

RHODES UNIVERSITY

INSTITUTE FOR WATER RESEARCH

HONOURS IN ENVIRONMENTAL WATER MANAGEMENT

COURSE HANDBOOK

Course Coordinator: Dr Paul Mensah

NB. Every care has been taken to ensure that the information given in this booklet is aligned with that given in official University publications such as the University Calendar. Where there is a difference, the information given in the official University publication should be taken as correct.

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1 2018 EWM Honours Orientation programme

PROGRAMME FOR EWM HONOURS STUDENTS ORIENTATION

IWR Meeting Room

Monday 5/2/2018 - Friday 16/2/2018

DATE	ACTIVITY	RESPONSIBLE
Monday, 5 February 09h00-09h15 09h20-11h00 11h30-12h00	Welcome General outline of the EWM Honours Course Tour of building and location of instruments	Tally Paul Khaya
Tuesday, 6 February 09h00-11h00	Introduction of EWM Honours modules and Research Project topics Tally – 09.00 Nelson – 09.30 Paul – 10.00 Jane – 10.30	Module lecturers
Wednesday, 7 February 09h00-11h00 11h30-12h30	How to get the most out of lectures Complexity seminar	Nelson Tally
Thursday, 8 February 09h00-11h00	Discussion with individual staff members for Research Project choices	Staff and EWM Honours students
Friday, 9 February 10.30 -11.30	Social meeting of IWR staff and students: IWR TEA IWR meeting/tea room	Staff and students
Monday, 12 February 09h00-11h00	Seminar on "Introduction to Research Projects"	Tally
Tuesday, 13 February 09h00-11h00	Seminar on "Introduction to Research Projects"	Tally
Wednesday, 14 February 09h00-11h00	"Introduction to Research Projects"	Project supervisors to meet individually with students
Thursday, 15 February 09h00-16h00	Register at the Student Bureau	All EWM Honours students
Friday, 16 February 14.30 – 16.00	STAFF ONLY Meeting to finalise Honours programme and get ready for the year	All staff

2 Aim of course

This degree aims to equip students with the conceptual understanding and practical knowledge needed to make an effective contribution to the sustainable management of freshwater resources taking into account complex social-ecological systems and the way in which people engage with the environment. The EWM is offered in collaboration with the Department of Geography.

3 Hosting of course

The course is currently being hosted by the Geography Department but coordinated by the IWR. It is expected that the hosting would be transferred to the IWR from 2019 academic year.

4 Modules

There are five modules making up the EWM course. These are Adaptive Integrated Water Resources Management (IWRM), Environmental Water Quality, Hydrology, Freshwater Ecology and a water-focused Research Project. Adaptive IWRM is compulsory and students are allowed to take one equivalent course from the Geography Department, with approval from the heads of both the IWR and Geography.

5 Assessment

The marks total for the year is 500, which normally comprises 100 marks for the research project, 100 marks for the compulsory module and 300 for the three elective modules (i.e. 100 each). The distribution of the marks for each module is included in the module outline below.

6 Outlines for modules hosted by the IWR

5.1 Adaptive Integrated Water Resources Management (Compulsory for EWM students)

Prof Tally Palmer (Institute for Water Research)

Integrated Water Resource Management (IWRM) is the internationally accepted best practice for water resource management. However it has largely failed in South Africa since it was first embedded in law and policy after 1994. It is most specifically the practice of integration that is so difficult. Water resource management is still persistently undertaken in silos. As a result, the core goals for IWRM in South Africa, of equity, sustainability and efficient use, have frequently not been met. However, since the 1990's, a literature emerged, that indicated practical integration, and progress towards the core goals could be achieved using a set of "new" concepts. This course invites students to engage with the practice of new concepts that could result in effective IWRM – a practice suggested as Adaptive IWRM". The course exposes students to the literature that underpins the integrative thinking of the last two decades: critical general complexity, transdisciplinarity, complex social-ecological systems (CSES), systems thinking, adaptive systems, strategic adaptive management, resilience, social learning, expansive

learning, and political ecology. They are presented in the form of unfolding case studies, and through a variety of activities.

Outcomes

At the end of this module students are expected to:

- Appreciate catchments as complex social-ecological systems
- Understand the transdisciplinary approach to water resources management
- Understand Water Governance and various institutions involved in South Africa
- Appreciate the role of learning in the practice of A-IWRM
- Demonstrate participatory water governance using case studies

Assessment

Literature based Introduction to project: 20%

Group work and oral feedback in discussions: 20%

Class Test: 20%

3 hours examination in November: 40%

5.2 Environmental Water Quality (EWM students only)

Dr. Paul Mensah, Dr Neil Griffin (Institute for Water Research)

It requires a multi-disciplinary approach to manage environmental water quality since the pollution of aquatic ecosystems results from complex interactions of chemical substances in the environment. Thus, to ensure the sustainable use and protection of freshwater resources in South Africa, the environmental water quality (EWQ) concept, which involves the combined use of water physicochemistry, biomonitoring and ecotoxicology to assess the health and manage, is employed as a tool. This course focuses on how to use the three pillars of EWQ and their integrations for holistic assessment and management of water quality for decision-making. There is emphasis on working with and manipulating water quality data, conducting laboratory experiments and their practical applications.

Outcomes

At the end of this course, you will be able to:

- Understand and evaluate how pollution affect aquatic ecosystem health and the implications thereof;
- Demonstrate an understanding of the complexity of water quality managing and the three pillars of EWQ
- Appreciate, critique and apply the various EWQ tools (physico-chemistry, biomonitoring and ecotoxicology) for managing water quality.
- Integrate complex EWQ information for water resource management

Assessment

Written assignment: 20%

Seminar: 20%

Ecotoxicology practical: 10%

3 hours examination in November: 50%

5.3 Freshwater Ecology (EWM students only)

Dr Nelson Odume (Institute for Water Research)

Global freshwater resources are declining in terms of quality and quantity. This module focuses on the management of freshwater ecosystem health by paying detail attention to methods and approaches as well as the connection between ecosystem structure, function and services. The module also focuses on policy and regulatory dimensions of freshwater ecosystem management and sustainability.

Outcomes

At the end of this module students are expected to:

- Gain critical insights to the structure, function and processes of freshwater ecosystems
- Demonstrate an understanding of and apply important ecological tools and approaches for managing aquatic ecosystem health in South Africa
- Demonstrate an understanding of the policy and regulatory dimensions of freshwater ecosystem protection
- Analyse and interpret complex ecological data in the context of freshwater ecosystem management

Assessment

Course work: 50%

Examination: 50%

5.4 Hydrology (EWM students only)

Dr Jane Tanner, Dr Sukhmani Mantel (Institute for Water Research)

The course will include both surface and groundwater, addressing predominantly water quantity but also dealing with water quality. Students will learn to understand human influences on the hydrological system, and apply tools, such as modelling, for the proper integration of hydrological knowledge and analysis in water resources planning and management. You will gain an awareness of the importance of hydrology to society, and learn about relationships between hydrology and other disciplines such as ecology and climatology. It is preferable to have completed the GIS honours course as hydrological applications within GIS will be covered.

Outcomes

Students will:

- Gain knowledge of the literature and contemporary research questions in hydrology
- Use information and communication technology within a hydrological context.
- Master the major hydrological methodologies and applications with regard to water quantity, including techniques for data collection, processing and analysis, and the application of catchment hydrological modelling and aquifer modelling techniques.
- Evaluate and analyse hydrological systems and processes at a wide range of scales in both space and time for the purpose of water resources assessment.

Assessment

Coursework (Course assignments, seminar, essay and practical):80%

2 hours examination: 20%

7 Outlines of course hosted by the Geography Department

6.1 Research Philosophy and Methodology (Compulsory for Geography students)

Prof. Fred Ellery (Geography Department)

The purpose of the Research Philosophy and Methodology course is to develop your understanding of the discipline's philosophies and methodologies so that you can undertake a research project in accordance with accepted disciplinary norms. There are 13 class activities spread over four weeks followed by one week of research proposal writing. Activities include:

1. Review past projects: their scope, problem statements, length, references, conclusions.
2. Examine the Knowledge Vee and Concept Mapping.
3. Develop the research question.
4. Conduct and write a draft literature review.
5. Explain knowledge and value claims.
6. Examine worldviews, philosophy and epistemology.
7. Consider the shifting paradigms of the geographical discipline.
8. Consider how methodology is related to philosophy and ontology?
9. Develop a research design, including methods to generate and analyse information.
10. Consider case studies and the study area
11. Construct a methodology matrix
12. Write a research proposal.

Many of the activities require preparation and handing-in material online using RUconnected.

Outcomes

Explain that research can be positioned according to different paradigms which have changed as the discipline has evolved.

Demonstrate that you can interpret your own, and other people's work, by making appropriate knowledge and value claims.

Demonstrate an ability to design a methodology and/or methodologies through which information can be collected accurately and consistently.

Make an appropriate selection from a range of techniques through which information can be analysed and transformed.

Explain relationships between ideology, epistemology, ontology and methodology of selected research work.

Produce a written research proposal which contains consistent and appropriate concepts, theories and methods and which is presented in a scientifically acceptable form..

Assessment

Draft Literature Review: 10%

Methodology matrix: 10%

Research Proposal: 40%

Proposal presentation: 10%

Examination: 30%

6.2 Extended GIS

Ms. Gillian McGregor (Geography Department)

The aim of this GIS course is to develop skills learnt in the GOG302 course and to extend students' knowledge and skills in carrying out analysis using GIS methods. Students are encouraged to develop a critical appreciation of all aspects of GIS including its impact on society and trends and issues in spatial technologies. The emphasis is on working with secondary data sets for South Africa using typical GIS analysis methods to solve problems. There is a practical exercise in planning and carrying out a group project with field and desk-top work, to develop GIS project skills. A field trip to Cape Town to visit the National Geo-spatial Information Directorate and other organisations that use GIS in South Africa promotes insight into the potential use of GIS for planning and management in this country.

Outcomes

1. By the end of the course students should be able to demonstrate a critical approach to GIS; knowledge of GIS theory; the ability to solve practical problems and 'trouble-shoot' based on practical and theoretical knowledge.
2. Students should be able to Identify and interpret spatial relationships and patterns; source spatial data and create spatial data using a selection of data capture methods; apply a selection of appropriate data manipulation and spatial analysis techniques; implement a GIS project from start to finish.

Assessment

Coursework (80%): Four portfolios consisting of a range of class tasks and written assignments (40

marks); GIS project conducted under exam conditions (20 marks); group project (10 marks); conference and/or field trip assignment (10 marks).

Examination (20%): 2 hour paper in June.

6.3 Climate Change, Extreme Events and Disasters

Dr Des Pyle (Research Associate, based at Kingswood College, Grahamstown)

This module involves a study of the causes and consequences of climate change, with particular emphasis on a global increase in extreme weather events and disasters. The IPCC (Intergovernmental Panel on Climate Change) warns in its latest report that dry regions of the world will receive less rainfall and wet areas will see heavier deluges as the whole globe suffers the consequences of rising greenhouse gas emissions. As such, the causes and consequences of climate change will be investigated in depth, together with an overview of numerical climate modelling and future climate scenarios. The course will focus on the increasing incidence of hydro-meteorological hazards and disasters and how this is linked to climate change. An evaluation of strategies to mitigate hydro-meteorological hazards will provide a more applied aspect to the course. The course will include a field trip, probably to the forecast office, South African Weather Service, Port Elizabeth.

Outcomes

Students will be able to:

1. Differentiate between climate change and climate variability/climate cycles.
2. Understand the causes of anthropogenic climate change.
3. Evaluate the evidence and consequences of climate change
4. Understand the concept of numerical modelling and predictions for future climates.
5. Critically analyse the links between climate change and extreme/severe weather events.
6. Understand the causes and consequences of hydro-meteorological hazards and disasters (in particular floods, sea-level rise, drought/desertification, severe storms, wildfires and informal settlement fires).
7. Evaluate strategies for mitigating, preventing and coping with hydro-meteorological hazards and disasters.

Assessment

Coursework (80%): weekly assignments/essays, 1 formal oral presentation, a portfolio, seminar/tutorial participation

Examination (20%): 2 hour paper in November.

Key Readings

Houghton, J., 2004: *Global Warming: The Complete Briefing, 3rd Edition*, Cambridge University Press, Cambridge.

Intergovernmental Panel on Climate Change: Climate Change 2013: the Physical Science Basis, 2013: [online], available: <http://www.ipcc.ch/report/ar5/wg1/#.Um-x2ezorrc> [29/10/2013]

Nott, J., 2006: *Extreme Events: A Physical Reconstruction and Risk Assessment*, Cambridge University Press, Cambridge.

6.4 The Origin and Dynamics of Wetlands in Southern Africa

Prof. Fred Ellery (Geography Department)

Hydrology is viewed as the primary driver of wetland structure and function. However, with an average altitude of approximately 1 000 m, Southern Africa is situated at an unusually high altitude for a subcontinent that has not undergone mountain building for several hundreds of millions of years. Given this, erosion is the dominant geomorphic process at a subcontinental scale. Given that wetlands occur in geomorphological settings that are non-erosional as they are typically characterised by valley-fill sedimentary sequences, it is intriguing that the region contains many wetlands in diverse geomorphic settings. Participants will consider the landscape settings in which wetlands occur and will develop and appreciation of key knowledge gaps in the field. The course will end up discussing a novel conceptual model of wetland structure and function in southern Africa and consider its applicability globally. A field trip will form an integral component of the course.

Outcomes

The outcomes of the course require that students demonstrate competence as follows:

1. Identify processes contributing to wetland origin in the region by analysis of wetland structure.
2. Explain and justify landscape level processes contributing to wetland form and dynamics.
3. Explain and justify anticipated future trajectories of change in wetland structure.
4. Interpret the relevance of this understanding for wetland management.
5. Consider the potential impacts of a changing environment on the landscape.

Assessment

Coursework (50%): weekly assignments/essays, 1 formal oral presentation per participant and a field notebook demonstrating knowledge gained through field trip participation

Examination (50%): 3 hour paper in November.

6.5 Earth Observation in a Changing World

Prof. Ian Meiklejohn (Geography Department)

The module is practical and case study driven to investigate how we can use Remote Sensing to analyse landscapes at a variety of spatial and temporal scales. Undergraduate studies will be extended to examine new technologies and data sets. In addition, we will use investigate past environments and to predict the future consequences of environmental change. After an introductory week covering global change theory, we will begin with weekly case studies. Each study will involve a theoretical component, the identification of appropriate data, the manipulation of data and the production of an output. The outputs will be varied and can be

one or more of the following: posters, PowerPoint presentations, brochures, academic reports, multimedia clips, and essays. The topics are wide ranging and can be tailored to meet the interests of course participants.

Outcomes

The outcomes of the course are that students will be able to:

1. Differentiate between environmental change and climate change.
2. Understand the causes and consequences of environmental change and climate change.
3. Utilise Earth Observation technologies to identify and interpret change.
4. Interpret field evidence for environmental change.
5. Interpret landscapes and their evolution.
6. Consider the potential impacts of a changing environment on the landscape.

Assessment

Exam: 25%; Classwork: 75%; comprising 4 Studies (15% each x 4); Global Change Assignment: 15%.

A field trip linked to one of the case studies will take place.

6.6 Political Ecology

Prof. Thembela Kepe, Ms Sine Memela (Geography Department)

This course explores how politics, the economy, history and culture shape, and are shaped by interactions of people with the physical environment. Analysis moves beyond the roles of government and interest groups in shaping environmental policies, to expanding our understanding of 'politics' in: (i) environmental discourses and knowledge; (ii) economic systems; (iii) regimes of natural resource ownership and use; and (iv) everyday struggles within and between communities and interest groups as they shape human-nature relationships. As Michael Watts once wrote: Political ecology is "an approach to, but far from a coherent theory of, the complex metabolism between nature and society. Among other things, understanding of power relations in these relationships is important to the political ecology approach.

This is a reading-intensive course. The contact sessions take the form of a class discussion based on the prescribed readings covering a particular theme in each of the five weeks of the course. These themes include:

- Usefulness and critiques of political ecology as an analytic lens in geography
- Revisiting population and scarcity (why are Malthusian ideas still influencing environmental policy today?)
- The production of nature thesis
- Biodiversity, conservation and power
- Political ecology of land rights

Outcomes

By the end of the course students should be able to:

- Appreciate the possibilities and challenges of using political ecology for understanding people-environment relationships,
- Appreciate social constructedness of nature,
- Strengthen their analytical and communication skills by using political ecology to critically evaluate relevant case studies as part of written assignments

Assessment

- Class participation: think pieces; class presentations; leading discussion: (20%)
- Field-based research project (part of an overnight fieldtrip): (40%)
- 24-hour take-home exam: (40%)

6.7 Small Town Geographies in South Africa

Ms. Philippa Irvine (Geography Department)

The course will explore the geographies of small towns in South Africa covering their varying characteristics, the issues they face and their development experiences and potentials. The course deals with broad issues related to post-productivism, which include the impacts of tourism, second homes and LED (Local Economic Development) initiatives. **Field trip:** 2 to 3 day visit to a local small town for data collection.

Assessment

Daily and weekly tasks, one long essay (50%); 3 hour exam (50%)

Core text

Donaldson, R. & Marais, L. (eds). 2012. *Small Town Geographies in Africa: Experiences from South Africa and Elsewhere*. New York: Nova Science Publishers.

6.8 GIS: Internship

Mr. Ben Cobbing (Research Associate, CSS), Ms Gillian McGregor (Geography Department)

The module takes the form of an internship at a GIS practice. The aim of the module is to integrate, “theory, practical and reality,” through working in a real GIS environment, with the intention of developing a graduate who is more useful in the GIS market. The course content will be determined by available opportunities in the GIS practice. There are limited places available and students would be expected to have successfully completed one of the other Honours GIS courses. Time allocation will be equivalent to an Honours course. Students will be able to negotiate dates and times, but they will be expected to treat the course as a regular job and they will need to make themselves available for blocks of time of 2 to 3 weeks, during which they must be available to be away on field work.

Assessment

Weekly assignments presented as an examinable portfolio: 100%

8 Research Projects

The Research Project constitutes a full model of the EWM Honours course and students are expected undertake their research and submit a complete report (a mini-dissertation) at the end of the academic year. Final submission for this year has been scheduled for the week of 15-19 October 2018. Below are some proposed topics to be supervised by the lecturers of the different EWM modules. Students may select a topic and discussed it with the respective potential supervisors to give them more details.

Proposed topic for A-IWRM research projects

- Exploring the functionality of the Makana Water Forum (Tally Palmer)

Proposed topics for Freshwater Ecology research projects

- Assessment of impacts of sediment particles on freshwater snail and mayfly (Nelson Odume and Paul Mensah).
- Testing and further refinement of the macroinvertebrate-based sediment biomonitoring index for South Africa (Nelson Odume).

Proposed topics for EWQ research projects

- Reproductive toxicology of freshwater snails exposed to salts and/or pesticide (Paul Mensah and Khaya Mgaba)
- Impact of duckweed/water hyacinth on river ecosystems by assessment of selected physicochemical variables and macroinvertebrates/diatoms (Paul Mensah and Neil Griffin).
- Trend analysis and identification of potential causes of pH changes in South African river systems (Neil Griffin and Paul Mensah).
- Trend analysis and identification of potential causes of salinity changes in South African river systems (Neil Griffin and Paul Mensah).
- Trend analysis of sulphates and contribution of sulphate-containing aerosols in sulphate levels in South African rivers (Neil Griffin).

Proposed topics for Hydrology research projects

- Generating a system level model of Grahamstown (Sukhmani Mantel and Jane Tanner)
- Investigating evaporation from different crop types in South Africa Grahamstown (Sukhmani Mantel and Jane Tanner)
- Rainwater harvesting as an alternate water source in Grahamstown (Sukhmani Mantel and Andrew Slaughter)
- Value of Grace Level 3 product for hydrological modelling (Jane Tanner and Sukhmani Mantel)
- Analysis of use of Google Earth elevation data as a surrogate for measured hydraulic cross-sections in ecological Reserve modelling (Jane Tanner and Sukhmani Mantel)

- Improving understanding of the surface water and groundwater dynamics of the Grahamstown spring and surrounding rivers (Jane Tanner)

9 Staff of the Institute for Water Research involved in the EWM course

Name	Responsibility	Room	Email
Lecturing Staff			
Prof Tally Palmer	Director IWR, Adaptive IWRM lecturer	1.19	tally.palmer@ru.ac.za
Dr Nelson Odume	Director UCEWQ, Freshwater Ecology lecturer	1.18	n.odume@ru.ac.za
Dr Paul Mensah	Course Coordinator, EWQ lecturer	1.14	p.mensah@ru.ac.za
Dr Jane Tanner	Hydrology lecturer	1.5	j.tanner@ru.ac.za
Dr Neil Griffin	EWQ lecturer	1.17	n.griffin@ru.ac.za
Dr Sukh Mantel	Hydrology lecturer	1.16	s.mantel@ru.ac.za
Mrs Margaret Wolff	Adaptive IWRM lecturer	1.20	m.wolff@ru.ac.za
Administrative and Technical Staff			
Mrs Juanita McLean	Administrative Secretary	1.4	j.mclean@ru.ac.za
Mr David Forsyth	Principal Technical Officer	1.2	d.forsyth@ru.ac.za
Ms Khaya Mgaba	Senior Technical Officer	1.20	k.mgaba@ru.ac.za
Interns	Technical/laboratory assistance		

10 Who do I ask?

#	Question/Issue	Who
1	A question about the course content or course activities.	Ask the lecturer giving the module or the Course Coordinator.
2	Concerned about performance and want advice on how to improve	Make an appointment to see your lecturer, Course Coordinator or the Director of the IWR
3	Need to discuss an academic issue, but don't want to approach the lecturer giving the module	Make an appointment to see the Director of the IWR
4	Have a query about marks, student records, practical or tutorial group allocation	See Course Coordinator
5	Want to raise a concern about a course	See your course representative who will bring the issue to the next meeting
6	Want to apply for an extension or an Leave of Absence (LOA)	Ask for LOA form from the Administrative Secretary and/or download an extension form. Fill and submit to the AS to be passed on to the Course Coordinator who. You will normally be informed of the decision by email within a few days of submitting the application. If you are away for medical reasons, you do not need to fill in an LOA until you have returned to lectures.

		A phone call or email to the secretary to say that you will be away for some time will suffice.
7	Want access to laboratories and/or equipment	See Ms Mgaba with laboratory queries, use and bookings of laboratories, and field equipment loans. See Mr Forsyth for IT related queries.

11 Time Commitment

All courses are normally five 'contact' weeks and students are required to spend 40 hours per week engaged with each course's learning activities. You are required to spend a minimum of 10 weeks (at 40 hours per week) on your research project.

12 Timetable

Weeks			Public Holidays/Meetings	EWM Honours		Honours Deadlines
1 Jan	1 Feb					
2 Feb	3 Feb		Registration			
4 Feb	11 Feb		Orientation Week	Orientation	All	
12 Feb	16 Feb	TERM 1	Orientation Week	orientation	All	
19 Feb	23 Feb			IWR Core	TP	
26 Feb	2 Mar			IWR Core	TP	
5 Mar	9 Mar			IWR Core	TP	
12 Mar	16 Mar			IWR Core	TP	
19 Mar	23 Mar		21, Wed, Human Rights Day	IWR Core	TP	Proposal presentation (22-23)
24 Mar	8 Apr		Easter Vacation & Graduation			
9 Apr	13 Apr	TERM 2		Research		
16 Apr	20 Apr			Research		
23 Apr	27 Apr		27, Fri, Freedom Day	Research		
30 Apr	4 May		1, Tues Workers Day	Research		
7 May	11 May			Research		
14 May	18 May			EWQ	PM	
21 May	25 May			EWQ	PM	
28 May	1 Jun		Swot Week	EWQ	PM	
4 Jun	8 Jun		Exams	EWQ	PM	
11 Jun	15 Jun		Exams	EWQ	PM	
18 Jun	22 Jun		Exams			
23 Jun	15 Jul		July Vacation			
16 Jul	20 Jul	TERM 3		FWE	NO	
23 Jul	27 Jul			FWE	NO	
30 Jul	3 Aug			FWE	NO	
6 Aug	10 Aug		9, Thurs, Women's Day	FWE	NO	

13 Aug	17 Aug			FWE	NO	
20 Aug	24 Aug					Presentation (20-21)
25 Aug	2 Sep		<i>Michaelmas Vacation</i>			
3 Sep	7 Sep	TERM 4		Hydrology	JT	Draft Project (3 Sept)
10 Sep	14 Sep			Hydrology	JT	
17 Sep	21 Sep			Hydrology	JT	
24 Sep	28 Sep		<i>24, Mon, Heritage Day</i>	Hydrology	JT	
1 Oct	5 Oct					Conference
8 Oct	12 Oct			Hydrology	JT	
15 Oct	19 Oct					Final Submission
22 Oct	26 Oct		<i>Swot Week</i>			
29 Oct	4 Nov		<i>Exams</i>			
5 Nov	9 Nov		<i>Exams</i>			
12 Nov	16 Nov		<i>Exams</i>			
19 Nov	23 Nov		<i>Exams</i>			
16 Dec	2 Jan		<i>Summer Vacation</i>			

13 Plagiarism

In an academic setting whereby you write an assignment, essay, report or your research project, it is normal to draw on material written by others. However, when you do this, it is important that you acknowledge the fact that you have drawn on other people's work. There are standard procedures for doing this; for example, by citing a reference and providing details of the source in a reference list at the end of the assignment. You are expected to do this even where you do not quote directly from your source, but merely express in your own words ideas or arguments that you have taken from that source. In addition, where you quote verbatim from a published source, you must put inverted commas round the quoted material and provide a page number. The only situation in which these rules do not apply strictly is in examinations written without access to books and other reference materials (Rhodes University Geography Handbook, 2014). Failure to provide appropriate reference amounts to plagiarism. In Rhodes University, plagiarism is not condoned in any form and has a dire consequence. The university's policy on plagiarism states that "Plagiarism, in an academic, university context, may be defined as taking and using the ideas, writings, works or inventions of another, from any textual or internet-based source, as if they were one's own" (Rhodes University, 2008: 2). Students are required to familiarise themselves with this policy, which can be found at <https://www.ru.ac.za/media/rhodesuniversity/.../Plagiarism.pdf>.

Disciplinary actions are taken against students who are found to have plagiarised. Normally, a Disciplinary Committee (DC) is set up to deal with plagiarism cases. If the DC concludes that plagiarism has occurred, it makes a ruling as to what disciplinary steps are appropriate. In terms of the Senate guidelines, these steps may range from giving a warning (for first time and minor offences), to imposing a mark penalty and, in more serious cases, to withdrawing the student's DP. If the DC establishes a more serious case of plagiarism, the Institute is required to report the matter to the Senate Plagiarism

Tribunal to investigate and make recommendations with regard to disciplinary offences. The Tribunal may impose penalties such as exclusion or even expulsion from the University. The Institute is required to keep a record of all cases of plagiarism detected, including minor offences.

Students are therefore advised to submit their works (essay, report, research projects, etc.) to Turnitin Drafts using RUconnected to check for plagiarism. You are also required to complete the institutional plagiarism cover sheet (see Appendices) to indicate that you have performed a plagiarism check.

14 Duly performed (DP) requirements

Before you can write your course examinations, you must retain your DP certificate to certify that you have met the requirements of the course. A DP Certificate is not physically issued, but is awarded by default, unless the course requirements are not met. If the course requirements are not met, the Head of Institution has the prerogative to withdraw your 'Certificate'. If a DP is withdrawn, a student will be excluded from the rest of the course, which includes writing the examination. A DP is 'issued' to those students who can:

“Demonstrate that they have engaged meaningfully in ALL class activities. This means regular attendance at lectures, practicals, tutorials, field trips, tests and any other scheduled meetings; submission of all required work to a satisfactory standard; engagement with additional material, including supportive tasks set in RUconnected.”

The decision regarding your DP will be made no later than one week before the end of teaching for the relevant semester course. It may be made earlier when circumstances apply. Unless reasonable grounds can be demonstrated (normally by means of an acceptable LOA), students are expected to attend ALL scheduled activities and to hand in ALL coursework. You may lose your DP for plagiarism or a breach of the University's Disciplinary Code of Conduct.

15 Referencing

When writing an essay, a report or any other written document, it is necessary to acknowledge correctly all sources of information and ideas. We do this for three reasons:

1. To acknowledge the author of the material
2. To provide supporting evidence for our statements
3. To allow the reader to follow up points of interest.

This means that in the body of the essay or report (the text) we need to make clear links between the information and its source. The citing of the source must be integrated into the normal flow of the text and this can be accomplished in a number of ways as is illustrated in the examples given below.

At the end of the document we provide a Reference List that lists, in alphabetical order, all works that have been cited in the text, together with their full publication details: author, initials, date of publication, title of article or chapter if relevant, title of book, journal, publisher and place of publication. Examples are given below under 'Compiling a Reference List'.

There are many different referencing styles. In the IWR, students are not restricted to a particular style so far as they are consistent to the usage of whatever style they choose. Never mix styles in one piece of work.

Further information on in-text referencing and compiling a reference list can be found in the Information Literacy section of the Rhodes University website:

<http://www.ru.ac.za/static/library/infolit/comm.html>

Look for referencing guidelines under Step 5 Communication (Writing an essay/assignment).

Citing published works in written text

What is citing? Citing involves acknowledging the source of the information that one uses in their own work.

1. The citation in the text should include author(s) and, the date of publication. (E.g. Donald, 2009), except where the citation applies to the whole article, chapter or book.
2. When the source is written by two authors, refer to both (e.g. Schooney and Martell, 1979).
3. When there are three or more authors use the convention et al. (e.g. Schooney et al., 1979).
4. Do not give the authors initials in the citations, unless you are referring to one of two authors of the same surname.
5. The author may be an organisation such as the World Bank, a Government Department or a newspaper.
6. If you cannot find the author replace the name with 'Anon'.
7. If you cannot find the date, replace the date with 'n.d.', short for no date.
8. A personal communication should be entered as an author, with "pers. comm." written in italics (e.g. Bloggs, 2014, pers. comm.).
9. Do not give the title of the publication in the citation. This should be contained within the Reference List.
10. An author cited at the end of a sentence relates to that sentence only, not the whole paragraph. The full stop should follow the citation; there should be no full stop between the citation and the sentence to which it refers.
11. You must reference the sources of figures and tables. Place the reference after the figure or table caption. Here the page number of the source should appear after a colon.
 - Figure directly copied from source: Source: Schooney et al. (1999: 78).
 - Figure modified from source (if you have changed the way the information is presented): Modified from Schooney (2003: 54).
 - Figure based on source data (if you have constructed your own map/table/diagram based on secondary data): Based on data from Schooney (2001: 25).
12. Web-based references must be cited in the same way as conventionally published material, i.e. give the author and date. DO NOT include the web address in the citation.

13. Use quotation marks to denote quotations and cite the reference at the end of the quote, e.g. "Chemical weathering is an unseen enemy of buildings" (Schooney, 1994: 5). For a direct quote, the page number **MUST** be written in the text reference.
14. You may find when writing an essay that much of the material comes from one or two sources and it is tedious for both you and the reader if you constantly cite the source throughout the essay. One way round this is to make a general statement in the introduction of the essay or the first sentence of a paragraph with information sourced from one author.

E.g. Plate tectonics is now a well-established theory and many texts deal with this important topic. One such work is that by Skitter and Ponting (2002), which provides most of the background to the following discussion.

Thereafter you need only refer to Skitter and Ponting when making a specific assertion:

E.g. According to Skitter and Ponting (2000: 23-24), the Yangzte, Amazon and Ganges-Brahmaputra rivers deliver 20% of the water and dissolved matter entering the oceans.
This citation tells us that this information can be found on pages 23 and 24.

An example using the citation rules outlined above is provided below:

To help you to understand this process, citations within this paragraph relating to:

- specific assertions are underlined;
- the thesis/findings/conclusion of the entire paper/article/book are in italics;
- a direct quotation is in bold.

According to Schooney (1998), chemical weathering is the fundamental factor that accounts for 56% of the building damage in Schoonville. This claim has been disputed by others; for example Jackson (2000) points out that although chemical weathering is a factor, it is the lack of application of rigorous building codes that is at the root of the problem. This claim was subsequently tested by Mdaweni and Jackson (2001), who compared damage to buildings of the same vintage, but built by different contractors in Schoonville. They found that buildings constructed by one contractor showed a much higher incidence of damage compared to those built by other contractors, regardless of the size and location of the building in the town (Mdaweni and Jackson, 2001). They concluded that "building practice and proper adherence to building codes are fundamental factors influencing weathering damage to buildings" (Mdaweni and Jackson, 2001: 45). A study by Booysen et al. (2002) in the neighbouring town of Skalkberg, which involved the same contractors, yielded similar results.

Compiling a reference list

What is a Reference List? A Reference List is a list of all the sources of information that are cited within the text of one's work. It gives the necessary detail and information about the source to support its claims and to enable one to access the source if necessary.

Different disciplines follow different styles of referencing. For Geography assignments (an essay, report or other written document) you should follow a modified Harvard referencing style that is used in the South African Geographical Journal. The system we use is explained in detail below.

Further information on citing systems can be found on Rhodes University's Library website:

<http://ru.za.libguides.com/Citing>

Rules for compiling a reference list

1. A reference list is not a bibliography and must only contain material cited in the text.
2. Complete information should be provided for every reference.
3. Organise the references alphabetically (according to the first author's surname) without numbering.
4. The initials of authors/editors must appear behind the surname(s). When the author is unknown use the convention 'Anon'.
5. If there are references to different texts by the same author in the same year label them (a) and (b) in the reference list as done in citations. E.g. Skinner (2000a) and Skinner (2000b)
6. For multiple references by the same author list them by date (i.e. in chronological order).
7. Where an author has published different articles with different co-authors, list the reference alphabetically by the surname of the first author.
8. Do not use 'et al.' in the reference list. List all authors' names fully.
9. Punctuate all references exactly as shown in the examples.
10. Leave a blank line between references.

Referencing style for conventional published sources

Researchers publish the results of their work in a variety of forms - reports, books, periodicals and journals and on the World Wide Web. The way in which the source is cited in the reference list depends on the form of publication as indicated below. The references in the reference list should have a "hanging indent".

i. Article in a Journal

- Do not abbreviate titles of journals
- The only words capitalised in the titles of journal articles are proper nouns.
- Italicise the name of the journal, not the title of the article.

Author(s), Year. Title of Article. Title of Journal, Volume (no.): page numbers. Able, B. 1943. The roaring coastal winds. *South African Panorama*, 24(7):2-6.

Francis, L. 1977. Patterns of pollen distribution in the Cape. *South African Geographical Journal*, 23:11-19.

ii. Two Articles Published in One Year by the Same Author

Distinguish publications by adding 'a', 'b' etc. to the year (e.g. 1993a, 1993b). Deane, R. 1993a. Wind patterns and energy. *Science*, 123:34-49.

Deane, R. 1993b. Assessment of wind power potential. *Journal of Applied Climatology*, 23:1654-1659.

iii. Reference to a Complete Book

Author/Editor(s). Year. Title (edition). City of publication: Publisher.

King, L.C., Deane, R. & Barnes, J. 1963. *South African Scenery* (3e). Edinburgh: Oliver and Boyd.

iv. Reference to an Edited Book Containing Chapters by Different Authors

Editor(s). (ed./eds). Year. Title. City of Publication: Publishers.

Barnes, J., Smith, M.L.B. & Frames, R. (eds). 1953. Readings on Energy Potential in the Far East. London: Hutchinson.

v. Reference to a Chapter in an Edited Book

- Italicise the name of the book, not the title of the chapter.

Author(s) of chapter/article. Year. Chapter no. and title of chapter/article. In Editor(s). (ed./eds). Title of book. City of publication: Publishers. Page numbers.

Kirby, M.J. 1976. The problem of wind power. In Jones, A.B. (ed.), *Estimating Techniques for Climatologists*. Oxford: Oxford University Press. p. 123-129.

vi. Reference to a Thesis or Dissertation

Author. Year. Title. City of publication: Name of organisation. (type of source) [format of source other than print].

Hunter, I.J. 1994. The Weather of the Agulhas Bank. Durban: University of Natal (MSc thesis) [pdf].

vii. Reference to a Government Publication

Government. Govt. department. Year. Title. City of publication: Publishers. Republic of South Africa. Department of Water Affairs. 1976. Annual Report of the Department of Water Affairs. Pretoria: Government Printer.

viii. Reference to an Unpublished Report

Author(s). Year. Title. Unpublished report for organisation. City: Organisation/Department.

Bogus, I.M. 2000. The Role of Rivers in the Landscape. Unpublished report for the Department of Agriculture. Pretoria: Department of Agriculture.

ix. Reference to a Personal Communications

Name. Year. Authority's standing/profession and affiliation. Personal Communication. Date of communication.

Fact, M.R. 2008. Researcher, Agricultural Products Ltd. Personal Communication. 25 July.

x. Reference to an Internet Source

Author. Date (last updated). Title of page/website. [Online]. Available: Full URL/Internet address. [date of access].

Sly, I.L. 1998. Australian microbial resources. [Online]. Available:

<http://www.amrin.org/LinkClick.aspx?fileticket=CdgMgTO12AE%3d&tabid=440&language=en-US>. [09/01/2014].

xi. Journal Article Downloaded from the Internet

NB. Journal articles accessed through the internet should be referenced in the same way as journal articles from the hard copy journal, UNLESS IT IS AN ONLINE JOURNAL. You can include the DOI (Digital Object Identifier) number to inform your reader where they can access the journal article online.

Delmas, M., Cerdan, O., Cheviron, B., Mouchel, J.-M. & Eyrolle, F. 2012. Sediment export from French rivers to the sea. *Earth Surface Processes and Landforms*, 37: 754–762. doi: 10.1002/esp.3219.

xii. Online Journal

Nwankwoala, H.O. & Amede, K.O. 2012. Quality Status of Groundwater Resources in parts of Birnin-Gwari Schist Belt, North-Central Nigeria. *Research Journal of Earth and Planetary Sciences*. 2(1) 65-70. [Online]. Available:

xiii. Reference to a Map

Author(s) or Organisation/Department. Year. Title. City: Organisation/Department.
NGI, 2002. 1:50 000 Sheet 3326 Grahamstown. Mowbray: National Geo-spatial Information, Department of Rural Development and Land Reform, South Africa.

Note: To find an article using a DOI (Digital Object Identifier)

When you see a DOI reference to an article on the internet, most of the times you can just click on the DOI in order to access the article (provided you have the needed access rights to the site where the article is located). In case you see a DOI in a print document or when the on-line DOI is not clickable, and you want to access the article, please do the following:

1. Copy the DOI of the document you want to open (e.g.: doi:10.2991/jnmp.2006.13.4.1).
2. Go to: <http://dx.doi.org/> Enter the entire DOI in the text box provided, and then click Go.
3. The document that matches the DOI citation will display in your browser window

Example of a correctly-compiled reference list Reference List

Able, B. 1943. The roaring coastal winds. *South African Panorama*, 24(7):2-6.

Delmas, M., Cerdan, O., Cheviron, B., Mouchel, J.-M. & Eyrolle, F. 2012. Sediment export from French rivers to the sea. *Earth Surface Processes and Landforms*, 37:754–762. doi: 10.1002/esp.3219

Deane, R. 1993a. Wind patterns and energy. *Science*, 123:34-49.

Deane, R. 1993b. Assessment of wind power potential. *Journal of Applied Climatology*, 23:1654-1659.

Francis, L. 1977. Patterns of pollen distribution in the Cape. *South African Geographical Journal*, 23:11-19.

Hunter, I.J. 1994. The Weather of the Agulhas Bank. Durban: University of Natal (MSc Dissertation) [pdf].

NGI, 2002. 1:50 000 Sheet 3326BC Grahamstown. Mowbray: National Geo-spatial Information, Department of Rural Development and Land Reform, South Africa.

Sly, I.L. 1998. Australian microbial resources. [Online]. Available: <http://www.amrin.org/LinkClick.aspx?fileticket=CdgMgTO12AE%3d&tabid=440&language=en-US>.

[09/01/2014].

APPENDICES

RHODES UNIVERSITY – INSTITUTE FOR WATER RESEARCH ASSIGNMENT COVER SHEET

Name :

Student Number :

Module :

Lecturer :

Assignment title :

Due date :

PLAGIARISM DECLARATION

- I know that plagiarism means taking and using the ideas, writings, works or inventions of another as if they were one's own. I know that plagiarism not only includes verbatim copying, but also the extensive use of another person's ideas without proper acknowledgement (which includes the proper use of quotation marks). I know that plagiarism covers this sort of use of material found in textual sources and from the Internet.
- I acknowledge and understand that plagiarism is wrong.
- I understand that my research must be accurately referenced. I have followed the rules and conventions concerning referencing, citation and the use of quotations as set out in the Departmental Guide.
- This assignment is my own work, or my group's own unique group assignment. I acknowledge that copying someone else's assignment, or part of it, is wrong, and that submitting identical work to others constitutes a form of plagiarism.
- I have not allowed, nor will I in the future allow, anyone to copy my work with the intention of passing it off as their own work.

Signed

Date

RHODES UNIVERSITY – INSTITUTE FOR WATER RESEARCH
REQUEST FOR AN EXTENSION ON DUE DATE TO HAND IN AN ASSIGNMENT

Student Name		
Student Number		
Mobile Number		
Module		
Assignment		
Lecturer In Charge		
Due Date		
Reason For Requesting Extension (Attach Relevant Documentation)		
Comment By Lecturer In Charge		
Comment By Course Coordinator/Director		
Extension Not Approved/ Extension Approved (Delete As Appropriate)		
New Due Date		Time:
Signed: Student		Date:
Signed: Lecturer In Charge		Date:
Signed: Course Coordinator		Date:



RHODES UNIVERSITY

LEAVE OF ABSENCE APPLICATION FORM

I hereby offer reason(s) for not fulfilling course requirements i.e. lectures, practicals, tutorials, essays and assignments etc., and make application for a 'Leave of Absence'

Name: _____ Student Number: _____

Date absent from: _____ AM PM To: _____ AM PM

Type of LOA Requested:

Medical ☐	Extended Medical ☐	Compassionate ☐
Psychological ☐	Extended Psychological ☐	Sport ☐
Traditional or Religious ☐	Extended Traditional or Religious ☐	Cultural ☐
Health or Cultural Ceremony ☐	Extended Health or Cultural Ceremony ☐	Leadership ☐

Reason for Absence: *Attach relevant supporting documentation to the LOA form* _____

Details of course work missed: Subject: _____

Lecture ☐ Tutorial ☐ Practical ☐ Field Trip ☐ Essay/assignment ☐ Test ☐ Other (give details below) ☐

Other details: _____

Address at Rhodes: _____

Signature of student: _____

Application SUPPORTED by:

Name: _____ Phone number: _____

Designation: _____

Email: _____ Signature: _____

For Head of Department

Leave of absence is hereby GRANTED ☐ NOT GRANTED ☐

Signature: _____ Date: _____

To be retained by student

Notes

1. A separate application should be submitted by the student **directly** to **each** department.
2. This form, duly completed, and SUPPORTED by the signature of the relevant authority as indicated in the Policy for Leave of Absence (LOA) Applications by Students (**see back of form for details**), should be presented to the Head of Department (HoD) whenever prescribed course requirements have been or are going to be missed.
3. If the HoD is satisfied with the explanation given, they will countersign that the LOA has been granted. The tear-off slip **must** be retained by the student while the form will be retained in the department (whether the LOA is granted or not).
Without a counter-signature from the HoD the form does **NOT** grant a LOA. The granting of a LOA remains the prerogative of the HoD, and students are advised to familiarise themselves with Departmental regulations, specifically regarding penalties for not handing in assignments on the due date, not earning marks towards a class record, not writing tests or the June examinations, and not attending the required minimum number of tutorials, lectures or practicals.
4. Work missed through absence at any time, for any reason, is the responsibility of the individual student. Formal LOA does not remove this responsibility.
5. Supporting documentation e.g. medical certificate should be attached if applicable.

Student name: _____	
Leave of absence is hereby _____	GRANTED ☐ NOT GRANTED ☐
Dates: From _____ to _____	
Conditions (if any) are stated on the reverse side of this advice.	
Signature of HoD: _____	Date: _____

It is the responsibility of the student to retain this advice as PROOF of LOA being granted.

SUPPORTING DOCUMENTATION

Please note that documents submitted are tested for authenticity and where fraud is suspected, they are referred to the University Prosecutor for further action

Type of LOA Requested:	Relevant Supporting Authority
Medical	- Any qualified health care practitioner, including Health Care Centre staff
Extended Medical	Medical Doctor or Specialist only. <i>Must be confirmed by the relevant academic Dean</i>
Psychological	- Qualified psychologist or psychiatrist
Extended Psychological	- Qualified psychologist or psychiatrist. <i>Must be confirmed by the Dean of Students</i>
Traditional or Religious	- Recognised religious leader (minister, priest, imam, rabbi etc.) or House Warden.
Extended Traditional or Religious	- <i>Must be confirmed by the relevant academic Dean</i>
Health or Cultural Ceremony	- Recognised religious leader (minister, priest, imam, sangoma, rabbi etc.) health care practitioner, ward or local government councillor or justice of the peace or House Warden.
Extended Health or Cultural Ceremony	- <i>Must be confirmed by the relevant academic Dean</i>
Compassionate	- Death certificate of deceased relative or letter from treating physician
Sport	- Team captain or coach AND relevant sports officer
Cultural	- Society Chairperson AND Dean of Students
Student Leadership	- Chair of relevant University Committee AND Dean of Students