School of Biological Sciences *Te Kura Pūtaiao Koiora*

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Course Information / *Ngā Whakamārama* - 2025

BIOL 411
Research Preparation

0.125 EFTS 15 Points
Semester 1

Description/ *Whakamahuki*

The general aim of the course is to **prepare postgraduate students to engage in research** – it has been designed for BSc (Hons), MSc Pt I and PGDipSci students as a compulsory component of the 4th year postgraduate experience. It will comprise a series of modules in contemporary research methodology in the biological sciences, such as research and professional scientific communication skills (including written, visual and oral communication); self-directed inquiry and problem-solving skills; critical analysis and research design and planning; scientific career development. The skills developed in this course will serve students progressing to research projects (through BIOL412 and MSc PtII) and those students who decide to pursue other careers.

Note: grading in this course is Pass/Fail (see details below).

Goals of the Course

To introduce and discuss the methodology and principles involved in preparing for research, and to broaden perspectives in the development of a research-oriented career.

Course Coordinator / *Kairuruku Akoranga*

Dr. Amy Osborne, Room 531 Biology Building; phone 369 2532
amy.osborne@canterbury.ac.nz

Lecturers / *Pūkenga*

This is a team-taught course with contributions from a range of staff within the school. Please see the BIOL411 Learn page for further details.

Learning Outcomes / *Hua Akoranga* and Associated Assessment / *Aromatawai*

As a student in this course, I will develop the ability to:

- Communicate the findings of scientific research in plain English and verbally for a scientifically-literate audience (*assessment tasks: verbal presentations in 4th year papers*).
- Synthesise and critically evaluate primary scientific literature to generate a clear and concise argument in support of a perspective (*assessment task: evaluation of a research paper*).
- Give and receive criticism as a professional scientist and serve as critic and conscience of society (*assessment tasks: evaluation of scientific arguments in online forum*)

- Engage in planning of my future career (*assessment task: written professional plan*).
- Demonstrate understanding of the health and safety, ethics, and regulatory requirements appropriate for a research project in a relevant sub-discipline of biological sciences (*assessment task: Statement of requirements with appropriate form and Māori consultation drafted*).

Transferable Skills / *Pūkenga Ngaio*

As a student in this course, I will develop the following skills:

- Critical synthesis of information. In everyday life and in many job situations you will be required to read information from different sources, construct your own understanding and shape your own viewpoint. *In tutorials we will use recent research papers in a group environment to develop your abilities to identify the essential elements of research outputs - you will then use these skills in your critical assessment.*
- Critical expression. In everyday life and in many job situations you will be required to provide criticism, sometimes even in a conflict situation. *In tutorials we will practice identifying arguments of substance and arguments directed at the person and how to serve as a critic (e.g., of a manuscript or grant) and respond to criticism (e.g., as an author of a manuscript being reviewed).*
- Verbal presentation. In most careers in science the ability to present findings clearly in verbal form is likely to be critical. *In tutorial sessions we will provide clear guidance on what makes a good presentation and you will test these skills in small group sessions and with a larger audience.*
- Career planning. The pathways from postgraduate study are many and varied, and you will likely change directions in your career more than once. The ability to reflect on your own strengths and interests and plan ahead will be regarded highly by prospective employers. *In tutorial sessions we will provide guidance on directions beyond 4th year and you will develop your own professional plan.*

Graduate attributes

	Critically competent	Employable, innovative and enterprising	Biculturally competent and confident	Engaged with the community	Globally aware
BIOL411	X	X	X		X

In planning activities and assessments for this course we will be guided by the descriptors for Level 8 of the NZQF:

Knowledge	Skills	Application
Advanced technical and/or theoretical knowledge in a discipline or practice, involving a critical understanding of the underpinning key principles	Analyse and generate solutions to complex and sometimes unpredictable problems	Developing identification with a profession and/or discipline through application of advanced generic skills and/or specialist knowledge and skills
	Evaluate and apply a range of processes relevant to the work or study	Some responsibility for integrity of profession or discipline field of

Course content / *Hōtaka* (subject to minor changes)

Timetable: Tutorials will be on Wednesdays during Semester 1, although other activities may be scheduled on other days. Please check your timetable for last minute location changes.

Tutorials

These have been included in the course to allow for in-depth instruction and group discussions on specific topics and to provide skills training to enable you to be more effective in planning and conducting a research project and to consider the breadth of skills that make a good scientist. There will be eight formal sessions during semester one. These sessions will include:

1. Introduction to 4th year and expectations at 4th year (led by Amy Osborne and Sara Kross).
   No preparation

2. Assessment of published information (led by Amy Osborne and Sara Kross).
   No preparation. Assessed [Evaluation of a Scientific Paper].

3. Communication and presentation skills (led by Matt Walters and Amy Osborne).
   Preparation required.

4. Philosophy of Science (led by Sarah Flanagan and Elissa Cameron).
   Preparation required.

5. Critic, Conscience, and Professional Behaviour; writing critical summaries, receiving and giving criticism, formal consideration of the role of criticism in science (peer review etc) and scientific conflict (led by Jack Heinemann).
   Preparation required. Note: participation on-line is required PRIOR to this session. Assessed [Participation in online discussion].

6. Research overview (all SBS staff involved). Attend at least four (out of a selection of seven) 1-hour 'research showcase' activities, in which lab clusters will give you an overview of their discipline and a number of short (5-min) presentations by staff and research students on their work.
   No preparation required. Assessed [Statement of Proposed Research Interests].

7. Career development (led by Amy Osborne).
   No preparation required. Assessed [Professional Plan].

8. Writing skills (led by Amy Osborne and Sara Kross).
   Preparation required. Assessed [Written response to comments].

9. Ethical, regulatory, and cultural issues in research (led by Jim Briskie and John Pirker).
   Preparation required. Assessed [Outline of Permits and Procedures].

10. Final meeting (led by Amy Osborne).
    No preparation.

It is important that you treat these sessions as important for your personal development – **please take notes** and **actively engage** in the group activities. You will be assigned to a 'work-team' to work in during some of the sessions.

Beyond the formal sessions there is an expectation of significant self-directed learning. Most sessions will require a degree of up-front preparation. Beyond the formal sessions, students will have time to research for and write material that prepares them for their research projects (especially the research proposal). Students should note that in the Science Faculty the average student is responsible for up to 10 hours of study per credit point – this equates to approximately 150+ hours for this course.

Other training provided during 'orientation'

1. Library information skills (**Library staff**)
2. Endnote bibliographic software (training offered separately by **Library staff**)
3. Work health and safety (**Craig Galilee**)

Assessment / *Aromatawai*

Assessment will be via:

1. Evaluation of a scientific paper following Session 2 (10%).
2. Participation in on-line discussion prior to Session 5 (20%).
3. Statement of proposed research interests following the Session 6 research overviews (20%).
4. Completed professional plan following Session 7 (20%).
5. Written response to comments on an assessment item in any class in the style of a 'Response to Reviewers' following Session 8 (10%).
6. An outline of permits and procedures including Māori consultation and permit applications following Session 9 – this should align to your statement of proposed research interests (20%).

Details of each of these assessment items will be supplied as required **on the Learn site**.

The **use of generative AI** (e.g., ChatGPT or similar) in your assessment is **strictly prohibited**, unless otherwise stated by your lecturers/course coordinator. Your assessments will be checked for plagiarism and the use of AI, as per standard UC policy.

Note: because of the nature of the professional development material in this course, credit will be assessed via an ungraded pass/fail. This course is for your benefit, and we expect you to take it very seriously – for this reason the minimum percentage required for a pass will be 70%. If you engage with each of the activities and make a serious effort in completion of the required items, you will pass the course. The grade has no impact on your GPA.

Note that the course will be subject to the Biology policy on submission of work (see below).

Readings / *Pukapuka Ako*

Additional reading of recent books and scientific papers will be an essential adjunct to the tutorials, and development of the ability to evaluate such readings is an important objective for the course. Beyond formal sessions, you may be required to (and given time to) read material in a particular topic as part of the preparation.

Class material on Learn & use of *Turnitin*

We will be using Learn extensively to develop the **sense of community** within the course, and as a **forum** to conduct a range of learning activities. Resources used or referred to in tutorials will be available on-line on the course link in Learn. Please make contact with the Learn page for BIOL4xx on a regular basis.

Please also note that we will be requesting that you submit written work in electronic form (for assessment of originality using "*Turnitin*"). Instructions will be given on how you do this via Learn.

Students with Disabilities

Students with disabilities should speak with someone at the Equity & Disability Service, if you have not already done so (https://www.canterbury.ac.nz/equity-disability/). Please speak to the course coordinator at least one week before any course activity for which you have a special requirement.

Prerequisite - BSc in Biological Sciences or equivalent as determined by the Head of School and/or 4th-year coordinator.

RULES, REGULATIONS, AND WHAT TO DO WHEN THINGS GO WRONG

[updated January 2023]

If in doubt: ASK! The course coordinator is happy to answer questions. All staff involved in the course are available for advice on specific issues.

What do I do if I have to miss a test/exam or if my performance was impaired?

In Biological Sciences, we require a satisfactory level of achievement in both the theoretical aspects of the discipline and in practical activities. **This means you must attend all class activities (labs, tutorials, fieldtrips)** and submit all items of assessment unless you have a very good reason not to (e.g. medical reasons) and if this has been approved by your course coordinator.

If you feel that **illness, injury, bereavement or other extenuating circumstances beyond your control** prevented you from completing a **test/exam** worth 10% or more of the total course assessment, or if these circumstances affected your performance in such assessments, you should apply for Special Consideration. Applications for Special Consideration should be submitted via the Special Consideration website http://www.canterbury.ac.nz/study/special-consideration/ *within five working days* of the assessment or its due date. You should also notify the course coordinator. If you apply for Special Consideration because of medical reasons, you should visit a doctor within a reasonable timeframe (application form available on the website above or from the Student Health Centre).

The Special Consideration provisions are intended to assist students who have covered the work of a course but have been prevented by illness or other critical circumstances from demonstrating their mastery of the material or skills at the time of a text/exam – **they do not excuse you from doing the test/exam** within a reasonable time agreed with the course coordinator.

What do I do if I have to miss a quiz or assignment or if I need an extension?

You cannot apply for Special Consideration if you miss an assessment that is not a test/exam, such as a quiz, lab report, essay, literature review or other assignment, or if the test/exam is worth less than 10% or more of the total course assessment. If this happens or if you need an extension because of **illness, injury, bereavement or other extenuating circumstances beyond your control**, please contact the course coordinator and arrange an alternate activity and/or submission date. You should also do this if you have to miss a laboratory, tutorial or field trip.

What are other valid reasons to miss an assessment or mandatory course activity?

The Special Considerations policy (https://www.canterbury.ac.nz/about/governance/ucpolicy/student/special-consideration-procedures-and-guidelines/) outlines only a few kinds of activities that UC considers valid reasons for missing an assessment or mandatory course activity other than those outlined above. These include **involvement in international or national representative sport or cultural groups.** Holiday trips, birthday parties, weddings, work-related commitments etc. are not given special status in this University policy. Please contact your course coordinator to ask for an alternate activity and/or submission date if you are eligible.

Special Consideration for late discontinuation of a course

Students prevented by **extenuating circumstances** from completing the course after the final date for withdrawing, may apply for Special Consideration for late discontinuation of the course. Applications must be submitted via http://www.canterbury.ac.nz/study/special-consideration/ no later than five working days after the examination period has finished.

Academic Integrity

It is the responsibility of each student to be familiar with the definitions, policies and procedures concerning academic misconduct/dishonest behaviour. Instances of academic misconduct will be dealt with in a serious and appropriate manner. Students should refer to: https://www.canterbury.ac.nz/about/ako/academic-quality/academic-integrity/

Plagiarism

It is essential that you are aware that plagiarism is considered a very serious offence by the academic community, the University and the School of Biological Sciences. Plagiarism is defined as taking content from another work or author and presenting it, without attribution, as if it is your own work. Content here includes text (sentences or major parts of sentences), display items (graphs and tables), and overall structure (the detailed sequence of ideas). Plagiarism includes:

- re-use of previous assignments (even if each individual sentence has been rephrased to say the same thing in different words, if the overall structure is re-used).
- copying of another student's work (with or without their consent).
- the unreferenced use of published material or material from the internet, e.g. cutting and pasting of paragraphs or pages into an essay.

For most pieces of in-term assessment you will be given information concerning the use of direct and indirect quotes from previously published work. If you have any doubt about the appropriate use of published material, please speak with an academic staff member. If you are unsure what plagiarism is, seek advice.

It is a School policy that courses will likely that you submit work electronically for subsequent analysis of originality using *Turnitin*. Students agree that by taking courses in BIOL, assessments may be submitted to Turnitin.com for textual similarity review. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Terms and Conditions of Use as posted on the Turnitin.com site.

Where do I hand in assignments and then collect them once marked?

All assignments should be submitted as directed by the course coordinator. Typically, this will be electronically via Learn for on-line grading and for analysis in *Turnitin*. If a hard copy is requested, assignments should be placed in the designated collection boxes in the foyer of the 2nd floor of the School of Biological Sciences (Julius von Haast building, at the top of the stairs). All assignments must be accompanied by a cover sheet signed by you stating that the submitted work is not plagiarised. Cover sheets are available on top of the collection boxes, or you can download one from the Biology website (http://www.canterbury.ac.nz/media/documents/science-documents/assignment-coversheet.pdf).

Marked assignments will be returned through Learn or, if in hard copy, can be collected from the School of Biological Sciences reception, unless directed otherwise by the course coordinator. Teaching staff will endeavour to return work as soon as possible, and should contact you if there are likely to be any delays that will prevent return within the maximum 4-week timeframe.

What if I can't get it finished in time?

Reports and assignments should be handed in on time. Extensions may be granted if you have a valid reason (see above). **If you require an extension, you should request one from the course coordinator** (or the lecturer responsible for marking the work), with as much notice as possible. Please do this BEFORE the deadline for the assignment. **If you have been given an extension and you have been asked to submit a hard-copy of your work, you should hand the work DIRECTLY to the course coordinator** (do not put it in the drop box as it may not be cleared after the due date).

If an extension has not been granted:

- work handed in within 1 hour of the deadline: penalty of up to 5 percentage points of the mark for the assignment (e.g., a mark of 75% might be reduced to 70%).
- work handed in 1 – 24 hours after the deadline: penalty of 10 percentage points of the mark for the assignment (e.g., a mark of 75% is reduced to 65%).
- work handed in 1 – 7 days after the deadline: penalty of 15 percentage points of the mark for the assignment (e.g., a mark of 75% is reduced to 60%).
- work handed in more than 7 days after the deadline will not be marked or earn credit.

What if I have written more than the word or page limit?

If there is a word limit on an assignment, it is usually there to stop you doing too much work and to encourage you to write succinctly. You can be up to 10% over without too much worry, but if the length increases beyond that your mark may suffer due to failure to follow the requirements. If you find yourself way over the word limit talk to the lecturer concerned about how to get your assignment to an acceptable length. Unless specifically advised that there is flexibility, you must adhere to the word limit indicated.

What if I fail part of the course?

In Biological Sciences, we require a satisfactory level of achievement in both the theoretical aspects of the discipline and in practical activities. This means you must attend all class activities and submit all items of assessment unless you have a very good reason not to (e.g. medical reasons). **A student must attain an average score of at least 40% for in-course assessments (e.g. assignments, reports, quizzes) and an average score of at least 40% in the exam and/or tests, AND score at least 50% overall for the course, to be awarded a passing grade. See the course outlines for clarification of the assessment items included in each category and ask the coordinator if you are still unsure.**

What's the best way to give feedback?

We welcome constructive feedback at all times – help us to make this a valuable course for you. We endeavour to remain approachable at all times. If you would rather give feedback anonymously, please use the online course survey or talk to lab demonstrators, or your class rep (who will all report back to the staff-student liaison committee that includes a representative from each of the undergraduate classes). Class representatives will be selected from each class at the start of course.

What's the best way to complain?

If you feel you have not been fairly treated during this course, please raise the issue with the lecturer or course coordinator in the first instance. Other avenues include your class rep., who can raise issues anonymously, or the UCSA education coordinator.

Grading

A+	90% or above
A	85 – 90
A-	80 – 84
B+	75 – 79
B	70 – 74
B-	65 – 69
C+	60 – 64
C	55 – 59
C-	50 – 54

A restricted pass (R) **may** be awarded to those who are close to a pass (i.e. an overall score of 48-49.9%) AND who have achieved at least a 40% overall score in both in-course assessment and tests/exams. If an R grade is awarded you gain credit for the course but **cannot continue into papers that require this course as a pre-requisite**. NB. The R grade is only available at 100 and 200 level - it cannot be awarded for third year papers.

Failing grades: D 40-49 E 0–39