

Updated 10/2/2020

## Instructions for the Vernier UV-Vis Handheld Spectrometers

### Types of UV-Vis Handheld Spectrometers:

Currently, GGC uses two styles of portable, handheld, Vernier UV-Vis spectrometers that operate the same:



**Figure 1:** Two styles of Vernier UV-Vis spectrometers.

### Cuvette/Sample Handling:

1. Prior to beginning your measurements, you will need to prepare your samples and place each solution into separate cuvettes.
2. The cuvettes should be filled approximately  $\frac{3}{4}$  full with your solutions (**Figure 2**). Make sure you keep your cuvettes organized so you know which sample is which. However, do NOT write on the cuvettes.

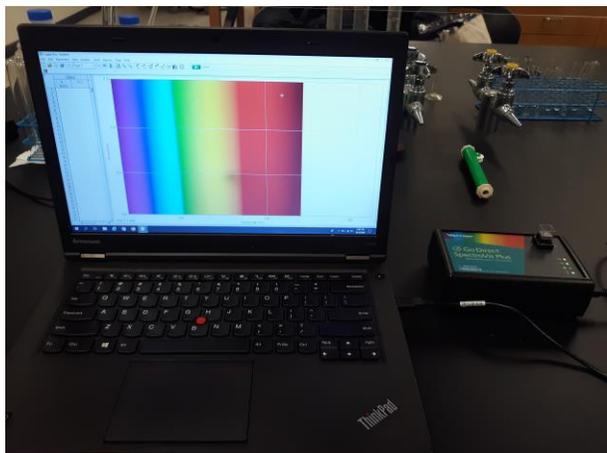


**Figure 2:** Image of a cuvette  $\frac{3}{4}$  full of test sample.

3. Use a chemwipe to clean and dry the outside of the cuvettes. Do NOT use paper towel to clean cuvettes, as this will damage them.

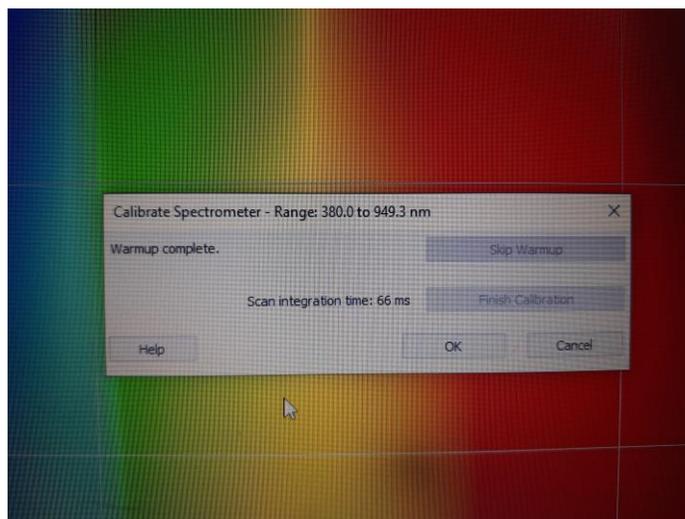
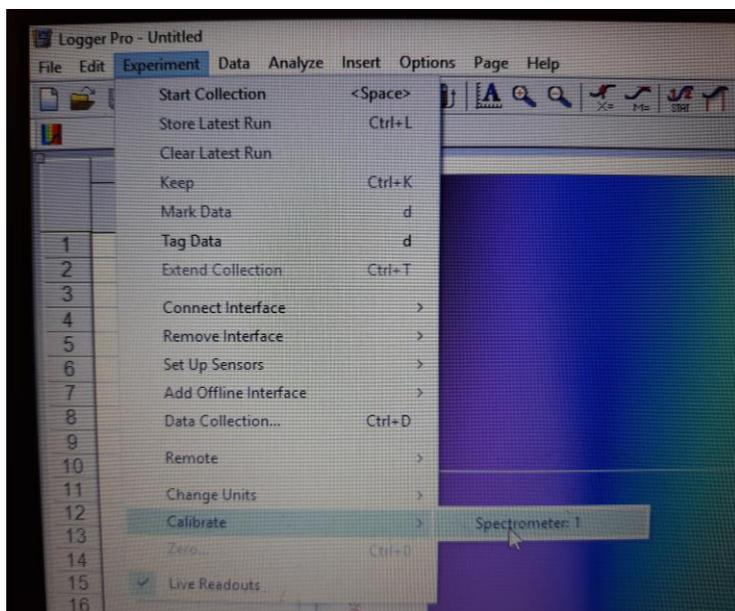
### To run your samples:

1. Plug the spectrometer directly into the computer via the USB cable (**Figure 3**). [Note: Some spectrometers may require the GoPro Vernier adapter to plug into the computer.]
2. Open LoggerPro from the desktop icon. [Note: If the icon is not present on desktop, use the search feature to locate the program.]



**Figure 3:** Portable Vernier UV-Vis spectrometer set up with Logger Pro program opened.

3. The “Collect” button on the top of the screen should be green.  If not, there may be a connection problem.
4. Before running any samples, you must calibrate the spectrometer (**Figure 4**).
  - a. Go to: **Experiment → Calibrate → Spectrometer1**
  - b. After a 90 seconds warmup, it will ask that you place a blank cuvette in the device. Fill the cuvette  $\frac{3}{4}$  full with your solvent (distilled water for aqueous samples). Insert the blank, making sure that light will travel through the clear sides of the cuvette. Click “Finish Calibration.” When the calibration is finished, click “OK” to exit the calibration window.
  - c. Click “Collect” to take the spectrum of the blank to make sure the calibration was successful. Let the spectrometer collect the spectrum for a few seconds and then you can stop the recording. If the calibration was successful there should not be a significant absorbance at any wavelength.



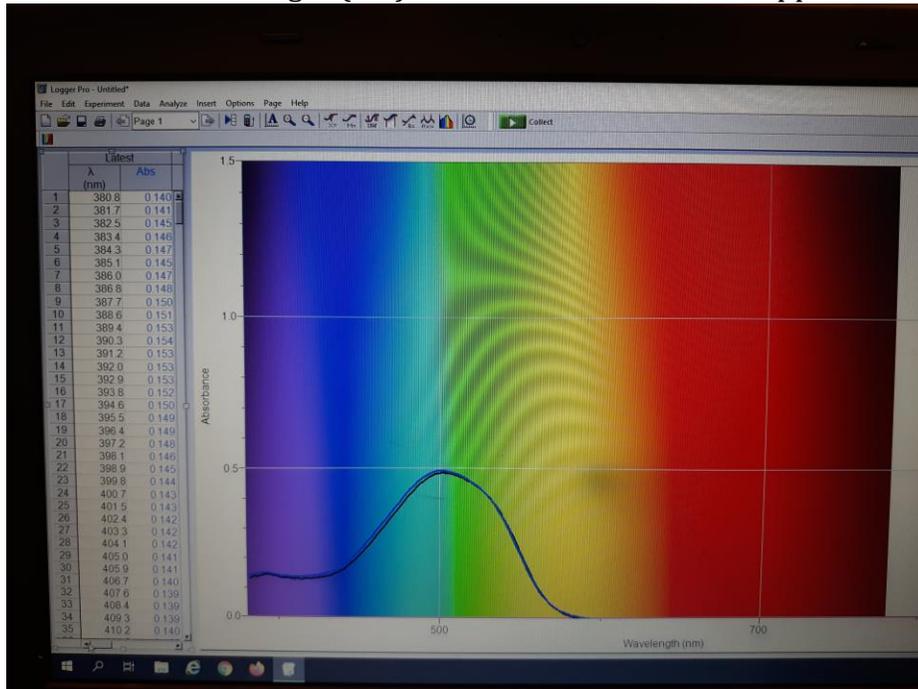
A

B

**Figure 4:** (A) Opening of calibration screen. (B) Calibration screen once calibration is complete.

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5. You are now ready to run your samples. Place your sample in the device. Click “Collect” and let the spectrometer collect for a few seconds before pressing the red “Stop” button. Your wavelength (nm) and absorbance data will appear in the table to the left (**Figure 5**).



**Figure 5:** Example of sample data.

6. For measuring multiple samples:
  - a. Replace the previous sample with the new sample.
  - b. After clicking “Collect”, an option box will appear (**Figure 6**). Make sure you select the option “Store Latest Run”, to store the previous run when collecting new data. Repeat steps 6a-6b as needed.
  - c. You will also need to record the order in which you collect your samples for reference later. The first thing measured is “Run 1” and the last thing measured it “Latest” in the data table.



**Figure 6:** Data storage option box.

### **To save and export data:**

1. To export your data, go to: **File** → **Export As** → **CSV**. Save your file to the desktop. Put your name in the filename.
2. Open your data file in Excel. You should see two columns (Wavelength vs. Absorbance) for each run. Save this as an Excel workbook. Either transfer this file to a) your own computer via flash drive, b) send it to yourself via email, or c) use the “Locker” option on D2L.

### **When you are finished:**

1. Close the LoggerPro program. Return the spectrometer to its original location.