***Stochastic Financial Risk Analysis***

***B.1.2.5.5.3***

**Degree:** Bachelor

**Year:** 4

**Semester:** 8 (Spring)

**General workload:** 3 ECTS credits, 108 hours

**Goals and objectives of the course**

* To acquire basic knowledge of the way modern stochastic risk management methods are used in order to understand the basics of the theory of risk measuring and risk management.
* To learn about the conceptual basis of and to build an understanding of the theory needed to solve complex problems that emerge in the investment process, financial and banking operations.

**Key didactic units**

1. Financial products and the relevant stochastic models: the introduction. Financial products and the way they are used for hedging purposes. Risk management strategies. How traders manage their risks.

2. Mathematical characteristics of financial risks: interest rate risk. Volatility. Correlations and copulas. Correlation prediction.

3. Banking regulation: Basel II, Basel III.

4. VAR (Value at Risk) indicator: VAR indicator as a measurement of risk. VAR indicator for market risk: historical modeling methods; model constructing methods.

5. Credit risk: default probability assessment. Credit derivatives.

6. Operational risk. Model risk. Liquidity risk.

7. Economic capital and RAROC.

8. History of big financial losses and lessons that can learnt.

**Place of the discipline within the curriculum**

The course is a mandatory concentration-specific discipline within the curriculum of bachelor program 080100.62 in Economics (concentration: World Economy).

**Upon completing the course, the students should:**

*Know:*theoretical and practicalaspects of the modern stochastic risk analysis methods and the relevant financial and economic models.

*Be able to:*use accurate and approximate methods of risk analysis and forecasting, use them for solving financial and economic problems, build original models in order to deal with the specific economic problem.

*Have:*knowledge of the stochastic risk assessment and management techniques, methods used for building probabilistic mathematical models that correctly describe risks taking portfolio derivatives and derivatives combination utilization opportunities into account.

**Course structure**: lectures, independent student work.

**Summative assessment**: pass/fail examination