|  |
| --- |
|  **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** |