



## Course specification

University/Academy: Damanhour University

Faculty/Institute: Science

Department: Mathematics

### 1. course Data:

Course code: Math202	Course title: <b>Pure Mathematics</b> (Linear algebra and statistics)	Academic year/level: 2008-2009 Second year - Second term
Specialization: جميع التخصصات لمجموعة العلوم الرياضية والفيزيائية	No. of instructional units: lecture <input type="text" value="5"/> tutorial <input type="text" value="4"/> practical <input type="text" value="-"/>	

### 2. course Aim

Demonstrate theoretical knowledge and have practical skills and personal attributes and competencies that will be required for an analysis position in the field of Mathematics  
Have an opportunity to put theory into practice via work-based learning.  
Demonstrate an ability to initiate and sustain in-depth research relevant to Linear algebra and statistics.

### 3. Intended learning outcome

#### a) Knowledge and understanding

- a1.** Define the nature and operations of functions of several variables.
- a2.** Summarize theories and concepts used in the Linear algebra and statistics.
- a3.** Identify the steps required to carry out a piece of research on a topic within Linear algebra and statistics.

#### b) Intellectual skills

- b1.** Recognize and apply appropriate theories, principles and concepts relevant.



	<p><b>b2.</b> Assess and evaluate the literature within Linear algebra and statistics.</p> <p><b>b3.</b> Analyze and interpret information from a variety of sources relevant to Linear algebra and statistics.</p> <p><b>b4.</b> Exercise appropriate judgment in selecting and presenting information using various methods relevant to Linear algebra and statistics.</p>
<b>c) Professional skills</b>	<p><b>c1.</b> Plan practical activities using techniques and procedures appropriate to Linear algebra and statistics.</p> <p><b>c2.</b> Plan, design, record, execute and communicate a piece of independent research using mathematics media and techniques.</p> <p><b>c3.</b> Respond to change within the external and internal mathematics environments.</p>
<b>d) General skills</b>	<p><b>d1.</b> Use organization skills (including task and time management) relevant to mathematics both individually and in a group situation.</p> <p><b>d2.</b> Demonstrate the ability to work effectively as part of a group, involving leadership, group dynamics and interpersonal skills such as listening, negotiation and persuasion relevant to Linear algebra and statistics.</p> <p><b>d3.</b> Solve problems relevant to infinite series and sequences of functions using ideas and techniques some of which are at the forefront of the discipline.</p>
<b>4. course content</b>	<p><b>1-</b>Functions of several variables. Descriptive Statistics</p> <p><b>2-</b> Multiple integrationn</p>



	3- continuation- Concepts of probability	
	4-Line and surface integrals	
	5-continuation - Conditional probability and independence	
	6- Series, tests of convergence uniform convergence and	
	7-Improper integrals-Formula of complete probability and Bayes theorem	
	8- Fourier series	
	9--Ordinary differential equations of first order and second order with constant coefficients.	
	10- Planes and straight lines in space.	
	11- Quadratic surface- Random variables and Probability Distributions (Discrete and continuous),	
	12-General equation of the second degree in three variables.	
	<b>5. Teaching and learning methods</b>	5.1 Lectures. 5.2 Tutorials 5.3 Homework 5.4 Oral discussion
	<b>6. teaching and learning methods for students with special needs</b>	Non
<b>7. Student Assessment</b>		
<b>a. Procedures used:</b>	Mid term Final exam	
	Assessment 1 Midterm Exam Week 7	



<b>b. Schedule:</b>	Assessment 2    Final exam    Week 15
<b>c. Weighing of Assessment:</b>	Test1 50 Marks Final exam 250 Marks
<b>8. List of Textbooks and References:</b>	
<b>a. Course Notes</b>	Course notes provided by the staff member of Math department, to be handed at the beginning of the semester.
<b>b. Required Books (Textbooks)</b>	1-G.Strang, Linear Algebra and its applications, Academic press, 1980. 2- Mood, Graybill &Boes, "Introduction to the theory of statistics", McGraw- Hill, 1974. 3- Miller, I. and M. Miller "John E. Freunds Mathematical Statistics with Applications", Prentice Hall International, Inc.; 7th edition, 2003. 4- Larsen, R. J. and M. L. Marx "An Introduction to Mathematical Statistics and Its Applications", Pearson International Edition, 2005.
<b>c. Recommended Books</b>	None
<b>d. Periodicals, web sites,...,etc</b>	None

**Course Instructor:** Prof. Dr. Mohamed Darwish

**Head of Department:** Dr. Ragab Omar Abd El-Rahman

**Date:**    /    /