|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **UNIVERSITY OF NIŠ** | | | | | | |
| **Course Unit Descriptor** | | **Faculty** | | | Faculty of Science and Mathematics | |
| **GENERAL INFORMATION** | | | | | | |
| Study program | | | | **Mathematics** | | |
| Study Module (if applicable) | | | | Probability, Statistics and Financial Mathematics | | |
| Course title | | | | Financial modelling 2 | | |
| Level of study | | | | ☐Bachelor x Master’s ☐ Doctoral | | |
| Type of course | | | | ☐ Obligatory x Elective | | |
| Semester | | | | ☐ Autumn xSpring | | |
| Year of study | | | | II | | |
| Number of ECTS allocated | | | | 6 | | |
| Name of lecturer/lecturers | | | | Prof. dr Miljana Jovanović | | |
| Teaching mode | | | | xLectures ☐Group tutorials ☐ Individual tutorials  ☐Laboratory work ☐ Project work ☐ Seminar  ☐Distance learning ☐ Blended learning ☐ Other | | |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** | | | | | | |
| *Introducing students with the applying the stochastic theory in modeling prices of financial instruments in continuous time. Students should be able to apply their knowledge in a modelling of price a risk-hedging security in continuous time.* | | | | | | |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** | | | | | | |
| Random walk.  Black-Scholes model option pricing: Partial differential equations in Black-Scholes option pricing; Black-Scholes option pricing formula.  Extensions of Black-Scholes model: [Instruments paying continuous yield dividends](https://en.wikipedia.org/wiki/Black%E2%80%93Scholes_model#Instruments_paying_continuous_yield_dividends). Futures options.  Market risk management: The Greeks: Delta, Theta, Gamma, Vega, Rho; Value at Risk (VaR).  Exotic options.  Simulation of continuous models. | | | | | | |
| **LANGUAGE OF INSTRUCTION** | | | | | | |
| xSerbian (complete course) ☐ English (complete course) ☐ Other \_\_\_\_\_\_\_\_\_\_\_\_\_ (complete course)  ☐Serbian with English mentoring ☐Serbian with other mentoring \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | | | |
| **ASSESSMENT METHODS AND CRITERIA** | | | | | | |
| **Pre exam duties** | **Points** | | **Final exam** | | | **points** |
| **Activity during lectures** |  | | **Written examination** | | | **35** |
| **Practical teaching** |  | | **Oral examination** | | | **35** |
| **Teaching colloquia** | **30** | | **OVERALL SUM** | | | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** | | | | | | |