School of Geography, Environment, and Earth Sciences

Course Outline

ESCI 344 - FIELD GEOPHYSICS

Trimester 1, 2013

Field activities: photographs from ESCI 344 - 2009 and 2010

LECTURERS: Tim Stern, Adrian Benson
TUTORS: Calum Chamberlain, Katrina Jacobs
FIELD TRIP: 22 April to 26 April 2013, Te Muna, Wairarapa
ADDITIONAL DAYS: To be arranged
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AIMS AND OBJECTIVES:
The objective of this field course is to learn how to design and conduct geophysical surveys and to process and interpret geophysical data in order to solve earth science problems. We will be conducting a number of experiments on some of the reverse faults and sedimentary structures that are found throughout the Wairarapa. The ultimate goal of this course is for you to ‘do’ scientific research, by acquiring some simple data sets on faults and sedimentary structures. You will construct a report on the relative usefulness of the following methods to image faults: gravity, magnetic, seismic, and resistivity.

COURSE CONTENT:
Field trip dates: 22 April to 26 April 2013 and May 4, 11, 2013.

The class will be divided into four groups and there will be a staff member or student tutor with each group. Three activities: seismic, gravity, resistivity-magnetics are done on four full days so you will have a day on each activity. The data recording during the day is followed by data processing and interpretation in the evenings at our accommodation at Te Muna. An additional 2 days in the computer lab (CO 524) will provide you with help to finish up your report. These 2 additional days will on weekends in May.

SCHEDULE:
Monday, 22nd April
Leave from Victoria University at 9.30 am. You should aim to be at the car park in front of Cotton building by 9.30 am to help pack the vans. We will drive directly to Te Muna and start the first exercise that day.

Tues, 23rd April
Groups A, B, C doing seismic, grav, Mag_res

Weds, 24th April
Groups A, B, C doing grav, mag-res, seismic

Thursday, 25th April
Groups A, B, C doing mag-res, seismic, grav

Friday, 26th April
Groups pot luck test, finalise observations.

Pack and clean up and leave for Wellington by 4 pm. We should be back around 6 pm

Saturday, 4th & 11th May
Tutorial day @ uni. Staff members and tutors will be there to answer your questions and help you with the data and report.

Please note that this schedule is flexible.

ACCOMMODATION:
We will be based at the Te Muna accommodation in the Wairarapa. This is a farm about 20 km east of Martinborough. It’s certainly not the Hilton, but it’s adequate for our needs. Sleeping spaces are tight (15 beds) so we are going to need some people in tents. If you have a personal tent we encourage you to bring it.

FIELD EQUIPMENT
General
- Sleeping Bag & pillow case (no linen provided so a sheet might also be a good idea)
- Warm clothes
- Good footwear (tramping boots are great)
- High visibility vest
- Rain gear (it tends to rain more often than not)
- Wind proof trousers
- Gloves and hat
- Toothbrush, toothpaste, soap etc
- Drink bottle and/or thermos
- Torch
Work related

- Notebooks – ‘rite in the rain’ books are nice but hopefully will be unnecessary. Often 1B5 size books let you take better notes and draw more meaningful maps.
- Pens, ruler etc.
- Calculator
- Graph paper
- Laptop computer – if you have one, bring it.

Please feel free to bring what you are used to have and wear for field work and otherwise. Don't forget medication if you need it.

Please note:

- Students who enrol in field courses must be physically able and must have a good level of physical fitness. Staff need to be informed in advance about any known health issues that might be of concern in a field setting, thus students are required to fill in and submit a confidential form providing emergency contact and health information, prior to their full acceptance into any field course.
- Students enrolling in field courses at third year level are expected to have purchased their own appropriate geological equipment including geological compass, hand lens, write-in-the-rain type field notebooks, and geological hammer. These can be ordered through the SGEES school office. Students at this level are also expected to have appropriate personal gear including field boots and high-visibility vests.

COURSE DELIVERY AND EXPECTED WORKLOAD:
The course consists of a 5 day field trip including evening lectures, data processing and interpretation and 2 tutorial days at university. Some out-of-class work may be required to complete the data processing, interpretation and the final written report.

Your task will be the following:
1. Prior to field trip prepare an introduction to the structure and geology of the Wairarapa based on the publications listed at end of this document. The whole document should not be longer than 2 pages and it must contain a sketch cross-section from the Wairarapa fault to the east coast.
2. Collect data from the field in a systematic way and clearly document these data in your field books.
3. Once back at the field base you will consolidate your data with other data from other members of your group so that you have a complete record of data collected on the activity you undertook that day.
4. Work on reducing data right up to producing interpretation models. There will be help at hand for you to do this at the field base.
5. Once back at home produce a report of all the surveys you have done. What we want to see is a discussion on the relative strengths and weaknesses of each method for the interpretation of faults in the field.

ASSESSMENT:
5% introduction to area 2-pager.
15% Performance in the field and at field base. This includes results of a “pot-luck” test conducted on Saturday with partners drawn from a hat.
10% Notebooks - to be handed in at the end of the week.
70% Report - scope TBA, hand in 5 pm 25th May.

Field performance is a mix of attributes including skills at using instruments in the field, ability to make good decisions in the field, leadership skills and willingness to contribute to the running of an efficient field base.
Your notebook(s) need not to contain the data you collected during the day. When back at the base make sure you get all relevant data from other members of your team. The scope of the report will be discussed during the course.

MANDATORY COURSE REQUIREMENTS
Students must attain a D grade (40% or better) in each of the assessment categories, as well as an overall C grade or better, to pass the course.

**Field report**
The field report is expected to be concisely written in the normal format for scientific reports. Guidelines and a more specific scope for the report will be announced on Blackboard.

**DEADLINES, EXTENSION, AND PENALTIES**
The written field report is due at 5pm on Monday, 20 May 2013 as stated above. Granting extensions arbitrarily is unfair to those students who complete the work on time. Requests for extension are rarely granted and can only be done in extenuating circumstances.

Penalties of one full grade (5%) per day will be enforced for unapproved late work.

**BLACKBOARD**
Course materials will be available from Blackboard.

**RECOMMENDED TEXTBOOKS AND OTHER PUBLICATIONS:**

**Textbooks**
Lowrie, W. Fundamentals of Geophysics, Library code: QC806 L921 F
Milsom, J. Field Geophysics, Library code: TN269 M661 F

**Publications**
C. Cape, S.H. Lamb, P. Vella, P.E. Wells, D.J. Woodward
Geological structure at Wairarapa Valley, New Zealand, from seismic reflection profiling

To link to this article: [http://dx.doi.org/10.1080/00288306.1978.10424083](http://dx.doi.org/10.1080/00288306.1978.10424083)

To link to this article: [http://dx.doi.org/10.1080/00288306.2000.9514888](http://dx.doi.org/10.1080/00288306.2000.9514888)


**HEALTH AND SAFETY:**
The greatest hazards you will encounter on the field trip are presented by motor vehicles, so the following rules must be observed:

- Any person working in or around vehicles (e.g. on the side of a public road) must wear a reflective high visibility vest at all times.
- Students may not drive the rented vehicles as you will not be insured.
- Students must not drive other students
- Be careful around the mechanical thumper used in seismic work.
- Mobile phones must not be used at any time near electric detonators.

If you have any concerns about the safety of a particular activity please let a staff member know. If you have any medical condition that may require emergency medical treatment (e.g. allergy to bee stings) you must alert staff before going into the field.
CLASS REPRESENTATIVE:
A class representative will be elected in the first class, and that person’s name and contact details will be made 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.

TE REO MAORI:
There are no examiners in the School of Earth Sciences competent to mark examination scripts in Te Reo Maori.

GRIEVANCES:
If you have any problems with your course (such as too much work compared with other similar courses, poor teaching quality, unfair assessment, or poor feedback on assignments), you should talk to the tutor or lecturer concerned or, if you are not satisfied with the result of that meeting, see the Head of School (Assoc. Prof. Philip Morrison) or the Associate Dean (Students). The University has a well developed, independent procedure for dealing with academic grievances and complaints of this nature. These procedures are set out in Part 5 of the Personal Courses of Study Statute in the Calendar. More generally, the University is also concerned to 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 environment of safety and respect. To this end, it has put in place a comprehensive Statute on Conduct. This Statute is printed in the Calendar and contains information about what conduct is prohibited and what steps can be taken if there is a complaint. Persons with a complaint or grievance may seek assistance or support from another member of the University community such as the Adviser on Grievance Resolution, Departmental Chairpersons, Counselling staff or Sexual Harassment Contact Support persons. They may also resolve disputes by making use of any of the other informal or formal procedures outlined in the Statute on Conduct.

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.

USE OF TURNITIN:
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.

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