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|  **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 1 |
| Level of study | ☐Bachelor x Master’s ☐ Doctoral |
| Type of course | ☐ Obligatory x Elective |
| Semester  |  x Autumn ☐Spring |
| Year of study  | II |
| Number of ECTS allocated | 7.5 |
| 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)** |
| *Introduce students with the discrete pricing approach. Students should be able to apply their knowledge in a modelling of price a risk-hedging security in discrete time.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Discrete pricing approach:Risk neutral probability measure; Portfolio; Fundamental pricing theorem; Complete market.Binomial asset pricing model: Binomial european option pricing model; Binomial american option pricing model; Models of forward prices; Models of futures prices. A binomial interest rate model: Risk-free model; [Ho and Lee Model of the term structure of interest rates](http://users-deprecated.aims.ac.za/~tahiri/PGD-Essay-Template-2009_10.pdf); Simulation. |
| **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** |