Equilibrium chemistry
Acid-base equilibria and titration

1. Basic tools and operations: volumetric analysis.
2. Methods of expressing the concentration of a solution. Calculations.
3. Reversible reactions and chemical equilibria.
4. The law of mass action.
5. The equilibrium constant.
6. Activity, activity coefficients and ionic strength.
7. The thermodynamic equilibrium constant.
8. Brønsted-Lowry theory.
9. Strengths of acids and bases.
10. Protic and aprotic solvents.
11. Relation between Ka and Kb.
12. The pH scale.
13. Buffers.
14. Detection of the end point: indicators.
15. Acid-base standardization.
16. Simultaneous determination of hydrochloric and phosphoric acids.