



## Course specification

University/Academy: Damanhour University

Faculty/Institute: Science

Department: Mathematics

### 1. course Data:

<b>Course code:</b> Math105	<b>Course title:</b> Mathematics (Pure & Applied Math)	<b>Academic year/level:</b> 2007\2008 First year - First semester
<b>Specialization:</b> جميع التخصصات لمجموعة العلوم البيولوجية	<b>No. of instructional units:</b> lecture <input type="text" value="5"/> tutorial <input type="text" value="2"/> practical <input type="text" value="2"/>	

### 2. course Aim

Demonstrate theoretical knowledge and have practical skills and personal attributes and competencies that will be required for using mathematics to solve problems in Biology.  
Demonstrate an ability to initiate and sustain in-depth study relevant to the applications of Mathematics to Biological problems.  
Have an opportunity to put theory into practice via work-based learning.

### 3. Intended learning outcome

<b>a) Knowledge and understanding</b>	a1. Define the nature and operations of Mathematics; a2. Review the familiarity with theories and concepts used in Mathematics a3. Identify the steps required to carry out a piece of study on a topic within Mathematical Biology;
<b>b) Intellectual skills</b>	b1. Apply appropriate theories, principles and concepts relevant to Mathematical Biology; b2. Assess the literature within Mathematical Biology; b3. Analyze a reasoned argument to the solution of familiar and unfamiliar problems relevant to Mathematical Biology.
<b>c) Professional skills</b>	c1. Plan practical activities using techniques and procedures appropriate to Mathematical Biology



<b>d) General skills</b>	d1. Use appropriate effective written and oral communication skills relevant to Mathematical Biology; d2. Deal with the ability to work effectively as part of a group relevant to Mathematical Biology; d3. Set tasks and solve problems relevant to Mathematical Biology using ideas and techniques some of which are at the forefront of the discipline
<b>4. course content</b>	<b>(pure math)</b> 1-Functions, limits and continuity 2-Derivatives, mean value theorem and applications 3-Methods of indefinite integration 4-Definite integrals 5-Applications 6-Sets and relations 7-Determinants of order n 8- Complex numbers 9-Polynomials 10- Theory of equations 11-Coordinates -Straight lines. 12-pair of lines- general equation of second degree <b>(applied math)</b> 1-Vectors, 2-The main algebraic operations on vectors 3-The resultant of a system of forces & their equilibrium 4-Frictional forces 5-Kinematics of particles 6-The laws of motion 7- The work done 8-Kinetic energy and potential energy.



	9-Impulse
	10-Motion in a straight line with variable acceleration
	11-The simple harmonic motion
	12- Revision
<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>	Final exam
<b>b) Schedule:</b>	Assessment 1    Final exam    Week 15
<b>c) Weighing of Assessment:</b>	Final exam 250 Marks (100%)
<b>List of Textbooks and References:</b>	
<b>d) Course Notes</b>	Course notes provided by the staff member of Math department, to be handed at the beginning of the semester.
<b>e) Required Books (Textbooks)</b>	1- James Stewart, Calculus, Amazon, 1999. 2- J.Littlewoodm, J.Hobborn, F.Norton, Mechanics I, Cambridge University press, 1972
<b>f) Recommended</b>	Loney, S. L., The elements of statics and dynamics, part I and II,



<b>Books</b>	Cambridge
<b>g) Periodicals, web sites,....,etc</b>	None

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

Dr. El-Sayed I. Saad

**Head of Department:** Prof. Dr. Mohamed Darwish

**Date:** / /