

TOPICS IN WATER MANAGEMENT								
CÓDIGO	SEM	HT	HP	HA	SCT	REQUISITO	ÁREA DE FORMACIÓN Y TIPO DE ASIGNATURA	UNIDAD RESPONSABLE
AG040516	Otoño Primavera	1	0	3.4	3	Postgraduate Inscription	Elective	Postgraduate School
<b>Descripción del curso</b>	This course presents an overview of major water management topics in different countries, considering issues such as increasing water scarcity and pollution, and innovative tools such as water footprinting, hydrological modelling, remote sensing and geographical information system to help improve water management. Depending on invited lectures the course will focus on a particular country.							
<b>Competencias:</b> <b>B: básica</b> <b>G: genérica</b> <b>E: específica</b>	Recognize and understand a broad overview of water management issues at global scale (E). Integrate knowledge about the water dynamics in agricultural systems (G). Understand new concepts and technologies and their potential applications to solve agricultural water management problems (G).							
<b>Contenidos</b>	<p><b>Increasing global water scarcity and pollution.</b> This topic will focus on global water availability and its use, and will examine and describe hidden links between human consumption and water use leading to increasing global water scarcity and pollution.</p> <p><b>Overview of major water quantity and quality issues in New Zealand.</b> This topic gives an overview of New Zealand's freshwater resources, their distribution and use, and then presents and discusses major issues related with water quality and quality in New Zealand.</p> <p><b>Water quality management: New Zealand framework.</b> This topic presents and discusses concepts and tools used for freshwater quality management in New Zealand, followed by a briefly introduction to emerging concepts and tools, nationally and internationally, for water quality management.</p> <p><b>Water footprinting and its potential application.</b> This topic introduces and discusses an innovative approach of water footprinting to account for both direct and indirect use of all freshwater components (green, blue and grey water) to assist with decision making for efficient, equitable and sustainable water use and its management.</p> <p><b>Modelling tools and precision irrigation systems</b> This topic introduces role of hydrological modeling, remote sensing and geographical information tools to assist analysis and improved of water productivity and sustainability of irrigation systems.</p>							
<b>Modalidad de evaluación</b>	Case study presentation (50%) & Literature review (50%)							
<b>Bibliografía</b>	<p><b>Básica:</b> Brown, L. R. 2011. Falling Water Tables and Shrinking Harvests, Ch 2. In: World on the Edge: How to Prevent Environmental and Economic Collapse. Earth Policy Institute. <b>Ebook link.</b></p> <p>Donoso et al. 2015. Water footprints and irrigated agricultural sustainability – the case of Chile. Intern. Journal of Water Resources Development 32(5), 738-748.</p> <p>Hearth et al. (2013). Water footprinting of agricultural products: a hydrological assessment for the water footprint of New Zealand's wines. J. Cleaner Prod. 41, 232-243.</p> <p>Hoekstra, A.Y. 2012. Water footprint accounting. pp. 58-75. In: Water accounting: International approaches to policy and decision-making, Edward Elgar, Cheltenham, UK, <a href="http://www.waterfootprint.org/Reports/Hoekstra-2012-WaterFootprintAccounting.pdf">http://www.waterfootprint.org/Reports/Hoekstra-2012-WaterFootprintAccounting.pdf</a></p>							

Howard-William et al. 2010. Diffuse pollution and freshwater degradation: New Zealand perspectives. pp. 126-140 In: 14<sup>th</sup> Internat. Conference, IWA Diffuse Poll. Spec. Group.  
[http://www.landcareresearch.co.nz/publications/researchpubs/Howard\\_williams\\_2013\\_Diffuse\\_pollution\\_and\\_freshwater\\_degradation.pdf](http://www.landcareresearch.co.nz/publications/researchpubs/Howard_williams_2013_Diffuse_pollution_and_freshwater_degradation.pdf)  
Parliamentary Commissioner of Environment. 2012. Water quality in New Zealand:

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Understanding the science. <http://www.pce.parliament.nz/media/1278/pce-water-quality-in-new-zealand.pdf>

**Recomendada:**

Postel S. 2000. Entering an Era of Water Scarcity: The challenges ahead. Ecol. Applications 10, 941–948.

Rijsberman F. 2006. Water scarcity: fact or fiction?. Agric. Water Management 80, 5-22.

Singh et al. 2006. Distributed ecohydrological modelling to evaluate irrigation system performance in Sirsa district, India II. Impact of viable water management scenarios. J. of Hydrology 329, 714-723

Waltham T., I. Sholji. 2001. The Demise of the Aral Sea-An Environmental Disaster. Geology Today 17(6), 218-224.