

MATH012: COURSE DESCRIPTION

The third course in the Preparatory Year Math Program is Math 012 (College Algebra and Trigonometry III), which covers standard college algebra and trigonometry topics along with advanced topics in college algebra.

The course is designed and planned for students who score a grade of 50% or above on the Math 001 placement test, as well as for students who did not pass the promotion requirement for Math 002.

The course is designed to teach students the concepts of College Algebra and Trigonometry over 15 weeks (4 weeks to review and teach the concepts of Math 001, and 11 weeks to teach the concepts of Math 002).

The program aims to:

1. Reinforce and Review the student's knowledge of mathematical and analytical skills through the medium of English
2. Develop the student's writing skills in mathematics through interrelated logical procedures.
3. Provide students with the ability to use their understanding to produce and communicate mathematics.
4. Prepare students to apply mathematics skills in advanced degree programs
5. Prepare students to acquire a solid foundation in algebra and trigonometry.
6. Shape students' Mathematics study habits by emphasizing useful study habits and skills that will facilitate their academic success at KFUPM.

The program is designed such that students are continuously involved in lectures, class work, and self-learning activities, mainly solving problems during recitation classes and through weekly online assignments and knowledge tests, enabling them to master course topics through a continuous cycle of mastery, knowledge retention, and positive feedback.

Peer tutoring is an essential component of the learning process; weekly in-person and online training sessions are conducted in which students can enhance their knowledge and exchange ideas with fellow students and instructors. Moreover, students can benefit from resources made available through the LMS (Blackboard) by their instructors and the Prep-Math Program.

PREREQUISITE

Placement test score for MATH 001: 50% or more

LEARNING OUTCOMES

Upon completion of the Prep-Year Math 012 course, a student should be able to:

1. Solve linear, nonlinear, absolute value, exponential, logarithmic, trigonometric, and systems of equations and inequalities.
2. Perform algebraic operations on real and complex numbers, algebraic expressions, functions, vectors, and matrices.
3. Apply the Fundamental Theorem of Algebra and its related theorems.
4. Use one-to-one, exponential, logarithmic, and trigonometric functions and identities to simplify and evaluate related expressions.
5. Sketch and analyze the graphs of equations and functions and their inverses, particularly polynomial, exponential, logarithmic, and trigonometric functions.
6. Determine conic sections' equations and conclude their properties.
7. Formulate real-life word problems mathematically.
8. Analyze sequences and series, including arithmetic and geometric sequences, and their sums

SKILLS AND VALUES

1. Critical Thinking
2. Problem-Solving
3. Team-Work
4. E-Learning
5. Self-Confidence
6. Cooperation

STUDY RESOURCES

1. Textbook Examples and Exercises
2. Lecture Notes
3. Home-Work (ALEKS) through Blackboard.
4. Old Exam Questions
5. Online video courses

Important study resources are available on the Prep-Math Program Link on Blackboard (BB)

RULES AND REGULATIONS

Attendance

- Every 5 registered late will convert into 1 absent.
- A student is registered absent in a class if he joins after 10 minutes or he did not attend.
- A student is registered as late in a class if he joins within 10 minutes from the start of the class time.
- A student will receive 1st warning if he has 3 unexcused absences.
- A student will receive 2nd warning if he has 6 unexcused absences.
- A student will be awarded a 'DN' grade if he reaches 8 unexcused absences.
- A student will be awarded a 'DN' grade if he reaches 11 total absences.
- Starting from the fifth absence, ½ point will be deducted from the student's total grade for each absence onward.
- It's the responsibility of the student to keep a record of his absences. Students will have only one week to submit their official excuses to the office of the Chairman, Prep Year Program.
- **If a student uses a mobile phone for non-academic purposes (learning use must be directed by the instructor), he/she will be considered absent.**

Missing an Exam

No makeup exam will be given under any circumstance. When a student misses Exam I or Exam II for a legitimate reason (such as medical emergencies), his grade for this exam will be determined based on the Department's policy. Furthermore, the student must provide an official excuse within one week of the missed exam. "The same applies to the quizzes and class Tests".

Change of Section

- Change of section is NOT allowed.

Passing and Failing Rules

- The passing grade is “D”

Lectures and Recitation

Three lectures and one recitation per week (50 minutes). In recitation class, students should interact with their instructor to solve the recitation questions related to the material covered in lectures.

GRADES AND ASSESSMENT POLICY

ASSESSMENT AND GRADES POLICY	TOTAL WEIGHT
CLASS-WORK - Five written quizzes (15 points) - One written class test (5 points)	20%
Classwork average for each section = x x = average (Exam1 & Exam 2)/20	
Active Learning Activities	3%
Online Homework on ALEKS	7%
Major Exam 1 (20 MCQ)	20%
Major Exam II (20 MCQ)	20%
Final Comprehensive Exam (30 MCQ)	30%
TOTAL:	100%

SERVICES AND EVENTS

- Office hours
- Online video lecturers
- Help Sessions
- Student Peer program
- RAM Contest (Real-life Application in Mathematics)
- Factorization Contest
- 1MBA Contest 2024 (1 Minute Basic Algebra)

TEXTBOOK

Algebra Trigonometry, Stewart, Redlin and Watson, Fourth edition. An online textbook version is available in ALEKS.