

Course Information / *Ngā Whakamārama* - 2024

BIOL377

Global Change and Biosecurity

0.125 EFTS 15 Points

Semester 1

Description / *Whakamahuki*

The general aim of the course is to **discuss major concepts in community and ecosystems ecology in the context of anthropogenic changes to the environment including pressure from invasive exotic species**. The central focus will be on the interactions of organisms with their physical and biotic environment, and the ways in which ecological principles can be used to predict responses to global change and to maintain biosecurity. Global change phenomena are often dealt with as independent problems or special cases. We will highlight the interdependence of these threats, and explain their effects on organisms using general ecological principles. We will also discuss biosecurity issues in the broad sense, including how to maintain the integrity of our ecosystems, maintain food supply, and protect human health.

Additional reading of recent books and scientific papers will be an essential adjunct to the lectures, and development of the ability to evaluate such readings is an important objective for the course. **Lectures will largely entail a discussion format, such that attendance is compulsory and not substitutable with online content alone.** An understanding of basic ecological principles is assumed. If at any stage you feel that you do not understand the assumed basics, refer to the general reference materials listed below or seek help from the lecturer concerned as soon as possible.

Course Co-ordinator / *Kairuruku Akoranga*

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Teachers / *Pūkenga*

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Goals of the Course

To introduce the methodology and principles of investigation into human impacts on ecological processes at the community and ecosystem level, to develop an understanding of the interdependent relationship between human well-being and ecosystem function, and to provide skills in research and data analysis.

Intended Learning Outcomes (*Hua Akoranga*) and Associated Assessment (*Aromatawai*)

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

- Apply concepts from community and ecosystem ecology to evaluate how the various drivers of global environmental change affect ecosystems and human wellbeing (*assessment tasks: quizzes, test, exam*). (Graduate Attribute 1: Critically competent in the core academic discipline; Graduate Attribute 5: Globally Aware)
- Evaluate the importance of direct vs. indirect pathways through which human activities drive community and ecosystem change at multiple scales (*assessment tasks: quizzes, test, exam*). (Graduate Attribute 1: Critically competent in the core academic discipline).
- Apply an understanding of scientific practice and of global change biology and ecology to the generation of new testable hypotheses (*assessment task: test, project report*). (Graduate Attribute 1: Critically competent in the core academic discipline; Graduate Attribute 2: Employable, Innovative and Enterprising)
- Synthesise primary scientific literature to generate a clear and concise argument in support of a perspective (*assessment tasks: project report, test & final exam*). (Graduate Attribute 1: Critically competent in the core academic discipline; Graduate Attribute 2: Employable, Innovative and Enterprising)
- Synthesise primary scientific literature to provide necessary background and context for understanding and interpreting experimental data (*assessment task: project report*). (Graduate Attribute 1: Critically competent in the core academic discipline; Graduate Attribute 2: Employable, Innovative and Enterprising)
- Reflect on how one's actions result in ecosystem change, and relate this to the social and economic trade-offs that underpin environmental decision making (*assessment task: test, final exam*). (Graduate Attribute 3: Biculturally Competent and Confident; Graduate Attribute 4: Engaged with the Community).
- Reflect on the impact of colonisation and changing social and environmental conditions on the relationships between indigenous peoples and their environment. (*assessment task: exam*). (Graduate Attribute 3: Biculturally Competent and Confident).

Transferable Skills / 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. *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 report writing.* (Graduate Attribute 2: Employable, Innovative and Enterprising)
- Generating data. Important for research and in governmental and non-governmental organizations. *We will conduct research activities to provide both the real-world context for lectures and to develop hands-on skills in data generation and manipulation in a modeling framework.* (Graduate Attribute 2: Employable, Innovative and Enterprising)
- Analysing data. Important for research, as well as in a number of private-sector organizations. *This skill will be further developed when we assist you to analyse and present the data we generate in the research workshop.* (Graduate Attribute 2: Employable, Innovative and Enterprising)
- Writing a report on findings. Clear written communication is essential for most professional careers. *We will provide instruction on the elements of successful reports and help you identify these elements with clear marking rubrics through peer and self-assessment.* (Graduate Attribute 2: Employable, Innovative and Enterprising)

Lectures/tutorials / Akoranga

There will be a total of 24 lectures/tutorial topics in this course - two per week following timetable (<http://www.canterbury.ac.nz/theuni/timetable/>). There will be a mix of lectures, question times, and discussions on readings and homework. These have been included in the course to allow for in-depth group discussions on topics/papers of interest, and to enable you to be more effective in the course and in the future.

Our teaching philosophy is that students need to be actively engaged in learning – it is important that you do more than simply turn up to class and receive instruction from us. You will be given clear instructions on what preparation is expected before each class – please come to class prepared to make best use of the time. [Students should note that in the Science Faculty that the average student is responsible for 10-12 hours of study per credit point – this equates to approximately 4 hours of additional study for each hour of class contact at the 300-level].

Research Workshop

The COMPULSORY 2-day research workshop will be during mid-semester break on campus (see below).

During our hands-on research activity this year we will focus on key topics in global change science:

1. How can species-species interactions influence population and community dynamics? We will extend a simple multi-species model to understand (i) how the addition/removal of a species (e.g. an invader) can influence other species in a community and (ii) the degree to which external disturbance can change community dynamics.
2. How might species interactions change in a future world?

There will be a formal independent project report assessed from this workshop. We will also run an optional 'help clinic' during a lecture period after break to assist you with project analysis and write-up.

Assessment / Aromatawai

11 Quizzes - grade based on best 10	10%
Mid-course test – 1hr (classes 1-8)	18%
Peer-feedback on a class-mate's project	5%
Project write-up	30%
Final exam - 2 hrs (classes 9-24)	37%

Quizzes will be due most weeks and are based on both lecture and readings.

Note that the course will be subject to the Biology policy on late submission of work (see below) and that Biology policy requires you to obtain a score of at least 40% in the test/exam (combined), AND in the project report/peer-feedback/quizzes (combined) AND get an overall mark of at least 50%, to pass the course (see end of this Course Information for details).

Textbooks, class material on Learn (Ako) & use of Turnitin

There is no required text. During the course, you will be directed to various books and to primary scientific papers through LEARN | Ako, including resources used or referred to in lectures. This allows us to include in this course the most current scientific knowledge available, and to provide

greater breadth than would be found in a single textbook. **To do well in final exam you must show evidence that you have read and understood this material.**

Prerequisites

BIOL 274 and BIOL 209

Feedback from previous course surveys

Student ratings	2014	2015	2018
1. This was a well organized course	4.3	5.0	4.2
2. Course helped to stimulate my interest	4.3	4.3	4.0
3. Workload	4.0	4.7	4.3
5. Opportunities for active learning	4.5	4.7	3.9
6. Helpful and timely feedback	4.3	4.3	4.1
7. Assessment measured learning effectively	3.9	4.7	3.9
8. Overall, this was a good quality course	4.5	4.3	4.7

Helpful features

1. Discussions within lectures (2). All the lecturers encouraged discussion and debate in lecture and tutorial time. They encouraged reasoning with points of view
2. I really enjoyed the research campaign (2), and the session spent in the computer labs.
3. The mid-course test was a great idea! It took a bulk of the workload off and made us revise material throughout the semester, not all at the end. The quick marking of the online test was very timely and helpful. A good turn around time for results allowed good feedback on my progress.
5. The peer-review feedback and response for the proposal was good (3) as it made my grade higher than not having it read by someone else.
6. I really enjoyed BIOL377 and it helped me understand the finer points to climate change and biosecurity which is a very important subject in today's society
8. I really liked this course, all the lecturers were great and really helpful and very passionate about the subject area, and the content really interesting.
10. I found this course very useful in that it taught many practical skills which could be applied in future academic work. These kinds of skills (critically analysing papers, R, discussing and disputing the key points made etc.) are not often taught in other courses.
11. It expanded more on topics that have been only briefly covered before. This was interesting and having the space to discuss these topics was a definite bonus that had not been considered in other courses
12. The lectures were almost universally approached with a view to active participation from the students which was refreshing, also there was not an unrealistic requirement to do a large amount of reading or work before lectures to be able to participate
13. Provided a mixture of how to understand scientific practices, and how to construct a well planned report or proposal, which may help me in future employment or university assignments.

What to change? (Action/response indicated in bold)

I feel if the research workshop was run as labs each week instead of 2 days on campus the material would've been easier to cover and might of helped in the report writing process (1). **We**

will consider this suggestion, but will need to balance this with the positive feedback about the 2-day workshop format.

The Project itself is appropriate and the things you wanted the workshops to teach us seem relevant but the workshop topics were not well integrated (3). **We re-focussed the research workshop to account for these comments.**

I understand that most of the test questions seemed to be about using the facts learnt in the lectures to apply to other situations to test our flexibility and overall grasp of concepts, and I admit we should have been able to do that. However, the test just seemed far too difficult given the time given (4). **We have allocated extra time and grade weighting for the mid-course test from 2019.**

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

[updated March 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.
- the generation of text using artificial intelligence technology without disclosure and when it is not intended to be part of an assignment.

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