# KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
## DEPARTMENT OF MATHEMATICS
### Math 105 Syllabus, Term 213 (Academic Year 2021-2022)
### Course Coordinator Dr. Shahzad Sarwar 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 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.

## Grading Policy:

|  | Date | Time | Place | Materials | Percentage |
|---|---|---|---|---|---|
| **Exam I** | 28 June 2022 | TBA | TBA | 1.1- 7.1 | 25% (100 pts) |
| **Exam II** | 26 July 2022 | TBA | TBA | 7.2 – 8.2 | 25% (100 pts) |
| **Final Exam** | TBA | TBA | TBA | Comprehensive | 35% (140 pts) |
| **Homework** | ---- | ---- | ---- | ---- | 5% (20 pts) |
| **Class Work** | ▪ It is based on quizzes, class tests, attendance, or other class activities determined by the instructor.<br>▪ Any quiz or test should be of a written type and not of a multiple-choice type.<br>▪ The average (out of 40) of the class work of each section should be in the interval [28, 30]. | | | | 10% (40 pts) |

- ✓ **Letter Grades:** The letter grades will follow a grading curve, which depends on the average of all students in the course.

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

- ✓ **Cheating in Exams:** Cheating or any attempt of cheating by use of illegal activities, techniques and forms of fraud will result in a grade of F in the course along with reporting the incident to the higher university administration for further action. Cheating in exams includes (but is not restricted to):
  ➢ looking at the papers of other students

➢ talking to other students

➢ using mobile phones, smart watches, or any other electronic devices.

✓ **Missing an Exam:** In case a student misses an exam (Exam I, Exam II, or the Final Exam) for a legitimate reason (such as medical emergencies), he must bring an official excuse from Students Affairs. Otherwise, he will get zero in the missed exam.

✓ **Attendance:** Students are expected to attend all lecture classes.

➢ If a student misses a class, he is responsible for any announcement made in that class.

➢ A DN grade will be awarded to any student who accumulates more than 20% unexcused absences (9 lectures) or 33% excused and unexcused absences (15 lectures)
**Note:** Missing one lecture is counted as 1.2 absence.

✓ **The Usage of Mobiles in Class:** Students are not allowed to use mobiles for any purpose during class time. Students who want to use electronic devices to take notes must take permission from their instructor. Violations of these rules will result in a penalty decided by the instructor.

✓ **Academic Integrity:** All KFUPM policies regarding ethics apply to this course. See the Undergraduate Bulletin.

## Syllabus – A rough weekly guideline

| Week # | Date | Section | Material | Suggested Problems |
|---|---|---|---|---|
| 1 | June 5- 9 | 1.1<br>1.3<br>3.1<br>3.2<br>3.3 | Applications of Equations<br>Applications of Inequalities<br>Lines (Review)<br>Applications and Linear Functions<br>Quadratic Functions | 4,12,16,20, 28, 33, 36, 43.<br>2, 4, 6, 7, 9, 10, 12.<br>12, 32, 58, 64, 69, 71.<br>16, 17, 18, 20, 24, 26, 31.<br>27, 29, 31, 34, 36, 39, 40 |
| 2 | June 12- 16 | 3.4<br>3.5<br>3.6<br>6.4<br>6.5 | Systems of Linear Equations<br>Nonlinear Systems<br>Applications of Systems of Equations<br>Solving Systems by Reductions<br>Solving Systems by Reductions (cont.) | 26, 28, 29, 34, 37, 39, 41.<br>6, 9, 12, 14, 15, 16.<br>8, 15, 17, 18, 19, 20, 25.<br>17, 23, 27, 29, 30, 31,<br>32. 6, 8, 10, 12, 19, 21, 24. |
| 3 | June 19- 23 | 7.1<br>7.2<br>7.3<br>7.4 | Linear Inequalities in Two Variables<br>Linear Programming<br>Multiple Optimum Solutions<br>The Simplex Method | 16, 18, 20, 22, 24, 28,<br>29. 10, 13, 14, 15, 16, 17, 18.<br>1, 2, 3, 4.<br>5, 8, 12, 16, 17, 19. |
| | | | ⬇ **Exam I: Tuesday 28 June, Material 1.1- 7.2** | |
| 4 | June 26- 30 | 7.8<br>5.1<br>5.2<br>5.3<br>5.4 | The Dual (Exclude Example 3)<br>Compound Interest<br>Present Value<br>Interest Compounded<br>Continuously Annuities | 4, 10, 12, 13, 14, 15, 17.<br>8, 10, 12, 18, 19, 23. 24, 26.<br>4, 8, 10, 11, 14, 16, 2<br>5, 10, 12, 14, 16, 19, 20.<br>16, 18, 22, 24, 26, 28, 29. |
| | | | **Hajj Holiday: July 1-16, 2022.** | |
| 5 | July 17- 21 | 8.1<br><br>8.2<br><br>8.3 | Basic Counting Principle and Permutations<br>Combinations and Other Counting Principles<br>Sample Spaces and Events | 6, 8, 10, 22, 25, 29, 32, 36, 38.<br><br>10, 14, 18, 23, 25, 26, 30, 33, 38.<br>3, 6, 9, 14, 22, 26, 28, |
| 6 | July 24- 28 | 8.4<br>8.5<br>8.6<br>9.1<br><br>9.2 | Probability<br>Conditional Probability<br>Independent Events<br>Discrete Random Variables and Expected Value<br>The Binomial Distribution | 4,10,16,19, 21, 23, 24, 27, 31<br>2,10,14, 17, 23, 26, 37, 41, 47.<br>1, 6, 20, 23, 25, 27, 31, 32, 35.<br>3, 4, 5, 9, 11, 15, 16, 18, 20.<br><br>4,5,10,12,17, 19, 20, 23, 25,26 |
| | | | ⬆ **Exam II: Tuesday, 26 July, Material 7.3 – 8.3** | |
| 7 | July 31- Aug. 4 | 16.2<br>Suppl.<br>Material | The Normal Distribution<br>Frequency Distributions<br>Measures of Central Tendency<br>Measures of Variation | 2, 10, 14, 17, 19, 20, 21. |
| 8 | Aug. 7- 8 | | REVIEW and/or CATCHING UP | |
| | | | | |
| | Final Exam (Comprehensive): As posted on the Registrar Website | | | |