

Courses of the School

1. Prof. Pierre Cardaliaguet
Introduction to Mean Field Games **S-1**
2. Prof. Marco Degiovanni
Multiobjective variational calculus **S-2**
3. Prof. Paul Dupuis
Representations and weak convergence methods for the analysis and approximation of rare events **S-3**
4. Prof. Tullio Vardanega
Embedded Real-Time Systems **S-5**
5. Proff. Marino Zennaro, Rossana Vermiglio
Numerical methods for Ordinary Differential Equations **S-6**

Courses of the “Computational Mathematics” area

1. Prof. Jean-Paul Calvi
The Simplex Functional and its applications to Multivariate Polynomial Interpolation **MC-1**
2. Proff. Giovanni Fasano, Francesco Rinaldi
Nonlinear optimization: Derivative free methods **MC-2**
3. Prof. Martino Grasselli
Stochastic Volatility Models **MC-3**
4. Prof. Stefano Maset
Introduction to Delay Differential Equations **MC-5**
5. Prof. Tiziano Vargiolu
Topics in Mathematical Finance **MC-6**
6. Proff. Rossana Vermiglio, Dimitri Breda
Numerical stability of dynamical systems described by delay differential equations **MC-7**

Courses of the “Mathematics” area

1. Prof. Gene Abrams
Introduction to Leavitt path algebras **M-1**
2. Prof. Francesco Bottacin
Vector bundles, principal bundles and connections **M-2**
3. Prof. Douglas Bridges
Introduction to constructive mathematics **M-3**

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| 4. Prof. Bruno Chiarellotto and Dr. Giovanni Morando
D-modules Theory | M-5 |
| 5. Prof. Riccardo Colpi
Category theory | M-6 |
| 6. Prof. Alberto Facchini
Projective modules | M-7 |
| 7. Prof. Massimiliano Guzzo
An introduction to the three-body problem | M-8 |
| 8. Dr. Khai T. Nguyen
Topics on optimal control and PDEs | M-9 |
| 9. Prof. Luigi Salce
A soft introduction to algebraic entropy | M-10 |
| 10. Prof. Aaron Michael Silberstein
Introduction to birational anabelian geometry | M-11 |

Courses of the “Computer Science” area

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| 1. Prof. Mauro Conti
Privacy and security for mobile cooperative devices | CS-1 |
| 2. Prof. Gilberto Filè
Definite clauses applied to security | CS-2 |
| 3. Dr. Umberto Grandi
Decision making and social networks | CS-3 |
| 4. Prof. Claudio Palazzi
Networking issues and solutions in online games | CS-4 |
| 5. Prof. Maria Silvia Pini
Preference reasoning in computational social choice | CS-5 |
| 6. Prof. Vijay Saraswat
Programming Big Data in X10 | CS-6 |
| 7. Prof. Alessandro Sperduti
Machine learning for structured domains by kernel methods | CS-7 |

Courses in collaboration with the Doctoral School on “Information Engineering”

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| 1. Prof. Lorenzo Finesso
Statistical methods | DEI-1 |
| 2. Prof. Nicola Laurenti
Information theoretic Methods in Security | DEI-2 |

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| 3. Prof. Michele Pavon
Brownian motion and noise in physical device | DEI-3 |
| 4. Prof. Enoch Peserico
Online algorithms and competitive analysis | DEI-4 |
| 5. Prof. Gianluigi Pillonetto
Applied Functional Analysis | DEI-5 |
| 6. Prof. Francesco Ticozzi
Topics in Quantum Information | DEI-6 |
| 7. Prof. Harald Wimmer
Applied Linear Algebra | DEI-7 |