KING FAHD UNIVERSITY OF PETROLEUM & MINERALS DEPARTMENT OF MATHEMATICS & STATISTICS

MATH 105: FINITE MATHEMATICS *(212)*

Course Coordinator Dr. Kroumi Dhaker, Kroumi.dhaker@kfupm.edu.sa

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 programing 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.

Assessment for this course is based on **class activities (attendance & homework & Quizzes)**, ***two major exams*** and a ***comprehensive final exam***, as described in the following table:

Activity	Weight
Class Work: Quizzes. The section average out of 30 *should* be in the interval [21, 22.5]	10% (30 points)
Homework, Attendance, etc…	5% (15 points)
*First Major Exam: MCQ (***Sections: 1.1 to 7.8***)* *February 28, 2022*	25% (75 points)
*Second Major Exam: MCQ (***Sections: 5.1 to 8.6***)* *April 3, 2022*	25% (75 points)
Final Exam: MCQ (Comprehensive) As posted on the Registrar Website	35% (105 points)

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

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 exams (if) includes, but not limited to:

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

Missing an exam: Information will come

Attendance: Students are expected to attend all 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 class 10 minutes after the class start time. The instructor may also randomly verify attendance during each class using any appropriate means he finds. In both cases, the student is permitted to attend the remainder of the 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 classes.
  - 12 excused and unexcused absences in classes.

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

For ***Important Dates*** and ***Academic Calendar***, check the Registrar's site: **http://regweb.kfupm.edu.sa**

Syllabus – A rough weekly guideline

Week # (Dates)	Sections	Topics	Homework Problems
Week 1 (Jan 16 – 20)	**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.
Week 2 (Jan 23 – 27)	**3.1** **3.2** **3.3**	**Lines (Review)** **Applications and Linear Functions** **Quadratic Functions**	12, 32, 58, 64, 71. 16, 17, 18, 20, 24, 26, 31. 29, 31, 34, 36, 39, 40.
Week 3 (Jan 30 – Feb 3)	**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.
Week 4 (Feb 6 – 10)	**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.
Week 5 (Feb 13 – 17)	**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.
Week 6 (Feb 20 – 24)	**7.3** **7.4**	**Multiple Optimum Solutions** **The Simplex Method**	1, 2, 3, 4. 5, 8, 12, 16, 17, 19.
Week 7 (Feb 27–Mar 3)	**7.8**	**The Dual (Exclude Example 3)**	4, 10, 12, 13, 14, 15, 17.
Week 8 (Mar 6 – 10)	**5.1** **5.2**	**Compound Interest** **Present Value**	8, 10, 12, 18, 19, 23. 24, 26. 4, 8, 10, 11, 14, 16, 21.
Week 9 (Mar 13 – 17)	**5.3** **5.4**	**Interest Compounded Continuously** **Annuities**	5, 10, 12, 14, 16, 19, 20. 16, 18, 22, 24, 26, 28, 29.
Week 10 (Mar 20 – 24)	**8.1** **8.2**	**Basic Counting Principle and Permutations** **Combinations and Other Counting Principles**	6, 8, 10, 22, 25, 29, 32, 36, 38. 10, 14, 18, 23, 25, 26, 30, 33, 38.
Week 11 (Mar 27 – 31)	**8.3** **8.4**	**Sample Spaces and Events** **Probability**	3, 6, 9, 14, 22, 26, 28, 29. 4,10,16,19, 21, 23, 24, 27, 31.
Week 12 (Apr 3 – 7)	**8.5** **8.6**	**Conditional Probability** **Independent Events**	2, 10, 14, 17, 23, 26, 37, 41, 47. 1, 6, 20, 23, 25, 27, 31, 32, 35.

Week 13 (Apr 10 – 14)	**9.1** **9.2**	**Discrete Random Variables and Expected Value** **The Binomial Distribution**	3, 4, 5, 9, 11, 15, 16, 18, 20. 4, 5, 10, 12, 17, 19, 20, 23, 25, 26.
Week 14 (Apr 17 – 21)	**16.2**	**The Normal Distribution**	2, 10, 14, 17, 19, 20, 21.
		Eid Al-Fitr Holidays Apr. 26- May. 6, 2022	
Week 15 (May 8 – 12)	**Suppl. Material**	**Frequency Distributions** **Measures of Central Tendency** **Measures of Variation**	
Final Exam (Comprehensive): As posted on the Registrar Website			