The introductory course in analytical chemistry is the ideal place in the undergraduate chemistry curriculum for exploring topics such as experimental design, sampling, calibration strategies, standardization, optimization, statistics, and the validation of experimental results. Analytical methods come and go, but best practices for designing and validating analytical methods are universal. Because chemistry is an experimental science it is essential that all chemistry students understand the importance of making good measurements.
• 4: Evaluating Analytical Data

\[ r_2 = (y_2 - \hat{y}_2) \]

\[ r_1 = (y_1 - \hat{y}_1) \]

• 5: Standardizing Analytical Methods

\[ \text{equilibrium reached} \]

CaCO₃

Ca²⁺

Mass

Time

• 6: Equilibrium Chemistry
7: Obtaining and Preparing Samples for Analysis

- 8: Gravimetric Methods

- 9: Titrimetric Methods
10: Spectroscopic Methods

11: Electrochemical Methods
12: Chromatographic and Electrophoretic Methods

13: Kinetic Methods

14: Developing a Standard Method

15: Quality Assurance
16: Appendix