

General Course Information

CHEM430

Research Methods 1: Research Proposal and Ethics

0.125 EFTS 15 Points
First Semester 2022

Description

This course comprises a series of workshops of advanced study in contemporary research methodology in the chemical sciences, such as research and professional scientific communication skills including written, visual and oral communication; directed inquiry and problem solving skills; critical analysis and in-depth studies in specific specialised areas of contemporary chemical research.

The topics covered by this course are:

- Writing a research proposal
- Writing a quality assessment plan for research activities
- Ethics of publishing
- Ethics of research

This course is presented in the first semester only. It counts 15 points towards a Bachelor of Science with Honours / Masters of Science / Postgraduate Diploma of Science degree and should be taken in conjunction with other 400-level courses as advised by the 400L coordinator.

Timetable

Refer to the online course information system or MyTimetable.

Workshops will be held every week given by various staff in the School of Physical and Chemical Sciences with assistance of staff from the Academic Skills Centre and others.

Assignments: There will be three assignments for this course which constitute the credit for the course. The timing and nature of each assignment will be at the discretion of each lecturer but are generally due at the end of each term. The assignments will take the form of a research proposal and quality assessment plan (Assignment 1), publication quality data (Assignment 2) and an ethics evaluation (Assignment 3).

NOTE: If you do not submit an assignment for assessment you will be allotted zero marks, which will severely affect your final result. You should ensure that you collect marked assignments and keep them until the end of the course as evidence that the work was completed and marked in the case that either is disputed. To guard against accidental loss, it would be prudent to keep photocopies or electronic copies of anything submitted. If you submit work electronically, please cc a copy to yourself in lieu of keeping a physical copy

Students should note that, in the Faculty of Science, students are responsible for about three hours of additional study or work on assignments for each hour of lectures or tutorials at the 400-level.

Course Co-ordinator

Associate Professor Sarah Masters, School of Physical and Chemical Sciences
BT422, phone 369 4229, email: sarah.masters@canterbury.ac.nz
*Email, phone or come and see me **at any time** if you have **any** questions about the course.*

Assessment

Assignment 1: 50 % total
Assignment 2: 20 % total
Assignment 3: 30 % total

Textbook

There is no textbook for this course. Material for each assignment and continuing professional development task will be provided on the Learn site.

Prerequisites

There are no set prerequisites for the course.

Web-based resources

Various learning resources (workshop material, reference links, discussion forums etc.) for this course are available via the University of Canterbury's *Learn* web site – <http://learn.canterbury.ac.nz/>. This site will also be used regularly as a means of communication and information distribution for all of your Canterbury courses. **You should familiarise yourself with *Learn* as soon as possible.**

Goals of the Course

To ensure that students develop a solid portfolio of skills relevant to research and communication in the chemical sciences. Students will develop a range of skills that are relevant to research in the chemical sciences, including written and oral communication skills. Students will undertake studies in a specific specialised area of chemistry that will allow them to develop an in-depth understanding of an area of contemporary research.

More specifically, the goals of each component of the course are:

Research proposal and research quality assessment

- To introduce how to write a research proposal
- To discuss how to assess the quality of research data
- To discuss how to ensure research data is publishable
- To prepare a research proposal and data quality assessment plan
- To be able to convert data to publication quality imagery
- To outline how to give an oral presentation
- To construct an oral presentation and give it

Ethics

- To understand the importance of ethics in research
- To assess a piece of written research work for veracity
- To critically analyse the discussion of a piece of written work
- To assess when it is appropriate to consult with Māori regarding research projects
- To understand how to consult with Māori regarding research projects
- To assess when it is appropriate to consult with Pasifika regarding research projects
- To understand how to consult with Pasifika regarding research projects
- To assess when it is appropriate to seek ethics approval for human and animal research work
- To understand how to seek ethics approval for human and animal research work

Summary of the Course Content

The topics covered by this course are:

RESEARCH PROPOSAL AND RESEARCH QUALITY ASSESSMENT

(TERM 1)

The purpose of the research proposal is to facilitate thinking about, and focusing upon, plans for the research project and to enable staff to evaluate the proposed research, in terms of academic merit and scope, as indicated in the proposal. The workshops will also enable students to think about how they will ensure the outputs from the project are publishable in a research report / research paper and to think about the health and safety aspects of the project to ensure a safe working environment for them and others around them.

Lecturers:

Professor Paul Kruger, BT425, ext 94367; paul.kruger@canterbury.ac.nz

A/Professor Sarah Masters, BT422, ext 94229; sarah.masters@canterbury.ac.nz

A/Professor Sally Gaw, BT318, ext 94904; sally.gaw@canterbury.ac.nz

Dr Deborah Crittenden, BT326, ext 95087; deborah.crittenden@canterbury.ac.nz

Representative from Academic Skills Centre

ETHICS

(TERM 2)

Ethics and veracity in research lie at the heart of academic activity. It is vitally important to be able to assess to quality of a piece of work, whether it is a journal article, a research seminar, a public interest piece, or something else. Ethics also play an important part in undertaking research. Knowing when and how to consult with Māori and Pasifika regarding the impact of proposed project work, knowing when to seek ethics approval to use humans and/or animals in research, or data obtained from humans and how to handle this information, is also incredibly important.

Lecturers:

Professor Ian Shaw, BT327, ext 94302; ian.shaw@canterbury.ac.nz

A/Professor Sarah Masters, BT422, ext 94229; sarah.masters@canterbury.ac.nz

Representative from Māori Research Office

Representative from Pasifika Development Office

Learning Outcomes

At the end of the research proposal topic, students should be able to:

- Construct a research proposal of suitable length
- Prepare publication quality imagery from a data set
- Demonstrate what elements are required in a research proposal
- Discuss what makes a good research proposal
- Assess the quality of the data
- Demonstrate the basic ethical requirements for conducting research
- Understand the basic ethical requirements for publishing research

At the end of the ethics topic, students should be able to:

- Identify errors in a manuscript
- Match data in text to graphical representations
- Explain why data/statements are incorrect
- Construct a review of a manuscript
- Produce a manuscript in the correct format given the raw material
- Understand why Māori consultation is important
- Know how to go about engaging with Māori regarding research
- Understand why Pasifika consultation is important
- Know how to go about engaging with Pasifika regarding research

Continuing Professional Development

Continuing professional development (CPD) is very important and all CHEM430 students will participate in activities to promote CPD. These include giving an introductory research talk to the School of Physical and Chemical Sciences, attending a session on dealing with data, attending sessions on Intellectual Property, Innovation and Entrepreneurship, and engaging with visiting lecturers and Erskine Teaching Fellows to the School.

All CHEM430 students will participate in regular group meetings appropriate to their research area. These group meetings will involve various different activities to be discussed and actioned by each group. These meetings are non-assessed, however, attendance is expected and persistent non-attendance will be duly noted.

All CHEM430 students will attend the regular School of Physical and Chemical Sciences seminars given by external and internal speakers as advertised. These seminars will be on a wide range of topics given by excellent national and international scientists.

GENERAL INFORMATION 2022

Chemistry Department Policy on 'Dishonest Practice'

The University has strict guidelines regarding 'dishonest practice' and 'breach of instructions' in relation to the completion and submission of examinable material. In cases where dishonest practice is involved in tests or other work submitted for credit a department may choose to not mark such work (['Academic Integrity and Breach of Instruction Regulations'](#)).

The Department of Chemistry upholds this policy. It considers plagiarism, collusion, copying, and ghost writing to be unacceptable and dishonest practices:

- **Plagiarism** is the presentation of any material (text, data or figures, on any medium including computer files) from any other source without clear and adequate acknowledgement of the source.
- **Collusion** is the presentation of work performed in whole, or in part, in conjunction with another person or persons, but submitted as if it has been completed by the named author alone. This interpretation is not intended to discourage students from having discussions about how to approach an assigned task and incorporating general ideas that come from those discussions into their own individual submissions, but acknowledgement is necessary.
- **Copying** is the use of material (in any medium, including computer files) produced by another person or persons with or without their knowledge and approval. **This includes copying of the lab reports (raw data may be shared within the group if permitted or required by the experiment) - data analysis and interpretation of obtained results MUST be performed individually.**
- **Ghost writing** is the use of other person(s) (with, or without payment) to prepare all or part of an item of work submitted for assessment.

Additional Information

Special consideration of assessment: If you feel that illness, injury, bereavement or any other critical extenuating circumstance beyond your control has prevented you from completing an item of assessment or affected your performance in that assessment, you may apply for special consideration. Special consideration is not available for items worth less than 10% of the course. Applications for special consideration should be made **within five days** of the due date for the work or examination. In the case of illness or injury, medical consultation should normally have taken place shortly before, or within 24 hours after, the due date for the required work or the date of the test or examination. For details on special consideration, or to make an application, refer to the Examinations Office website <http://www.canterbury.ac.nz/exams/>. **You have the right to appeal any decision.**

Extensions of deadlines: Where an extension may be granted for an assessment item, this will be decided by application to the course co-ordinator.

Late withdrawal from the course: If you are prevented by extenuating circumstances from completing the course after the final date for withdrawing from the course, you may apply for special consideration for late discontinuation. For details on special consideration, or to make an application, refer to the Examinations Office website <http://www.canterbury.ac.nz/exams/>. Applications must be submitted **within five days** of the end of the main examination period for the semester.

Missing of tests: In rare cases a student will not be able to sit a test. In such cases, the student should consult with the course co-ordinator to arrange alternative procedures. **This must be done well in advance of the set date for the test.**

Submission of reports and assignments: Reports (including lab reports) and assignments should be handed in on time. Extensions will be granted only in exceptional circumstances (such as illness or bereavement). If an extension is required, as early as possible you should request it from the lecturer concerned.

Note: If you do not submit an assignment for assessment, you will be allotted zero marks, which will affect your final result. You should ensure that you pick up marked assignments and keep them until the end of the course as evidence that the work was completed and marked in the case that either is disputed. To guard against accidental loss, it would be prudent to keep photocopies or electronic copies of anything submitted.

Late Work: Acceptance of late work will be at the discretion of the course coordinator. Please contact the coordinator if your assessment is likely to be late.

Marks and Grades: The following numbers should be considered as a guide to the expected grades under normal circumstances. The School reserves the right to adjust mark/grade conversions, if necessary.

Please note that for all invigilated assessments (tests and exams) worth 33% and above, failure to obtain a mark of at least 40% will result in a final grade no higher than an R at 100 and 200 level, and a C- at 300 level.

Grade:	A+	A	A-	B+	B	B-	C+	C	C-	D	E
Minimum mark %:	90	85	80	75	70	65	60	55	50	40	0

Reconsideration of Grades: Students should, in the first instance, speak to the course co-ordinator about their marks. If they cannot reach an agreeable solution, or have questions about their grade in a course, students should then speak to the Coordinator of 400-level studies, [Dr Sarah Masters](#) (Room 422, Beatrice Tinsley Building, phone 369 4229). Students can appeal any decision made on their final grade. You can apply at the Registry for reconsideration of the final grade within four weeks of the date of publication of final results. Be aware that there are time limits for each step of the appeals process.

Students with Disabilities: Students with disabilities should speak with someone at [Equity and Disability Service](#), phone: 369 3334 (or ext. 93334), email: eds@canterbury.ac.nz.

Academic Advice: [Dr Dan Foley](#) is the coordinator of postgraduate chemistry courses. His interest is in the academic performance and well-being of all such students. Anyone experiencing problems with their chemistry courses or requiring guidance about their postgraduate studies should get in contact with Dan.

Dan Foley
Coordinator of Postgraduate Studies
School of Physical and Chemical Sciences
February 2022