• CHM 331 Advanced Analytical Chemistry

PROVIDENCE COLLEGE

This LibreText is for the 1st course in analytical chemistry at Providence offered each fall to our Jr. chem & biochem majors. The subjects covered in the course include, measurements and statistics, simple optical spectroscopy in the UV and visible, separations, and mass spectrometry. Chapters 1 - 5 are largely from Harvey's Modern Analytical Chemistry, Chapters 6 - 14 mimic Skoog's Instrumental Analysis, & Chapter 15 is a collection of LibreText pages in accord with my outline for Mass Spec.

- Front Matter
- 1: Introduction to Analytical Chemistry
- 2: Basic Tools of Analytical Chemistry
- 3: Evaluating Analytical Data
- 4: The Vocabulary of Analytical Chemistry
- 5: Standardizing Analytical Methods
- 6: General Properties of Electromagnetic Radiation
- 7: Components of Optical Instruments for Molecular Spectroscopy in the UV and Visible
- 8: An Introduction to Ultraviolet-Visible Absorption Spectrometry
- 9: Applications of Ultraviolet-Visible Molecular Absorption Spectrometry
- 10: Molecular Luminescence Spectrometry
- 11: An Introduction to Chromatographic Separations
- 12: Gas Chromatography
- 13: Liquid Chromatography
- 14: Capillary Electrophoresis and Electrochromatography
- 15: Molecular Mass Spectrometry
- Back Matter
This Libretext is for the first semester of organic chemistry at Providence College. The course materials have been adapted from the lecture notes I have accumulated over the years and Organic Chemistry, 5th edition, by Maitland Jones, Jr. and Stephen Fleming. Course topics include organic structure and bonding, nomenclature, conformational analysis, structure elucidation, stereochemistry, substitution and elimination reactions, and reactions of alkenes and alkynes.

- Front Matter
- 1: Introduction to Organic Chemistry
- 2: Bonding in Organic Molecules
- 3: Simple Hydrocarbons
- 4: Rings
- 5: Analytical Methods for Structure Elucidation
- 6: Alkenes
- 7: Stereochemistry
- 8: Substitution Reactions
- 9: Elimination Reactions
- 10: Addition Reactions of Alkenes
- 11: Synthesis and Reactivity of Alkynes
- Back Matter