



# KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

## DEPARTMENT OF MATHEMATICS

**Math 105 Syllabus, Term 211 (Academic Year 2021-2022)**

Course Coordinator Dr. Shahzad Sarwar [Shahzad.sarwar@kfupm.edu.sa](mailto:Shahzad.sarwar@kfupm.edu.sa)

**Course Code and Name:** Math 105, Finite Mathematics

**Course Credit Hours:** 3-0-3

**Textbook:** E. Haeussler, R. Paul, & R. Wood, *Introductory Mathematical Analysis for Business, Economics, and the Life and Social Sciences* (13 Ed.), Pearson, 2014.

**Learning outcomes:** Upon completion of this course, students should be able to

1. Formulate and solve business related problems using equations and inequalities.
2. Solve system of linear equations using matrices.
3. Solve linear programming problems graphically and by the simplex method.
4. Solve financial problems involving compound interest, present and future values, and annuities.
5. Demonstrate ability to count and use descriptive statistics and basic probability concepts.
6. Recognize the Binomial and Normal distributions and their applications in business.
7. Apply the Binomial and Normal distributions and their applications in business.

### Grading Policy:

	Date	Time	Place	Materials	Percentage
<b>Exam I</b>	Saturday 02-Oct, 2021	TBA	TBA	1.1- 7.1	25% (100 pts)
<b>Exam II</b>	Sunday 07-Nov, 2021	-----	-----	7.2 – 8.2	25% (100 pts)
<b>Final Exam</b>	TBA	TBA	TBA	Comprehensive	35% (140 pts)
<b>Class Work</b>	<ul style="list-style-type: none"><li>▪ It is based on quizzes, class tests, homework or other class activities determined by the instructor.</li><li>▪ Any quiz or test should be of a written type and not of a multiple- choice type.</li><li>▪ The average (out of 60) of the class work of each section should be in the interval [42, 45].</li></ul>				15% (60 pts)

### Exams:

**Exam Questions:** The questions of the exams are based on the examples, homework problems, and exercises in the textbook.

For *Important Dates, Announcements* and *Academic Calendar*, check the Registrar's site:

<http://regweb.kfupm.edu.sa> and Blackboard

**Missing Quizzes, and Midterm Exam:** No make-up test will be given under any circumstances. If a student miss one of these tests for a legitimate reason (such as medical emergencies), he must present an official excuse from the Student Affairs to the designated instructor no later than a week before the date of the Final Exam. In this case the student grade for this test will be the average of all other tests grades he received in the course during the term, except for the Final Exam grade. If no such official excuse is forwarded to the instructor on time, the student receives ZERO grade.

**DN grade:** A DN grade will be awarded to any student who accumulates 9 unexcused absences for classes UTR (Sunday, Tuesday and Thursday) and 6 unexcused absences for classes of MW (Monday and Wednesday)

**Cheating:** Cheating or any attempt of cheating by use of illegal activities, techniques and forms of fraud will result in an “F” grade in the course along with reporting the incident to the higher university administration. Cheating in any online exams (if) includes, but not limited to:

- Screen sharing to another computer.
- Using unauthorized advanced electronic devices.
- Keeping notes on smartphones and using mobile apps.
- Faking identities to get third-party assistance.

**Attendance:** Students are expected to attend all online classes.

- If a student misses a class, he is responsible for any announcement made in that class.
- A student is considered absent if not attending the online class 10 minutes after the class start time. The instructor may also randomly verify attendance during each online class using any appropriate means he finds. In both cases, the student is permitted to attend the remainder of the online class session.
- A student, who has a valid excuse for an absence, must present an officially authorized document to his instructor no later than a week before the date of the Final Exam; no excuses shall be accepted after that date.
- **A DN grade will be awarded to any student who accumulates**
  - **9 unexcused absences in online classes.**
  - **12 excused and unexcused absences in online classes.**

**Tips on How to Enhance Your Problem-Solving Skills:**

- ❖ Make sure you understand the concepts and techniques of each section.
- ❖ Take notes during classes and study your notes, textbook, and, if available, lecture slides before your next class.
- ❖ Review the lecture to consolidate your learning and locate any missed points.
- ❖ Try always to solve the problems on your own first before reading the solution or asking for help.
- ❖ If you find it difficult to solve a certain type of problems, you should try more problems of that type.
- ❖ Try to make good use of the office hours of your instructor.
- ❖ Solve old exams as part of your preparation for the major exams and Final Exams.
- ❖ Last, but not least, consult your instructor whenever you feel you need help understanding a concept or solving a problem

**Academic integrity:** All KFUPM policies regarding ethics apply to this course

### Syllabus – A rough weekly guideline

Week #	Date	Section	Material	Selected Problems
1	Aug 29 – Sep 02	1.1 1.3	Applications of Equations Applications of Inequalities	4,12,16,20, 28, 33, 36, 43. 2, 4, 6, 7, 9, 10, 12.
2	Sep 05 – Sep 09	3.1 3.2 3.3	Lines (Review) Applications and Linear Functions Quadratic Functions	12, 32, 58, 64, 69, 71. 16, 17, 18, 20, 24, 26, 31. 27, 29, 31, 34, 36, 39, 40.
3	Sep 12 – Sep 16	3.4 3.5 3.6	Systems of Linear Equations Nonlinear Systems Applications of Systems of Equations	26, 28, 29, 34, 37, 39, 41. 6, 9, 12, 14, 15, 16. 8, 15, 17, 18, 19, 20, 25.
4	Sep 19 – Sep 22	6.4 6.5	Solving Systems by Reductions Solving Systems by Reductions (cont.)	17, 23, 27, 29, 30, 31, 32. 6, 8, 10, 12, 19, 21, 24.
	<b>Sep 23</b>	<b>Thursday, National Day Holiday</b>		
5	Sep 26 – Sep 30	7.1 7.2	Linear Inequalities in Two Variables Linear Programming	16, 18, 20, 22, 24, 28, 29. 10, 13, 14, 15, 16, 17, 18.
6	Oct 03 – Oct 07	7.3 7.4	Multiple Optimum Solutions The Simplex Method	1, 2, 3, 4. 5, 8, 12, 16, 17, 19.
<b>↑ Exam I: Saturday 02 October, Material 1.1- 7.1</b>				
7	Oct 10 – Oct 14	7.8	The Dual (Exclude Example 3)	4, 10, 12, 13, 14, 15, 17.
8	Oct 17 – Oct 21	5.1 5.2	Compound Interest Present Value	8, 10, 12, 18, 19, 23. 24, 26. 4, 8, 10, 11, 14, 16, 2
<b>↑ Sunday, Oct. 17, 2021: Student Break</b>				
9	Oct 24 – Oct 28	5.3 5.4	Interest Compounded Continuously Annuities	5, 10, 12, 14, 16, 19, 20. 16, 18, 22, 24, 26, 28, 29.
10	Oct 31 – Nov 04	8.1	Basic Counting Principle and Permutations	6, 8, 10, 22, 25, 29, 32, 36, 38.
		8.2	Combinations and Other Counting Principles	10, 14, 18, 23, 25, 26, 30, 33, 38.
11	Nov 07 – Nov 11	8.3	Sample Spaces and Events	3, 6, 9, 14, 22, 26, 28,
		8.4	Probability	4,10,16,19, 21, 23, 24, 27, 31
<b>↑ Exam II: Sunday 07 November, Material 7.2 - 8.1</b>				
12	Nov 14 – Nov 18	8.5	Conditional Probability	2,10,14, 17, 23, 26, 37, 41, 47.
		8.6	Independent Events	1, 6, 20, 23, 25, 27, 31, 32, 35.
13	Nov 21 – Nov 25	9.1	Discrete Random Variables and Expected Value	3, 4, 5, 9, 11, 15, 16, 18, 20.
		9.2	The Binomial Distribution	4,5,10,12,17, 19, 20, 23, 25,26
<b>Midterm Break: Nov. 28- Dec. 2, 2021</b>				
14	Dec 05 – Dec 09	16.2	The Normal Distribution	2, 10, 14, 17, 19, 20, 21.
15	Dec 12 – Dec 16	Suppl. Material	Frequency Distributions Measures of Central Tendency Measures of Variation	
16	Dec 19 – Dec 20	Revision	Continued Normal Thursday Class	
Final Exam (Comprehensive): As posted on the Registrar Website				