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| Course: | **Mathematics** |
| Course id: 7OАГ1О05; 7ОАТ1О05 |
| Number of ECTS: 7; 7 |
| Teacher: | **Snežana J. Matić-Kekić, Nebojša M. Dedović** |
| Course status | Mandatory |
| Number of active teaching classes (weekly) |
| Lectures: 3 | Practical classes: 3 | Other teaching types: | Study research work: | Other classes: |
| Precondition courses | None |
| 1. Educational goal

Mastering the skills and knowledge of subject content, which provides the basis for mathematical modeling of agro-economic phenomena and their exploitation in practice. |
| 1. Educational outcomes

Student qualifies for mathematical modeling of agro-economic phenomena and actively pursuing them. |
| 1. Course content

Financial mathematics: percentage and promil calculus, compounded interest rate, fixed-term and continuous savings, loans payment. Proportion, direct and inverse proportion, mixing calculus, chain calculus, division calculus, time series. Combinatorial principles, combinations, variations and permutations, binomial coefficients. Polynomials. Matrix calculus: operations on matrices, determinant of matrices, elementary transformation, regular matrices. Gaussian elimination method, Cramér's theorem, inverse matrix, simplex method, Vogel’s and MODI method. Formulation and solution of mathematical models. Real functions. Linear, quadratic, exponential, logarithmic, trigonometric functions and degrees. Domain and sign of a function. Derivative of the function (first and higher order). Local extreme values and intervals of monotonicity. Concave and convex functions. Economic functions: interval of profitability, profits, demand, supply, revenues, costs, flexibility in the point and its interpretation. Elasticity of a function and its applications. |
| 1. Teaching methods: Lectures
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| Knowledge evaluation (maximum 100 points) |
| Pre-examination obligations | Mandatory | Points | Final exam (izabrati) | Mandatory | Points |
| Lecture attendance | Yes | 5 | *Written part of the exam-tasks and theory* | Yes | 45 |
| Test | Yes | 45 |  |
| Exercise attendance | Yes | 5 |
| Literature  |
| Ord. | Author | Title | Publisher | Year |
|  | Konjik S., Dedović N. | Mathematics - a collection of tasks for the students of Faculty of Agriculture (in Serbian) | Faculty of Agriculture, University of Novi Sad | 2011. |
|  | Hadzić O., Takači Đ. | Mathematics for students of natural sciences (in Serbian) | University of Novi Sad, university textbooks - Edition 76 | 1998. |
|  | Matić-Kekić S. | Economic mathematics for students of biological sciences (in Serbian) | Faculty of Agriculture, University of Novi Sad | 2006. |