

DEPARTMENT OF MOLECULAR BIOTECHNOLOGY
COURSE SYLLABUS

Course Details				
Code	Academic Year			Semester
MAT112	1			2
Title	T	A	L	ECTS
Analysis II and Linear Algebra	3	2	-	6
Language	German			
Level	Undergraduate	X	Graduate	Postgraduate
Department / Program	Molecular Biotechnology			
Forms of Teaching and Learning	Face-to-face			
Course Type	Compulsory	X	Elective	
Objectives	The students are able to work with differential and integral calculus to solve different kinds of problems in mathematics. They gain an understanding about the important concepts of linear algebra.			
Content	Differential and integral calculus			
Prerequisites	-			
Coordinator	-			
Lecturer(s)	Asst. Prof. Dr. Neşe Aral Sözüner			
Assistant(s)	-			
Work Placement	-			
Recommended or Required Reading				
Books / Lecture Notes	1)Matematik für Ingenieure und Naturwissenschaftler, Band 1 & 2; Lothar Papula 2) Lineare Algebra; Strang, Dellnitz			
Other Sources	-			
Additional Course Material				
Documents	-			
Assignments	-			
Exams	-			
Course Composition				
Mathematics und Basic Sciences	100			%
Engineering				%
Engineering Design				%
Social Sciences				%
Educational Sciences				%

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Natural Sciences			%
Health Sciences			%
Expert Knowledge			%
Assessment			
Activity	Count		Percentage (%)
Midterm Exam	1		40
Quiz	-		-
Assignments	-		-
Attendance	-		-
Recitations	-		-
Projects	-		-
Final Exam	1		60
		Total	100
ECTS Points and Work Load			
Activity	Count	Duration	Work Load (Hours)
Lectures	13	5	65
Self-Study	13	2	26
Assignments	-	-	-
Presentation / Seminar Preparation	-	-	-
Midterm Exam	1	2	2
Recitations	14	3	42
Laboratory	-	-	-
Projects	-	-	-
Final Exam	1	2	2
		Total Work Load	137
		ECTS Points (Total Work Load / Hour)	6
Learning Outcomes			
1	Ability to work with the concepts of differential and integral calculus, along with linear algebra		
Weekly Content			
1	Calculation of surface areas		
2	Calculation of volumes		
3	Calculation of curve lengths		
4	Calculation of surface of rotational bodies		
5	Calculation of center of mass		

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6	Infinite series, Taylor Series
7	Complex numbers
8	Vectors and real matrices
9	Vector spaces
10	Determinants
11	Inverse of a matrix, orthogonal matrices
12	Linear equation systems
13	Eigenvalues and eigenvectors

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7	P8
1	4	5	4	5	5	5	1	-
Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High							
OBS LINK:								
Compiled by:	Asst. Prof. Dr. Neşe Aral Sözüner							
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