Prince Sultan University
Department of Mathematical Sciences
Semester I, Fall 2017

Course : **MATH 101**
Title : **Finite Mathematics**
Textbook : **Finite Mathematics, An Applied approach; 11th edition. Michael Sullivan. John Wiley & Sons Inc. 2011**

Course Description:
This course contains topics for students in the Finance and Business majors.

Course Objectives:
The objective of this course is to provide the students with a background and to develop their skills in the following topics:

- Solving system of linear equations.
- Matrix operations.
- Linear programming.
- Mathematics of finance.
- Probability and decision-making.

Applications of these topics in business and life are considered

Covered Topics:
The Topics covered in this course are:

- Linear equations.
- Matrices.
- Linear programming, both geometric approach and the simplex method.
- Finance
- Sets and Counting Techniques.
- Probability and Probability models

Attendance:

- Students are expected to attend all classes and course activities for which they are registered. Any class meeting missed, regardless of cause, reduces the opportunity of learning and may adversely affect a student's achievement in the course. An accurate record of attendance will be kept for each student.
- The University's policy on absence is as follows:
  5 absences: first warning.
  9 absences: second warning.
  13 absences: recommendation for DN (Denial Notice), which results in dismissal from the course after being issued an official DN.
- Missing classes for emergencies such as illness, car accidents, etc…is part of the student absences above and will count against his DN.(No need to present documents to justify the absence)

- It is very important that the student is present at the start of the class. Attendance will be taken during the **first 5 minutes** of the class. If a student comes to class after 5 minutes he will be marked absent.
- 5 **points** will be assigned to attendance. **Half a point** will be deducted for every one absence the student has **after having three absences**.

- In case a student misses a class, he must contact any one of his classmates to get all information and topics covered in classes he missed.

- It is the student's responsibility to check regularly on his total number of absences.

Exams:

- **Two major exams** will be given during this course contributing **40 points** to the total grade. Dates and topics included for each of these exams are shown in the Syllabus sheet next.

- **A final exam** will be given at the end of the term including all the subjects covered during the course. The final exam weighs **40 points** of the total grade.

Classwork (Online Homework, participation, and Quizzes)

- A list of PRACTICE will be given to the student at the start of the term. The PRACTICE PROBLEMS are intended for the student to practice in order to prepare them for the quizzes and exams.

- Practice is very important to consolidate the student's understanding of the topics discussed in class and also help identify points of weakness.

Online Homework:

An online HW will be assigned using WILEYPLUS. A code that comes with the book is needed for registering in the website. Use the following link to register for the course:

http://edugen.wileyplus.com/edugen/class/

5 points is assigned to the online HW.

Quizzes:

- A quiz will be given once a week during the first 5 minutes of the class. The quiz covers the materials discussed during the previous lecture. Being late or absent for the class will deny you the quiz mark. (No make up for quizzes). Quizzes are worth **10 points** of your total grade.

Calculators:

Scientific Calculators are required and needed in this course. **Graphing Calculators are not allowed.**
I recommend **CASIO fx-991ES**

Office Hours:

Check the table posted on my door (E – 334) for the office hours incase you need assistance or you need to inquire about matters concerning your marks, absence, and so on. If a student needs to see me at a different time, he should arrange with me in advance.

CLO's for MATH 101

1) Solving systems of linear equations using algebraic methods and with matrices and solve applications problems. (Cognitive)

2) Demonstrate skills in basic matrix algebra that includes addition, subtraction, multiplication, and inverses. (Cognitive, Numerical)

3) Use equations of finance to calculate simple and compound interests, future and present annuities. (Interpersonal, Numerical)

4) Construct and solve linear programing problems using both geometric approach and simplex algorithm. (Cognitive skills)

5) Use properties of sets to perform set operations and use counting techniques to analyse application problems. (Interpersonal)

6) Calculate probabilities using the concepts of counting theory and interpret the results. (cognitive, Communication)

Grading Policy:

First Major Exam	**20**
Second Major Exam	**20**
Attendance & Participation	**5**
Online Homework	**5**
Quizzes	**10**
Final	**40**
Total	**100 Points**

Week	Date	Sec	Material
1	Sep 17 – 21	 1.1	Introduction Lines
2	Sep 24 – 28	1.2 1.3	Pairs of lines Applications in Business and Economics
3	October 01 – 05	2.1 2.2	Systems of linear Equations: Substitution ; Elimination Systems of linear Equations: Gaussian Elimination
4	October 08 – 12	2.3 3.1 3.2	System of *m* linear Equations Containing *n* Variables Matrix Algebra Multiplication of Matrices
5	October 15 – 19	3.3 4.1	The Inverse of a Matrix Systems of Linear Inequalities
6	October 22 – 26	4.2 5.1	A Geometric Approach to Linear Programming Problems with Two Variables The Simplex Tableau; Pivoting
Major I Exam Wednesday 25 October (Chapters 1 , 2 , 3, and 4)			
7	Oct. 29 – Nov. 02	5.2 5.3	The Simplex Method: Solving Max. Problems in Standard Form Solving Minimum Problems Using the Duality Principle
8	November 05 – 09	5.3 5.4	Solving Minimum Problems Using the Duality Principle The Simplex The Simplex Method for Problems Not in Standard Form
9	November 12 – 16	6.1 6.2 6.3	Interest Compound Interest Annuities ; Sinking Funds
10	November 19 – 23	7.1 7.2	Sets The Number of Elements in a Set
11	November 26 – 30	7.3 8.4	The Multiplication Principle Permutations
12	Dec. 03 – 07	8.5 7.4	Combinations Sample Spaces and Assignment of Probabilities
13	Dec. 10 – 14	7.5 8.1	Properties of the Probability of an Event Conditional Probability
Major II Exam Tuesday 12 December (5.1 ----- 7.5)			
14	Dec. 17 – 21	8.2 8.3	Independent Events Bayes' Theorem
15	Dec. 24 – 28	8.6	The Binomial Probability Model Review for Final Exam

SECTION	PAGE	PRACTICE PROBLEMS
1.1	Page 16	13,19,30,31,37,41,45,49,52,53,59,60,63,69,70,75,99,104,108,109,113
1.2	Page 28	5,11,21,23,27,31,32,35,36,44
1.3	Page 34	5,6,9,11,13,14,16
2.1	Page 65	9,11,12,15,23,29,38,41,46,56,57,61,62
2.2	Page 84	4,9,10,15,23,28,31,33,34,37,41,45,46,48,53,68,69
2.3	Page 95	3,11,15,16,19,25,27,28
3.1	Page 117	6,9,11,13,19,23,27,30,32,37,41,51,52
3.2	Page 131	6,13,17,18,31,38,41,45,53,57,71,73
3.3	Page 148	4,5,9,10,15,19,21,27,33,34,43,49,50,53
4.1	Page 187	5,7,15,17,20,21,22,27,29,31,36,37,41,49,50,55,58
4.2	Page 198	4,11,15,20,23,25,33,40,41,49,51
4.3	Page 206	3,4,6,8,11,21
5.1	Page 232	6,7,11,16,19,22,23,27,29,31,32,37
5.2	Page 252	2,7,11,12,16,17,21,23,27,30,43,44
5.3	Page 266	8,11,12,16,17,23,24,25,27
5.4	Page 281	4,5,6,7,8,9,10
6.1	Page 299	7,11,13,17,23,27,33,37,40,43,45,46,49,50,53,55,57,63,65
6.2	Page 311	6,9,12,13,15,21,25,32,35,39,43,45,49,51,55,57,59,69,71,72
6.3	Page 326	5,9,15,19,23,26,27,30,31,35,39,45,46
7.1	Page 363	14,15,21,26,27,31,35,41,42,45,46
7.2	Page 369	8,9,13,14,15,22,26,28,29,33,34,35,38,39
7.3	Page 376	3,7,8,12,13,14,15,18,19,25,26,31,34,35,38,39,40,41,43,46
7.4	Page 385	6,8,9,13,17,18,21,2634,35,36,39,42,43,51,52,53,57,66,65,67,69
7.5	Page 400	5,7,9,10,11,13,16,18,20,22,24,25,30,32,33,34,46,55,57,59,61
8.1	Page 429	7,8,14,15,16,17,20,23,25,26,27,29,30,32,38,44,48,49,51,52,55,59,67,69,71,75
8.2	Page 441	3,6,7,8,10,11,13,14,17,18,19,23,28,29,31,32,33,34
8.4	Page 463	11,13,22,23,27,30,33,35,36,37,40,43,46,47,50,51,52,54,55,57,58
8.5	Page 476	7,9,15,17,18,21,22,25,27,28,29,30,32,37,48,49,50,53,54,57
8.6	Page 491	9,11,15,17,19,23,25,27,29,31,38,39,41,55,56,59