and statistical functions, and how to reference other values within the spreadsheet. We will also dip our toes into some simple computer programming that can be very useful.

The first two subsection Mathematical Operations and Cell Referencing use the air quality datasets from the NAPS network as examples. If you received a dataset through your CHM135 lab section feel free to use it to follow along. If not, you can visit the Introduction page to download the example dataset used throughout this resource (note that you cannot use the example dataset for your analysis in CHM135).

4.1 Mathematical Operations

As described in the Introduction, atmospheric chemists have defined the term "odd oxygen" or O_X as the sum of the concentrations of NO_2 and O_3. **To add O_X to your analysis you will need to calculate the concentration O_X at each timepoint**. To do this, simply add the cells containing O_3 and NO_2 for the first timepoint (both concentrations are in ppb so they can be added directly) then copy this formula down the column. When you add a formula into Excel remember to start with an equals sign ("="), this will let Excel know you are writing a formula. If you are referencing a cell you can either write it