



THE UNIVERSITY OF
MELBOURNE

MELBOURNE SCHOOL OF LAND & ENVIRONMENT

Postgraduate Certificate in Climate Change for Primary Industries



Overview

This course has been specifically designed to fast track the skill base and capability of extension officers, farm consultants, land managers and natural resource management facilitators in advising the agricultural sector on climate change mitigation, sequestration and adaptation.

In addition to developing individual capability, your work and projects will provide invaluable insights into the impacts of climate change on the future of primary industries in Australia.

Who should attend

The course is relevant to researchers, extension officers, farm consultants, land managers and natural resource management facilitators working with farmers, land managers, food production, agribusiness and natural resource managers. You will be provided with an applied understanding of the many factors underpinning climate change risk for agricultural production and land management and an awareness of methods for carbon farming, sustainable food and fibre production and their markets, in the face of changing climate.

Course objectives

The objectives of this course are to:

- Enable you to explore the interdisciplinary nature of primary industries and climate change impacts, mitigation, sequestration and adaptation at an advanced level,
- Provide you with a sound foundation in the scientific and economic principles and analytical skills underpinning responses to climate change,
- Develop your competence in the analysis of complex systems in devising strategies for responding to climate change impacts on agricultural production, and
- Develop your critical understanding of environmental, economic, social and ethical factors related to climate change and primary industries in Australia and globally.



Course structure

To satisfy the requirements of the Postgraduate Certificate in Climate Change for Primary Industries, you must successfully complete the following four subjects (12.5 credit points each), for a total of 50 points:

1. Climate Variability and Climate Change
2. Greenhouse Gases from Agriculture
3. Climate Change and Agricultural Adaptation
4. Climate and Economic Strategy

Each subject comprises five days intensive coursework delivery, pre-course study and assessment components, totalling approximately 120 hours study commitment per subject.

Further study

Students who successfully complete the Postgraduate Certificate in Climate Change for Primary Industries may be eligible for credit into Masters courses offered by the Melbourne School of Land and Environment.

Entry requirements

A Selection Committee will evaluate your ability to successfully pursue the course using the following criteria:

- An undergraduate degree in a relevant discipline or demonstrated equivalent, or
- An undergraduate degree in a relevant discipline and two years documented relevant work and/or professional experience, or
- An undergraduate degree and five years documented relevant work and/or professional experience, or equivalent.

The Selection Committee may call for referee reports or employer references to elucidate any of the matters referred to above.

Assessment

Assessment has been designed to have practical relevance and application to agricultural extension and communication staff.

Study support

You will be provided with log-in access to distance support materials, including course readings and notes as well as access to subject leaders and other participants for the duration of each subject, including the assessment period.



Fees

2014 fees \$2,730.00 per subject.

2015 Fees \$2,920.00 per subject. Please note that this is currently indicative and subject to formal University review and approval.

FEE-HELP is available – please visit <http://studyassist.gov.au> for more information.

Subjects

Climate Variability and Climate Change (ENST90011)

Academic Leaders:

Professor David Karoly and Professor Ian Simmonds

This subject introduces the fundamental processes and dynamics important for climate variability and climate change in the Australian region using both observations and climate models.

The subject will discuss the development of regional climate change scenarios using climate model outputs and their application for a range of climate change impact studies.

Greenhouse Gases from Agriculture (ENST90013)

Academic Leaders:

Associate Professor Richard Eckard and Associate Professor Stefan Arndt

This subject introduces you to the policy environment and processes by which greenhouse gases are evolved from and carbon stored in agricultural systems, and the basis of that understanding, including options for mitigation.

The principle focus will be on soil carbon sequestration, enteric methane from livestock and nitrous oxide emissions from soils, fertilisers and animal waste. Accounting frameworks will be introduced which will enable you to evaluate mitigation options and consider potential for carbon trading under the Carbon Farming Initiative.

Climate Change and Agricultural Adaptation (ENST90014)

Academic Leader:

Professor Snow Barlow

This subject will examine the potential impacts of current and projected climate changes on food production in the world's major agricultural areas.

The subject will use Victorian and Australian agriculture, with its broad range of industries and climatic zones, as an exemplar of the potential adaptation strategies that may be implemented to ensure the sustainability of food production.

Climate and Economic Strategy (ENST90012)

Academic Leader:

Associate Professor Bill Malcolm

This subject introduces economic ways of thinking about appropriate responses of businesses to changes in their operating environment as a result of concerns about climate change.

The expected costs and benefits of changing climatic conditions for agricultural production in Australia

and internationally will be assessed. Policies to curb greenhouse gas emissions, such as carbon taxes or an emissions trading scheme are explained and analysed.

Academic Leaders



Professor David Karoly

David Karoly is a Professor of Climate Science at the University of Melbourne's School of Earth Sciences. He is an internationally recognised expert in climate change and climate variability, including greenhouse climate change, stratospheric ozone depletion and interannual climate variations due to El Niño-Southern Oscillation. He was heavily involved in preparation of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) released in 2007, in several roles.

David is a member of the new Climate Change Authority in Australia. He is also a member of the Science Advisory Panel to the Australian Climate Commission, the Wentworth Group of Concerned Scientists, and the Joint Scientific Committee, which provides oversight of the World Climate Research Programme.

David joined the School of Earth Sciences in May 2007 as an ARC Federation Fellow funded by the Australian Government.



Associate Professor Richard Eckard

Richard Eckard is Associate Professor and Director of the Primary Industries Climate Challenges Centre (www.piccc.org.au), a joint research initiative between the University of Melbourne and the Victorian Department of Primary Industries. He is a science advisor to the Australian, New Zealand and UK governments, and the UN FAO, on climate change adaptation, mitigation and policy development in agriculture. His research focuses on strategies for reducing enteric methane and nitrous oxide from intensive grazing systems, and whole farm systems modelling of climate change adaptation and mitigation strategies in livestock production. Richard has published over 90 scientific publications, holds a number of national and international science leadership roles, being a keynote speaker at numerous industry and international science conferences over the past few years.



Professor Snow Barlow

Professor Snow Barlow is Foundation Professor of Horticulture and Viticulture at the University of Melbourne's School of Land and Environment. He is an agricultural scientist and plant physiologist internationally recognised for his research on the adaptation of agricultural industries to climate change. His research group undertook the first Australian studies on the impacts of elevated carbon dioxide on woody species, later including crop and pasture species in these studies. His group currently studies the adaptation of perennial crops, particularly grapevines, to climate change.

Snow is the national convener of the Primary Industries Adaptation Research Network (PIARN), Executive Director of the Climate Change Research Strategy for Primary Industries (CCRSPI) and chair of the Expert Advisory Panel for the DAFF Filling the Research Gap and Action on the Ground RDE program on climate change.

He is a Fellow of The Australian Academy of Technological Sciences and Engineering of the Australian Institute of Agricultural Science and Technologists. In 2009 he was awarded the Australian Medal in Agricultural Science.



Associate Professor Bill Malcolm

Associate Professor Bill Malcolm lectures within the University of Melbourne's School of Land and Environment. Bill teaches agriculture and resource economics at undergraduate and graduate level, and has researched and written extensively about agricultural economics and policy.

Bill also has a part-time appointment within the Future Farming Research Division of DPI.



Professor Ian Simmonds

Ian Simmonds is Professor of Atmospheric and Oceanic Sciences in the School of Earth Sciences at the University of Melbourne. He teaches extensively in the undergraduate program, and has a very active research program and supervises students in their Honours and PhD research. Among the topics of his research are the variability of rainfall and soil hydrology over Australia and other continents, Antarctic research, and the development and use of climate models.

Key Dates

Subject	Pre-reading and pre-course assessment work	Delivery week	Final assessment submission
Climate Variability and Climate Change	14 July 2014	25 - 29 August 2014	10 October 2014
Greenhouse Gases from Agriculture	29 September 2014	27 - 31 October 2014	15 December 2014
Climate Change and Agricultural Adaptation	5 January 2015	16 - 20 February 2015	6 April 2015
Climate and Economic Strategy	20 April 2015	1 - 5 June 2015	20 July 2015

University Of Melbourne, Burnley Campus



Course delivery venue

The course will be delivered at the University of Melbourne's Burnley Campus, 500 Yarra Boulevard, Richmond.

Travel information

Melways Reference - Page 45, A12

Tram 75, Stop 29 - Walk down Wallen Road to Swan Street entrance

Tram 70, Stop 18 - Opposite Swan Street entrance

Melbourne: the world standard

The University of Melbourne is a prestigious centre of global education, consistently ranked among the leading universities in the world and currently ranked number one in Australia.*

* Academic Ranking of World Universities 2011 and Times Higher Education World University Rankings 2011-2012.

www.unimelb.edu.au

Melbourne School of Land and Environment

Sustaining our community's land, natural resources and environment: our challenge, our responsibility.

www.land-environment.unimelb.edu.au

More information

For course enquiries and applications please contact:

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