

## FACULTY OF MATHEMATICS AND INFORMATICS

COURSE	PROFESSOR	SEMESTER	LANGUAGE LEVEL	ECTS CREDITS	STUDY LEVEL	COURSE DESCRIPTION
*Game Theory	Snezhana Hristova	2	B1	6	Bachelor	Basic algorithms for decision-making by the methods of game theory
*Probability	Snezhana Hristova	2	B1	6	Bachelor	Probability methods and basic distributions
*Statistics	Snezhana Hristova	2	B1	6	Bachelor	Descriptive statistics and inferential statistics
*Calculus	Snezhana Hristova	1	B1	6	Bachelor	Main methods for differentiation and integrations
*Differential equations with applications	Snezhana Hristova	2	B1	6	Bachelor	Several methods for solving and applications of differential equations
*Mathematical modeling	Snezhana Hristova	2	B1	6	Bachelor	Basic mathematical models by application o calculus and differential equations
*Object-Oriented Programming	Elena Somova	2	B1	7	Bachelor	The course presents the main topics in object-oriented programming - class, inheritance, encapsulation, polymorphism, etc. Students will acquire practical programming skills in C#.
*Algorithms and Data Structures	Elena Somova	1	B1	6	Bachelor	The course presents base algorithms for searching and sorting arrays, recursion, main algorithms on dynamical data structure, etc. The special attention of the course is pointed to the data structures: list, queue, stack, tree, and graph. Students will acquire practical programming skills in C#.
*Modeling and Management of Business Processes	Elena Somova	2	B1	6	Bachelor	The course presents the main standards and specifications for modeling business processes. The notation BPMN is studied in detail. Students will acquire practical skills in modeling a different kind of BPMN diagrams using some software like Bizagi, etc.

*Information Technologies in Education	Elena Somova	2	B1	5	Master	The course presents the main concepts in the domain of e-learning. The course gives practical knowledge on how to design one e-learning course and its elements. Students will acquire skills in the development of e-learning courses and different kinds of e-learning materials and activities in the e-learning environment Moodle. Special attention is paid to the gamification of e-learning and game-based learning.
*Web programming	Elena Somova	1	B1	5	Bachelor	The course presents HTML, CSS, and JS. Students will acquire practical skills in how to develop web pages and sites.
*Metric Spaces	Boyan Zlatanov	1 or 2	B1	6	Bachelor	The aim of the course is to provide a basic introduction to the theory of metric spaces, functional analysis and to show its connection with the geometry of Banach spaces. To address some basic concepts in metric spaces, such as convergence, continuity, and compactness. The idea is to show, through a series of applications, the connection of how basic concepts from real analysis can be generalized to metric spaces.
*An Introduction to the Mathematics of Money (Financial Mathematics)	Boyan Zlatanov	1	B1	6	Bachelor	The aim of the course is to provide an introduction to the mathematical foundations of financial mathematics. Basic concepts such as interest, internal rate of return, and cash flow are covered, as an <i>ordinary annuity</i> , and <i>annuity due</i> . The <i>theory of loans</i> , amortization tables, and credit cards is introduced. It is presented the concept of bonds, their future value, and their risk.
*Computer Algebra Systems	Boyan Zlatanov	1 or 2	B1	6	Bachelor	The aim of the course is to obtain basic skills in the usage of computer algebra systems for performing mathematical calculations with the help of computers.