School of Biological Sciences
Te Kura Pūtaiao Koiora

Course outline | Ngā Whakamārama 2025

BIOL271-25S1 (C) Semester 1, 2025
Evolution

0.125 EFTS 15 Points
17 Feb – 30 May 2025

Course description | Whakamahuki
An introduction to evolution: patterns and processes of evolution; mechanisms of evolution; adaptation; speciation; extinctions and life history traits. The goals of this course are to elucidate evolutionary theory using evidence from the peer-reviewed literature including Aotearoa New Zealand research where appropriate, and to gain an understanding of evolutionary theory and its role in our understanding of questions such as where species have come from, why are there so many different species, and the importance of evolution in everyday life.

Course Coordinator | Kairuruku Akoranga
Dr. Craig Herbold, Julius von Haast 532, +6433692692, craig.herbold@canterbury.ac.nz

Teachers | Pūkenga
Dr Craig Herbold, Julius von Haast 532, +6433692692, craig.herbold@canterbury.ac.nz
Dr Stevie Florent, Julius von Haast 239, stevie.florent@canterbury.ac.nz
Dr Amy Osborne, Julius von Haast 531, +6433692532, amy.osborne@canterbury.ac.nz
Ms Emily Beasley, Julius von Haast 228, emily.beasley@pg.canterbury.ac.nz

Graduate Profile | Āhuatanga Tāura and Associated Assessment | Aromatawai
As a student in this course, I will develop these UC Graduate Attributes (GP) including Bicultural competence and confidence (BiCC) Kaupapa (K):

- GP1 Critically competent in a core academic discipline *(assessment tasks: midcourse test, wikis, final exam)*
- GP2 Employable, innovative and enterprising *(assessment tasks: midcourse test, wikis, final exam)*
- GP3 BiCC: K4 The Treaty of Waitangi and Aotearoa New Zealand's bicultural history; K5 The process of colonisation and globalisation; K7 Application of bicultural competence and confidence in a chosen discipline or career (*assessment tasks: final exam*)
- GP5 Globally aware *(assessment tasks: midcourse test, wikis, final exam)*

Course Learning Outcomes | Hua Akoranga and Associated Assessment | Aromatawai
As a student in this course, I will develop the ability to:

- Illustrate the patterns and processes of evolution using examples from the peer-reviewed literature *(assessment tasks: midcourse test, wikis, final exam)*
- Describe the mechanisms of evolution at the genetic/genomic level, and interpret basic population genetic/genomic analyses *(assessment tasks: midcourse test, final exam)*
- Build and interpret phylogenetic trees, and apply these skills to infer evolutionary history *(assessment tasks: midcourse test, final exam)*
- Explain why understanding evolution is important in everyday life, both orally and in writing *(assessment tasks: wikis)*

Transferable Skills Register | Pūkenga Ngaio

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

- *Synthesising 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. *This skill will be developed when answering questions from selected readings during tutorials and when writing your wikis.*
- *Analysing and interpreting data.* Important for research, as well as in a number of private-sector organizations. *This skill will be developed when we assist you to analyse and interpret population genetic and phylogenetic data during tutorials.*

Timetable

***Lectures – 3 per week**: Check 'My Timetable' on the UC website for venues and any last-minute changes to times.*

Tutorials – 3 tutorials: tutorials coincide with each of the three sections of the course (see lecture and tutorial section below). There are two steams. **You will be allocated to a TBL team (and a tutorial) during the first week of Term 1.** *Check 'My Timetable' on the UC website for venues and any last-minute changes to times.*

Assessment | Aromatawai

Midcourse test (lectures 1-12, Craig's content) *see LEARN for date, time, locatio*n	25%
TBL quizzes (12 weekly quizzes, complete prior to the next week's TBL)	10%
Wiki contributions (complete by Fri 28 March & Fri 30 May)	15%
Final Exam (lectures 13-36, Stevie and Amy's content) *see LEARN for date, time, location*	50%
Total	**100%**

To gain a pass in this course students much achieve a mark of 50% overall **plus** achieve an average score of at least 40% for the peer-assessments/wikis **and** an average score of at least 40% for the midcourse test/final exam.

Students should note that in the Faculty of Science the average student is responsible for approximately 3.2 hours of additional study for each hour of lecture at the 200-level.

Textbook | Tuhinga

Herron and Freeman, Evolutionary Analysis (2015) 5th Edition, which you can purchase from the UC Bookshop. **Peer-reviewed literature will also be used.** This material will be available to you on LEARN. It is highly recommended that you read this additional literature. Evidence of extra reading will enhance your test and exam grades.

Team Based Learning

We first trialed a partial Team Based Learning (TBL) approach in 2013. The approach was enthusiastically received by BIOL271 students and has since become a permanent fixture of the course. TBL is a learning strategy in which most internal assessment is completed in structured, permanent learning teams. Briefly, in traditional lecture-based courses, your initial exposure to the course material (the easy part) occurs during lectures, and you're left to tackle problems/applications/challenges (the hard part) on your own. In TBL, you do the easy part on your own (readings) and you get the support of your team and lecturer as you do the hard part (applications/problems/challenges). The result is you learn more. Having said this, we have had the most success using the following combined approach: two lectures per week are traditional "we talk, you listen" sessions but every third lecture is a TBL session where "you talk" and "we guide", and most tutorial sessions follow a similar "you talk, we guide" approach. All TBL sessions (lectures and tutorials) are mandatory, and attendance is recorded. See LEARN for details.

Feedback from Course Surveys

Student ratings:	**2023**
1. Course materials helped me understand what was required to succeed	**3.9**
2. Course organization helped me learn	**4.0**
3. Course workload appropriate	**3.9**
4. Course assessments appropriate	**3.6**
5. Where I sought feedback on my assessments, I found it helpful	**3.8**

We routinely raise the following issues in the online course survey that is periodically completed by students at the end of the course. The responses are collated by the course coordinator and discussed by the teaching team.

Which aspects of this course were most positive?

Team Based Learning in lectures/tutorials. For example:
"TBL sessions, when we discuss why certain answers are wrong and others are correct."
"The TBL sessions reinforced learning weekly which makes it easier now to study for exams"
"team based learning allowed a strong understanding of important concepts"
"The team based learning activities really helped me understand the concepts talked about in lectures and the wikis gave a good opportunity to practice writing"
"TBL sessions were good to learn from peers"

How could this course be enhanced to assist your learning?

The wikis. Although student feedback includes statements like *"The wikis helped with reinforcing the topics covered in lectures"* there is persistent feedback that the group wikis are a challenge to write. In response, we have provided more detailed instructions as well as two detailed marking templates, one applicable to teams that choose to provide body paragraphs only and one for teams that choose to provide introductory, body and concluding paragraphs. Each team is also now encouraged to use the suggesting feature in their team google doc to organise their ideas, and to seek feedback from their peers and from relevant teaching staff.

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