ECONOMIA E IMPRESA

Avviso di Seminario
Venerdì 07 giugno 2024, ore 12.00
AULA 1 – Palazzo delle Scienze

Compartmental models: a discussion of suitable statistical methods with a focus on Approximate Bayesian Computation

Cecilia Viscardi
Università di Firenze

Abstract: Compartmental models have emerged as useful tools in various scientific domains, from epidemiology and pharmacokinetics to economics. Due to their mechanistic nature, they provide insights into complex dynamic systems and allow predictions under different scenarios. In the last few years, they experimented with a vast spreading due to the increasing interest in modelling epidemic dynamics, mainly motivated by the COVID-19 pandemic. However, despite their widespread use, there is still a gap in the literature, concerning a systematic discussion of the statistical methods suitable for both tasks of inference and forecasting with these models. In this seminar, we will start from the fundamental distinction between deterministic compartmental models and stochastic compartmental models to delve into the various challenges encountered in formulating and evaluating the likelihood function associated with the stochastic model. We will then move towards a discussion of the possible methods for addressing the frequently occurring problem of the intractability of the likelihood function. Emphasis will be given to Approximate Bayesian Computation (ABC) algorithms, exploring their validity and relevance within this framework. The seminar will showcase practical applications of compartmental models in the epidemiological field. (Joint work with Alessio Lachi and Michela Baccini)

Webinar:
https://teams.microsoft.com/l/meetup-join/19%3ameeting_YzQ4Yzc0OWUtMjc5Yi00MjYzLWI2NzAtNzVhOWM0NGU5MTRj%40thread.v2/0?context=%7b%22Tid%22%3a%22baeefbc8-3c8b-4382-9126-e86bfef46ce6%22%2c%22Oid%22%3a%22ed3fa4f5-f577-47e5-8497-a74df5b6c2e9%22%7d

Dipartimento di Economia e Impresa
Palazzo delle Scienze
Corso Italia 55, 95129 Catania (Italy)