

**European Mathematical Genetics Meeting 2018**

**Cagliari, Italy, April 18th to 20th**

**Pre-conference course “Introduction to population genetics”**

* 1. Wednesday 18th, 9:00 to 14:00

**Lecturers :**

**Christine Fischer**, Institute of Human Genetics, University of Heidelberg, Germany

**Justo Lorenzo Bermejo**, Institute of Medical Biometry and Informatics, University of Heidelberg, Germany

**Benjamin Peter**, Department of Evolutionary Genetics, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany

09.00 – 10.30: Lecture 1 **Basic concepts** (CF, JBL)

* Basic definitions
* Wright-Fisher model
* Selective forces
* Population stratification and admixture

10.45 – 12.15: Lecture 2 **The coalescent** (BP)

* Wright-Fisher backwards
* Trees and tree topologies
* Poisson-process characterization (adding mutation, migration, etc.)
* Infinite sites model of time to the most recent common ancestor
* Tree length, the Ancestral Process [A(t)] and simple approximations

12.30 – 14.00: Lecture 3 **Applications** (BP)

* The site frequency spectrum
* Population Structure
* Age of allele

14.00: Lunch and discussion

With two short coffee-breaks in between

Participants are requested to bring their own laptops, further information including needed software will be provided.