

## BIOL378

### Population Ecology and Conservation

0.125 ECTS, 15 Points. First Semester

#### Description / *Whakamahuki*

The course teaches advanced principles of population ecology and practical ecology skills in a New Zealand context. The course covers **population ecology** (the study of single species, including their interactions with other species), **and its applications to conservation**. We cover a range of current topics, illustrated with NZ examples. We also emphasise **practical skills** with the field trip and assessment focused on this. Additional reading of recent books and scientific papers is an essential complement to the lectures. Basic ecological background is assumed; if you feel that you are missing some assumed background, see the reference materials listed below or talk to the lecturers.

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

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

- Understand current topics in population ecology and their application to conservation  
(*assessment: final exam*)
- Develop practical skills including species identification, experimental design, data analysis  
(*assessment: field trip lab test; field trip short report*)
- Improve scientific communication skills, especially report writing and use of the literature  
(*assessment: field trip short report*)
- Conduct field work safely (*field trip preparation and conduct*)

#### Transferable Skills Register / *Pūkenga Ngaio*

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

- Discovery, synthesis and interpretation of information. *Combining information from lectures, course readings, the literature, and field trip in discussions on the field trip and in course assessment.*
- Formation of hypotheses and explanations. *The field trip will include discussions of results as they come in, to develop hypotheses that can be expanded on in your short field trip report.*
- Conducting safe field work in hazardous outdoor environments. *You will be given forms before the field trip which you will use to identify, eliminate, mitigate or minimize hazards.*
- Knowledge of field sampling methods in terrestrial ecology, and plant and animal identification. *We will practice a range of field methods; the field trip lab test will assess identification skills.*
- Data analysis and interpretation. *Initial analysis of field trip data will be run on the trip, and appropriate further analysis methods discussed on site for you to use in your short reports.*
- Writing a report in scientific format using text and graphs. *Initial graphs will be discussed on the field trip, and you will be given information about style, good graph design etc for use in your short reports.*

#### Pre-requisites

BIOL 209 Biological Data Analysis and either (1) BIOL 270 or (2) BIOL 274 and BIOL 275

## Teachers / *Pūkenga*

Course coordinator/ *Kairuruku Akoranga*: Dr Sara Kross, Julius von Haast 232,  
sara.kross@canterbury.ac.nz

Dr Maartin Strauss, Julius von Haast 230, email TBA

Kim Doherty (technician), kim.doherty@canterbury.ac.nz

## Course Times

The course has **lectures in only Term 1**. There are no laboratories, instead there is a **compulsory field trip** in the mid-semester break, which leads to three tutorials in Term 2 then the field trip report is due. Check the UC timetables for timetable and room allocations.

The field course will teach practical skills in including identification, sampling and analysis. It will involve day trips from campus from **Wednesday 3 April until Saturday 6 April**. More details will be given in Term 1, but the UC timetable shows field days as well as rooms we'll use (info below).

## Timetable overview 2023

(note that lecture topics are a guide only and may change, double check your UCTimetable for up-to-date lecture location/time information)

Week	Date	Lecture Number and Topic ('Lectures A, B & C' in timetable)
1	Feb 19 22 23	<b>Sara Kross: Species interactions</b> 1. Course intro/why save species 2. Drivers of biodiversity decline I- Global challenges 3. Drivers of biodiversity decline II- Aotearoa context
2	26 29 March 1	4. Methods to measure and classify risk of extinction- IUCN 5. Methods to measure and classify risk of extinction- NZTCS 6. Population dynamics I- life tables
3	4 7 8	7. Population dynamics II- population models 8. Conservation targets I- diversity indices 9. Conservation targets II- putting it all together
4	March 11 14 15	<b>Maartin Strauss: metapopulations and conservation</b> 10. Distribution patterns and rarity: the biodiversity crisis 11. Population dynamics & environmental change 12. Population persistence
5	18 21 22	13. Persistence in the face of predation 14. Metapopulation dynamics 15. Adaptive management approaches
6	25 28 29	16. Influences of food-web interactions on management 17. Pest and predator control No Lecture (Easter Break)
<b>Mid-semester 'lecture pause': Field trip, 3-6 April</b> (Field Trip A, B, C + Workshops A, B & C in timetable)		
7	TBA	<i>Midcourse test</i>
8	April 29	Tutorial for field trip report ('Tutorial A' in timetable)
9	May 6	Tutorial for field trip report ('Tutorial A' in timetable)
10	May 13	Tutorial for field trip report ('Tutorial A' in timetable)
11	May 24	<i>Field trip report due</i>

## Assessment

**10%** field trip participation- *fieldwork, record-keeping, teamwork, communication skills*

**10%** practical test (**last day of field trip**) -*field identification skills*

**45%** midcourse test, two-hour duration -*concepts, theories, knowledge of literature*

**35%** field trip report (due by 5:00 pm, 24 May) -*scientific analyses and writing skills*

See below for departmental policies on late work, illness, and work that exceeds the length limits. Note: Biology policy says that to pass the course you need a mark of at least 50% overall.

## Textbook

Instead of a textbook, we will make specific recent research articles available through Learn. For background, we recommend the current BIOL 274 text: Smith & Smith (2015) *Elements of Ecology* (9th edition) or the previous text for BIOL270, Begon, Howarth & Townsend (2014) *Essentials of ecology* 4th edition (copies in the UC libraries).

## Feedback from Course Surveys

The last full course survey was in 2017.

Standard questions	2017 (n = 28, 88%)
Q1 - The materials provided helped me to understand what was required to succeed in this course.	4.5
Q2 - The organisation of this course helped me learn.	4.4
Q3 - I found the workload was appropriate to the level of the course.	4.5
Q4 - I found the assessments appropriate for the course.	4.6
Q5 - Where I sought feedback on my assessments, I found it helpful.	4.3

Here are some detailed points raised in it, with our responses.

*There should be an option to sit the exam soon after the course work finishes as you forget most of the stuff by the time of midyear exams*

We have now moved away from using a final exam at the end of the semester and will instead hold a mid-course test on the lecture content after the mid-semester break. To allow time for this, we have also pushed back the deadline for the field trip report.

*Fantastic field trip and array of investigations was very beneficial. The short report was a good test for writing skills in comparison to some other longer report writing in other courses.*

Thanks for the comment. The short report is very concise (900 words), to keep the workload appropriate for a 15 point course, but note that you have to edit the text carefully to fit your arguments into that short space. Allow some time for editing, and use the tutorials (see next comment).

*Tutorial sessions were really helpful for the report writing. In particular I found this particularly useful for help with the statistics.*

Glad that worked out, we put those tutorials in place (in response to earlier feedback), specifically to help with stats and writing in the report.

## 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 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.
- 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

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