MATHEMATICS MASTER DEGREE PROGRAM INFORMATION

General Information	The Master of Sciences Program in Mathematics at TOBB ETU has been accepting students since 2006. There is a master's program with thesis and without thesis. Teaching language is Turkish. The program is located in the Institute of Sciences as a department of mathematics. The MSc program is given expertise in the fields of Analysis and Functions, Theory of Algebra and Numbers, and Applied Mathematics.
Program Purpose	The aim of the MSc program in Mathematics is to train young, qualified and research scientists into the academic world. The Department of Mathematics aims to raise students, who have graduated from undergraduate and graduate programs, in such a way that they have a potential to work with interdisciplinary background at selected universities and institutions.
Degree Earned	Students who complete the department are entitled to receive a master's degree in Mathematics.
Level of Degree Earned	Master's Degree (NQF- HETR 7. Level)
Requirements and Rules of the Degree Earned	To get a master degree in Mathematics, it is required to complete at least 21 credits, 126 ECTS, to have given a seminar course, and to have at least 3,00 CPGA (Cumulative Point Grade Average) out of 4,00. See the TOBB ETU Regulations on Graduate Education and Examination: https://www.etu.edu.tr/tr/sayfa/mevzuat for details.
Registration Admission Requirements	To be admitted to a mathematics scholarship MSc program, the average of the undergraduate grade must be 2.5 / 4, the ALES score be 85, and the foreign language score must be 75 (YDS, E-YDS, TOEFL, IBT, TUBE ETU). For the paid MSc program, the ALES score must be 55 and the foreign language score must be 50. For TOBB ETU Regulations on Graduate Education, Training and Examination Regulations, visit the web address: https://www.etu.edu.tr/en/page/mevzuat
Recognition of Prior Learning	For course exemptions see the TOBB ETU Regulations on Graduate Education, Training and Examination: https://www.etu.edu.tr/en/page/mevzuat
Examinations, Assessment and Grading	Examinations are graded on 100 points. The grade weights of homework, midterms and the final exam may vary according to the structure of the course. Evaluation of exams and letter grades are done according to TOBB ETU Regulations on Graduate Education, Training and Examination: https://www.etu.edu.tr/tr/sayfa/mevzuat
Teaching Style	The MSc program consists of 6 semesters (2 years). In the program, there are 7 courses, 1 seminar course, 1 scientific research and publishing ethic course and 1 master thesis study. 3 of 7 courses are required courses. Total course credits are 21 and ECTS credits are 126.
Graduation Requirements	To get a graduate degree in Mathematics, it is required to complete at least 21 credits, 126 ECTS, to have given a seminar course, and to have at least 3,00 CPGA (Cumulative Point Grade Average) out of 4,00. See the TOBB ETU Regulations on Graduate Education and Examination: https://www.etu.edu.tr/tr/sayfa/mevzuat for details.
Occupational Profiles of Graduated-Employment Opportunities	Students who have successfully completed undergraduate and graduate programs will have work skills as teaching staff at distinguished universities in the country and abroad. In addition, our graduated enjoy extensive work opportunities in the public and private sectors. They can work as a teacher in MEB; a software development specialist in the information technology; a stockbroker, broker and account specialist in banking and finance sectors; or a specialist and expert assistant staff in the appropriate public sectors.
Transition to a Upper Degree	Students who successfully complete the MSc program can continue their graduate, doctorate or integrated doctorate programs if they have enough grades from the ALES exam and if they have achieved sufficient success on the foreign language, and also if they are successful in the interview exams. Please visit TOBB ETU Institute of Science website for all information about application conditions and current announcements to graduate programs: https://www.etu.edu.tr/en/enstitu/fen-bilimleri-enstitusu

NQF-HETR PROGRAM QUALIFICATION MATRIX				PROGRAM QUALIFICATIONS														
Program : Mathematics																		
Related NQF-HETR Core Field: Mathematics and Statistics(Academic) - Master Degree				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
TEMEL ALAN YETERLİLİKLERİ	INFORMATION	Theoretical - Factual	Develops and deepens his/her knowledge of the same or a different area of expertise based on his/her undergraduate level qualifications and analyzes and interprets them using statistical methods.	X	X									X				X
			Identifies the interdisciplinary interaction with which the field is related.				X	X					X					
	SKILLS	Cognitive - Applied	Uses theoretical and practical knowledge at the level of expertise in the field.		X				X				X	X		X	X	
			Creates comments and new information by integrating the information in the field with information from different disciplinary fields.	X			X	X					X		X		X	
			Analyzes problems related to their field by using research methods.	X										X			X	
	COMPETENCE	Ability to work independently and to take responsibility	Independently conducts a study that requires expertise in the field.		X	X								X			X	
			Develops new strategic approaches for solving complex problems that are encountered and unpredictable in his/her field-related applications and takes responsibility to create solutions.											X	X	X	X	
			Is the leader in the areas that need to solve the problems related to his / her field.										X		X			
		Learning Competence	Assesses the knowledge and competencies at the level of expertise in the field with a critical approach and guides learning.	X	X								X					
		Communication and Social Competence	Transfers the current developments in his / her field and his / her own studies with the quantitative and qualitative data to the groups in the field and outside the field in written, verbal and visual manner.								X	X						
			The graduate will examine, develop and act on changing the social relations and the norms that guide these relations from a critical point of view.							X								
			Communicates verbally and in writing using a foreign language at least at the European Language Portfolio B2 General Level.									X						
			Uses advanced computer software and information and communication technologies at the level required by the field.						X									
			Ssupervises and teaches these values by considering social, scientific, cultural and ethical values during the collection, interpretation, application and announcement of data about the field.			X				X								
		Field Specific Competence	Ddevelops strategies, policies and implementation plans in his / her field and evaluates the results obtained within the framework of quality processes.										X					
			Uses knowledge, problem solving and / or application skills in interdisciplinary studies.				X	X										
			Evaluates important people, events and phenomena in the development of their field in terms of their impact on the application of their field.													X		

Mathematics Master's Degree Program Qualifications

1	Develops, evaluates, analyzes and applies knowledge in the undergraduate level of mathematics.
2	Has an expert knowledge in his/her field, concentrates on a subject and be able to conduct independent research.
3	Knows how to search the literature in his/her field and reaches printed and online sources.
4	Be aware of new and developing inter-disciplinary applications related to his/her area, investigates and grasps them when it is necessary.
5	Knows the basic concepts of mathematics at advanced level and applies them to interdisciplinary problems for which are related.
6	Uses mathematical software programs to support results on his/her research topics.
7	Be aware of the professional responsibility and ethical values and obeys these values, and knows the importance of lifelong learning, has a sense of social, cultural and environmental responsibilities.
8	Transfers the current developments in his / her field and his / her own studies to the groups in the field and outside the field in written, verbal and visual manner.
9	Communicates verbally and in writing using a foreign language at least at the European Language Portfolio B2 General Level.
10	Renews himself/herself continuously by evaluating the expert-level knowledge and skills acquired in the area.
11	Makes modeling problems with reasoning, tries to solve them with skills of analyzing, finds approximate solutions with numerical methods in case of the absence of exact solutions.
12	Prepares creative projects and leads in solving the problems related to the field.
13	Evaluates important people, events and phenomena in the development of their field in terms of their impact on the application of their field.
14	Approaches the problems and finds solution ways with the skills of reasoning, modeling, association and generalization.
15	Has satisfactory information and background to apply for the PhD programs in theoretical and applied mathematics.

Master Program Qualifications Course Matrix of Mathematics		Program Qualifications														
Code	**Course Name**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
MAT 501	Introduction to Difference Equations I	5	5	3	5	2	3	2	4	1	1	2	4	3	1	1
MAT 502	Introduction to Difference Equations II	5	5	3	5	2	3	2	4	1	1	2	4	3	1	1
MAT 503	Introduction to Optimal Control Theory I	5	5	3	5	2	4	2	4	1	1	1	4	3	1	1
MAT 504	Introduction to Optimal Control Theory II	5	5	3	5	2	4	2	4	1	1	1	4	3	1	1
MAT 505	Financial Mathematics I	3	3	3	3	3	2	3	1	1	3	3	2	1	2	5
MAT 506	Financial Mathematics II	3	4	3	4	3	3	3	1	1	3	2	2	1	3	5
MAT 509	Partial Differential Equations I	5	3	3	3	3	3	3	1	1	3	3	2	1	3	5
MAT 510	Partial Differential Equations II	5	4	3	4	4	2	3	1	1	3	1	2	1	2	5
MAT 513	Linear Difference Equations and Stability Theory I	5	5	3	5	2	3	2	4	1	1	2	4	3	1	1
MAT 514	Linear Difference Equations and Stability Theory II	5	5	3	5	2	3	2	4	1	1	2	4	3	1	1
MAT 515	Cryptology I	4	5	5	5	5	4	3	4	3	3	3	3	3	3	5
MAT 516	Cryptology II	4	5	5	5	5	4	3	4	3	3	3	3	3	3	5
MAT 517	Coding Theory I	4	5	5	5	5	4	3	4	3	3	3	3	3	3	5
MAT 518	Coding Theory II	4	5	5	5	5	4	3	4	3	3	3	3	3	3	5
MAT 520	Approximation Theory	5	3	3	3	3	4	3	1	1	3	4	2	1	3	5
MAT 521	Numerical Analysis I	3	4	5	3	2	5	3	4	4	4	5	4	3	4	5
MAT 523	Differential Equations I	5	2	5	2	2	5	2	4	1	1	2	4	3	1	1
MAT 524	Differential Equations II	5	2	5	2	2	5	2	4	1	1	2	4	3	1	1
MAT 525	Applied Mathematics I	5	2	5	2	2	5	2	4	1	1	2	4	3	1	1
MAT 526	Applied Mathematics II	5	2	5	2	2	5	2	4	1	1	2	4	3	1	1
MAT 527	Topology I	4	3	2	2	3	1	3	1	4	3	3	2	1	3	5
MAT 528	Topology II	5	4	3	3	3	1	3	2	4	4	4	3	2	4	5
MAT 529	Functional Analysis I	4	3	2	2	3	1	3	1	4	3	3	2	1	3	5
MAT 530	Functional Analysis II	5	4	3	3	3	1	3	2	4	4	4	3	2	4	5
MAT 533	Real Analysis I	4	3	2	2	3	1	3	1	4	3	3	2	1	3	5
MAT 534	Real Analysis II	5	4	3	3	3	1	3	2	4	4	4	3	2	4	5
MAT 535	Algebra I	4	5	4	5	5	4	5	4	5	5	5	3	5	5	5
MAT 536	Algebra II	4	5	4	5	5	4	5	4	5	5	5	3	5	5	5
MAT 537	Functions Theory I	4	3	3	2	2	3	3	1	4	3	3	2	1	3	5
MAT 538	Functions Theory II	5	4	3	3	3	3	3	2	4	4	4	3	2	4	5
MAT 543	Summability Theory	5	4	3	3	3	1	3	2	4	4	4	3	2	4	5
MAT 545	Special Topics in Analysis	5	5	5	3	3	5	4	5	5	4	5	4	4	4	5
MAT 550	Introduction to Fuzzy Differential Equations	5	2	5	2	2	5	2	4	1	1	2	4	3	1	1
MAT 551	Mathematical Biology	4	4	3	3	3	3	3	1	1	3	4	2	1	3	5
MAT 553	Mathematical Analysis I	4	3	2	2	3	1	3	1	4	3	3	2	1	3	5
MAT 554	Mathematical Analysis II	5	4	3	3	3	1	3	2	4	4	4	3	2	4	5
MAT 555	Special Topics in Differential Equations	5	5	5	3	3	5	4	5	5	4	5	4	4	4	5
MAT 560	Special Topics in Applied Mathematics	5	5	5	3	3	5	4	5	5	4	5	4	4	4	5
MAT 564	Dynamical Systems	5	3	3	3	3	3	3	2	1	3	3	2	1	3	5
MAT 566	Combinatorial Mathematics	5	5	4	3	4	5	5	4	4	4	4	3	5	4	5
MAT 568	Number Theory	4	5	4	5	5	4	5	4	5	5	5	3	5	5	5
MAT 572	Finite Fields	3	5	3	4	5	4	5	3	4	5	5	3	3	5	4
MAT 574	Special Topics in Algebra	5	5	5	3	3	5	4	5	5	4	5	4	4	4	5
MAT 597	MSc Seminar	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
MAT 599	MSc Thesis	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
FBE 600	Scientific Research Techniques and Publication Ethics			2				5								