

# Tertiary hydrology papers

This is a list of the individual hydrology papers (not courses) available at New Zealand universities and polytechnics. There are no undergraduate or first degree courses majoring in hydrology itself. However, undergraduate (UG) and postgraduate (PG) hydrology courses are available as part of programmes in earth sciences, environmental science, civil and environmental engineering, physical geography and geology. Generally paper codes starting with 2 and 3 are undergraduate second and third year papers, respectively. These papers can be placed within many different course structures, and university calendars and departmental handbooks should be consulted for comprehensive and up to date information on courses and their timing.

## University hydrology papers

University	Department	Level	Paper title	Paper code	website	
Lincoln University	Environmental Studies	UG	Monitoring and Management of River Systems	ERST311	<a href="http://www.lincoln.ac.nz">www.lincoln.ac.nz</a>	
		UG	Environmental Monitoring and Resource Assessment	ERST203		
		UG	Advanced Environmental Monitoring	ERST611		
	Engineering	UG	Water Science and Technology I	ENGN223		
		UG	Water Science and Technology II	ENGN333		
		UG	Water Resources and Hazards	ENGN366		
Massey University	Soil Science	UG	Land, Soil and Water	189.252	<a href="http://www.massey.ac.nz">www.massey.ac.nz</a>	
		PG	Soil and Water Pollution	189.755		
		PG	Advanced Soil Water Management	189.758		
	Geography	UG	Rivers and Slopes	145.222		<a href="http://geography.massey.ac.nz">geography.massey.ac.nz</a>
		UG	River Dynamics	145.327		
		UG	Fluvial Geomorphology: Dynamics and Management	145.705		
University of Auckland	Environmental Science	UG	Modelling Environmental Systems	ENVSCI310	<a href="http://www.sges.auckland.ac.nz">www.sges.auckland.ac.nz</a>	
		PG	Water Quality Science	ENVSCI714M		
	Geography	UG	Hydrology and Fluvial Geomorphology	GEOG331		
		PG	Hydrology	GEOG744		
		PG	Fluvial Geomorphology	GEOG745		
		PG	Modelling Environmental Systems	GEOG774/ENVSCI704		
	Geology	UG	Introduction to Geochemistry and Hydrogeology	GEOL302		
		PG	Environmental Geochemistry	GEOL731		
		PG	Hydrogeology and Groundwater Resources	GEOL772		
	Environmental Engineering	UG	Environmental Engineering 1	ENVENG244		<a href="http://www.cee.auckland.ac.nz">www.cee.auckland.ac.nz</a>
UG		Engineering Hydrology	ENVENG333			
UG		Water and Wastewater	ENVENG441			
PG		Studies in Environmental Engineering 1: Stormwater Management	ENVENG701			
PG		Modelling of Groundwater Flow and Pollutant Transport	ENVENG745			
PG		Surface Water Quality Modelling	ENVENG746			
Civil Engineering		UG	Hydraulic Engineering	CIVIL331		
	UG	Fluid Mechanics 1	CIVIL230			
	UG	Fluid Mechanics 2	CIVIL332			
	UG	Water Resources Engineering	CIVIL482			

University	Department	Level	Paper title	Paper code	website
University of Canterbury	Geography	UG	Environmental Hazards and Management	GEOG305	
		UG	Field Based Geomorphic Applications	GEOG340	<a href="http://www.geog.canterbury.ac.nz">www.geog.canterbury.ac.nz</a>
		PG	Coastal and Fluvial Earth Systems	GEOG409	
	Natural Resources Engineering	UG	Hydrology and Hydraulic Engineering	ENNR345	
		UG	Hydraulic and Hydrologic Engineering	ENNR404	
		UG	Water Resources Engineering	ENNR422	
	Environmental Engineering	UG	Fluid Mechanics 1	ENCI241	
		UG	Engineering Geology and Hydrology	ENCI271	
		UG	Fluid Mechanics 2	ENCI341	
		UG	Environmental Engineering 2	ENCI383	
		UG	Hydrology	ENCI443	<a href="http://www.engf.canterbury.ac.nz">www.engf.canterbury.ac.nz</a>
		PG	Ground Water Flow	ENCI632	
		PG	Water Chemistry	ENCI634	
		PG	Chemical Hydrogeology	ENCI650	
		PG	Environmental Fluid Dynamics	ENCI638	
UG		Applied Hydrogeology	ENGE478		
UG		Surface Hydrology	ENGE479		
University of Waikato		Earth Sciences	UG	Introduction to Hydrology	ERTH246
	UG		Catchment Hydrology	ERTH345	
	UG		Groundwater Hydrological Analysis	ERTH346	<a href="http://earth.waikato.ac.nz">earth.waikato.ac.nz</a>
	UG		Environmental Monitoring	ERTH384	
	UG		Hydrology and Water Resources	ERTH541	
University of Otago	Geography	UG	Soil and Groundwater	GEOG285/391	
		UG	Rivers and Runoff	GEOG288/394	
		UG	Geomorphology	GEOG289/395	<a href="http://www.geography.otago.ac.nz">www.geography.otago.ac.nz</a>
		PG	Geohydrology	GEOG461	
	Geology	UG	Hydrogeology and Environmental Chemistry	GEOL262/362	
		PG	Environmental Mineralogy and Geochemistry	GEOL433	<a href="http://www.otago.ac.nz/geology/">www.otago.ac.nz/geology/</a>
Victoria University of Wellington	Geography	PG	Isotope Geochemistry	GEOL429	
		UG	Climatic and Hydrological Processes	GEOG219	
		UG	Advanced Physical Environmental Processes	GEOG323	
		UG	Geomorphic Systems	GEOG318	<a href="http://www.geo.vuw.ac.nz">www.geo.vuw.ac.nz</a>
		PG	Hydrology and Water Resources	PHYG404	

## Polytechnic hydrology papers

Polytechnic	Department	Level	Paper title	Paper code	website
Christchurch Polytechnic	Engineering	UG	Hydraulics and Hydrology	DCHH140	<a href="http://www.cpit.ac.nz">www.cpit.ac.nz</a>
Open Polytechnic	Engineering	UG	Applied Hydrology	ENV2102	<a href="http://www.openpolytechnic.ac.nz">www.openpolytechnic.ac.nz</a>
		UG	Water and Soil Conservation	ENGG6007	
Unitec	Environmental Engineering	UG	Hydraulics/Hydrology	ENGG4054	<a href="http://www.unitec.ac.nz">www.unitec.ac.nz</a>
		UG	Fluid Mechanics	ENGG5007	
		UG	River Hydraulics	ENGG7052	
Wintec	Engineering	UG	Material and Hydrology	MCTC403	<a href="http://www.wintec.ac.nz">www.wintec.ac.nz</a>
Western Institute of Technology	Engineering	UG	Hydraulics and Hydrology		<a href="http://www.witt.ac.nz">www.witt.ac.nz</a>

## What is earth science?

Earth Sciences are the all-embracing scientific studies of our unique and dynamic planet: its materials and structure, its origin and evolution, and its on-going physical, biological and chemical processes. Earth Scientists, typically in interdisciplinary teams, investigate the natural phenomena and processes of all of Earth's interacting systems in an effort to understand how the planet as a whole functions.

General course structure: 3 yr Undergraduate – BSc PhD (full time research) Postgraduate – 1 year PG Diploma, 2 year MSc (1 year papers, 1 year thesis), 3 year

## What is engineering?

Engineering is the art of applying scientific and mathematical principles, experience, judgment, and common sense to make things that benefit people.

- ◆ Environmental engineers assist with the development of water distribution systems, recycling methods, sewage treatment plants, and other pollution prevention and control systems in the water, air, and land.
- ◆ Natural Resources engineering facilitates the wise and sustainable use of natural resources by fostering the development and promotion of appropriate technologies for conservation, utilisation and management of these resources. These natural resources include land, soil, water, air, sun, plants, animals and people.
- ◆ Civil Engineering graduates provide the infrastructure of modern life. They plan, design and construct the needs of society including highways, railways, harbours, water resource use, construction in steel, concrete and timber.

General course structure: Undergraduate - 2 yr Diploma (Polytechnic), 4 yr – BE (Polytechnic or University) Postgraduate - 2 year ME (1 year papers, 1 year thesis), 3 year PhD (full time research)

## What is environmental science?

Environmental Science aims to understand the physical, biological and chemical environment using input from a wide variety of disciplines including biology, chemistry, geography, geology, physics and engineering as well as social sciences like economics and human geography. This understanding can be applied to the solution of environmental problems caused by human activity. Environmental science focuses on environmental impact and management. It can include protecting and restoring natural heritage, minimising human impact and restoring environmental degradation.

General course structure: 3 yr Undergraduate – BSc PhD (full time research) Postgraduate – 1 year PG Diploma, 2 year MSc (1 year papers, 1 year thesis), 3 year

## What is geography?

Geography is the study of the earth's landscapes, peoples, places and environments. Physical geography is the study of the earth's surface features and processes. It aims to explain the geographic pattern of landforms, soils, vegetation, hydrology, coasts, and

climate by understanding the processes operating at the surface of the earth. Whereas the physical processes involved link the discipline closely to other earth sciences, the dependence of human activity on physical resources and human impact on the environment also link the subject to geography.

General course structure: 3 yr Undergraduate – BSc  
PhD (full time research)

Postgraduate – 1 year PG Diploma, 2 year MSc (1 year papers, 1 year thesis), 3 year

## What is geology?

Geology is the study of planet Earth. It is a very diverse science and includes the study of the history of the planet and its life forms since its origin, the materials that the Earth is made of, the processes that act on these materials, and the products formed through these processes. Geology considers the physical forces that act on the Earth, the chemistry of its constituent materials, and the biology of its past inhabitants as revealed by fossils. Geological investigations span a broad spectrum, from the microscopic to those of planetary dimensions.

General course structure: 3 yr Undergraduate – BSc  
PhD (full time research)

Postgraduate – 1 year PG Diploma, 2 year MSc (1 year papers, 1 year thesis), 3 year

This document was produced by Lucy McKergow with funding from

