UNIVERSITÀ DI PAVIA

## Anno Accademico 2020/2021

# HISTORY OF MATHEMATICS

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| **Enrollment year** | 2019/2020 |
| **Academic year** | 2020/2021 |
| **Regulations** | DM270 |
| **Academic discipline** | MAT/04 (COMPLEMENTARY MATHEMATICS) |
| **Department** | DEPARTMENT OF MATHEMATICS "FELICE CASORATI" |
| **Course** | MATHEMATICS |
| **Curriculum** | PERCORSO COMUNE |
| **Year of study** | 2° |
| **Period** | 1st semester (01/10/2020 - 20/01/2021) |
| **ECTS** | 6 |
| **Lesson hours** | 48 lesson hours |
| **Language** | Italian |
| **Activity type** | ORAL TEST |
| **Teacher** | ROSSO RICCARDO (titolare) - 6 ECTS |
| **Prerequisites** | Knowledge of elementary probabilty at the level of an undergraduate student. |
| **Learning outcomes** | The course aims to presenting the historical development of the theory of probability. |
| **Course contents** | Prehistory of probability. Problems in combinatorial analysis related to game of chances. The problem of points from late-medieval manuscript to De Moivre. Early applications of the calculus of probability to mortality tables and life annuities. Jacob bernoulli's "Ars Conjectandi". The Bernoulli-De Moivre theorem. The Saint Petersburg's paradox. The birth of inverse probability: Bayes, Price and Laplace. Error theory. The criticism on the foundations of pobability. The different approaches to probability: frequentist (von Mises), logicist (Keynes), subjective (De Finetti and Ramsey). The axiomatic approach to probability calculus from Bohlmann to Kolmogorov. |

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| **Teaching methods** | Lessons in a class |
| **Reccomended or required readings** | I. Hacking "L'emergenza della probabilità" Il Saggiatore (1975).<br>A. Hald: "History of Probability and Statistics and their applications before 1750" Wiley (2003).<br>A. Hald: "A History of Mathematical Statistics From 1750 to 1930" Wiley (1998).<br>M.C. Galavotti: "Philosophical Introduction to Probability" CSLI (2005).<br>I. Dale: "A History of Inverse Probability. From Thomas Bayes to Karl Pearson" Springer (1999).<br>T.M. Porter: "The rise of statistical thinking 1820-1900" Princeton University Press (1986).<br>S.M. Stigler: " The History of Statistics. The measurement of Uncertainty before 1900".<br>J. von Plato: "Creating modern probability" Cambridge University Press (1998).<br>Notes available on the website of the course. |
| **Assessment methods** | Oral exam. The student chooses a topic to present among those covered in the course. Other questions are chosen by the teacher, clearly among topics covered in the course |
| **Further information** | |
| **Sustainable development goals - Agenda 2030** | $lbl_legenda_sviluppo_sostenibile |