



ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΕΙΡΑΙΩΣ

ΣΧΟΛΗ ΧΡΗΜΑΤΟΟΙΚΟΝΟΜΙΚΗΣ ΚΑΙ ΣΤΑΤΙΣΤΙΚΗΣ

ΤΜΗΜΑ ΣΤΑΤΙΣΤΙΚΗΣ ΚΑΙ ΑΣΦΑΛΙΣΤΙΚΗΣ ΕΠΙΣΤΗΜΗΣ

ΠΡΟΣΚΛΗΣΗ

Σας προσκαλούμε στην ομιλία του **Δρ. Λάμπρου Μπουράνη**, Τμήμα Στατιστικής, Οικονομικό Πανεπιστήμιο Αθηνών, η οποία θα διεξαχθεί την Παρασκευή 9 Μαΐου 2025, ώρα 16:00 στην Αίθουσα 101 (1^{ος} όροφος, Κεντρικό Κτίριο), με θέμα:

Bayesian analysis of diffusion-driven multi-type epidemic models with application to COVID-19

Abstract/Περίληψη: We consider a flexible Bayesian evidence synthesis approach to model the age-specific transmission dynamics of COVID-19 based on daily mortality counts. The temporal evolution of transmission rates in populations containing multiple types of individuals is reconstructed via an appropriate dimension-reduction formulation driven by independent diffusion processes. A suitably tailored compartmental model is used to learn the latent counts of infection, accounting for fluctuations in transmission influenced by public health interventions and changes in human behaviour. The model is fitted to freely available COVID-19 data sources from the UK, Greece and Austria and validated using a large-scale prevalence survey in England. In particular, we demonstrate how model expansion can facilitate evidence reconciliation at a latent level. The code implementing this work is made freely available via the Bernadette R package.

This is joint work with Nikolaos Demiris (AUEB), Konstantinos Kalogeropoulos (LSE), and Ioannis Ntzoufras (AUEB).

arXiv preprint: <https://arxiv.org/abs/2211.15229>

CRAN: <https://cran.r-project.org/web/packages/Bernadette/index.html>

Key words: Bayesian evidence synthesis, Brownian motion, COVID-19, Hamiltonian Monte Carlo, Population epidemic model, Time-varying parameters

Short Bio: Lampros Bouranis is a Research Associate affiliated with the Department of Statistics, Athens University of Economics and Business, and the Department of Nutrition and Dietetics, Harokopio University. Over the past, he has served as a Research Fellow at the Department of Statistics, Athens University of Economics and Business (Marie Skłodowska-Curie Individual Fellowship), as a Statistician - Data science Consultant in contract research organizations, and as a Medical Statistician at the Cardiovascular Epidemiology Unit, University of Cambridge, UK.