THE UNIVERSITY OF MELBOURNE

220504 Trees, Genes and Environment

‘The molecular revolution is increasingly affecting the way we understand and manage our natural systems’

220504 Trees, Genes and Environment

This subject delivers a detailed examination of the developmental and molecular basis of tree growth, with specific focus on wood formation and tolerance to environmental stress.

In this subject students will explore how this knowledge can be applied in forested land management including in support of tree improvement and ecosystem management.

The practical component aims to provide students with exposure to a sub-set of molecular and microscopic technical skills including the use of botanical micro-techniques and the more common molecular tools.

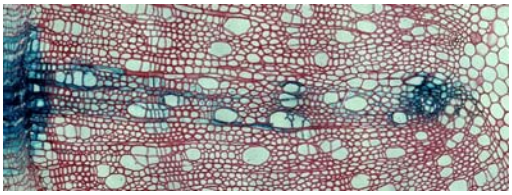
Technical and socio-economic challenges will be critically discussed and evaluated.

This subject has been designed to target students with forestry, land management, science and biochemistry backgrounds but will be invaluable for any student that wishes to expand their understanding of the role trees play in terrestrial ecosystems.

Topics covered

How do trees grow?

- How do trees cope with environmental stress and climate change?
- How do climate change and forest management impact on genetic diversity?
- What is the molecular basis of wood formation?
- How can we harness molecular knowledge for the production of more and better plantation-grown wood
  - for structural applications;
  - for pulp and paper;
  - for bio-energy;
  - on less land, faster and using less water?



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Subject co-ordinator

Associate Professor Gerd Bossinger

2009 study dates and locations

Intensive teaching from 2nd – 13th March at the Creswick Campus of the Department of Forest and Ecosystem Science.

Study materials will be available in early-February via the Learning Management System. Assessment will continue up to six weeks from the end of the teaching period.

Teaching plan

This subject will be taught using a combination of lectures, practical demonstrations and data collection.

Discussion-based lectures will be complemented by practical sessions providing hands on exposure to phenotypic assessment and the application of frequently used molecular tools including DNA extraction, PCR amplification and genetic transformation.

Student costs, travel and accommodation

In addition to tuition costs, estimated accommodation costs are $170 at Creswick for two weeks.

Enrolment options

- This subject is normally offered through the Master of Forest Ecosystem Science but is available to students from other courses subject to their Course Coordinator's approval.
- The subject may also be taken as an individual subject through the University's Community Access Program (CAP). This may be in assessed or non-assessed mode. For further information see: http://www.unimelb.edu.au/community/access/

Further information

Information about this subject and the Master of Forest Ecosystem Science is available at: http://www.forests.unimelb.edu.au