***Stochastic Models of Financial Risks***

**Degree:** Bachelor

**Year:** 4

**Semester:** Spring (8)

**General workload: 2** ECTS credits, 72 hours.

**Goals and objectives of the course**

* To acquire theoretical knowledge of the elements of the theory of random processes and the way it is used in economics and finance;
* To acquire practical skills in applying stochastic methods to risk calculation using appropriate economic and mathematical models;
* To acquire the ability to interpret mathematical analysis results in order to make forecasts, examine economic effects and control economic systems

**Key didactic units**

1. Financial products and risk management strategies.

2. Mathematical characteristics of financial risks

3. VAR back testing. Stress-testing

4. Banking begulation, Basel II, Basel III

**Place of the discipline within the curriculum**

The course is an elective (unit 5) within the variational component of the curriculum of program 38.03.01. in Economics (concentration: International Finance, face-to-face mode).

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

Know the theoretical and practical aspects of modern stochastic risk analysis methods and relevant financial and economic models

Be able to use exact and approximate risk analysis and forecasting methods, use the methods to solve financial and economic problems, build original models that are aimed at solving economic problems

Have knowledge of the stochastic risk assessment and risk management methods, of techniques used when building probabilistic mathematical models that correctly describe risks taking into account the opportunities for using investment portfolio derivatives and combinations of derivatives.

**Course structure:** lectures, practicals, incl. those in interactive formats, independent student work.

**Summative assessment:** pass/fail examination