COURSE DESCRIPTION CARD

NOTE: If the course includes lectures and classes, the Course Description Card applies to both types of instruction.

1. Course title:
Podstawy matematyki i statystyki / Fundamentals of Mathematics and Statistics

2. Course code:
Number of ECTS credits: 4,0
Course completion mode: E
Course commenced / Year: 2019/2020

3. Major: Finance and Accounting

4. Department of major coordinator: Department of Banking and Financial Markets

5. Name of course instructor: Lecture: Rafał Kucharski
Classes --- Lab classes ---
Examiner: Rafał Kucharski

6. Department of course instructor: Department of Statistics, Econometrics and Mathematics

7. Number of contact hours with students:

Type of instruction	Full-time study	Part-time study
lectures	30	-
classes	-	-
foreign language classes	-	-
lab classes	-	-
seminars	-	-
e-learning	-	-
other	-	-
Total hours	30	0
examination (hours)	3	-

8. Course timeframe - no. of semesters: 1

Course commencement / Year 1

Course commencement / Semester 1

9. Level of tertiary education: 2

10. Course status
□ Compulsory for the major
X Compulsory for the specialization
□ Elective

11. Course prerequisites
Compulsory:
Recommended: Mathematics

12. Course objectives: Systematizing and expanding knowledge in mathematics and statistics

13. Teaching and learning methods:

A. Direct student-instructor contact:

No.	Teaching methods	Description	Number of hours	
			Full-time study	Part-time study
1.	Active lecture with use of multimedia techniques		20	0
2.	Interactive lecture		10	0
Total			AS: 30	AN: 0

B. Self-study:

No.	Learning methods	Description	Number of hours	
			Full-time study	Part-time study
1.	Analysis of lecture notes		30	0
2.	Solving tests and tasks		20	0
3.	Self-study with use of computer		20	0
Total			BS: 70	BN: 0

Total AS+BS = 100
Examination (E) = 3
Total AS+BS+E= 103

Total AN+BN = 0
Examination (E) = 0
Total AN+BN+E = 0

14. Key words: integral, estimation, matrices, function derivative, probability distribution, random variable

15. Course content:

1. Matrices. Systems of linear equations.
2. Differential and integral calculus.
3. Elements of probability theory.
4. Elements of descriptive and mathematical statistics.
5. Examples of applications in finance.

16. Course learning outcomes as related to the learning outcomes of the major and methods for assessing student attainment

Intended learning outcomes of the major / Symbols	Intended learning outcomes of the course	Methods for assessing student learning outcomes	Documentation
	<u>Knowledge</u>		
FiR2_W01#	Knows and understands selected issues in the field of mathematics and statistics.	examination	examination scripts
	<u>Skills</u>		
FiR2_U01#	Is able to use acquired, deepened mathematical and statistical knowledge to identification, critical analysis and synthesis economic and financial phenomena as also can formulate and solve complex and unusual problems through selection and proper application of methods and tools, in including modern IT techniques.	examination	examination scripts
FiR2_U04#	Is able to use a foreign language on B2+ level of the Common European Framework of Reference for Languages, including terminology specific to mathematics and statistics.	examination	examination scripts

Social competences			
FiR2_K02#	Is ready to recognize the role of mathematics and statistics in solving problems theoretical and practical in the area finance, using expert opinions in in case of difficulties with independent them solution.	examination	examination scripts

17. Method for determining the final course grade:

No.	Methods for awarding credits and course completion requirements	Description	Percentage of the final course grade*
1.	Written exam with the possibility use of literature		100%

* If students are required to obtain both a class grade and an exam grade, the class grade constitutes at least 30% of the final course grade.

18. Reading list

Mandatory readings:
1. Kamran Dadkhah: Foundations of Mathematical and Computational Economics. Wyd. Springer. https://www.springer.com/gp/book/9783642137471
2. Härdle, Klinke, Rönz: Introduction to Statistics. Wyd. Springer. https://www.springer.com/gp/book/9783319177038

Suggested readings:
Aleskerov, Ersel, Piontkovski: Linear Algebra for Economists . Wyd. Springer. https://www.springer.com/gp/book/9783642205699
James J. Callahan: Advanced Calculus, A Geometric View. Wyd. Springer. https://www.springer.com/gp/book/9781441973313
Dekking, Kraaikamp, Lopuhaa, Meester: A Modern Introduction to Probability and Statistics - Understanding Why and How. Wyd. Springer. https://www.springer.com/gp/book/9781852338961

19. Language of instruction: English

20. Course instructors' recommendations: