

PG Diploma and Masters Water Resource Management (WRM)

Course Selection for Part 1 (first year)

Both of these degrees can be taken through either Lincoln or Canterbury University, but you will choose your courses differently, depending on the university you have enrolled through. To complete the PG Diploma WRM or Masters WRM Part I programme, you will need a total of at least **120 points** (at UC you can get dispensation to graduate with 115 points if you end up slightly short, but not at LU). Normally the degrees are constructed as described below. Details of these key courses are on page 2. If you wish to do something different, you will need to seek approval from the Waterways Centre.



Lincoln University
Te Whare Wānaka o Aoraki

Compulsory core courses: WATR 601, WATR 602, WATR 603 (all 20 pts each)

Plus: At least 30 points from; WATR 605, LWST 602, MAST 603, ERST 621, ERST 630, ERST 632, ECON 606 (all 20 pts each), or you may choose to cross credit one of the following U Canterbury courses: GEOG 404 (30 pts) or ENVR 410 (15 pts). ***It is highly recommended that you take WATR 605 (20 pts) if you have not previously undertaken research and are considering doing a Masters thesis.***

Plus: Another course (if needed) from 600-level courses at Lincoln University, to form a coherent programme of water management-relevant study (see page 3 on).



Compulsory core courses: WATR 401, WATR 402, WATR 403 (all 15 pts each)

Plus: At least 30 points from WATR 405, GEOG 404 (30 pts) and ENVR 410 (15 pts). You may also choose to cross credit one of the Lincoln university courses: LWST 602, MAST 603, ERST 621, ERST 630, ERST 632, ECON 606 (all 20 pts each). ***It is highly recommended that you take WATR 405 (15 pts) if you have not previously undertaken research and are considering doing a Masters thesis.***

Plus: Other courses (if needed) from 400-level courses at University Canterbury to form a coherent programme of water management-relevant study (see page 3 on).

COMPULSORY (CORE) WATR COURSES

Course Code	Course Name	Semester	Points
WATR 401/601	Advanced Water Resources	One	15/20
WATR 402/602	Water Quality and Quantity Assessment	Two	15/20
WATR 403/603	Water Management, Policy and Planning	Two	15/20

30pts ELECTIVE COURSES LIST

LU:

Course Code	Course Name	Semester	Points
LWST 602	Advanced Resource Management and Planning Law	Two	20
MAST 603	Mana Kaitiaki (Maori Resource Management) <i>not offered in 2018</i>	Two	20
ERST 621	Principles of Environmental Impact Assessment	Two	20
ERST 630	Environmental Policy and Planning	One	20
ERST 632	Economics in Environmental Policy	One	20
ECON 606	Natural Resource and Energy Economics <i>not offered in 2018</i>	One	20
WATR 605	Research Methods and Communication	One	20

UC:

Course Code	Course Name	Semester	Points
GEOG 404	Resource & Environmental Management in New Zealand	Two	30
ENVR 410	Concepts and Principles of Environmental Science	One	15
WATR 405	Research Methods and Communication	One	15

Other Water Management-Relevant Courses at UC and LU

Current for Feb 2018

In order to make up the 120 pts for Part 1, you may choose further postgraduate courses at either the University of Canterbury, or Lincoln University. A list relevant **courses** that may be considered, grouped according to the general discipline in which a student has previously graduated (science, management/commerce or engineering) so given below. Final course selection will be contingent upon you having the required prerequisites for these courses. This list is not exhaustive; there may be new courses of relevance that we are not currently aware of ... if so, please let us know as we will update the list. Your final course selection will be approved by the Director of Waterways Centre as part of your enrolment process, but please feel free to discuss course selection with the Centre's senior tutor prior to enrolment.

NB. We try to keep this list up to date each year, but courses can be cancelled at short notice. Please check the website of the respective University to confirm a course is being offered.

SPECIAL TOPICS

The term “**Special Topic**” covers a variety of courses in which the content/course structure is not fixed from year to year, or even from student to student. There are typically three different types:

- Covers a particular subject which is not publicised and you need to see the course coordinator to find out what this is.
- A one-off topic which is offered because a visiting expert or new lecturer is available to teach in a novel and/or topic area of learning.
- An individually prescribed course of study, often resulting in a dissertation or other type of report. These e courses involve a period of self-directed, supervised research, which can be particularly beneficial for students unable to find what they need within the formal course structure. They are also popular with PG Diploma students who wish to undertake a research project, but are not intending to enrol in a Masters thesis in the near future, and with students studying remotely from outside the Canterbury region.

Enrolment in special topic courses should be discussed with the Director or Senior Tutor of the Waterways Centre in the first instance. In most cases, you will not be able to enrol in a special topic unless you have their approval to do so.

UC:

Course Code	Course Name	Semester	Points
WATR 404	Special Topic – Integrated Data to Support Water Modelling	S1	15
ENVR 480	Research Project	Whole year	30
ENCN 499	Special Topic in Engineering (Hydraulics & Quality of Groundwater)	S2	15
WATR 404	Special Topic – Research Project	S2	15

LU:

Course Code	Course Name	Semester	Points
WATR 604	Special Topic – Integrated Data to Support Water Modelling	S1	20
WATR 699	Special Topic – Research Project	S1 or S2	20

DISCIPLINE COURSES (in alphabetical order)

ENGINEERING:

UC:

Course Code	Course Name	Semester	Points
ENCI 445	Environmental Fluid Mechanics <i>not offered in 2018</i>	One	15
ENCI 475	Independent Course of Study	Flexible	15
ENCI 634	Water Chemistry	One	15
ENCI 638	Environmental Fluid Dynamics <i>not offered in 2018</i>	Two	15
ENCN 401	Engineering in Developing Communities	One	15
ENCN 444	Water Infrastructure and Design	One	15
ENCN 481	Environmental Engineering Design	Two	15
ENGE 414	Applied Hydrogeology	One	15
ENNR 405	Ecological and Bioresources Engineering	One	15
ENNR 422	Water Resource and Irrigation Engineering *	Two	15

**please talk to us first if you plan to enrol in ENNR422*

ENVIRONMENTAL MANAGEMENT, GOVERNANCE, POLICY & LAW:

UC:

Course Code	Course Name	Semester	Points
GEOG 402	Resilient Cities	One	30
GEOG 460	Bicultural Governance		30
LAWS 629	Natural Resource Law	Whole year	30+
LAWS 644	Law and the Environment	Whole year	30+
POLS 440	Principles and Practice of Policy and Governance	One	30
POLS 442	Policy and Governance in Small States of NZ and the Pacific	Two	30
POLS 443	Science, Technology and Environmental Policy	One	30

LU:

Course Code	Course Name	Semester	Points
ERST 601	Advanced Theory in Resource Studies	One	20
ERST 604	Advanced Urban, Regional and Resource Planning	One	20
ERST 620	Advanced Environmental Management Systems	One	20

ERST 622	Comparative Environmental Policy <i>not offered in 2018</i>	One/two	20
ERST 631	Environmental Sciences in Environmental Policy	One	20
ERST 633	Integrated Environmental Management <i>not offered in 2018</i>	Two	20
ERST 636	Aspects of Sustainability: An International Perspective	Two	20
ERST 671	Environmental Impact Assessment <i>not offered in 2018</i>	Two	20
ERST 672	Sustainability and Organisations <i>not offered in 2018</i>	Two	20

FORESTRY:

UC:

Course Code	Course Name	Semester	Points
FORE 444	Sustaining Biodiversity on Private Land <i>not offered in 2018</i>	Two	15
FORE 447	Environmental Forestry	Two	15
FORE 616	Restoration Ecology	One	30
FORE 633	Resource Assessment <i>not offered in 2018</i>	Two	15

LU:

Course Code	Course Name	Semester	Points
FORS 601	Biophysical relationships in Agroforestry <i>not offered in 2018</i>	TBC	20

SOCIAL SCIENCE & ECONOMICS:

UC:

Course Code	Course Name	Semester	Points
ECON 655	Environmental Economics <i>not offered in 2018</i>	Two	15
GEOG 401	Well-being, Community and Place	Two	30
MAOR 401	Te Matakahi: Indigenous Critical Theory	One	30
MAOR 422	Topics in Ethnicity, Migration and Nationalism	One	30
MAOR 431	Comparative Indigenous Models and Theories of Development	Two	30
POLS 444	International Human Rights and Development	Two	30

LU:

Course Code	Course Name	Semester	Points
LASC 615	Advanced Landscape Planning and Policy	One	20
SOCI 608	Advanced International Rural Development	Two	20
SOCI 641	Advanced Society and Environment <i>not offered in 2018</i>	Two	20
SOCI 626	Special Topic - Society and Climate Change	Two	20
IRDV 601	Development Policy, Theory and Issues	Summer	20

RESEARCH METHODS:

Note that you would not normally need to take these, if you are already taking WATR 405/605, unless they cover specific research methods you will need for your proposed thesis topic.

UC

Course Code	Course Name	Semester	Points
SOCI 402	Methods and Strategies in Research	One	30
GEOG 401	Well-being, Community and Place	Two	30
MAOR 404	Rangahau Taketake – Research Methodologies: Indigenising the Disciplines	One	30

LU

Course Code	Course Name	Semester	Points
ECOL 608	Research Methods in Ecology	One	20
SOCI 601	Social Science research Methods (Quantitative)	One	20
SOCI 602	Social Science research Methods (Qualitative)	Two	20

SCIENCE:

UC:

Course Code	Course Name	Semester	Points
BIOL 425	Freshwater Ecology	One	15
BIOL 426	Conservation Biology	Two	15
BIOL 490	Aquaculture <i>not offered in 2018</i>	Whole year	30
BIOL 492	Environmental Microbiology <i>not offered in 2018</i>	Whole year	30
CHEM 421	Advanced Topics in Chemistry I	Whole year	30
CHEM 422	Advanced Topics in Chemistry II	Whole year	30
ENVR 411	Case Studies in Environmental Science	Two	15
ENVR 414	Current Issues in Environmental Chemistry	Two	15
ENGE 414	Applied Hydrogeology	One	15
GEOL 477	Sediment Transport and Deposition <i>not offered in 2018</i>	Two	15
GEOG 409	Coasts and Rivers: from natural processes to urban environments	One	30
GISC 403	Cartography and Geovisualisation	Two	15
GISC 404	Spatial Analysis	One	15
GISC 405	GIS Programming and Databases	One	15
GISC 406	Remote Sensing for Earth Observation	One	15
GISC 413	Geomatic Data Acquisition Techniques	Two	15
PHYS 419	Atmospheric, Oceanic and Climate Dynamics	Two	15
PHYS 446	Geophysical Fluid Dynamics <i>not offered in 2018</i>	One	15

LU:

Course Code	Course Name	Semester	Points
BIOS 601	Integrated Management of Pastoral Systems <i>not offered in 2018</i>	TBA	20

BIOS 604	Advanced Toxicology A	One	20
COMP 622	Computer Modelling of Environmental Systems	Two	20
ECOL 609	Conservation Biology	One	20
ECOL 631	Animal Behaviour	One	20
ECOL 612	Wildlife Management	Two	20
ERST 631	Environmental Sciences in Environmental Policy	One	20
ERST 606	Advanced Geographic Information Systems A	One	20
ERST 607	Advanced Geographic Information Systems B	Two	20
ERST 611	Advanced Environmental Monitoring <i>not offered in 2018</i>	One	20
MICR 604	Advanced Microbiology	One	20
PLPT 621	Env Impacts of Pest Management <i>not offered in 2018</i>	Two	20
QMET 602	Mathematical modelling of Dynamic Systems <i>not offered in 2018</i>	One	20
SOSC 628	Soil chemistry	Two	20

EXTERNAL COURSES:

Courses offered at other universities can be cross-credited to a WRM degree, if they are relevant to the field of water resource management and do not duplicate the content of courses already included in, or being taken as part of, the WRM degree.

Some of the courses that we know of, that compliment freshwater courses available here, or have been taken by our students in the past, are listed below. Clearly there are likely to be many others that are of relevance and we are building up this database. Please talk to us if you are based out of Christchurch and wish to cross credit courses from your local or nearest university.

University	Course Code	Course Name	Semester	Points	Distance learning?
Massey	145.731	Applied Fluvial Geomorphology	One	15	Y
	235.703	Māori Resource and Environmental Management - Fresh Water	One	15	Y
Auckland	BIOSCI 749	Ecology of Microbial Interactions	Two	15	N
	ENVSCI 738	Water and Society	One	15	N
Waikato	BIOL 561	Ecosystem Modelling	Two	15	N
	BIOL 564	Restoration Ecology	Two	15	N
	BIOL 577	Aquatic Toxicology	Two	15	N