

## FACILITIES AND INSTRUMENTATION

The Valparaiso University Chemistry Department has the following equipment that is available for use in undergraduate instruction and research.

- Fourier Transform Nuclear Magnetic Resonance spectrometer (FT-NMR) - Bruker Avance III 400 MHz - Used to determine molecular structure of organic compounds.
- Fourier Transfer Infrared spectrometer (FTIR) - Thermo-Nicolet NEXUX 670 FT-IR - Used to determine and identify molecular structure by using a substances vibrational properties.



- Ultraviolet/Visible spectrometers (UV/VIS) - Perkin Elmer Lambda 650, Beckman, HP diode array & Molecular Devices microplate reader - Used to make qualitative and quantitative analysis using a sample's ability to absorb visible and ultraviolet light.



- Raman Laser spectrometer - Used a research setting to study colloids and surfaces. Fluorescence Spectrometer (SLM) - Used to probe protein-substrate interactions.
- Atomic Absorption spectrometer (AA) - Used to analyze trace metals in solution.
- Inductively Coupled Plasma spectrometer (ICP) - Used to analyze minute quantities of metals in solution.
- X-Ray diffraction spectrometer - Used to determine powder patterns of crystalline materials.
- Gas Chromatograph - Mass Spectrometer (GC-MS) - Agilent 7890A/5975C - Used to separate and identify compounds in mixtures.



- Gas Chromatograph (GC) - HP5890 and HP6850 - Used to separate volatile mixtures.
- High Performance Liquid Chromatographs (HPLC) - Waters - Used to separate non-volatile mixtures. Chromatatron -
- Gel Electrophoresis - Used to separate protein mixtures.
- Speed-Vac Concentrator -
- Superspeed centrifuge - Beckman -
- High capacity refrigerated centrifuge - Juan -
- Protein Sequencer - Porton Instruments - Used to obtain amino acid sequences of proteins.
- Microbalance - Cahn - Used to weigh minute quantities of protein.
- Magnetic Susceptibility - Johnson Matthey - Used to determine number of unpaired electrons in metallic compounds.
- Electrochemical workstation - BAS - Used to examine the electrochemical properties of materials.
- Polarograph/Voltammeter - Princeton Applied Research - Used to examine the electrochemical properties of materials.
- Silicon graphics workstations - Used to perform molecular modelling.
- Computer interfaces and various probes