

GCRF-EPSRC UK-APASI Programme
UK-Africa Postgraduate Study Institute in Mathematical Sciences



WORKSHOP 6: 24-26 May 2021

Statistical Methods, Crime Modelling and Financial Mathematics

Monday 24th May 2021

09:30 – 09:45	Joining	Workshop login
09:45 – 09:55	Welcome	Madzvamuse, A. Holligan, Liam
10:00 – 10:55	Lecture 1: Olivier M. Pamen	Title: <i>Introduction to stochastic optimal control: the stochastic maximum principle approach</i>
10:55 – 11:00	Break	
11:00 – 11:55	Lecture 2: Olivier M. Pamen	Title: <i>A Mean-Variance Asset Allocation with stochastic term structure and Hawkes jumps</i>
12:00 – 13:00	Lunch	
13:00 – 13:45	Lecture 3: Farai Mhlanga	Title: <i>Aspects of stochastic control and their applications in mathematical finance</i>
13:55 – 14:00	Break	
14:00 – 14:55	Plenary Lecture: Prof. CW (Kees) Oosterlee	Title: <i>Pricing and calibration with neural networks in finance</i>
14:55 – 15:00	Break	
15:00 – 15:55	Lecture 4: Raul Manasevich	Title: <i>Some crime modelling experiences in Santiago Chile</i>
15:55 – 16:00	Break	
16:00 – 16:30	Panel Discussion	Panellists: Pamen, Mhlanga, Oosterlee, Manasevich
16:30	End of Day 1	

Tuesday 25th May 2021

09:45 – 09:55	Welcome	Workshop login
10:00 – 10:45	Lecture 5: CW (Kees) Oosterlee	Title: <i>On Monte Carlo simulation techniques in computational finance, supported by neural networks</i>
10:55 – 11:00	Break	
11:00 – 11:45	Lecture 6: Max Jensen	Title: <i>Hamilton-Jacobi-Bellman equations and Applications to Finance</i>
11:55 – 13:00	Lunch	
13:00 – 13:45	Lecture 7: Jane White	Title: <i>Exploring a range of modelling approaches for criminal behaviour and criminal activity</i>
13:55 – 14:00	Break	
14:00 – 14:45	Lecture 8: Jane White	Title: <i>Building a model of crime dynamics</i>
14:55 – 15:00	Break	
15:00 – 15:45	Panel Discussion	Panellists: Oosterlee, Jensen, White, Campillo-Funollet

Wednesday 26th May 2021

09:45 – 09:55 **Welcome**

Workshop login

10:00 – 10:55 **Lecture 9:** Fred Vermolen

Title: *Introductory statistics and the central limit theorem*

10:55 – 11:00 **Break**

11:00 – 11:45 **Lecture 10:** Fred Vermolen

Title: *Statistical testing of hypotheses*

11:55 – 13:00 **Lunch**

13:00 – 13:45 **Lecture 11:** Farai Nyabadza

Title: *A systems approach to modelling crime dynamics*

13:55 – 14:00 **Break**

14:00 – 14:45 **Lecture 12:** Farai Nyabadza

Title: *Can we model the interplay between substance abuse and crime dynamics?*

14:55 – 15:00 **Break**

15:00 – 15:45 **Lecture 13:** Rodwell Kufakunesu

Title: *On the energy quanto options*

15:55 – 16:00 **Break**

16:00 – 16:30 **Panel Discussions**

Panellists: Vermolen, Nyabadza, Kufakunesu

16:30 **End of Workshop 5**

to be rearranged

Eduard Campillo-Funollet

Title: *Introduction to Bayesian methods for parameter identification*