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Course description

GEOG286 is all about understanding how the landscape around us influences the weather and climate we experience. For instance, have you ever wondered why winters are so cold in inland regions compared to the coast, or why the west coast of the South Island is so rainy?

These issues have important real-world implications for sustainable environmental management, climate change, and life in general... for sectors ranging from hydro-electricity generation to ski-tourism, farming, and on to extreme hot and cold events in our towns and cities.

Through lectures, case-studies and hands-on practicals in labs and in the field, this paper will cover the following learning outcomes:

- Understand how variation in 'natural' land surface types influences climate at scales from metres to hundreds of kilometres.
- Understand how human modification of the land surface influences climate at scales from metres to hundreds of kilometres.
- Understand how human modification of the land surface influences air quality and human health.
- Be able to integrate field and laboratory data to understand climate processes at scales from metres to hundreds of kilometres.

The course is structured hierarchically so that basic principles are introduced from the ground-up, with lectures split into four main blocks.

- The first is concerned with fundamental climatic principles, including the surface radiation and energy balances, convection and advection.
- The second block of lectures explores how the basic processes introduced in Block 1 are modified by "natural" spatial heterogeneity in the land surface (i.e. land-sea contrasts, vegetation and topography), and the climatological implications of such variation.
- The third block covers anthropogenic influences on boundary layer climate, primarily through urban development.
- Finally, consideration will be given to how micro- and meso-scale processes combine to influence macro-scale climate.

Course Assessment

5 x Lab Assignments: 30% of final grade, ongoing through the semester
Literature assignment: 10% of the final grade
Final exam: 60% of final grade (past exams available on the library website).