BIOL 327
POPULATION AND COMMUNITY ECOLOGY
School of Biological Sciences, Trimester 1, 2012

Lectures: Tues 11:00-12:50pm EALT206
Thur 11:00-12:50pm HULT220

Labs: Fri 9:00-11:50 : in lab KK518, or cybercommons (KK217 & KK218), or field trips or a lecture theatre (TBA) – see pages 4 & 5 for details.

Trimester dates:

Weeks 1-5:	5 March – 5 April
Mid-trimester break:	6 April – 22 April
Weeks 6-12:	23 April – 9 June
Study/Examination period:	10 June – 4 July

Withdrawal dates: Please refer to:
http://www.victoria.ac.nz/home/admisenrol/payments/withdrawlsrefunds.aspx

COURSE DESCRIPTION

Modern approaches to population, community and ecosystem ecology. What affects the numbers, diversity and distribution of plants and animals – and how to find out if you are not sure. Approaches range from theoretical ecology through to techniques of experimentation, sampling and data analyses.

COURSE AIMS AND LEARNING OBJECTIVES

To examine and critique important, and often times unresolved, issues in ecology. To introduce different approaches to "doing ecology", including methods of experimental design, sampling, community description, the role of laboratory studies and empirical observations, statistical analysis, data interpretation and scientific communication. Assessment will examine understanding of key concepts in ecology, scientific writing, experimental design and analysis, interpretation and presentation of data.

STAFF DETAILS

Dr. Stephen Hartley (course coordinator)
E-mail: stephen.hartley@vuw.ac.nz
Work phone: 463-5447
Office Location: KK 620
Office hours: arrange by email, or when office door is open

Dr. Nicky Nelson
E-mail: nicola.nelson@vuw.ac.nz
Work phone: 463-5435
Office Location: KK 621
Office hours: arrange by email

Dr Heiko Wittmer
E-mail: heiko.wittmer@vuw.ac.nz
Work phone: 4637432
Office Location: KK 618
Office hours: arrange by email

COURSE DELIVERY & WORKLOAD

Over the period of this course you should expect to spend ~48 hours in lectures, ~17 hours in laboratories (which includes two half-day field trip and one computer-based workshop), and ~140 hours of personal study time: preparing for lectures, working on in-term assessments , revision and further reading. E.g. approximately fourteen hours per week for 15 weeks.

GROUP WORK

You will be required to work in groups of 2 -10 for some of the laboratory exercises. These exercises will be useful preparation for the in-term assessments, but all assessments will be individual in nature.

TEXTBOOKS & RECOMMENDED READING

There are no required textbooks, but the course will follow closely Krebs CJ (2008) *Ecology: The experimental analysis of distribution and abundance*. An equally good alternative is Begon, Harper & Townsend (2007) *Ecology of Individuals, Populations, Communities & Ecosystems*. Please see the Student Notes that accompany this course. Throughout the course, we will be referencing primary literature that relates to the lecture. Reading this literature is highly recommended.

OTHER MATERIALS, EQUIPMENT AND FIELD TRIPS

Calculators are not permitted in the final exam. Appropriate outdoor clothing is required for the half-day field trips to Eastbourne and Otari-Wilton's bush. Coaches have been booked for the trip to Eastbourne (at no additional cost), but students are responsible for their own transport to and from Otari (there are regular buses).

ASSESSMENT

Assessments are designed to test your understanding of key concepts, your ability to think critically and to communicate ideas clearly.
In-course assessment 60%; final examination 40%
To pass the course you must achieve at least 45% in the final exam.
There are no optional assessments. In-course assessment should be submitted in the drop boxes of SBS level 5 and/or by email as requested.
If you are unable to complete all assessments and apply for an aegrotat pass you must have completed sufficient assessment to demonstrate that you were capable of obtaining an overall pass.

In-course assessment	**Weight**	**Date due:**	
Presentation of PVA (submit electronic copy of power point to Nicky)	15%	23 Apr	5pm
Abstract	15%	21 May	4pm
Mini-project report	30%	4 June	4pm
Final exam	40%		

FINAL EXAMINATION

The final examination will occur sometime in the period: 15 June - 4 July, 2011.
It will consist of four essay-style questions to be answered in 3 hours.

MANDATORY COURSE REQUIREMENTS

To pass the course you must gain 50% overall AND achieve at least 45% in the final exam.

PENALTIES

Penalties for late submission of assignments will be -5% of the total possible mark for that assignment per day. Late work may be submitted by email outside of office hours to avoid accruement of further penalties, but it should be followed-up by a paper copy in the SBS drop box on the next working day. Penalties for exceeding word limits will be -5% per 10 percent of the assignment length. Failure to return equipment will also incur penalties.
Applications for an extension must be received in writing at least one week before the assignment is due to be handed in, either in person to Stephen Hartley or by email (stephen.hartley@vuw.ac.nz). Course work and assignments from other courses are not acceptable excuses.

ADDITIONAL INFORMATION & QUESTIONS

Check the Biol327 Blackboard site regularly for announcements:
http://www.blackboard.scs.vuw.ac.nz/

Email Stephen for any issues relating to this course and/or speak to your class representative. The class representative will be elected during the first two weeks of term and their contact details posted on Blackboard.

COURSE CONTENT: LECTURE and LAB SCHEDULE*

#	Date	topic	Who	Chapter in Krebs
1	Tue 6/3	What is ecology? Philosophy of Science / Levels of organisation / Course overview	SH	1
2	Thu 8/3	How to do Ecology / Observation and experimentation	SH	1
Lab	*Fr 9/3*	*Sampling design*	*SH*	
3	Tue 13/3	Biotic limits – dispersal	SH	5
4	Thu 15/3	Abiotic limits – climate	SH	4, 6
Lab	*Fri 16/3*	*Field sampling - Eastbourne*	*SH*	
5	Tue 20/3	Distribution and Abundance	SH	7
6	Thu 22/3	Patterns in space – aggregation, association	SH	-
Lab	*Fri 23/3*	*Analysis of field data*	*SH*	
7	Tue 27/3	Demography & life tables	NN	8
8	Thu 29/3	Population growth	NN	9
Lab	*Fri 30/3*	*Population Viability Analysis (PVA)*	*NN*	
9	Tue 3/4	Population growth / competition	NN	9, 10
10	Thu 5/4	Competition	NN	10, 14
	Fri 6/4	*Easter break begins (no lab)*		
		EASTER & MID-TERM BREAK		
11	Tue 24/4	Applications 1: Harvesting	NN	
12	Thu 26/4	PVA presentations I (assessment 1)	NN	15
Lab	*Fri 27/4*	*PVA presentations II (assessment 1)*	*NN*	
13	Tue 1/5	Applications 2 & 3: Pest control / conservation	NN	16, 17
14	Thu 3/5	Predation / herbivory	HW	11, 12
Lab	*Fri 4/5*	*Predator-prey responses*	*HW*	
15	Tue 8/5	Mutualism, parasitism and disease	HW	12, 13
16	Thu 10/5	Niche and succession	HW	18
Lab	*Fri 11/5*	*Critical Evaluation of Scientific Literature*	*HW*	
17	Tue 15/5	Biodiversity patterns in space	HW	19
18	Thu 17/5	Food chains/ webs, keystone species & trophic cascades	HW	20
Lab	*Fri 18/5*	*Forest plots at Otari-Wilton's Bush*	*SH*	
19	Tue 22/5	Disturbance-stability / Multiple stable states	HW	21
20	Thu 24/5	Plant competition: Tilman vs Grime	SH	(10)
Lab	*Fri 25/5*	*Cybercommons booked for work on mini-project*	*SH*	
21	Tue 29/5	Plant-insect interactions (herbivory / pollination / natural enemies)	SH	(12)
22	Thu 31/5	Landscape Ecology: Metapopulations, Habitat fragmentation & Macroecology	SH	-
Lab	*Fri 1/6*	*Cybercommons booked for work on mini-project*	*SH*	
23	Tue 5/6	Primary & Secondary Productivity / Nutrient cycles	SH	22 - 24
24	Thu 7/6	Climate change / Ecosystem Health	SH	25, 26

*Note that this schedule is provisional, and may be subject to change.

LABORATORIES

Laboratory sessions may occur in the field, in labs or in lecture theatres. Please check the schedule below carefully.

Field trips to Eastbourne shingle beach (11th March) and Otari-Wilton's Bush (7th May). **Wear sturdy shoes** and bring a **hat, raincoat**, **water** and a snack (see risk assessment further on). Transport will be provided to Eastbourne (see Blackboard for details), but please arrange your own transport to and from Otari-Wilton's Bush.

#	Date	Topic	Who	Streams	Where
1	Fri 9/3	Sampling design (9-10:20 or 10:30-11:50)	SH	2	KK518
2	Fri 16/3	Field sampling – Eastbourne (9 – 11:50)	SH	1	Field
3	Fri 23/3	Analysis of field data (9-10:20 or 10:30-11:50)	SH	2	KK518
4	Fri 30/3	Population Viability Analysis (PVA) (9-10:20 or 10:30-11:50)	NN	2	KK518
	Fri 6/4	EASTER & MID-TERM BREAK			
5	Fri 27/4	PVA presentations (9-10 or 10-11)	NN	2	TBA
6	Fri 4/5	Predator-prey responses (9-11)	HW	1	TBA
7	Fri 15/4	Critical Evaluation of Scientific Literature (9-10:20 or 10:30-11:50)	HW	2	KK518
8	Fri 19/5	Forest plots at Otari-Wilton's Bush (9 – 11:50)	SH	1	Field
9	Fri 25/5	Cybercommons available for report writing (9 – 11:50)	SH	1	KK217 KK218
	Fri 1/6	Cybercommons available for report writing (9 – 11:50)	SH	1	KK217 KK218
	Fri 7/6	-			

LAB SAFETY RULES: Remember laboratories are used by many groups. You do not know who has been there before you and left a surprise (biohazard, sharp blade or glass, etc.). So, caution at all times: if you do not know what it is or what it does, ask.

- **YOU MUST WEAR A LAB COAT IN LABS.**
- **NO OPEN FOOTWEAR.**
- **NO FOOD OR DRINK.**
- **PLEASE PAY ATTENTION BEFORE LABS AS HAZARDS WILL BE FLAGGED.**

Health and Safety

Prior to the field trips we will ask you to complete a declaration in which you can make us aware of any health-related issues relevant to your comfort and safety during field trips (e.g. severe allergies to bees and wasps, broken leg etc.). All information will be treated in strict confidence.

Field trips to Eastbourne and Otari-Wilton's Bush

Hazard Assessment

Group leader: Stephen Hartley (qualified first-aider)

List of participants: ~80 students from BIOL327

Description of activity:
Vegetation sampling.

Hazards:
1. Slippery ground if wet.
2. Exposure to the elements
3. Insect bites and stings
4. Getting lost (low likelihood)
5. Falling in to streams / lake / ocean

Risk minimisation and control:
1. Wear appropriate footwear and travel at a sensible speed. Carry first aid kit in the group.
2. Wear clothing and protection appropriate to the weather. Carry food and water
3. Use insect repellent. If severely allergic to wasp stings carry epinephrine.
4. Stay with the group. Carry a map at Otari. Carry food and water. Carry a cell phone.
5. At Otari stay on the marked paths except when surveying a forest plot. Do not wander off alone.

Equipment required:
Stout footwear with good grip (suitable for walking on dirt tracks of moderate grade)
Warm clothing (several thin layers is best)
Waterproof jacket
Sunhat & sunscreen
Water
Snack
Notepad and pencil

Optional equipment: field binoculars, camera, insect repellent and antihistamine cream for personal use.

MARKING SCHEDULES

1. Oral Presentation of PVA Due 23Apr; Presented 26 or 27 April in lecture or lab

Students will individually select a species of interest and research the key components affecting population viability. The assessment comprises a short powerpoint presentation of this case study. This exercise will develop skills in assimilating information from primary literature sources and presenting key components in a clear, critical and informative oral presentation. The study will **will not** entail a population viability analysis of data. More details will be provided in Nicky's lectures and labs.

INTRODUCTION (20%): Give global relevance, put the study in context, outline necessary background information, give a clear statement of objective or question

Excellent Good Satisfactory Poor

PVA (40%): Give a clear, concise description of the major issues, and include appropriate information. Propose further research and analyses needed to fully evaluate case study if necessary.

Excellent Good Satisfactory Poor

CRITIQUE (40%): Discuss implications, provide context with other studies

Excellent Good Satisfactory Poor

COMMENTS

TOTAL OUT OF 15 _____

2. Scientific Abstract (Limit 250 words), Due 21 May, 4 pm

Provide an appropriate and meaningful **title**, an **abstract** and six **keywords** for the scientific paper handed out in Lecture 11. This assignment aims to address the skills required in reading and understanding a scientific paper. Your abstract must detail the question that the study addressed, what they did, what they found and the significance of their results. It must not exceed 250 words. It should be understandable in isolation and by the non-specialist.

The title should be informative and interesting and should not exceed 20 words.
Keywords are a list of the most relevant keywords to the article. They must be in alphabetical order not exceeding six words or short phrases, and excluding words used in the title.

CONCEPT (65%)

Has read the article, has emphasised the major question addressed in the paper, has summarised the key points of the article, can relate the work to general principles in ecology.

Excellent Good Satisfactory Poor

TITLE & KEY WORDS (15%)

Title accurately and succinctly conveys the subject matter. Has identified six appropriate key words or short phases.

Excellent Good Satisfactory Poor

PRESENTATION (20%)

Writes clearly and sentences are arranged in a logical order. Free from grammatical and typological errors, does not exceed 200 words.

Excellent Good Satisfactory Poor

COMMENTS

TOTAL OUT OF 15 _____

3. Mini Project Report (Individual) **Due 4 June 4pm**

(2000 words + abstract + literature cited + optional appendices)

This assessment will develop your ability to produce a concise and professional scientific report. You will need to analyse ecological data provided to you, communicate the results through the use of figures and/or tables, and introduce and discuss the results in the context of a wider body of scientific literature. Further details of the exercise and datasets will be communicated during lectures and via blackboard.

TITLE & ABSTRACT (20%): Gives clear, concise outline of the project. Abstract includes a summary of the main findings.

Excellent Good Satisfactory Poor

INTRODUCTION (20%): Gives global relevance, puts the study in context, outlines necessary background information, gives a clear statement of objective or question.

Excellent Good Satisfactory Poor

METHODS & RESULTS (20%): Methods give a clear, concise description of the study, and include appropriate information. Results are clearly written, and describe the main results. Presents (and describes) graphs, tables and actual analyses. Does not give raw data. Does not interpret data.

Excellent Good Satisfactory Poor

DISCUSSION (20%): Gives implications of results locally and wider, discusses literature, interprets data fully.

Excellent Good Satisfactory Poor

GENERAL (20%): Writes clearly and succinctly. Extremely well structured, and logical order of presentation. Free from grammatical and typological errors. Adequacy of references: has read scientific articles from journals, sources are correctly cited in text and properly formatted in the reference list.

Excellent Good Satisfactory Poor

COMMENTS

TOTAL OUT OF 30 _____

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI
VICTORIA
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GENERAL INFORMATION

General University policies and statutes

Students should familiarise themselves with the University's policies and statutes, particularly the Assessment Statute, the Personal Courses of Study Statute, the Statute on Student Conduct and any statutes relating to the particular qualifications being studied; see the *Victoria University Calendar* or go to the Academic Policy and Student Policy sections on:

http://www.victoria.ac.nz/home/about/policy

The AVC(Academic) website also provides information for students in a number of areas including Academic Grievances, Student and Staff conduct, Meeting the needs of students with impairments, and student support/VUWSA student advocates. This website can be accessed at:

http://www.victoria.ac.nz/home/about/avcacademic/Publications.aspx

Student and staff conduct

The Statute on Student Conduct together with the Policy on Staff Conduct ensure that members of the University community are able to work, learn, study and participate in the academic and social aspects of the University's life in an atmosphere of safety and respect. The Statute on Student Conduct contains information on what conduct is prohibited and what steps are to be taken if there is a complaint. For information about complaint procedures under the Statute on Student Conduct, contact the Facilitator and Disputes Advisor or refer to the statute on the VUW policy website at:

www.vuw.ac.nz/policy/studentconduct

The Policy on Staff Conduct can be found on the VUW website at:

www.vuw.ac.nz/policy/staffconduct

Academic grievances

If you have any academic problems with your course you should talk to the tutor or lecturer concerned; class representatives may be able to help you in this. If you are not satisfied with the result of that meeting, see the Head of School or the relevant Associate Dean; VUWSA Education Coordinators are available to assist in this process. If, after trying the above channels, you are still unsatisfied, formal grievance procedures can be invoked. These are set out in the Academic Grievance Policy which is published on the VUW website at:

www.vuw.ac.nz/policy/academicgrievances

Academic integrity and plagiarism

Academic integrity means that university staff and students, in their teaching and learning are expected to treat others honestly, fairly and with respect at all times. It is not acceptable to mistreat academic, intellectual or creative work that has been done by other people by representing it as your own original work.

Academic integrity is important because it is the core value on which the University's learning, teaching and research activities are based. Victoria University's reputation for academic integrity adds value to your qualification.

The University defines plagiarism as presenting someone else's work as if it were your own, whether you mean to or not. 'Someone else's work' means anything that is not your own idea. Even if it is presented in your own style, you must acknowledge your sources fully and appropriately. This includes:

- Material from books, journals or any other printed source
- The work of other students or staff
- Information from the internet
- Software programs and other electronic material
- Designs and ideas
- The organisation or structuring of any such material

Find out more about plagiarism, how to avoid it and penalties, on the University's website: www.victoria.ac.nz/home/studying/plagiarism.html

Turnit in

Student work provided for assessment in this course may be checked for academic integrity by the electronic search engine http:/www.turnitin.com. Turnitin is an online plagiarism prevention tool which compares submitted work with a very large database of existing material. At the discretion of the Head of School, handwritten work may be copy-typed by the School and subject to checking by Turnitin. Turnitin will retain a copy of submitted material on behalf of the University for detection of future plagiarism, but access to the full text of submissions is not made available to any other party.

Students with Impairments

The University has a policy of reasonable accommodation of the needs of students with disabilities. The policy aims to give students with disabilities the same opportunity as other students to demonstrate their abilities. If you have a disability, impairment or chronic medical condition (temporary, permanent or recurring) that may impact on your ability to participate, learn and/or achieve in lectures and tutorials or in meeting the course requirements, please contact the course coordinator as early in the course as possible. Alternatively, you may wish to approach a Student Adviser from Disability Support Services (DSS) to discuss your individual needs and the available options and support on a confidential basis. DSS are located on Level 1, Robert Stout Building:

telephone: 463-6070

email: disability@vuw.ac.nz

The name of your School's Disability Liaison Person is in the relevant prospectus or can be obtained from the School Office or DSS.

Student Support

Staff at Victoria want students to have positive learning experiences at the University. Each faculty has a designated staff member who can either help you directly if your academic progress is causing you concern, or quickly put you in contact with someone who can. Assistance for specific groups is also available from the Kaiwawao Maori, Manaaki Pihipihinga or Victoria International.

	Staff member	**Location**
Science, and Architecture and Design	Liz Richardson Deputy Dean (Equity)	Cotton Building, room 150
Kaiwawao Maori	Liz Rawhiti	Old Kirk, room 007
Manaaki Pihipihinga	Melissa Dunlop	14 Kelburn Pde, room 109D
Victoria International	Anne Cronin	10 Kelburn Pde, room 202

In addition, the Student Services Group (email: student-services@vuw.ac.nz) is available to provide a variety of support and services. Find out more at:

www.vuw.ac.nz/st_services/

VUWSA employs Education Coordinators who deal with academic problems and provide support, advice and advocacy services, as well as organising class representatives and faculty delegates. The Education Office (tel. 463-6983 or 463-6984, email at education@vuwsa.org.nz) is located on the ground floor, Student Union Building.

Class Representative

A class representative will be elected in the first class, and that person's name and contact details will be available to VUWSA, the Course Coordinator and the class. The class representative provides a communication channel to liaise with the Course Coordinator on behalf of students.