

Te Kura Pūtaiao Koiora
School of Biological Sciences

Ngā whakamārama / Course Information – 2024

BIOL371
Evolutionary Ecology

0.125 EFTS 15 Points
Semester 1

Whakamahuki / Course description

Evolutionary ecology is the branch of ecology that considers how organisms have evolved to become adapted to their environment and how they interact with members of their own, and other species. It considers the evolutionary effects of competitors, mutualists, predators, prey and pathogens. Unifying ideas in this course are evolution within ecological timeframes and evolutionary mechanisms leading to the evolution of new species.

Āhuatanga Taura / Graduate Profile

This course will provide students with an opportunity to develop several UC Graduate Attributes (GP) and Kaupapa (K) (www.canterbury.ac.nz/study/graduateprofile/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', K5 The process of colonisation and globalisation and 'norms' K7 Application of bicultural competence and confidence.
- GP5 Globally aware

Goals of the course

To introduce the discipline of evolutionary ecology and develop an understanding of the interplay between ecology and evolution.

To comprehend the relevance of evolutionary ecology in applied areas such as climate change, conservation and invasion biology.

Hua ako / Course learning outcomes and Aromatawai / Associated assessment

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

- have a critical appreciation of current questions and approaches in evolutionary ecology (*assessment task: quizzes, final exam, GP1, GP3, GP5; K1, K7*).
- understand how evolutionary processes underpin ecological interactions (*assessment task: quizzes, essay, final exam, GP1, GP2, GP5; K5, K7*).
- appreciate the roles of observational, experimental and comparative evidence in answering questions of evolutionary ecology (*assessment task: final exam and oral presentation, GP1, GP2, GP3, K1*).
- synthesise and critically assess primary scientific literature in order to be able to summarise scientific papers in the form of an essay and an oral presentation (*Assessment task: essay, oral presentation GP2*).
- Synthesise primary scientific literature able to generate a clear and concise argument in support of a perspective (*assessment task: final exam, GP2*).

Pūkenga ngaio / Transferable skills

The following skills are developed in this course:

- **Synthesising and interpreting 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 lectures and tutorials we will discuss recent research papers in a group environment and this will develop your abilities to identify the essential elements of research outputs - you will then use in your talk and essay writing. (GP1, GP2, GP5)
- **Ability to find relevant information in the popular and scientific literature** As part of the essay assignment you will learn how to identify and access current and relevant information. (GP1 & 2)
- **Presenting a scientific talk.** The scientific talk has become one of the most important communication forums for the scientific community; more people are likely to listen to you talk than read your paper. In many ways your research reputation will be enhanced (or diminished) by your scientific talk. We have developed tutorials to help you create a good talk and provide opportunities for you to present your talk in a conference situation. (GP1 & 2)
- **Work in a team.** You will work in teams to prepare and present your conference papers. (GP2)

Timetable

Check timetable for updates and location. <http://www.canterbury.ac.nz/theuni/timetable/>

Quizzes: Each week for 11 weeks there will be a quiz on LEARN. You will have 1 week to answer the quiz question(s) online. **You can only answer each quiz question once.** The quiz will open at **12pm on Monday** and close at **11am** the following Monday. Quizzes are designed to encourage [reading the papers and attending lectures](#) whenever possible, and participating in discussions. No special considerations will be given for quizzes.

Tutorials: tutorials are in term 1 and 2, but not every week.

The tutorials are designed to give you experience in critical assessment of recent scientific papers and ideas in the discipline, as well as oral presentation.

There are two streams, check timetable for time.

Course information

Course information, including the list of tutorial streams, will be posted on LEARN.

All lecture handouts will be on LEARN, as well as audio files of each lecture. Quizzes on some of the lecture material will be available on LEARN. These are not assessed, but are to help you in your understanding of lecture material.

Pūkenga / Teaching staff

Lecturers	Office	Phone extn	Email
Prof. Hazel Chapman ¹	SBS 335	95140	hazel.chapman@canterbury.ac.nz
Prof. Jim Fordyce	SBS 230	95200	Jim.fordyce@canterbury.ac.nz
Ass. Prof. Pieter Pelsler	SBS 530	95228	pieter.pelsler@canterbury.ac.nz
Prof. Dave Kelly	SBS 339	95182	Dave.kelly@canterbury.ac.nz
Dr Craig Herbold	SBS 532	92692	Craig.herbold@canterbury.ac.nz

You can call the phone extensions from off campus by calling 3642 987 and then entering the extension number.

¹Hazel Chapman is the course co-ordinator so contact her for any enquiries to do with the course

Aromatawai / Assessment

Conference presentation 1	Term 1	10%
Conference presentation 2	Term 2	10%
Essay Due (March 22nd 11.59pm)	Term 1	20%
Weekly quizzes	Term 1 & 2	10%
Final Exam		50%
Total		100%

The conference presentation dates are listed in the Lecture Outline below.

LITERATURE

There is no single textbook required for this course however we are using *Eco-Evolutionary Dynamics* by Andrew Hendry as a reference text. It is available as a e book- downloadable- in the library. In addition, during the course each lecturer will identify key books and scientific papers relevant to each lecture. We will ensure the most current literature is available to you on LEARN. **To do well in final exam you must show evidence that you have read and understood this material.**

BIOL 371 LECTURE *Wātaka* / Timetable, 2024

No	Date	Who	Lecture topic	Tute
1	Feb 20	DK	Levels of Selection: genes,	No tutorial
2	Feb 23	DK	Levels of Selection: chromosomes, organelles	
3	Feb 27	DK	Levels of Selection: cell lines, genomes	No tutorial
4	March 01	HC	Local adaptation – gene flow and reproductive isolation	
5	March 05	HC	Quantitative traits and heritability	Tutorial 1 HC/JF
6	March 08	JF	Measuring selection - genomics	Giving a scientific talk
7	March 12	JF	Applications for genomics	Tutorial 2 JF
8	March 15	JF	Plasticity – reaction norms, development	(Conference Prep)
9	March 19	JF	Plasticity – eco-evolutionary consequences	Tutorial 3 JF
10	March 22	JF	Coevolution - Micro versus Macro	(Conference 1)
11	March 26	JF	Coevolution – how to measure on a micro scale	
			Mid semester break- Easter	
12	April 22	PP	Invasive species – taxonomic and phylogenetic approaches	
13	April 26	PP	Invasive species- host preference by herbivores	
14	April 29	PP	Invasive species-selecting biocontrol agents 1	
15	May 03	PP	Invasive species-selecting biocontrol agents 2	
16	May 06	PP	Molecular dating when time matters	
17	May 10	PP	Darwin's naturalisation conundrum	
18	May 14	CH	Horizontal Gene Transfer	
19	May 17	CH	Speciation concepts and mechanisms	
20	May 21	CH	Community assembly / succession	Tutorial 4-HC
21	May 24	CH	Microbial symbiosis (micro-micro and micro-macro)	(Conference 2 prep)
22	May 28	CH	Biogeochemical cycles and ecological nutrient flux	Tutorial 5 -HC
23	May 31	CH	Microbiome concept	(Conference 2)

Feedback from Course Survey 2022

We had high scores 4.4-4.6 across the feedback questions which indicates the 2022 students thought the course was of high quality. Unfortunately no written comments/ suggestions on which we can act.

Our lowest score (4.4) was to the question involving to what extent the organisation in the course helped in learning. We have therefore given this considerable thought and made a few changes to increase engagement:

1. Only one attempt will be allowed for each quiz.*
2. Quiz questions will directly related to readings.*
3. Links between the different lectures will be made more obvious, so that students can see the lecturers in the course are teaching as a team, each contributing to a well deigned curriculum.
4. The length of the exam will be increased to three hours, with at least one question answered from each lecturer.

Note: By taking this course students agree that all required papers may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. 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 posted on the Turnitin.com site.

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

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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?

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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