

Course Information / Ngā Whakamārama – 2024

BIOL112: Ecology, Evolution and Conservation

0.125 EFTS, 15 Points, Semester 2

Goals of the Course

To cover core material for an understanding of the field of biology, including principles of genetics, evolution, behaviour, ecology and conservation biology, and to develop core practical skills in each of these disciplines. The course provides essential foundation material that all biologists need and is one of the three 'core' biology courses (along with BIOL111 and BIOL113) required to obtain a BSc in Biology.

Intended Learning Outcomes /Hua Akoranga and Associated Assessment /Aromatawai

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

- Explain why evolution is the central theme of biology (*assessment tasks: lab manual, midcourse test, final exam*)
- Explain the core principles and mechanisms of evolution (*lab manual, midcourse test*)
- Explain the key principles of genetics, including the origin, maintenance, and loss of genetic variation (*lab manual, midcourse test*)
- Explain the key principles of ecology, including factors affecting the distribution and abundance of organisms, behaviour, species interactions, and community structure (*lab manual, final exam*)
- Explain what conservation biology is and show how evolution and ecology underpin it (*lab manual, final exam*)
- Collect, analyse and interpret biological data, in the field and laboratory (*lab manual, lab report*)

Transferable Skills Register / Pūkenga Ngaio

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

- Synthesising information. In everyday life and in job situations you will need to read information from different sources, construct your own understanding and explain your viewpoint. This skill will be developed when answering the essay questions in the midcourse test and the final exam. (GP1)
- Collecting, analysing and interpreting data. Important for research, as well as in a number of private-sector organizations. This skill will be developed when conducting lab assessments, particularly the lab report. (GP2)

GP1 and GP2 refer to Graduate Profile attributes: (1) Critically competent in a core academic discipline of their degree; (2) employable, innovative and enterprising; (3) biculturally competent and confident; (4) engaged with the community; and (5) globally aware.

Lecturers / Pūkenga

The Course coordinator /Kairuruku Akoranga is **Dr Sara Kross**. The lab coordinator is Kim Doherty.

For all general course-related questions, including about assignments, use the following email:

biol112@canterbury.ac.nz

Name	Room (Biology/ Julius Von Haast)	Email
General questions	2 nd floor reception	Biol112@canterbury.ac.nz
Prof Tammy Steeves	533	tammy.steeves@canterbury.ac.nz
Dr Maartin Strauss	245	maartin.strauss@canterbury.ac.nz
Dr Sara Kross	232	sara.kross@canterbury.ac.nz
Dr Steve Pawson	FORE	steve.pawson@canterbury.ac.nz
Dr Sarah Wyse	FORE	sarah.wyse@canterbury.ac.nz

Lectures: there are three per week (see My Timetable for up-to-date timing and room details).

BIOL112 Course Timetable (Wātaka) for 2024

Week	Lectures	Lecture Topic	Lab Topics (Lecturer)
15 Jul	1 TS 2 TS 3 TS	Genetics: an introduction Sexual life cycles: meiosis and fertilisation Inheritance: genes	<i>No lab this week</i>
22 Jul	4 TS 5 TS 6 TS	Inheritance: genes Inheritance: chromosomes Inheritance: chromosomes	<i>No lab this week</i>
29 Jul	7 TS 8 TS 9 TS	Origins of genetic variation Assaying genetic variation Science skills: Peer reviewed literature	Lab 1. Selection in guppies (Tammy Steeves)
5 Aug	10 MS 11 MS 12 MS	Darwin's revolution Adaptation & natural selection Evidence for evolution	Lab 2. Guppy analysis, writing (Tammy Steeves)
12 Aug	13 MS 14 MS 15 MS	Microevolution, part one Microevolution, part two Phylogeny	Lab 3. Population genetics (Maartin Strauss)
19 Aug	16 MS 17 MS 18 MS	Speciation History of life on Earth Extinction	<i>No lab this week (lab report due)</i>
		<i>Mid-semester break</i>	
9 Sep	19 SK 20 SK 21 SK	Drivers of distributions The New Zealand biota: history and plants The NZ biota: animals	<i>No lab this week</i>
16 Sep	22 SK 23 SK 24 SK	Behavior: senses and communication Behaviour: learning and cognition Life histories	Lab 4. Plant competition (Mads Thomsen)
23 Sep	25 SK 26 SK 27 SK	Population growth and regulation Species interactions Community structure	Lab 5. Bird form & function (Jim Briskie)
30 Sep	28 SK 29 SW 30 SW	Disturbance, succession and macroecology Introduction to conservation biology Habitat loss and invasive species	Lab 6. Optimal foraging (Sara Kross)
7 Oct	31 SW 32 SW 33 SP	Animal behaviour & conservation Conservation in the future Ecosystem primary and secondary production	Lab 7. Stream rehabilitation (Steve Pawson)
14 Oct	34 SP 35 SP 36 SK	Nutrient cycling Human impacts on ecosystems First year biology: where to from here?	<i>No lab this week</i>

Laboratories

Lab coordinator: Kim Doherty, Room 318, Phone 369 5202, Kim.Doherty@canterbury.ac.nz

Lab technician: Aynsley Macnab, Room 231, Phone 369 4741, Aynsley.Macnab@canterbury.ac.nz

Laboratory classes: these are **compulsory, and an attendance register will be kept**. Labs start in the third week of semester, as shown in the timetable above. **Labs are organised in streams**, and you attend one stream for each lab. You should have received information regarding which lab stream you have been assigned to in My Timetable. If you have not been assigned to a lab stream or you are unable to resolve a clash on My Timetable, please contact biol112@canterbury.ac.nz. **The lab rooms vary depending on week** and lab stream, see My Timetable for room details.

Lab manuals will be handed out at the beginning of the first lab (you can see a PDF copy on LEARN beforehand). Three hours are scheduled for each laboratory, but please note that some include fieldwork on- or off-campus. It is **essential to read each week's lab before coming to class**. Although some lab work will be completed in groups, **all assessment material must be completed individually**. Labs 1-2 are assessed in the major lab report, and labs 3-7 each end with an **online quiz, which you cannot sit unless you have attended the lab** (see Assessment section below and lab manual for details).

Contact the Course email (Bioll12@canterbury.ac.nz) if you are unable to attend a lab or you have missed a lab, and for questions regarding the guppy lab report. For questions regarding lab material contact the relevant lecturer.

Assessment / Aromatawai

20% guppy lab report (due week starting 19 August) – *scientific writing skills*

10% lab quizzes (online, after each of labs 3 to 7) – *practical skills*

35% lecture test (in the week starting 16 September) – *lectures 1-18, Term 3*

35% final exam, 2 hours (end of year exam period) – *lectures 19-36, Term 4*

The midcourse test covers lectures 1 – 18 (Evolution and Genetics), while the final exam covers lectures 19 – 35 (Ecology, Conservation and Ecosystems) along with associated required readings. Both will include multiple-choice, short answer, and essay questions. The number of questions per topic will be proportional to the number of lectures on that topic. Previous midcourse tests and final exams are available on Learn.

Note: Biology policy says that to pass BIOL 112 you need a mark of at least 50% overall, AND at least a 40% average across the in-term work (lab report and lab quizzes) AND at least a 40% average in the exams (midcourse test and final exam). See *Departmental Policies* below for more detail.

Course textbook

The course textbook is an open source one: 'Biology 2e' by OpenStax. You can use or download this free (<https://openstax.org/details/books/biology-2e>) This same text is used in all three core biology courses (111, 112, and 113).

There is also a good commercial textbook in the UC Library you could refer to - Biology: A Global Approach, 12th Global Edition. Campbell NA, Urry LA, Cain ML, Wasserman SA, Minorsky PV and Orr RB. Pearson Education, Harlow, England, 2021.

Feedback from previous Course Surveys

The last course survey was in 2021. Here are the overall scores, and some points raised in it, with our responses in italics.

Student Feedback from Course Surveys	2021
On a 1-5 scale where 1 = worst and 5 = best	
1. The materials provided helped me understand what was required to succeed in the course	4.2
2. The organization in the course helped me learn	4.1
3. Course workload was appropriate	4.2
4. Assessments were appropriate	4.2
5. Feedback on assessments was helpful	3.9

Which aspects of this course were most helpful for your learning?

- labs, lectures, passionate lecturers/helpful demonstrators/great lab coordinator, quizzes
- Really great use of real world examples in all of the areas of study to illustrate points raised

How could this course be enhanced to help your learning?

- It would be very helpful to have the grades of assignments posted onto Learn as soon as they are released. *We will do this from now on.*
- There was a lot of conflicting information about the lab report.

Apologies, we have revised the lab manual and Learn site to get all the information more consistent and in one place (re word limits, due dates, referencing formats etc).

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

[updated March 2024]

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, display items, or overall structure using artificial intelligence technology without disclosure and when it is not intended to be part of an assignment.

- Penalties from plagiarism (including the use of AI technologies) include zero grades for specific assignments. Where plagiarism is suspected the course coordinator reserves the right to require an oral viva to confirm student knowledge when assigning a grade.

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