

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
ACADEMIC UNIT	DEPARTMENT OF MATHEMATICS		
LEVEL OF STUDIES	UNDERGRADUATE PROGRAM		
COURSE CODE		SEMESTER	C
COURSE TITLE	LINEAR ALGEBRA II		
INSTRUCTOR	Nikolaos Papalexiou		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
		6	9
COURSE TYPE	General knowledge		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	http://www.math.aegean.gr/index.php/en/academics/undergraduate-programs		

(2) LEARNING OUTCOMES

Learning outcomes
Understanding and ability to calculate eigenvectors and eigenvalues. Understanding of the diagonalization algorithm for matrices. Calculation of characteristic and minimal polynomial. Normal forms. Understanding of unitary and symmetric matrices. Ability of orthogonal diagonalization of matrices. Bilinear forms.
General Competences
Working independently. Team working. Working in an interdisciplinary environment.

(3) SYLLABUS

<ol style="list-style-type: none"> 1. Eigenvectors and eigenvalues of matrices and linear operators. 2. Characteristic polynomial, eigenspaces. Diagonalization. 3. Applications 4. Triangularization, Cayley-Hamilton theorem. 5. Minimal polynomial. 6. Jordan canonical form. 7. Orthogonal, Unitary, Hermitian and Symmetric matrices. 8. Inner product spaces and norms. 9. Orthogonal diagonalization 10. Bilinear and Quadratic forms. 11. Sylvester theorem 		
<table border="1" style="width: 100%;"> <tr> <td style="width: 20%;">TEACHING MATERIAL DISTRIBUTION</td> <td>The teaching material of the course is uniformly distributed during the semester.</td> </tr> </table>	TEACHING MATERIAL DISTRIBUTION	The teaching material of the course is uniformly distributed during the semester.
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(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face-to-face lectures	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	<ul style="list-style-type: none">• Communication with students via e-mail• Uploading course material on moodle system.	
TEACHING METHODS	Activity	Semester workload
	Lectures	52
	Tutorials	26
	Independent study	147
	Course total (25 per ECTS)	225
COURSE COMMITMENTS	Attending course and tutorial sessions is not obligatory.	
STUDENT PERFORMANCE EVALUATION	Student's evaluation is done in Greek through a written examination which includes short-answer questions and problem solving. For students with disabilities, evaluation takes place via oral exams.	

(5) ATTACHED BIBLIOGRAPHY

1. Εισαγωγή στη Γραμμική Άλγεβρα, Θεοδώρα Θεοχάρη-Αποστολίδη, Χαρά Χαραλάμπους, Χαρίλαος Βαβατσούλας.
2. Μια Εισαγωγή στη Γραμμική Άλγεβρα, Βάρσος Δημήτρης, Δεριζιώτης Δημήτρης, Εμμανουήλ Γιάννης, Μαλιάκας Μιχάλης, Μελάς Αντώνης, Ταλέλλη Ολυμπία.