Università Bocconi
MILANO

Bocconi Summer School in Advanced Statistics and Probability

Lake Como School of Advanced Studies - July 9-20, 2018

Home

The Bocconi Summer School in Advanced Statistics and Probability is offered by **Università Bocconi**, Milan, and is hosted by the Lake Como School of Advanced Studies at Villa del Grumello, on the shores of the Lake of Como, usually in July.

The 2018 edition, on **Graphical Models**, will take place on **July 9-20, 2018.**

The aim of the Bocconi Summer School in Advanced Statistics and Probability is to establish a track of high level courses on advanced and cutting-edge topics in Statistics and Probability. The Summer School offers lectures delivered by internationally leading scholars on the specific designated topic, and supervised tutorials.

The School continues the tradition of the Summer Schools in Statistics and Probability that Università Bocconi had been organizing since the early '90s, and held in Torgnon, Val d'Aosta, until 2008.

Directors
Prof. Sonia Petrone (Università Bocconi)
Prof. Pietro Muliere (Università Bocconi)

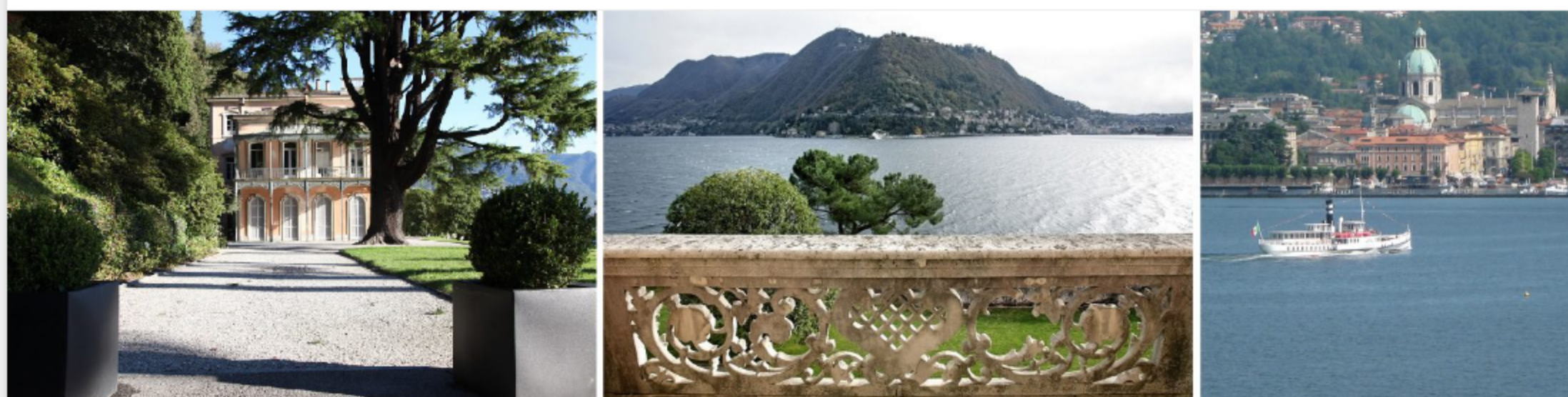**PhD università Bocconi**

Summer School – previous edition

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Program

Graphical Models

Probabilistic graphical models yield a rich framework for encoding probability distributions over complex domains, involving large numbers of random variables that interact with each other. These representations rely on concepts from probability theory, graph algorithms, statistics, computer science and more. They are the basis for revolutionary methods in a wide variety of applications, such as medical diagnosis, image understanding, forensic genetics, speech recognition, natural language processing, machine learning problems, and much more. The course will present the fundamental theory and methodology, illustrated with applications and case studies.

Instructors
Lectures
Steffen Lauritzen
(Department of Mathematical Sciences, University of Copenhagen);
Robin Evans
(Department of Statistics, University of Oxford, UK);
Tutorials
Søren Wengel Mogensen
(Department of Mathematical Sciences, University of Copenhagen)

Format
Morning: 3 hours/day lectures
Afternoon: 2 hours/day supervised tutorials as well as individual and team work**.**

Seminars
The school will include two seminars on July 13 afternoon, by Julia Mortera (Universita' di Rome Tre): "Graphical Models in Forensic Science",and Fabio Corradi (Universita' di Firenze): "On the Probability of Causation for Querying the Cause of an Effect, and its Fundamental Conditions".

Moreover, there will be informal talks, or a poster session, where participants, upon previous request, may present their research. More detailed info to follow.

Room and board
Accommodation is included in the registration fee.
The students will be hosted at the Guest House of Villa del Grumello and at the Ostello Bello.
The organizing committee will take care of the reservation.
Working days' lunches are included in the registration fees.

Attendance and final certificate
Full attendance of the activities of the summer school is mandatory for the participants.
An attendance certificate will be awarded by Università Bocconi, subject to a positive participation to the program.

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Schedule

There will be lectures every morning (from 10 to 12:30 am) and the afternoons will be used for exercises, projects, student seminars, special topics, etc.

Tentative schedule (and social activities):

Monday, July 9, 2018 – Conditional independence. Probabilistic and abstract. (Steffen Lauritzen)

Tuesday, July 10, 2018 – Graph separation, marginalization and conditioning (Steffen Lauritzen)

Wednesday, July 11, 2018 – Markov properties for undirected graphs and directed acyclic graphs (DAGs). Faithfulness and Markov equivalence. (Steffen Lauritzen)
Poster session: 5:30 pm – 9:30 pm
A welcome cocktail will be offered in the park of the Villa del Grumello on Wednesday, July 11, during the poster session.

Thursday, July 12, 2018 – Local computation algorithms (Steffen Lauritzen)

Friday, July 13, 2018 – Causal interpretation of DAG models (Robin Evans)
Afternoon Seminars, Friday 13, 2018:
2:30 pm: Julia Mortera (Universita' di Rome Tre): "Graphical Models in Forensic Science"
4:00 pm: Fabio Corradi (Universita' di Firenze) "On the Probability of Causation for Querying the Cause of an Effect, and its Fundamental Conditions".

There are no lectures on Saturday and Sunday. A social day-tour (weather permitting, a lake tour, hiking, swimming..) will be organized along the weekend.

Monday, July 16, 2018 – Markov properties for mixed graphs (Robin Evans)

Tuesday, July 17, 2018 – Learning causal models (Robin Evans)

Wednesday, July 18, 2018 – Gaussian graphical models (Steffen Lauritzen)

Thursday, July 19, 2018 – Hyper Markov laws (Steffen Lauritzen)

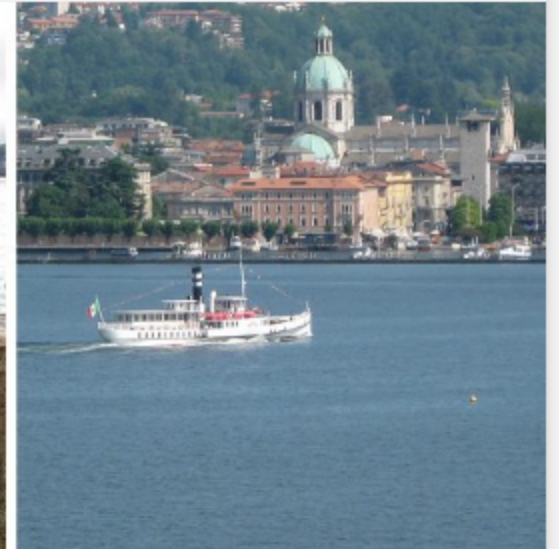**Friday, July 20, 2018** – Graphical models for high-dimensional data (Steffen Lauritzen)

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Deadlines

* Closing date for application: **March 28**, 2018

* Notification of admission: by **April 12,** 2018

* Registration of admitted candidates: **April 24**, 2018

All applicants will be notified via e-mail about their admission result (i.e.: admitted in the main list, in the waiting list, or not admitted due to excess demand). Should any place become available, candidates in the waiting list will be soon notified by email.