



## Course Summary

<b>Course Instructor</b>	Nagham Mousa Neamah				
<b>E-mail ;</b>					
<b>Title</b>	Applied Linear Algebra				
<b>Course Coordinator</b>	First course				
<b>Course Objective</b>	<b>Eigenvalues and Eigenvectors.</b>  <b>Linear Transformations</b>				
<b>Course Description</b>	To give an idea about central tendency measures ,variation measures ,correlation and regression , testing hypotheses concept , null and alternative hypotheses, one side and two side test ,one type and two type error , level of significant , degree of freedom.				
<b>Textbook</b>	David C. Lay <i>Linear Algebra and Its Applications</i> (2006)				
<b>References</b>	1. . Kolman: <i>Elementary Linear Algebra with Applications</i> (2008) 2. Steven J.Leon <i>Linear Algebra with Applications</i> (2006) Strang: <i>Introduction to Linear Algebra</i> (2006).				
<b>Course Assessments</b>	<b>Term Tests</b>	<b>Laboratory</b>	<b>Quizzes</b>	<b>Project</b>	<b>Final Exam</b>
	As (30%)	-----	As (10 %)	-----	As (60%)

## Course Weekly Outlines

Week	Topics Covered	Lab. Experiment Assignments
<b>1</b>	Linear Transformations.	-----
	Definitions and Examples	-----
<b>2</b>	Kernel and Range of a Linear Transformation	-----
	Matrix of a Linear Transformation	-----
<b>3</b>	Vector Space of Matrices	-----
	Vector Space of Linear Transformations	-----
<b>4</b>	Similarity	-----
	Introduction to Homogeneous Coordinates	-----
<b>5</b>	Eigenvalues and Eigenvectors.	-----
	Introduction to Eigenvalues and Eigenvectors	-----
<b>6</b>	The Characteristic Equation	-----
	Diagonalization	-----
<b>7</b>	Cayley-Hamilton Theorem	-----
	Matrix Powers	-----
<b>8</b>	Fibonacci Sequences	-----
	Complex Eigenvalues	-----
<b>10</b>	Symmetric Matrices and Quadratic Forms	-----
	Diagonalization of Symmetric Matrices	-----
<b>11</b>	Quadratic forms	-----
	Conic sections	-----
<b>12</b>	Quadric surfaces	-----
	The singular value decomposition	-----
<b>13</b>	Applications to image processing and statistics	-----
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