Chem 260 Laboratory 0
Optional (non credit)

This lab is intended to give practice to those students who are not familiar with common operations in Windows, Word, and Excel. Experienced computer users will find it boring and trivial.

GENERAL PROCEDURES FOR CHEM 260 COMPUTER LAB SESSIONS

- ❑ Each student will be assigned a workstation for the semester.
- ❑ Discussion is allowed and experienced computer users are encouraged to help others, but after assistance you must work through the exercises and produce an individual report.
- ❑ Lab reports must be written up during the session, and submitted by the end of that session as Word documents (unless stated otherwise in the instructions).
- ❑ The files used for this lab are on the network drive in the directory F:\Courses\Chem260\Lab 0. Copy these files to your hard drive C:\Temp\Chem260.
- ❑ Completed lab reports are submitted to F:\Courses\Chem260\Students*yourlastname*.
- ❑ Reports must include the student's name as the first line.
- ❑ Material may be typed directly into Word but will typically be pasted in from some other program, such as Excel or HyperChem. This includes plots and other graphics.
- ❑ Reports will be graded on a scale with three levels:
  A = lab completed and mostly correct
  C = lab attempted but incomplete or with major errors
  F = no serious attempt at lab
- ❑ Students can take print or disk copies of their work if they provide their own printer card or floppy disk.

PRACTICE WITH EXCEL

1. Open the file 260lab0.xls, which has pages of data, constants and conversion factors.
2. By entering appropriate fomulae and making use of the *exact* constants and conversion factors, complete the spreadsheet. A partial example is shown overleaf.
3. Don't forget to save your file at regular intervals!
4. Make a plot of ν against E_1 on a separate page of your file. Try to reproduce the style of the example shown overleaf. Add an unweighted best straight line (a linear "trendline").
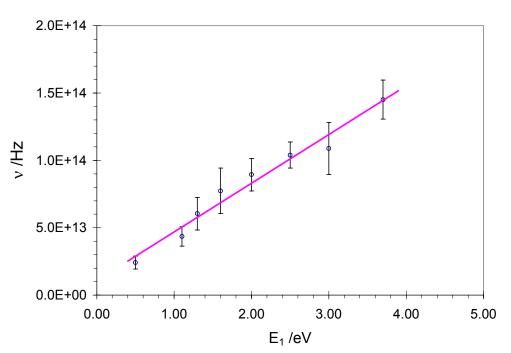
PRACTICE WITH CUT AND PASTE. EXPLORE HYPERCHEM

1. Cut and paste your table and plot into a single page of a Word diagram, so that it looks like the example overleaf. Do not insert Excel objects. Paste the table as "formatted text" and the plot as "picture".
2. Save the file on your local hard drive. Close Word and *then* copy the Word file from your local drive to the network "file drop" directory.
3. Copy the file carotene.hin to your local drive. Sign out a CD, start HyperChem and open carotene.hin. Display/Labels/None. Edit/Setup Image/Metafile. Do NOT use Bitmaps. Copy the structure (use Edit/Copy Image) and paste into a Word document. For best results use white for the background in HyperChem.
4. Play with HyperChem.

Example of Spreadsheet and Plot made with Excel

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E_2	E_1	$\Delta E = E_2-E_1$	error	$\Delta E = E_2-E_1$	$\nu = \Delta E/h$		$\lambda = c/\nu$
LUMO /eV	HOMO /eV	ΔE /eV	$\Delta(\Delta E)$ /eV	ΔE /kJ mol^{-1}	ν /Hz	$\Delta\nu$ /Hz	λ /nm
0.60	0.50	0.10	0.02				12398
1.28	1.10	0.18	0.03				6888
1.55	1.30	0.25	0.05				4959
1.92	1.60	0.32	0.07				3875
2.37	2.00	0.37	0.05				3351
2.93	2.50	0.43	0.04				2883
3.45	3.00	0.45	0.08				2755
4.30	3.70	0.60	0.06				2066

Note: Some of the data has been deleted from this example. YOU have to calculate it!

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