School of Geography, Environment & Earth Sciences

ENSC 301: Topics in Environmental Science

Trimester 1, 2013
## Course Information

**School of Geography, Environment and Earth Sciences**

**ENSC 301 - TOPICS IN ENVIRONMENTAL SCIENCE**

**Trimester 1  2013**  (15 pts)

Course co-ordinator: John Collen

### Lectures and Labs/Tutorials

<table>
<thead>
<tr>
<th>Wk</th>
<th>Date</th>
<th>Lecture</th>
<th>Lab/tutorial</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>5 Mar</td>
<td><strong>INTRODUCTION</strong>: role of science in environmental issues; Earth systems, global geochemical processes &amp; cycles</td>
<td>JC/MH Course discussion and guidelines; essay preparation</td>
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<tr>
<td></td>
<td>8 Mar</td>
<td>Geological processes and cycles continued</td>
<td>MH</td>
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<tr>
<td>2</td>
<td>12 Mar</td>
<td>Biological systems and energy flow</td>
<td>AM Tutorial on giving a formal presentation</td>
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<td></td>
<td>15 Mar</td>
<td>Dealing with data-heavy publications</td>
<td>NS</td>
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<tr>
<td>3</td>
<td>19 Mar</td>
<td><strong>ENERGY SUPPLY</strong>: Society’s need for energy</td>
<td>JC Dealing with data-heavy publications RA/NS</td>
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<tr>
<td></td>
<td>22 Mar</td>
<td>The pros and cons of nuclear power</td>
<td>UR</td>
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<tr>
<td>4</td>
<td>26 Mar</td>
<td>The pros and cons of nuclear power: cont.</td>
<td>UR Student presentations: nuclear power issues</td>
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<td></td>
<td><strong>Extended Easter Break March 28 – April 3</strong></td>
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<tr>
<td>5</td>
<td>5 April</td>
<td>The pros and cons of nuclear power: cont.</td>
<td>UR</td>
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<td>6</td>
<td>9 April</td>
<td><strong>RESOURCE USE</strong>: The geochemistry of natural waters</td>
<td>WD Student presentations: nuclear power issues</td>
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<td></td>
<td>12 April</td>
<td>The geochemistry of natural waters: cont.</td>
<td>WD</td>
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<tr>
<td>7</td>
<td>16 April</td>
<td>The geochemistry of natural waters: cont.</td>
<td>WD Test 1; Problems involving natural waters</td>
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<td></td>
<td>19 April</td>
<td>The geochemistry of natural waters: cont.</td>
<td>WD</td>
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<td><strong>Mid-trimester break 22 – 28 April</strong></td>
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<td>7</td>
<td>30 April</td>
<td><strong>POLLUTION &amp; ENVIRONMENTAL CHANGE</strong>: Toxic cyanobacteria in NZ’s rivers</td>
<td>AM Problems involving natural waters WD</td>
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<td></td>
<td>3 May</td>
<td>Ecological restoration</td>
<td>AM</td>
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<td>8</td>
<td>7 May</td>
<td>Bioremediation</td>
<td>AM</td>
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<tr>
<td></td>
<td>10 May</td>
<td>Environmental science &amp; atolls – the problem of atoll degradation and the response to SL rise</td>
<td>JD</td>
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<tr>
<td>9</td>
<td>14 May</td>
<td>Some specific issues with current energy supply – e.g. oil pollution, fracking</td>
<td>JC Toxic algae and photosynthesis – group 2 + Tutorial – t.b.a. AM/JC</td>
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<tr>
<td></td>
<td>17 May</td>
<td><strong>CLIMATE CHANGE</strong>: The present status of the climate change debate</td>
<td>DF</td>
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<tr>
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<td>10</td>
<td>Physics of climate change: Earth’s energy balance, black body radiation, orbital effects on climate, etc</td>
<td>MI Energy physics lab MI</td>
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<td></td>
<td>24 May</td>
<td>Physics of climate change: cont.</td>
<td>MI</td>
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<td>11</td>
<td>28 May</td>
<td>Physics of climate change: cont.</td>
<td>MI Tutorial on physics of climate change MI</td>
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<td></td>
<td>31 May</td>
<td>Physics of climate change: cont.</td>
<td>MI</td>
</tr>
<tr>
<td>12</td>
<td>4 June</td>
<td><strong>CONCLUSION</strong>: The science/policy interface</td>
<td>DF Test 2; Tutorial t.b.a. JC</td>
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<tr>
<td></td>
<td>7 June</td>
<td>Course conclusion</td>
<td>JC</td>
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</table>
STAFF:

- RA Dr Richard Arnold, SMSOR, VUW
- JC Dr John Collen – Course co-ordinator (Room CO412, tel. 463 5071, email: john.collen@vuw.ac.nz); SGEES, VUW
- WD Dr Warren Dickinson, Antarctic Research Centre, VUW
- DF Professor David Frame, Climate Change Research Institute, VUW
- MH Dr Mike Hannah, SGEES, VUW
- MI Dr Malcolm Ingham, SCPS, VUW
- AM Dr Andrew Martin, SBS, VUW
- UR Dr Uwe Reiser, SGEES, VUW
- NS Dr Nokuthaba Sibanda, SMSOR, VUW

COURSE OBJECTIVES AND ASSESSMENT

INTRODUCTION: The overall aim of this course is to allow students to integrate their primary science discipline into an environmental framework in order to discuss, analyse and apply a range of concepts important in environmental science.

This will be done partly through a lecture course involving invited speakers from a variety of disparate environmental disciplines. In 2012, the latter will include climate change, energy use and supply (including nuclear energy), the study of natural waters, pollution, and environmental management. In addition, the lectures will be backed up by laboratory and tutorial work that will allow discussion and expansion of the material from the individual viewpoints of the class. As students are drawn from across the faculty, the wide range of expertise and interests coupled with the diversity of topics will allow equally wide-ranging discussion.

PREREQUISITES: 90 points of approved 200-level study in approved science subjects.

COREQUISITES: ENSC 302 or 303 and admission to the Environmental Sciences major.

MINIMUM EXPECTED WORKLOAD: The course is 15 points and thus the workload per student is designed to approximate 150 hours for the course. This amounts to about 13 hours per week, of which formal classes comprise 5 hours.

ASSESSMENT: The course will be entirely internally assessed, as follows:

- Exercises on:
  - data-heavy publications (5 %), due 9 am, 5th April
  - natural waters (10 %), due 9 am, 30th April
  - climate change physics (10 %), due 9 am, 4th June
- Presentations on issues related to nuclear energy (10 %), 26th March and 9th April
- 2 short in-term tests on lecture material (35 % total) on 16th April and 4th June
- Essay (30 %), due 5 pm, May 31st

The class exercises and presentations will be introduced by the lecturers for these individual blocks.

The essay component of this course is intended to give you experience in literature research and writing, as well as extending your knowledge of this subject. Essays are due on Friday, June 1st. Although there is no fixed length and essay sizes will vary depending on subject, you should aim for about 5 x 1 ½-spaced pages (about 2500 words), not
counting references or figures. Essays should be fully referenced and all sources (including websites) correctly attributed.

The essay should cover in depth some aspect of environmental science that is not directly part of the seminar course. We will look at some possible topics during the first class tutorial and you should check your topic and proposed approach with me before beginning work to make sure that the topic is appropriate and suitable reference material is available.

**Penalties:** Work handed in late without justification will incur a penalty of 5% per day (including weekends) and will not be accepted more than 4 days late.

**REQUIREMENTS FOR PASSING THE COURSE:** At least 50% overall.

**TEXTS:** There are no set texts for the course. Lecture notes plus other material will be provided during the course; this includes online references and students will be directed to other relevant material.

**NOTES:**
1. For any difficulties, in the first instance see the course co-ordinator (John Collen; Room C412, tel. 4635071; email john.collen@vuw.ac.nz).
2. Information from outside relevant to the course will be emailed to the class or presented orally.
3. A class representative will be elected during the first week of the course.
4. See the VUW website for trimester dates and course withdrawal deadlines.

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**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 the University’s policy website,

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

**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 Victoria policy website at:

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

The Policy on Staff Conduct can be found at:

http://www.victoria.ac.nz/home/about/policy
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; The VUWSA Student Advocate is 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 Victoria website at:
http://www.victoria.ac.nz/home/about/policy

There is also a leaflet explaining the grievance process available from the AVC (Academic) website at:
http://www.victoria.ac.nz/home/about_victoria/avcacademic/Publications.aspx#grievances

Students with Impairments
Refer to the Meeting the Needs of Students with Impairments Policy, available on the University’s policy website http://www.victoria.ac.nz/home/about/policy
The University has a policy of reasonable accommodation of the needs of students with impairments. 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. There are a number of support services available to help you directly if your academic progress is causing concern or if there are elements in your life that are affecting your ability to study. These include:

- Your course coordinator or programme director;
- Staff in your Faculty Student Administration Office Student Dedicated learning support through Student Learning Support Service; Kaiwawao Māori; Maanaki Pihiphipinga; Disability Support Services and Victoria International;
- Wider holistic support through the Health Service; Counselling Service; Financial Support and Advice; Accommodation Service and Career Development and Employment. Find out more at www.victoria.ac.nz/st_services/ or email student-services@vuw.ac.nz;
- VUWSA employs a Student Advocate who deals with academic problems and provides support, advice and advocacy services, as well as training and supporting class representatives and faculty delegates. The Education Office is located on the ground floor, Student Union Building. Email education@vuwsa.org.nz or tel. 463-6716 or 463-6984.

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.

**Communication of additional information**

Find key dates, explanations of grades and other useful information at www.victoria.ac.nz/home/study. Find out about academic progress and restricted enrolment at www.victoria.ac.nz/home/study/academic-progress. The University’s statutes and policies are available at www.victoria.ac.nz/home/about/policy, except qualification statutes, which are available via the Calendar webpage at www.victoria.ac.nz/home/study/calendar (See Section C). Further information about the University’s academic processes can be found on the website of the Assistant Vice-Chancellor (Academic) at www.victoria.ac.nz/home/about_victoria/avcacademic/default.aspx