



CBMS123

Alchemy, Drugs and the Quest for Immortality

S2 External 2019

Dept of Molecular Sciences

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General Information

Unit convenor and teaching staff

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4WW 329

Consultation hours available at iLearn.

Credit points

3

Prerequisites

Corequisites

Co-badged status

Unit description

Alchemy is the art and science of converting one substance into another, and it has been an important factor in shaping our society. Metals, ceramics, drugs and plastics have changed and enhanced our lifestyle. Drugs, fertilisers and pesticides have saved millions of lives, but not without some unforeseen environmental or social problems. When this happens, decisions have to be made and costs weighed against benefits. An appreciation of such issues is needed for better understanding the important problems that face society. This unit explores the way chemistry affects our lives, and the way chemists work things out. The unit does not aim to teach chemistry but looks at the impact that chemical sciences has had on civilisation and where the latest molecular innovations are likely to lead us. The commercial significance of key biological processes and industries is addressed, emphasising the Australian context. The unit also examines connections between chemistry and other scientific fields as diverse as psychology, finance, medicine, environmental studies and astronomy, as well as revealing aesthetic and philosophical aspects of chemistry. This unit is taught completely online with a combination of topical lectures and multimedia material.

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:

Understand the role of chemistry and biomolecular sciences in contemporary science

and medicine, as well as industry

Understand the role of chemistry as the source and solution of issues (eg environmental) confronting society

Be able to discuss important issues that have a chemical and/or biomolecular basis from a rational perspective

Be able to critically evaluate non-specialist literature that discuss chemical and biomolecular issues

General Assessment Information

All assessment marks will be available at iLearn. Please make sure that your marks appear by the end of the semester, but recognise that it may take 2-3 weeks to finish marking the written assessment tasks, as they are marked by hand. No quiz marks will be posted until the quiz closes.

It is expected that students will complete ALL ASSESSMENT COMPONENTS in this unit. You do not need to have passed each assessment to pass the unit, but it is expected that all assessments are attempted.

Submission Procedure: Written assessment tasks must be submitted at Turnitin, where they will be screened for plagiarism and unacknowledged citation. Please ensure that you use the correct link at the Unit's iLearn site for your assessment submission!

Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Workshop</u>	25%	No	See description
<u>Biographical Review</u>	35%	No	5:00 pm Friday 13th September
<u>Research Essay Outline</u>	10%	No	5:00 pm Friday 4th October
<u>Research Essay</u>	30%	No	5:00 pm Friday 1st November

Workshop

Due: **See description**

Weighting: **25%**

Four multiple-choice quizzes (6% each) marked using certainty based marking.

The workshops are due on Friday **23rd August** (Workshop 1), Friday **13th September** (Workshop 2), Friday **18th October** (Workshop 3) and **8th November** (Workshop 4) at **5:00 pm**.

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Biographical Review

Due: **5:00 pm Friday 13th September**

Weighting: **35%**

For this assessment task, you will prepare a biographical review about a person who had a major impact on the historical development of the chemical sciences. This is a library-based task that uses our libraries extensive online database and journal collection.

To begin your biographical review, you will select a scientist to write about from a list supplied. Wikipedia links will be provided to help you quickly find out a little about each person. You will then find an article (so called 'target article') in a scientific journal which reports one of your scientists' major scientific achievements.

With your target article in hand, you will then select five additional sources (so called 'citing article') linked to this article, either because they are cited in the target article's References or because they cite the target article. This process may be made easier using Google Scholar or Scopus, available through the Library's database collection. You must reference all citations correctly (APA referencing style).

Writing in YOUR OWN WORDS, you will summarize the crucial finding of the target article, as well as your five citing articles. Your focus should be on the reason for the importance of an article in relation to your scientists' historical impact. Note that a 'citing article' may contradict the 'target article' but try to keep article summaries concise and highlight their significance in relation to each other. Each summary should be 200-300 words in length.

At the end of the review, you will include a 300-400 words summary that connects the target articles and citing articles. This section should also discuss how the historical period in which the biographical character lived impacted on their life and work, as well as the contribution that he/she made to society.

The whole assignment will take approximately 4-5 pages to complete. See the iLearn site for complete description and advice.

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Research Essay Outline

Due: **5:00 pm Friday 4th October**

Weighting: **10%**

For this assessment task, you will use the literature searching skills developed in the Biographical Review to prepare the essential elements of the Research Essay, including an essay outline, an introduction section, an outline of how the Research Essay will be structured, as well as a complete set of references.

Within 3 weeks of submitting the Research Essay Outline, you will receive feedback that you can use to improve the writing, referencing, and thematic organisation in your Research Essay due later in the semester.

See iLearn for complete information and advice for completing the assessment.

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Research Essay

Due: **5:00 pm Friday 1st November**

Weighting: **30%**

The Biographic Review is about 'looking back' on historical figures important to the development of the chemical sciences. The Research Essay is about 'looking forward' to explore current scientific research and to consider its potential for the future. In addition, the task provides an opportunity for you to explore different forms of science communication and to consider their effectiveness for educating specific target audiences in the present day and beyond.

You will select a popular science news article that uses an accessible writing style to explain

recent scientific research and/or discoveries to the general public. You will be supplied with example articles, or you may choose your own news article (topic) to potentially attract extra marks for independent thought (if well chosen). The information in the popular science news article should be based on a specified published research paper in a peer-reviewed scientific journal.

In no more than 2000 words (not including final references but including in-text citations) you will write an essay that compares and contrasts how your chosen scientific research and/or discoveries are presented in the popular science news article versus the formal scientific research paper. In addition, you will discuss where the research presented in the popular science article could lead in the future.

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Delivery and Resources

CBMS123 is an online unit delivered using [iLearn \(http://ilearn.mq.edu.au\)](http://ilearn.mq.edu.au). There you will find all learning materials, as well as links to the assessment tasks.

Please check the CBMS123 iLearn space and your University (student) e-mail address regularly for unit news, including assessment deadlines.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). 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](#)
- [Grade Appeal Policy](#)

- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

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

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/study/getting-started/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 ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Student Support

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

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

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.

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcome

- Understand the role of chemistry and biomolecular sciences in contemporary science and medicine, as well as industry

Assessment tasks

- Workshop
- Biographical Review
- Research Essay Outline
- Research Essay

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

- Be able to discuss important issues that have a chemical and/or biomolecular basis from a rational perspective
- Be able to critically evaluate non-specialist literature that discuss chemical and biomolecular issues

Assessment tasks

- Workshop
- Biographical Review
- Research Essay Outline
- Research Essay

Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Learning outcomes

- Understand the role of chemistry and biomolecular sciences in contemporary science and medicine, as well as industry
- Understand the role of chemistry as the source and solution of issues (eg environmental) confronting society

Assessment tasks

- Workshop
- Biographical Review
- Research Essay Outline
- Research Essay

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Understand the role of chemistry and biomolecular sciences in contemporary science and medicine, as well as industry

- Understand the role of chemistry as the source and solution of issues (eg environmental) confronting society

Assessment tasks

- Workshop
- Biographical Review
- Research Essay Outline
- Research Essay

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

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Assessment tasks

- Workshop
- Biographical Review
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Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcome

- Understand the role of chemistry and biomolecular sciences in contemporary science and medicine, as well as industry

Assessment tasks

- Workshop
- Biographical Review
- Research Essay Outline
- Research Essay

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- Be able to discuss important issues that have a chemical and/or biomolecular basis from a rational perspective
- Be able to critically evaluate non-specialist literature that discuss chemical and biomolecular issues

Assessment tasks

- Workshop
- Biographical Review
- Research Essay Outline
- Research Essay

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcomes

- Understand the role of chemistry and biomolecular sciences in contemporary science and medicine, as well as industry
- Understand the role of chemistry as the source and solution of issues (eg environmental) confronting society

Assessment tasks

- Workshop
- Biographical Review
- Research Essay Outline
- Research Essay

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Learning outcomes

- Understand the role of chemistry and biomolecular sciences in contemporary science and medicine, as well as industry
- Understand the role of chemistry as the source and solution of issues (eg environmental) confronting society

Assessment tasks

- Workshop
- Biographical Review
- Research Essay Outline
- Research Essay

Changes from Previous Offering

Assessment tasks amended. New topics introduced.