

CHEM 2001 ANALYTICAL CHEMISTRY

Credit Points 10

Legacy Code 300832

Coordinator Andrew Shalliker ([https://directory.westernsydney.edu.au/search/name/Andrew Shalliker/](https://directory.westernsydney.edu.au/search/name/Andrew%20Shalliker/))

Description This subject provides insight into both classical methods of analytical analysis and an introduction to modern instrumental methods of analysis. Specifically, the classical methods of analysis include volumetric and gravimetric methods, while the modern instrumental methods include separation techniques and spectroscopy. The role of spreadsheets in data analysis and presentation is discussed and applied in the laboratory program.

School Science

Discipline Chemical Sciences, Not Elsewhere Classified.

Student Contribution Band HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 2 subject

Pre-requisite(s) CHEM 1008 Introductory Chemistry

Restrictions

Successful completion of 60 credit points

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Explain how analysis is both qualitative and quantitative.
2. Explain the importance of the correct use of analytical tools in quantitative analysis.
3. Apply appropriate numerical skills and use spreadsheets in order to improve the analysis of chemical information, to present the data in a table, graph etc. appropriate for scientific literature.
4. Perform experimental tasks on volumetric methods of analysis with attention to Occupational Health and Safety and risk assessments and to undertake the appropriate calculations to determine content.
5. Perform gravimetric methods of analysis and appropriate calculations to determine the concentration of chemical species present in a sample.
6. Explain the principles of separation and spectroscopic processes and its applications in the field of analytical chemistry.

Subject Content

1. An introduction to the objectives of analysis in analytical chemistry.
2. Sampling techniques, sample handling and preparation.
3. Understanding spreadsheet functions and screen interfaces of data analysis programs
4. Volumetric analysis and solution preparation including stoichiometric calculations.
5. Gravimetric methods of analysis and stoichiometric calculations
6. Separations, including HPLC, GC and CE.
7. Spectroscopy, including IR, UV, AAS and AES.
8. Challenges in the analysis of real samples

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task
Practical	3 hours	30	Y	Individual
Intra-session Exam	50 minutes	20	N	Individual
Final Exam	2 hours	50	N	Individual

Prescribed Texts

- Skoog, DA 2004, Fundamentals of analytical chemistry, 8th edn, Thomson-Brooks/Cole, Belmont, CA.

Teaching Periods

Autumn (2022)

Campbelltown

Day

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=CHEM2001_22-AUT_CA_D#subjects)

Parramatta - Victoria Rd

Day

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Autumn (2023)

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