

Graduate Module

Title: Modeling the Impacts of Climate Change on Agriculture: Part I. Statistical Downscaling
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Timing: Winter (Jan-Feb) 2015

Description:

Climate change poses unprecedented challenges to agriculture worldwide. Developing better management strategies and tools to enhance the adaptive capacity of plant and animal production systems to climate variability and extremes requires better projection of future climate conditions for time scales of seasons to multiple decades. Many GCMs have projected the change at global and regional scales, however, it is less certain to what extent meteorological processes at individual local sites will be affected. This module will introduce downscaling techniques as a means of relating regional-scale atmospheric predictor variables to local-scale surface weather. The general theory, limitations and practice of downscaling will be discussed. Special focus will be given to the application of a statistical downscaling model to facilitate the rapid development of multiple, low cost, single-site scenarios of daily weather variables under present and future climate forcing.

Format:

Lecture/Tutorial, 3 hours/week for 4 weeks.

Method of Evaluation:

The overall grade will be based on the weekly assignment (40%), a case study report (40%), and presentation of the report (20%).

Prerequisites:

An undergraduate course of Statistics.