

WATR 203

Freshwater Science field skills

0.125 EFTS 15 Points

Summer Course

Goals of the course

This course is designed to teach the basic skills required to measure aspects of freshwater ecosystems. Through intensive field days, you will learn practical skills necessary for a practicing freshwater ecologist employed in New Zealand. You will learn how to assess and measure physical habitats, water chemistry, algae, aquatic plants, freshwater invertebrates, and fish. You will also be introduced to identification of freshwater biodiversity, focusing particularly on invertebrates and fish. This course will provide you with a background in skills useful for advanced waterways and freshwater ecology courses and equip you for freshwater science-related careers.

Intended Learning Outcomes and Assessment

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

- Develop practical skills in designing freshwater field sampling, handling understanding appropriate field equipment and sampling protocols
(*assessment: practical test, course workbook*)
- Develop skills species identification,
(*assessment: practical test*)
- Improve scientific communication skills, including report writing and use of the literature
(*assessment: field course report*)
- Conduct field work safely (*field work preparation and conduct*)

Transferable Skills Register

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 work in discussions in the field and course assessment.*
- Conducting safe field work in hazardous outdoor environments. *A health & safety discussion will occur focusing on identifying, eliminating, mitigating or minimizing hazards.*
- Knowledge of field sampling protocols for freshwaters, conducting water quality testing, and identification of benthic invertebrates and fish. *We will carry out a range of exercises to illustrate useful field methods; the practical test will assess identification skills.*
- Data interpretation. *Initial data interpretation will occur on the field course, and appropriate further analysis methods discussed for use in field course report.*
- Writing a report in scientific format using text and graphs. *Initial discussion on the field course, and sessions about style, good graph design will be conducted.*

Lecturers

Dr Helen Warburton, Room 331 Biology building, 369 5212,
helen.warburton@canterbury.ac.nz (course co-ordinator)

Prof Jon Harding, Room 333 Biology building, 369 5135, jon.harding@canterbury.ac.nz

Prof Angus McIntosh, Room 226, Biology building, 369 5186,
angus.mcintosh@canterbury.ac.nz

Prof Jenny Webster-Brown, Centre for Freshwater Management, Room 730 Biology building, jenny.webster-brown@canterbury.ac.nz

Nigel Harris, Ngāi Tahu, Kaiārahi Māori Research, nigel.harris@canterbury.ac.nz

Dr Catherine Febria, Room 334 Biology building, 369 5148,
Catherine.febria@canterbury.ac.nz,

Course Times

The course commences on Monday 20th November when the first reading will be posted and finishes on Thursday 14th December when your last assignment is due. This includes approximately two weeks of practical contact time running from Monday 27th November to Friday 15th December, and includes overnight stays at a University of Canterbury Field station on the nights of 4th, 5th and possibly the 6th December. We will meet on the morning of Monday 27th November at 9am in a Biology seminar room that participants will be informed of near the start of the course.

Course format

The course will include;

- Pre-fieldwork reading and assessment
- Lectures, laboratories and field work
- Post-fieldwork report

Assessments

10% Pre-course assessment (due 24th November)

30% Workbook

30% Practical test

30% Final report (due 14th December)

See below for departmental policies on late work, illness, and work that exceeds the length limits.

Any application for an extension must be made in writing (generally by email) to the Course Co-ordinator and any granting of an extension will be made by return email.

Provisional timetable

Please note that a more detailed timetable will be posted before the course starts. Please contact Helen Warburton (helen.warburton@canterbury.ac.nz) if you have any questions.

Week 1	20-26 November	Pre course reading and assignment will be posted online Monday 20 November. Pre course assignment will be due Friday 24 November and can be turned in online.	<i>This work can be done remotely and you do not need to be on campus to complete it</i>
Week 2	27 Nov – 1 Dec	Introduction to water chemistry, algae, invertebrate sampling & identification, biomonitoring and riparian management	This week will be a mix of lectures, laboratory work and field work. All field trips in Week 2 will leave from & return to UC each day.
Week 3	4 – 8 December	Invertebrate sampling, fish sampling & identification Practical lab test	Please note that this week of the course will include a compulsory multiday field trip & overnight stays to a University of Canterbury Field Station
Week 4	11 – 14 December	Post course assignment due Thursday 14 December	<i>This work can be done remotely and you do not need to be on campus to complete it</i>

Useful references

- Collier, K.J. & Winterbourn, M.J. (2000) *New Zealand stream invertebrates: Ecology and implications for management*. New Zealand Limnological Society, Christchurch. (general reference on NZ streams – now ½ price, see <http://limsoc.rsnz.org/publications.htm>)
- Harding, J.S., Mosley, P., Pearson, C. & Sorrell, B., editors. (2004). *Freshwaters of New Zealand*. New Zealand Limnological and Hydrological Societies, Christchurch. (This is available as a pdf – free from <http://www.biol.canterbury.ac.nz/ferg/educate.shtml>)
- Harding, J.S., Clapcott, J.E., Quinn, J.M., Hayes, J.W., Joy, M.K., Storey, R.G., Greig, H.S., Hay, J., James, T., Beech, M.A., Ozane, R., Meredith, A.S., Boothroyd, I.K.G., (2009). *Stream Habitat Assessment Protocols for wadeable rivers and streams of New Zealand*. University of Canterbury, Christchurch, New Zealand, 133p.
- Hauer FR & Lamberti GA (eds) (2011). *Methods on stream ecology*. Allied Press.
- Stark, J.D., Boothroyd, I.K., Harding, J.S. Maxted, J.R., Scarsbrook, M.R. (2001). *Protocols for sampling macroinvertebrates in wadeable streams*. New Zealand Macroinvertebrate Working Group Report No. 1., Ministry for the Environment, Wellington. 57 p.
- Winterbourn, M.J., Gregson, L.D. & Dolphin, C.H. (2000) Guide to the aquatic insects of New Zealand. *Bulletin of the Entomological Society of New Zealand*, **13**, 102. (insect identification guide, see <http://limsoc.rsnz.org/publications.htm>)

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

[updated 24 June 2016]

If in doubt: ASK! The course co-ordinator is happy to field questions at any time. All staff involved in the course are generally 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** have 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 Examinations Office website <http://www.canterbury.ac.nz/exams/special-consideration.shtml> and notify the course co-ordinator *within five days* of the assessment or its due date. If this is for medical reasons you should visit a doctor within 24 hours of the assessment (application form available on-line 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 co-ordinator. 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 to the Examinations Office within five days of the end of the main examination period for the semester.

For further details on Special Consideration applications, please refer to the Examinations Office website <http://www.canterbury.ac.nz/exams/special-consideration.shtml>.

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 (near the main office), unless directed otherwise by the course co-ordinator. 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 (under Undergraduate). In addition, you may also be asked to submit your work electronically (via Learn) for analysis in *Turnitin*. You will be given instructions on how to do this in the assignment handout.

Marked assignments can be collected from the Secretaries' Office, unless directed otherwise by the course co-ordinator. 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 co-ordinator** (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 BIOL, 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 test, AND score at least 50% overall for the course, to be awarded a passing grade. See course outline 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 on-line 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 co-ordinator 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

