MAT 100 جامعة الفيصل Alfaisal University **Fall 2021**

Precalculus MAT 100

Class Time: Section 5 S/T/T 9 - 10:00
Class Location: S1.001 (M), S2.001 (F)
Prerequisite: PAM101 (Preparatory Algebra for Medicine)

Instructor: Salih TATAR **Office:** SG-38
Phone: +966-1-215-7644 **Email:** statar@alfaisal.edu

Office Hours: Office hours will be posted in E-Learning.

Text Books:

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

Course Description:

This course builds strong basic mathematics skills that are required for studying undergrad mathematics. This course is particularly important to students, whose mathematical skills are not sufficiently developed at high school levels. This course covers materials that include algebraic operations, radical and rational expression, equalities and in-equalities, functions and analytic geometry, special types of functions (linear, quadratic, inverse, polynomial, rational, exponential, logarithmic,and trigonometric), solution to equations, and identities involving some types of functions.

Course Objectives:

At the end of this course, students should be able to:

- Factorize algebraic expressions
- Simplify, add, subtract, multiply, divide and rationalize algebraic expressions
- Solve linear, fractional, radical and quadratic equations
- Solve linear inequalities
- Solve absolute value equations and inequalities
- Write sums in summation notation and evaluate each sum
- Identify arithmetic and geometric sequences and evaluate their sums
- Define and graph constant, polynomial, rational, case-defined and absolute value functions
- Combine functions (add, subtract, multiply, divide and compose)
- Define, find and graph the inverse of a function
- Find and sketch the symmetry of a function (w.r.t. x-axis, origin, y-axis..)
- Find and sketch translations, reflections, vertical stretching and shrinking of basic functions
- Find the slope of a line
- Develop the notion of demand and supply curves
- Sketch parabolas
- Solve systems of linear equations in 2 and 3 variables and non-linear systems
- Solve systems describing equilibrium and break-even points
- Define and graph exponential functions
- Define and graph logarithmic functions
- Solve application problems on logarithmic and exponential equations

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Grading Scheme:

Quizzes	20 %
Homework	10 %
Midterm Exams	40 %
Final Exam: Comprehensive (closed book)	30 %
TOTAL	100 %

A	95-100 %	**A-**	90-94 %
B+	86-90 %	**B**	83-86 %
B-	80-83 %	**C+**	76-80 %
C	73-76 %	**C-**	70-73 %
D+	66-70 %	**D**	60-66 %
F	< 60 %		

Attendance Policy

- **Policy related to missing classes:** Regardless of the reasons, a student missing 15% or more of classes will be denied (DN) from the course. The 15% absences are intended to accommodate for medical emergencies[1] and cases of bereavement of an immediate family member[2]. Only in these cases will the student be allowed to make up missed class work or missed exams
- **Arriving late to class:** Coming to class 5 minutes after the start of class time is considered late, and 3 lates will count as 1 absence. Coming to class 10 minutes late will be considered as an absence.

[1]*Medical emergency counts for only verifiable communicable diseases and unforeseen, beyond the student's control, hospitalization. It needs to be documented by the hospital (not a clinic, much less a private practice doctor) and will be verified.*

[2]*Bereavement document from the Ministry of Health will be required in case, God forbid, of a death in your immediate family. In such a case, you will be excused for three days.*

Cell Phone/ Laptop/ IPad Policy

All electronic devices are not allowed during the exams (except calculators under the instructor permission). Most notably **cell phones are not allowed even in off mode. An irrevocable score zero (0) will be assigned to any student caught with a cell phone and may be subject to further disciplinary measures.** Students are not allowed to use their mobile phones, IPads or laptops during regular classes. Any student caught using any of these devices will be instructed to leave the classroom and will be given a full absence for that particular lecture.

Disability Services Information

If you require special accommodations because of a documented disability, you must identify yourself to your instructor by the 2nd week of instructions. Students with disability must also present professional documentation to the Counseling and Skills Development Unit (Student Affairs) to get support and services.

Academic Integrity

Students are expected to maintain academic integrity at all times and to seek assistance from the instructor when uncertain. Students who engage in activities which misrepresent their academic work through plagiarism, cheating, and falsification infractions of academic integrity will be subject to serious disciplinary measures, ranging from a zero grade in that assessment to the dismissal from the university altogether. All aspects of the course are covered by these rules, including homework, lab reports, course reports, quizzes, and exams.

Consequences of Misconduct

When discipline and misconduct issues become apparent, a student will initially receive a verbal warning as a reminder to respect the professor's authority during class time. If this misconduct during class time occurs few more times, the student will be terminally dismissed from the particular course or from the university altogether. Any student disrupting an examination may be instantly dismissed from the examination room and risk taking an F grade.

Assignments, Quizzes and Exams

Late assignments will not be accepted; they must be completed on the day they are due to receive credit. There is no provision to make-up for missed homework assignments, quizzes, midterm or final exams except under reasons deemed acceptable by your professor (*refer to attendance policy section*).

The professor is expected to **return promptly** the grades of homework assignments, lab reports, quizzes, and midterm exams and to go over them with proper feedback and solutions. Grades will be posted within a maximum of one week after the day on which the assessment was offered.

Students must always present their Alfaisal ID cards during exam times.

Lines of Communication

If you have any concern or suggestion, it is imperative to follow the following steps in the order they are listed:

1. First, talk to your professor to resolve your issue.
2. Second, if your issue has merit and was not resolved by your professor in a reasonable time frame, you may then contact the Chair of the Department.
3. Third, if your issue has merit to be escalated further along the hierarchy, you may then contact the Vice Dean for Academic & Student Affairs. The Vice Dean will address your issue on time.
4. Failure to give due chance and time to resolving your issue with your professor, your Department Head, and your Vice Dean, and going above their heads straight to the Dean or to the Provost, will certainly invite disciplinary measures for not adhering to the institutional lines of communication outlined above.

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Notes:

1. If your issue has no merit, learn to take **NO** for an answer; do not expect a miracle from the Department Chair nor from the Vice Dean.
2. Students are discouraged from nagging their professors to extract undeserved higher grades. Students who engage in this behavior will be automatically barred from consideration when their professors study borderline cases for possible slight grade improvement at the end of the semester.

'entative Schedule (Subject to change):

Week 2 **5-9 Sept**	Syllabus 0.1→0.4 Revision	**0.5:** 2,7,9,11,15,17,19 **0.6:** 1,3,9,11,13,21,29,35,37,51 **0.7:** 19,28,37,43,51,69,71,83,85 **0.8:** 23,24,29,31,47,51,53,61,71 **1.1:** 9,11,13 **1.2:** 7,9,13,17,19,25,29 **1.3:** 1,3,4 **1.4:** 1,7,9,15,17,19,26,27,31,33 **1.5:** 1,3,5,13,19
Week 3 **12-16 Sept**	0.5 Factoring 0.6 Fractions	
Week 4 **19-21 Sept**	0.7 Linear Equations 0.8 Quadratic Equations	
Week 5 **26-30 Sept**	**Homework 1 and Quiz 1 on 29/9** 1.1 Applications of Equations 1.2 Linear Inequalities 1.3 Applications of Inequalities	
Week 6 **3-7 Oct**	1.4 Absolute Value 1.5 Summation Notation **Homework 2 and Midterm 1 on 6/10**	
Week 7 **10-14 Oct**	2.1 Functions 2.2 Special Functions	P. 86: 9, 11, 13, 15, 17, 19, 25, 29, 33, 35, 39, 41 P. 90: 1, 2, 5, 7, 8, 9, 10, 11, 13, 15, 19, 31 P. 95: 3, 5, 17 P. 98: 1, 3, 7, 9 P. 106: 4, 5, 6, 9, 13, 14, 21, 23, 25, 30, 31, 37, 39 P. 113: 2, 7, 8, 13, 14, 20 P. 115: 2, 3, 4, 6, 7, 10, 11
Week 8 **17-21 Oct**	2.3 Combinations of Functions 2.4 Inverse Functions	
Week 9 **24-28 Oct**	2.5 Graphs in Rectangular Coordinates 2.6 Symmetry 2.7 Translations and Reflections	
Week 10 **31 Oct-3 Nov**	**Homework 3 and Quiz 2 on 3/11** 3.1 Lines 3.2 Applications of Linear Functions	P. 134: 1, 3, 5, 7, 9, 17, 20, 22, 23, 24, 25, 29, 31, 33, 41, 44, 46, 47, 48, 51, 52, 53, 54, 55, 63, 71 P. 140: 1, 4, 5, 7, 13, 15, 17, 19 P. 147: 9, 11, 13, 15, 16, 23, 24, 27, 29, 31 P. 157: 9, 10, 15, 19 P. 160: 1, 3, 13 P. 166-167: 1, 9, 15
Week 11 **7-11 Nov**	3.3 Quadratic Functions 3.4 Systems of Linear Equations	
Week 12 **14-18 Nov**	3.5 Nonlinear Systems 3.6 Applications of Systems of Equations **Homework 4 and Midterm 2 on 17/11**	
Week 13 **21-25 Nov**	4.1 Exponential Functions 4.2 Logarithmic Functions	P. 184: 2, 3, 7, 9, 11, 15, 16, 19, 21, 23 P. 191: odd numbers 1→52 P. 197: odd numbers 1→53 P. 201: odd numbers 1→36
Week 14 **28 Nov – 2 Dec**	4.3 Properties of Logarithms 4.4 Logarithmic and Exponential Equations	
Week 15 **5-9 Dec**	7.1 Linear inequalities in 2 variables 7.2 Linear Programming 7.3Multiple Optimum solutions	
Week 16 **12-16 Dec**	**Revision**	