

## **BIOL460/BCHM460**

### **Molecular Biology in Society**

15 te hua | 15 Points (0.125 EFTS)

#### ***Whakamahuki* | Description**

This course aims to develop an understanding of how knowledge and skills in molecular biology are used to understand how genes work and how they can be put to work in biotechnology. It is a complex science but it also challenges society with complex questions. We will examine the history and contemporary context of molecular biology that co-develops with various major challenges in society. How do emergent technologies advance particular ideologies and interests, and how has the science been shaped by them? What impact has the development had on equity and democracy? The course provides students with skills that will help them grow in the role of critic and the conscience of society.

#### **Who is this course intended for?**

The primary goal of this course is to assist your development as a scholar and advance your research skills in fields of science that use molecular genetic data to answer a wide diversity of biological questions. Molecular Biology is a course that is particularly aimed at students who want to pursue a career in fields of biology that require an ability to analyse and interpret DNA sequence data, such as microbiology, molecular evolution, bioinformatics, systematics, molecular genetics/genomics and molecular ecology.

#### **2024 theme: Molecular Biology Automated and Roboticised**

This year, we will focus on developing an understanding of how knowledge and skills in molecular biology can be helpful for understanding and addressing major challenges to society. The six seminars of this course are designed to build skills and knowledge to be applied and demonstrated in a final take-home essay. Students will choose their topic from a list of five that are aligned with the theme of 'Molecular Biology Digitised and Roboticised'. This learning will be scaffolded throughout the semester by discussing publications about a range of topics related to the course theme and via student presentations. In these presentations, students present their progress towards developing their essay and receive feedback and a pass/fail mark. Halfway through the course, students will also take a take-home essay-style test on required readings and associated seminar discussions.

#### ***Mahi ā-Ākonga* | Workload and Expectations**

You will be held to the same expectations across all 4<sup>th</sup> year courses, which are:

- Read all assigned papers prior to coming to the session, and come prepared with answers to any guiding questions and further discussion questions
- During tutorials, be actively engaged! For example:

- Ask questions, contribute to the discussion
- Take notes, acknowledge or emphasise other students' questions or points
- Turn camera on if on zoom when possible
- You are expected to allocate 150hrs to this course outside of exams. These hours should include:
  - Attending class
  - Completing assignments
  - Learning course materials, preparing presentations, reading assigned papers
  - Reading additional papers beyond the assigned ones to delve further into topics you do not know
  - Refreshing yourself on core knowledge, e.g., by reading textbooks
  - Working and studying with classmates outside of class
- You are now leading your own learning: grow your knowledge, expand your skills, and ask questions!

In addition, this course has the following specific expectations:

- As a rule of thumb, set aside about 12.5 hrs of *effective* self-study for every class hour (not including remedial review if it is required), in addition to writing time for assessments.

### ***Kairuruku Akoranga* | Course Co-ordinator and Teacher**

- Prof. Jack Heinemann, Von Haast 534; [jack.heinemann@canterbury.ac.nz](mailto:jack.heinemann@canterbury.ac.nz)

### ***Hua Akoranga / Aromatawai* | Intended Learning Outcomes and Associated Assessment**

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

- Explain and discuss how molecular biology responds to prevailing social ideologies and imaginaries (GP1&5; assessment task: essay).
- Discuss the relationship between indigenous knowledge and molecular biology (GP3(K1,5,&6); assessment task: essay, short answers, and feedback).
- Demonstrate a sophisticated understanding of experimental design, methodology and data in molecular biology (GP1; assessment task: seminar presentations).
- Demonstrate an understanding of the scholarship on digital sequence information as it relates to access and benefit sharing (GP1&5; assessment tasks: short answers)
- Critically evaluate the complexities of defining digital sequence information and its geopolitical context (GP1,3(K5&6)&5; assessment tasks: short answers, essay)

### ***Pūkenga Ngaio* | Transferable Skills**

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

- Independent and self-motivated learning. A life-skill that is important in any career (GP2)
- Synthesising information. In everyday life and in many job situations you will be required to read information from different sources, construct your own understanding, shape your own viewpoint and express it. (GP2)

- Written and oral communication. Many employers require employees to have good communication skills (GP2).
- Ability to recognise how local and indigenous science influences and is influenced by global activities (GP3).
- Formulate clear, concise and evidence-based arguments in support of a perspective (GP 1&2)

### ***Āhuatanga Tāura* | Graduate Attributes**

This course will provide students with an opportunity to develop these UC Graduate Attributes (GP) and Kaupapa (K) ([www.canterbury.ac.nz/study/graduate-profile/students/what-are-the-graduate-attributes/](http://www.canterbury.ac.nz/study/graduate-profile/students/what-are-the-graduate-attributes/)):

- GP1 Critically competent in a core academic discipline.
- GP2 Employable, innovative and enterprising.
- GP3 Biculturally competent and confident: K1 A process of self-reflection on the nature of ‘knowledge’ and ‘norms’; K5: The process of colonisation and globalisation; K6 Other indigenous models of development, knowledge and behaviours.
- GP5 Globally aware

### ***Akoranga* | Tutorials**

- See Ako pages for topics and activities.

See your timetable and the BIOL460/BCHM460 Ako Learn page for information about dates, locations, and times.

### ***Aromatawai* | Assessment**

Various seminar-specific assignments	40%
Preparation for Seminar 4	20%
Final seminar assignment	40%

## 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 test/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