

FRST90022 Forests and Water

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2016, Creswick This subject commences in the following study period/s: September, Creswick - Taught on campus. Please note that this subject has a pre-teaching period and during this time students will be required to watch and understand 3 pre-recorded lectures that will cover fundamental/basic hydrologic principles. It will also be required that students prepare by reading the 4 references listed in the pre-course information. Note there will be a short assessed quiz on the first day relating to the pre-recorded lectures.
Time Commitment:	Contact Hours: 24 hours lectures and 36 hours practical work delivered in a two-week intensive teaching block. This will include an overnight excursion to the Melbourne water supply catchments. Total Time Commitment: 170 hours
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	<p><p>For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry.</p> <p>It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability</p></p>
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Subject Overview:	<p>Forest hydrology deals with the interaction between forests and the water cycle. Forests strongly influence both the quantity and the quality of surface and groundwater resources. This subject will provide students with knowledge to understand the complex relationship between forests and water, and skills to apply this knowledge to a range of contemporary catchment management issues.</p> <p>Content includes:</p> <ul style="list-style-type: none"> # <i>Hydrological cycle</i> - components and the inherent randomness and variability # <i>Forests</i> - the complex role of forests in the catchment water balance # <i>Rainfall and runoff</i> - Role of surface and groundwater flow. Characteristics of short-term and long-term variation # <i>Evapotranspiration processes</i> – the fundamental biophysical processes of forest water use and loss, and how this varies as a function of forest type and climatic setting # <i>Water quality and its measurement</i> – key issues in forested ecosystems # <i>Wildfire</i> - How does fire impact on short and long term stream flow and water quality? # <i>Climate change</i> - potential effects of changes in climate on vegetation function and catchment hydrology # <i>Modelling of water resources</i> - A brief introduction to spreadsheet and other modelling of water resource issues

	<ul style="list-style-type: none"> # <i>Ecohydrology</i> - the integrated study of water and vegetation in landscapes. What is the link between hydrology and forest ecology? # <i>Global forests</i> - Hydrologic functioning of contrasting forest types under varying climatic conditions <p>The subject will include a 2 day field trip and practical work in Victoria's forested water supply catchments</p>
Learning Outcomes:	<p>On completion of this subject students should:</p> <ul style="list-style-type: none"> # Have a detailed understanding of the forest hydrologic cycle # Have insights into how forest management and growth dynamics, forest disturbance (including wildfire), and climate change can influence the water balance # Develop an understanding of forest hydrologic processes in a range of forested landscapes # Have an exposure to field experimental methods in forest research
Assessment:	<p>Includes: In-class exercises (10%) daily during Lectures Student presentation (20%) due second Thursday of intensive subject Practical exercises (20%) during the Intensive subject Major assignment (50%) due 5 weeks after the intensive subject end date</p>
Prescribed Texts:	None
Recommended Texts:	<ul style="list-style-type: none"> # Chang, M. (2006) <i>Forest hydrology: an introduction to water and forests</i>. Boca Raton: CRC/ Taylor & Francis. # Eamus, D., Hatton, T., Cook, P. and Colvin, C. (2006) <i>Ecohydrology: Vegetation function, water and resource Management</i>. CSIRO Publishing, Collingwood. # Bren L. (2015). <i>Forest Hydrology and Catchment Management: an Australian Perspective</i>. Springer.
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Links to further information:	http://graduate.science.unimelb.edu.au/master-of-forest-ecosystem-science
Related Course(s):	Graduate Diploma in Bushfire Planning and Management Master of Forest Ecosystem Science
Related Majors/Minors/ Specialisations:	<p>Conservation and Restoration Conservation and Restoration Honours Program - Forest Science Integrated Water Catchment Management Integrated Water Catchment Management Master of Science (Ecosystem Science) - Discipline Elective subjects Sustainable Forests Sustainable Forests Tailored Specialisation Tailored Specialisation</p>