Subject code	ECTS credits
MAT 4018	12

Course title in Lithuanian

BAKALAURO DARBAS

Course title in English

BACHELOR THESIS

Short course annotation in Lithuanian (up to 500 characters)

Baigiamieji darbai gali būti mokslinio – taikomojo pobūdžio arba praktinės problemos nagrinėjimo projektai. Mokslinio – taikomojo pobūdžio darbuose gvildenamos pasirinktos temos teoriniai bei mokslinių pasiekimų taikymo klausimai, išryškinant jų sprendimo metodinį naujumą ar originalumą. Praktinių problemų nagrinėjimo darbuose taikomi žinomi teoriniai metodai ar kiti žinomi sprendimo būdai. Pagrindinės baigiamojo darbo sudėtinės dalys: įvadas, analitinė dalis, projektinė dalis, išvados ir rekomendacijos, literatūros sąrašas

Short course annotation in English (up to 500 characters)

Bachelor Thesis is the projects of science-applicable or practical problem investigation type. In the science applicable projects there are presented theoretical and science application problems. It is necessary to show the novelty and originality of the results. In the practical problems investigation projects there are applied known theoretical models or solution methods. The main parts of the Bachelor Thesis are: introduction, analytical part, conclusions and results.

Prerequisites for entering the course

Must be completed all undergraduate programme of Mathematics and its Application.

Course aim

Bachelor Thesis should show student‘s ability to apply critical thinking skills in formulating, analysing and solving mathematical-related problems using mathematics theories and methods as well as the ability to conduct individual research.

Links between course outcomes, criteria of learning achievement evaluation, study methods and methods of learning achievement assessment

No	Course outcomes	Criteria of learning achievement evaluation	Study methods	Methods of learning achievement assessment
1.	Ability to formulate and solve relevant mathematical problems, using mathematical methods and mathematical packages	Student demonstrates the knowledge of particular mathematical problem, demonstrates the ability to formulate task, present solution process, justify received results	Individual work, consulting	Project report and presentation, assessed by a qualification commission, formed by the Dean of the Faculty.
2.	Ability to analyse independently different information sources and solutions and apply gained knowledge in mathematical modelling process			
3.	Ability to formulate the investigation results			
4.	Ability to make conclusions on theoretical or practical mathematical problem.			

Links between study programme outcomes and course outcomes

Study programme outcomes	Running number of course outcome

	1	2	3	4
Know and comprehend concepts and propositions of fundamental mathematical subjects, recognize and apply them solving practical/theoretical tasks	+		+	+
Comprehend and be able to apply classical analytical and numerical methods as well as the main algorithms for solving differential equations	+		+	+
Comprehend and be able to apply probabilistic and statistical methods for data analysis	+		+	+
Know and understand the main theories of mathematical didactics, consolidate and integrate the main principles in education	+		+	+
Know and comprehend the needs and importance of information technologies in study process, also be able to apply programming knowledge and skills, data structures and modelling	+	+		
Summarize and evaluate critically scientific and professional literature, as well as use various tools for collecting of information for the study process and for solving fixed practical/theoretical problems	+	+		
Identify the problem, collect and analyze real/theoretical data using various mathematical methods, tools and IT technologies	+	+		
Develop and apply appropriate mathematical models and tools, forecast and realize them for use in case analysis	+	+		+
Having good foundations of mathematics, logically and critically recognize and describe relations between quantities of real life and mathematical concepts	+	+		+
Operating with formal mathematical symbols and terms, determine mathematical connections between various mathematical quantities; conceive mathematical propositions and logical proofs, construct and prove new statements	+	+	+	+
Think logically and analytically, evaluate alternative ways of task solving and implement optimal solutions	+	+		
Critically analyze and evaluate obtained results, take responsibility from the mathematical point of view			+	+
Work individually and/or in groups by developing and adopting appropriate mathematical models and tools for use in case analysis	+	+		
Clearly and convincingly present problems and solutions, related to economics, energetics, biomedicine and didactics, to experts and non-experts using ground knowledge, reasoning, relevant presentation tools and methods			+	+
Plan self-learning based on personal needs and the ongoing professional development	+	+	+	+
Demonstrate awareness of economic, legal, social, ethical and environmental context in mathematical projects	+	+	+	+
Adapt to fast changing cultural, economic and technological environment	+	+		

Distribution of workload for students (contact and independent work hours)

Total:	**315 hours**

Structure of cumulative score and value of its constituent parts

Term work 70%, defence - 30%

Recommended reference materials

Depends on the content of the research.

Course programme designed by

Prof. dr. Ričardas Krikštolaitis