

Course title: **Mathematical Finance**
Institute/Division: Institute of Mathematics, Faculty of Physics, Mathematics and Computer Science

Course code:
Erasmus subject code: 11.0 Mathematics
Number of contact hours: 45 hours
Course duration: 1 semester
ECTS credits: 6
Course description: The course provides an elementary introduction to concepts of price and hedge derivative securities (European and American options). Topics include elements of stochastic analysis: filtrations, martingales, stochastic processes, Brownian motion, Ito formula, stopping times, Snell envelope, Girsanov theorem. The following concepts will be studied in both discrete and continuous time: the change-of-measure technique, hedging, pricing, absence of arbitrage opportunities and the Fundamental Theorem of Asset Pricing. Black – Scholes model will be discussed.

Literature: H. Bingham, R. Kiesel, Risk-Neutral Valuation, Springer-Verlag, London 1998. J. Karatzas, S. E. Shreve, Brownian Motion and Stochastic Calculus, Springer-Verlag, Berlin 1988.

Course type: lectures, problem sessions
Assessment method: final exam
Prerequisites: Stochastic processes
Primary target group: Majors in Mathematics, II level
Lecturer: Margareta Wiciak, PhD
Contact person: Margareta Wiciak, e-mail: mwiciak@pk.edu.pl
Deadline for application: 15th of September