

## Course Information / Ngā Whakamārama – 2022

### 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 Professor Matthew Turnbull. The lab coordinator is Kim Doherty.

Name	Room (Biology/ Von Haast)	Email
A/Prof Tammy Steeves	533	tammy.steeves@canterbury.ac.nz
A/Prof Hazel Chapman	335	hazel.chapman@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 2022

Week	Lectures	Lecture Topic	Lab Topics (Lecturer)
18 Jul	1 TS 2 TS 3 TS	Genetics: an introduction Sexual life cycles: meiosis and fertilisation Inheritance: genes	<i>No lab this week</i>
25 Jul	4 TS 5 TS 6 TS	Inheritance: chromosomes Inheritance: humans Origins of genetic variation	<i>No lab this week</i>
1 Aug	7 TS 8 TS 9 TS	Assaying genetic variation: methods Assaying genetic variation: applications Writing and the guppy report	Lab 1. Selection in guppies (TS)
8 Aug	10 HC 11 HC 12 HC	Darwin's revolution Adaptation & natural selection Evidence for evolution	Lab 2. Guppy analysis, writing (TS)
15 Aug	13 HC 14 HC 15 HC	Microevolution, part one Microevolution, part two Phylogeny	Lab 3. Population genetics (HC)
22 Aug	16 HC 17 HC 18 HC	Speciation History of life on Earth Extinction	<i>No lab this week (lab report due)</i>
		<i>Mid-semester break</i>	
12 Sep	19 SK 20 SK 21 SK	The New Zealand biota: history and plants The NZ biota: animals Behavior: senses and communication	<i>No lab this week</i>
19 Sep	22 SK 23 SK 24 SK	Behaviour: learning and cognition Drivers of distributions Life histories	Lab 4. Plant competition (Mads Thomsen)
26 Sep	25 SK 26 SK 27 SK	Population growth and regulation Species interactions Community structure	Lab 5. Bird form & function (Jim Briskie)
3 Oct	28 SK 29 SP/SW 30 SP/SW	Disturbance, succession and macroecology Ecosystem primary and secondary production Nutrient cycling	Lab 6. Optimal foraging (Matthew T)
10 Oct	31 SP/SW 32 SP/SW 33 SP/SW	Human impacts on ecosystems Introduction to conservation biology Habitat loss and invasive species	Lab 7. Stream rehabilitation (Steve Pawson)
17 Oct	34 SP/SW 35 SP/SW 36 MT	Animal behavior & conservation Conservation in the future 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. 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 Kim Doherty. **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).

If you are unable to attend a lab or you have missed a lab, contact Kim Doherty. For questions regarding the guppy lab report, contact Tammy Steeves. For questions regarding lab material contact the relevant lecturer.

## Assessment / Aromatawai

**20%** guppy lab report (due week starting 22 August) – *scientific writing skills*

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

**35%** lecture test (in the week starting 12 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). 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 posed 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**

**If in doubt:** ASK! The course coordinator is happy to answer questions at any time. All staff involved in the course are available for advice on specific issues.

### **What do I do if I have to miss something or if my performance was impaired?**

If you feel that **illness, injury, bereavement or other extenuating circumstances beyond your control** prevented you from completing an item of assessment worth 10% or more of 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/> and you need to notify the course coordinator *within five days* of the assessment or its due date. If you apply for Special Consideration, because of medical reasons, you should visit a doctor within 24 hours of the assessment (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 assessment – they do not excuse you from doing the assessment within a reasonable time agreed with the course coordinator. You should expect to be required to submit additional work if you miss a major assignment (e.g. a field trip for which a major write-up is required).

In rare cases you may not be able to complete an assessment or attend a field trip, because of **involvement in international or national representative sport or cultural groups**. In such cases you should also apply for Special Consideration. Please review the Special Considerations policy because very few kinds of activities will be eligible for consideration (e.g. holiday trips, birthday parties etc. are not given special status in the University policy).

**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/> within five days of the end of the main examination period for the semester.

### **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 are in any doubt about appropriate use of published material, please speak with a member of academic staff. If you are still unsure what plagiarism is, then seek advice.

It is a School policy that courses may request 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 posted on the Turnitin.com site.

### **Where do I hand in assignments and then collect them once marked?**

All assignments should be placed in the designated collection box in the foyer of the 2nd floor of the School of Biological Sciences (Von Haast building, near the main reception), unless directed otherwise by the course coordinator. 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>). In addition, you may also be asked to submit your work electronically (via Learn) for analysis in *Turnitin*.

Marked assignments 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. **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 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 must be handed in by the due date to gain full credit
- work handed in up to 7 days after the deadline will be marked, but the marks will be discounted 25% before they are recorded to the student's credit
- any work handed in more than 7 days after the deadline date 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. It also makes things easier to assess. 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.

### 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) 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