



Philadelphia University
Faculty of Science
Department of Basic Sciences and Mathematics
First Semester, 2010/2011

Course Syllabus			
Course Title	Mathematics for Computing	Course Code	210103
Course Level	"1"	Course Prerequisite	Mathematics 1
Lecture Time	Sun. Tue. Thu. 11:10-12:00	Credit Hours	"3"

Academic Staff Specific				
Name	Manal Al-Labadi	Office Hours	Sun.	10:00 – 11:00
Rank	Master		Mon	10:00--11:00
Office Number	"1016"		Tue.	10:00 –11:00
Location	Faculty of Science		Wed.	10:00--11:00
E – mail	mlabadi@philadelphia.edu.jo		Thu.	10:00 – 11:00

Course module description:

This module aims to provide students with some background in sequences and Series, general vector space, Eigenvalues and Eigenvectors and introduction to linear transformation.

Course module objectives:

On completing this module, student should:

- * Have an understanding of the basic topic of Sequences and infinite series.
- * Have an understanding of the concepts of general vector spaces.
- * Be able to apply the principles of calculus in some real world problems.
- * Be able to apply the concepts of linear algebra in simple experiments,

Course/ module components

- Books (title , author (s), publisher, year of publication)

Text Book

Title: Calculus, 9th Edition
Author(s)/Editor(s): Salas and Hille
Publisher:Wiley 2002

Title: Elementary Linear Algebra
Author(s)/Editor(s): Howard Anton
Publisher:Wiley 2003

Teaching methods:

Duration: 16 weeks in first semester, 48 hours in total.

Lectures: 32 hours in total.

* At the end of this module students will be able to :

Learning outcomes:

(Knowledge and understanding, intellectual skills, practical skills, Transferable Skills, ..etc)

Assessment instruments

- Short reports and/ or presentations, and/ or Short research projects.
- Quizzes.
- Home works.
- Final examination: 50 marks

Allocation of Marks	
Assessment Instruments	Mark
First Examination	20
Second Examination	20
Homeworks, Quizzes and Projects	10
Final Examination	50
Total	100

Documentation and academic honesty

- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Course/module academic calendar

Week	Topics
1	Sequences of Real Numbers, Limit of Sequence.
2	Infinite Series, Tests for Convergence (Integral Comparison).
3	Limit Comparison Test, Root Test, Ratio Test.
4	Absolute and Conditional Convergence (Alternating Series).
5	Power Series (Radius and Interval of Convergence).
6	Taylor Series in x and $x-a$.
7	Linear Algebra: System of Linear equations, Elementary row. Operation on matrices, Gaussian elimination. The first Exam will be held in this period.
8	Matrices, Matrix Operations.
9	Determinants, Inverse of a Matrix.
10	General Vector Space, Subspaces.
11	Linear Combination, Span, Basis. The second Exam will be held in this period.
12	Row and Column Space, Rank and Nullity.
13	Eigenvalues and Eigenvector.
14	Diagonalization.
15	Introduction to Linear Transformation.
16	Final exam will be held in this period.

Expected workload:

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

Lecture attendance is mandatory. Student is allowed maximally 15% absentia of the total module hours. More than this percentage, student with an excuse will be drawn from module. Otherwise, student will be deprived from the module with zero mark assigned.

Module references:

Students will be expected to give the same attention to these references as given to the Module textbook(s)

1. Author(s) : Silverman R.A title:Calculus with Analytic Geometry Editor: Wiley
Year of publishing 1998
2. title : Linear Algebra and its applications author(s) / Editor (S) : Howard Anton Publisher : AddisonWesley 2002

Journals:

- www.math.technion.ac.il
- [http://archives.math.utk.edu/topics/linear algebra.](http://archives.math.utk.edu/topics/linear%20algebra)
- www.elsevier.com/wps/find/journaldescription.cws-home
- www.ilasic.math.uregina.ca/iic/journal

Websites:

- www.numbertheory.org/book
- [http://ocw.mit.edu/ocwweb/mathematics...\(video lectures\).](http://ocw.mit.edu/ocwweb/mathematics...)
- [http://en.wikipedia.org/wiki/Linear-algebra...\(several links and text books\)](http://en.wikipedia.org/wiki/Linear-algebra...)