DESCRIPTION OF THE COURSE OF STUDY
FOR EXCHANGE STUDENTS

Name of the course in	English	**Linear algebra II**
	Polish	**Algebra liniowa II**

1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

1.1 Field of study	Mathematics
1.2 Level of study	first degree studies (bachelor degree)

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1 Language of instruction	english
2.2 Semesters in which the course of study is offered	summer semester (2)
2.3 ECTS credits	7

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	lectures, discussion sessions
3.2. Form of assessment	exam

4. OBJECTIVES AND SYLLABUS CONTENT

4.1. Course objectives

C1. The aim of the course is to acquaint students with selected notions and problems of linear algebra, for example: formulation of problems in matrix-vector terms and operations on matrices (the inverse of matrices, the rank of matrices, the determinant of a matrix, linear equations system) concepts and applications of: euclidean space and ortogonality of vectors, affine space and affine independence;

C2. A successful student should know different methods of solving systems of linear equations and different methods and concepts of matrix decompositions

4.2. Detailed syllabus

1. Linear mappings, matrix of a linear mapping
2. Matrices: matrix calculus, matrix determinant, the trace and the rank of a matrix.
3. The inverse of a matrix
3. Linear equations systems, existence of solutions, methods of solving
4. Eigenvalues and eigenvectors, diagonalization of a matrix
5.Euclidean Spaces: Dot product, Euclidean space; orthogonality, orthogonal decomposition, orthogonalisation algorithm for a set of vectors.
6.Affine spaces:, affine independence.