

## ***Risk Management and Financial Derivative Instruments***

**Degree:** Master

**Year:** 2

**Semester:** module 9

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

### **Goals and objectives of the course**

- To acquire theoretical knowledge of mathematical risk analysis and risk management methods used in economics and finance, to examine the main types of financial derivative instruments and ways to use them when solving risk management problems;
- To acquire practical skills needed when using mathematical risk analysis methods and financial derivative instruments to build economic and mathematical models and to solve portfolio management problems;
- To acquire the ability to interpret mathematical analysis results for calculating risks, to examine economic effects and control economic systems;
- To build awareness necessary for solving complex problems arising when performing investment, banking and financial operations

### **Key didactic units**

1. Financial risks and their classification: description of the issue, background information, modern requirements set in the Basel Standards
2. Financial derivative instruments and their application in risk management.
3. Fundamentals of risk theory

### **Place of the discipline within the curriculum**

The course is an elective within the curriculum of program 038.04.01 in Economics (concentration: International Finance (in English)).

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

Know the theoretical and practical aspects of the modern mathematical theory of financial derivative instruments, mathematical risk management methods and risk management-based financial and economic models used when solving economic problems;

Be able to apply exact and approximate analysis methods to examining financial derivative instruments and forecasting risks; use financial derivative instruments to mitigate risks, build original mathematical models in order to solve economic problems;

Have knowledge of the probabilistic risk assessment and risk management methods, of techniques used when building 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:** examination.