

# Hitachi U-2001 UV/Vis Spectrometer

Updated June 3, 2008

Instrument instructions can be found at:

<http://academic.bowdoin.edu/chemistry/resources/instructions.shtml>

If you have any problems with the instrument or would like to get trained, please contact Celeste

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## 1. Protocol

- a. **Read instructions carefully before using instrument.** Reading the bold sentences in each category will tell you what you need to know to run the instrument.
  - i. Bullets are under the bold sentences when more detail is required.
  - ii. At the end of the instructions is a frequently asked questions/troubleshooting section.

## 2. Startup Procedure

- a. **Verify the Communications Card is inserted in the slot on front of the instrument** (lower left corner).
- b. **Turn on instrument.**
- c. **Turn on computer and login** (use your Bowdoin account).
  - i. First time users only.
    1. Create a folder to store your data.
      - a. Open Windows Explorer.
        - i. (Start > All Programs > Accessories > Windows Explorers).
      - b. Go to Desktop > My Computer > Local Disk (C:) > Program Files > UV Solutions > Data.
      - c. Create a data folder.
        - i. Click once on the data folder to highlight it.
        - ii. Go to (File > New > Folder).
        - iii. Type in your name or initials to name that folder.
    2. Configure a network printer and set it as default.
      - a. Make sure you are connected to the Bowdoin network.
      - b. Go to Start > Run.
      - c. Type in the location of the printer.
        - i. Second floor – “\\madison\dahlia”.
      - d. Click OK.
      - e. Set printer as default.
        - i. Start > Printers and Faxes.
        - ii. Right click on printer you just added.
        - iii. In the menu, select “Set as Default Printer”.
- d. **Open UV Solutions** (Start > All Programs > Hitachi Applications > UV Solutions 2.0).

- e. **Wait until initialization is done before proceeding to next step.**

### 3. Create/Edit Method

- a. **Adjust parameters** (Edit > Method).

Note: After adjusting the parameters, you might get a message that says “As a result of the selected instrument parameters, the data listing values have been changed to the following...” Ignore this message and click OK.

- i. General Tab.
  - 1. For Measurement select “Wavelength Scan”.
  - 2. Enter operator name.
- ii. Instrument Tab.
  - 1. Enter scan parameters.
- iii. Monitor Tab.
  - 1. Enter y-axis max/min values.
  - 2. Make sure “Open data processing window after acquisition” is checked.

### 4. Collect Spectrum

- a. **Enter sample information** (Edit > Sample/Comments).
  - i. Enter sample name.
  - ii. Check “Auto File” and “Auto JCAMP-DX file”.
  - iii. Enter file name for spectrum and location where it will be stored (click Select button and browse to your folder).
- b. **Verify sample compartment is empty.**
- c. **Zero instrument** (Spectrophotometer > Zero).
- d. **Collect baseline** (Spectrophotometer > Record Baseline).
  - i. Select “User” for type of baseline. This will perform a baseline with the settings you set in your method (scan range, scan speed, etc...).
- e. **When baseline is complete, insert sample** (front) **and reference** (back).

Note: Occasionally you will see a drop in absorbance during the run. If this happens, rerun the baseline and then collect a spectrum with the cells empty. If this spectrum is flat, rerun your sample.
- f. **Measure sample** (Spectrophotometer > Start Series).
- g. **When scan is complete, the spectrum will open in a new window.**

### 5. Analyze Spectrum

- a. **Go to Edit > Properties.**
  - i. Display and Axes tab.
    - 1. Adjust screen parameters.
  - ii. Report tab.
    - 1. To export data to Excel, select “Use Microsoft(R) Excel” for Output.
- b. **To export data to Excel, go to the Report tab, and for Output, select “Use Microsoft Excel”.**
- c. **Go to print preview** (Data > Report) **and Excel will open with the entire spectrum data.**

### 6. Print Spectrum

- a. **Preview report** (Data > Report).
- b. **Print report** (click the Print button in the Preview Report window).

## **7. Shutdown Procedure**

- a. **Remove your samples from the sample compartment.**
- b. **When you close the program, select “close the program and turn the lamps off”.**
- c. **Allow the lamps to cool down for ten minutes and then turn the instrument off.**
- d. **Log off the computer.**