



CHEM2201

Analysis and Measurement

Session 2, In person-scheduled-weekday, North Ryde 2026

School of Natural Sciences

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General Information

Unit convenor and teaching staff

Unit Convenor

Su Su Thae Hnit

susuthae.hnit@mq.edu.au

Contact via Email

4WW 220

Make Appointment

Lecturer

Anastasiia Tukova

anastasiia.tukova@mq.edu.au

Contact via Email

4WW 328

Make Appointment

Credit points

10

Prerequisites

CHEM1001 and CHEM1002

Corequisites

Co-badged status

Unit description

Analysis and measurement of the molecular composition and structure of matter is widely conducted in research and industry. Understanding the principles of molecular analysis and measurement is an essential part of any scientist's education. Molecular analysis involves separating molecules, determining identity, concentration and properties of analytes. This unit introduces the basic principles and approaches to undertake measurements of samples from across the chemical, biomolecular, microbiology and medical disciplines. Student will develop knowledge through lectures, workshops and practicals, and gain hands-on experience with instrumentation used to make measurements and conduct analyses. The unit is a core component for students majoring in chemical and biomolecular sciences.

Learning in this unit enhances student understanding of global challenges identified by the United Nations Sustainable Development Goals ([UNSDGs](#)) Industry, Innovation and Infrastructure; Responsible Consumption and Production

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

- ULO1:** Demonstrate an understanding of the concepts of molecular analysis and measurement in the molecular sciences.
- ULO2:** Explain the principles of a range of techniques used for the analysis and measurement employed in the molecular sciences.
- ULO3:** Apply quantitative analysis methods and statistical techniques for the collection and analysis of data relevant to the molecular sciences.
- ULO4:** Develop intermediary chemistry laboratory skills and understand and implement laboratory safety procedures.
- ULO5:** Interpret and draw sound conclusions from analytical chemical data.
- ULO6:** Communicate effectively within the conventions of the molecular sciences discipline.

General Assessment Information

Requirements to Pass this Unit

To pass this unit you must:

- Achieve a total mark equal to or greater than 50%, and
- Participate in and undertake all hurdle activities for a minimum of 50%.

The Principles of Analysis and Measurement in Molecular Sciences (10%):

- The Problem Set will be assessing your understanding of the principles and concepts of molecular analysis and measurement employed in molecular sciences including statistical analysis of quantitative data.
- The problem Set will occur during the workshop of week 7 (11/09/2026) and it will be invigilated.
- The problem set will be based on the topic includes in lectures and workshops of Week 1-7.

Hurdle Assessment

Laboratory Competency (40%)

Development of knowledge and skills in a range of techniques used for the analysis and measurement employed in the molecular sciences requires continual practice at authentic problems in a laboratory-based setting. This unit includes five (5) practical laboratory sessions, all of which contain assessable components. Students are required to actively participate in each practical and complete the associated assessment tasks.

- Laboratory competency will be assessed through a structured laboratory report and lab book.
- Structured lab report contains the exercises from 5 practical laboratory sessions, each contributing 7% to the final grade (total 35%). Laboratory report includes worksheets, short questions, as specified in the practical instructions. This report is expected to demonstrate a comprehensive understanding of the experimental procedures, data analysis, interpretation of results, and scientific communication.
- You are required to keep a physical lab book for this unit which is contributing 5%. The lab book needs to be shown to your demonstrators at the end of each practical session.
- Laboratory Competency is due on Friday Week 11 (23/10/2026).
- You must participate in the lab practical classes to pass CHEM2201. This is a hurdle requirement meaning that failure to meet this requirement may result in a failed grade for the unit.
- You must obtain a minimum mark of 50% for your laboratory report. Resubmission of the laboratory report will be allowed if that is assessed under 50%.
- Students are permitted to one absence from lab practicals and that absence will require the approval of Special Consideration Request. Students must participate a catch-up lab practical class upon Special Consideration approval.

Note: If you miss a lab practical class, you are NOT automatically entitled to a make-up class. Such an opportunity may be offered, if possible, if sufficient warning and special consideration approval is provided. You must also contact the Unit Convenor, Dr. Su Su Thae Hnit (susuthae.hnit@mq.edu.au).

Final 3-hour examination (50%):

- The final examination will be 3 hours, consisting of multiple choice and short answer questions.
- The final examination will cover all sections of the unit (lectures, lab practicals, workshops, and weekly questions) and is designed to address specific understanding of

all the concepts presented within the course.

- If you receive a special consideration for the final exam, a supplementary exam will be scheduled in the interval between the regular exam period and the start of the next session. Please ensure that you are familiar with the policy prior to submitting an application.

Grade Book:

The assessments marks will be displayed on iLearn through Gradebook. It is your responsibility to regularly verify that the records displayed in Gradebook are correct. If you have any difficulties in completing the hurdle and other assessment tasks, please contact to Unit Convenor immediately.

Assessment Release Dates

- The Principles of Analysis and Measurement in Molecular Sciences: To be released no later than 28th August.
- Laboratory Competency: To be released no later than 9th October.
- Final 3-hour examination: To be released no later than 2nd November.

Late Assessment Submission Penalty

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark of the task) will be applied for each day a written report or presentation assessment is not submitted, up until the 7th day (including weekends). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. The submission time for all uploaded assessments is 11:55 pm. A 1-hour grace period will be provided to students who experience a technical concern.

For any late submission of time-sensitive tasks, such as scheduled tests/exams, and/or scheduled workshops or lab practical assessment, please apply for [Special Consideration](#). You should also immediately contact the Unit Convenor. Please see <https://students.mq.edu.au/study/assessment-exams/assessments> for more information.

Assessments where Late Submissions will be accepted.

In this unit, late submissions will be accepted as follows:

- Laboratory reports – YES, Standard Late Penalty applies.
- Problem set - NO, unless Special Consideration is Granted.

Please refer to the [Macquarie University Assessment policy](#) regarding submission.

Special Consideration

The [Special Consideration Policy](#) aims to support students who have been impacted by short term circumstances or events that are serious, unavoidable and significantly disruptive, and which may affect their performance in assessment. If you experience circumstances or events that affect your ability to complete the assessments in this unit on time, please inform the convenor and submit a Special Consideration request through <http://connect.mq.edu.au/>.

Assessment Tasks

Name	Weighting	Hurdle	Due	Groupwork/Individual	Short Extension	AI Approach
The Principles of Analysis and Measurement in Molecular Sciences.	10%	No	11/09/2026	Individual	No	Observed
Laboratory Competency	40%	Yes	23/10/2026	Individual	Yes	Open
Final Exam	50%	No	University Examination Period	Individual	No	Observed

The Principles of Analysis and Measurement in Molecular Sciences.

Assessment Type ¹: Problem-based task

Indicative Time on Task ²: 10 hours

Due: **11/09/2026**

Weighting: **10%**

Groupwork/Individual: Individual

Short extension ³: No

AI Approach: Observed

The Problem set is designed to assess the understanding of the principles and concepts of molecular analysis and measurement employed in molecular sciences including statistical analysis of quantitative data. The problem set will be based on the lectures, workshops and practical content.

On successful completion you will be able to:

- Demonstrate an understanding of the concepts of molecular analysis and measurement in the molecular sciences.
- Explain the principles of a range of techniques used for the analysis and measurement employed in the molecular sciences.

- Apply quantitative analysis methods and statistical techniques for the collection and analysis of data relevant to the molecular sciences.
- Interpret and draw sound conclusions from analytical chemical data.
- Communicate effectively within the conventions of the molecular sciences discipline.

Laboratory Competency

Assessment Type ¹: Experiential task

Indicative Time on Task ²: 20 hours

Due: **23/10/2026**

Weighting: **40%**

Groupwork/Individual: Individual

Short extension ³: Yes

AI Approach: Open

This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)

Laboratory competency is designed to enhance understanding on the theory and examples covered in lecture content, to experience laboratory procedures and safety requirements, and also to gain the skills of analysing the experimental data and scientific report writing.

On successful completion you will be able to:

- Demonstrate an understanding of the concepts of molecular analysis and measurement in the molecular sciences.
- Explain the principles of a range of techniques used for the analysis and measurement employed in the molecular sciences.
- Apply quantitative analysis methods and statistical techniques for the collection and analysis of data relevant to the molecular sciences.
- Develop intermediary chemistry laboratory skills and understand and implement laboratory safety procedures.
- Interpret and draw sound conclusions from analytical chemical data.
- Communicate effectively within the conventions of the molecular sciences discipline.

Final Exam

Assessment Type ¹: Examination

Indicative Time on Task ²: 30 hours

Due: **University Examination Period**

Weighting: **50%**

Groupwork/Individual: Individual

Short extension ³: No

AI Approach: Observed

You will undertake a final examination during the formal examination period.

On successful completion you will be able to:

- Demonstrate an understanding of the concepts of molecular analysis and measurement in the molecular sciences.
- Explain the principles of a range of techniques used for the analysis and measurement employed in the molecular sciences.
- Apply quantitative analysis methods and statistical techniques for the collection and analysis of data relevant to the molecular sciences.
- Develop intermediary chemistry laboratory skills and understand and implement laboratory safety procedures.
- Interpret and draw sound conclusions from analytical chemical data.
- Communicate effectively within the conventions of the molecular sciences discipline.

¹ If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- [Academic Success](#) for academic skills support.

² Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation.

³ An automatic short extension is available for some assessments. Apply through the [Service Connect Portal](#).

Delivery and Resources

We strongly encourage all students to actively participate in all learning activities. Regular engagement is crucial for your success in this unit, as these activities provide opportunities to deepen your understanding of the material, collaborate with peers, and receive valuable feedback from instructors, to assist in completing the unit assessments. Your active participation not only enhances your own learning experience but also contributes to a vibrant and dynamic learning environment for everyone.

Week 1 activities: Students are expected to review the Week 1 lecture materials and undertake the week 1 weekly online questions provided in [iLearn](#).

Lectures: Lectures will commence in Week 1. Lectures will be presented formally. Some lecture material will be available on the unit website beforehand, while other material will be provided in the lecture class. You are strongly encouraged to review the lecture material beforehand, so you can spend most of your time engaging with the lecture and ask questions in the class if you have

them. There are two one-hour lectures per week for 13 weeks. Two Revision lectures will be provided in the last week of the semester.

Laboratory Classes: Laboratory classes will begin in Week 2. Practical classes are designed for you to develop basic laboratory, safety, and critical and analytical analysis skills. There will be 5 three-hour lab practicals on-campus.

- Laboratory notes will be available on iLearn for download and you are expected to have a read through all the planned activities.
- You must bring a hard copy of laboratory notes, a laboratory note book which will be checked by demonstrators before leaving the class and a lab coat to your laboratory class.

Workshop Classes: Workshop classes will start in Week 3. Workshop classes are designed to introduce students to a range of problem-solving skills and mainly consist of material related to lab practical, lecture topics, using a series of activities, problems, or questions during the workshop. There will be 6 two-hour workshops run fortnightly.

- Workshop notes will be available on iLearn for download.
- You are expected to have read through all the planned activities.
- You must bring your own device, preferably laptop, for the workshop activities.

Optional Weekly Online Questions: Optional weekly online questions with answer sheets will be provided on iLearn site of this unit.

Required and Recommended Texts and/or Materials:

Prescribed text:

- D.C.Harris and C.A.Lucy, Quantitative Chemical Analysis, 11th Edition, Macmillan Publishing. (2025)

Recommended Textbook and/or Materials:

- D. A.Skoog, D.M.West, F.J.Holler, S.R.Crouch, Fundamentals of Analytical Chemistry, 10th Edition, Brooks/Cole, Thomson Learning, Inc (2021).
- D.S. Hage, J.D. Carr, Analytical Chemistry and Quantitative Analysis, 1st Edition, Pearson (2011). (Chapter 23).

Technology Used and Required iLearn: You are expected to access the unit website on a frequent basis and download PDF files provided. You are strongly encouraged to make use of the discussion forum available on the unit website for general discussion of the materials presented in this unit. General use computers are provided by the University, but it would be advantageous to have your own computer and internet access. Microsoft Office is available free of charge to Macquarie University students. See <https://students.mq.edu.au/support/technology/software/microsoft>. It is important that you have a scientific calculator as hand-held calculators will be used in practicals, workshops, for assignments, tests, and in the final examination. Note

that text retrieval calculators are not allowed in the final examination. You will use Excel and other data processing and display software. Computers carrying this software are available in the teaching laboratories. Items of interest and links to other online material will be placed on the unit iLearn website.

Methods of Communication

During the semester, the CHEM2201 iLearn site will be used to communicate important information to you. Emails will also be sent to your student account. Please check the announcement on iLearn page and your student's email frequently. Students are encouraged to use discussion board for queries. Please feel free to communicate directly with your unit convenor using the contact details provided on the iLearn.

- Dr. Su Su Thae Hnit: Appointment by email susuthe.hnit@mq.edu.au
- Dr Anastasiia Tukova: Appointment by email anastasiia.tukova@mq.edu.au

Unit Schedule

Lectures begin on 28th July 2026 and will be held on:

Day	Time	Location
Tuesday	10-11 am	23 Wallys Walk - T2 Theatre
Thursday	2-3 pm	23 Wallys Walk - T2 Theatre

Laboratory practicals start on 7th August 2026 and will be held on:

Classes	Weeks	Day	Time	Location
1	2, 4, 6, 8, 10	Friday	9-12 pm	14SCO-308, 320, 349-350, 12ER 150 Teaching Lab
2	2, 4, 6, 8, 10	Friday	2-5 pm	14SCO-308, 320, 349-350, 12ER 150 Teaching Lab

Workshop classes start on 14th August 2026 and will be held on:

Classes	Weeks	Day	Time	Location
1	3, 5, 7, 9, 11, 13	Friday	9-11 am	25 Wallys Walk - A209 Tutorial Rm
2	3, 5, 7, 9, 11, 13	Friday	1-3 pm	25 Wallys Walk - A209 Tutorial Rm

3	3, 5, 7, 9, 11, 13	Friday	3-5 pm	25 Wallys Walk - A209 Tutorial Rm
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Students will need to register for **one** workshop class only.

To enable students more time to focus on learning, understanding and reflecting on the content of our unit we have revised the assessment structure as follows. There are now only three assessments: lab report, problem set and final exam. Although no marks are associated with participation, all activities provide you with key content designed to help you understand content and complete the assessments.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit connect.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Academic Success

[Academic Success](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Ask a Study Coach](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)
- [Student Advocacy](#) provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via the [Service Connect Portal](#), or contact [Service Connect](#).

IT Help

For help with University computer systems and technology, visit <https://students.mq.edu.au/support/technology/service-desk>.

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

Changes from Previous Offering

Students were required to submit individual lab reports separately through different portals in S2 2025. A re-structured/re-designed Lab report containing exercises from 5 practical sessions with supplementary data file is to be submitted as Lab Report assessment in single submission portal in S2 2026.

Unit information based on version 2026.03 of the [Handbook](#)