ACTUARIAL SCIENCE/DEMOGRAPHY SEMINAR

Date: Thursday, 07 March 2019
Time: 1pm - 2pm
Venue: Beattie 115, Beattie Building, Upper Campus
Topic: Hidden Markov models for time series
       An introduction and survey

BY

Iain L. MacDonald, UCT

ABSTRACT

In practice there are many time series that are not amenable to modelling
by means of the standard time-series models such as Gaussian autoregres-
sive moving-average processes: for instance, series of small counts; series of
circular observations; continuous-valued series in which some of the obser-
vations are interval-censored; continuous-valued series in which the marginal
distributions are far from normal.

But there is a unified, fairly simple, class of models which can represent
all of these: hidden Markov models. In this talk I provide an introduction
to and overview of such models. I discuss the properties of the models, show
how the likelihood can be computed efficiently, and describe how either direct
numerical maximization of the likelihood or the EM algorithm can be used
to find maximum-likelihood estimates.

I present a selection of applications, and I demonstrate in particular how
the models can be extended or modified in order to remove some of their
apparent limitations.

All welcome. Please distribute to any colleagues you feel may be interested.

"Members of ASSA and/or other actuarial professional bodies who wish their seminar attendance to count toward verifiable, as opposed to informal, CPD should complete the register which will be available at the front of the lecture venue, immediately before and after the seminar."