



Fahad Bin Sultan University Foundation Year Program (FYP)

Foundation Mathematics - Level 1 (MATH 100)

Course Description

Course-in-brief

The course is the first of two elementary mathematics courses required in the Foundation Year Program (FYP). It involves fundamentals and skills that should be mastered by each student before enrollment in a college-level math course. It introduces students to mathematical symbols and notations, number sets, basic algebraic operations, algebra of exponents, radicals, fractional expressions, absolute value, complex numbers, basic elementary geometry, polynomials, linear equations and linear inequalities, absolute value equations, quadratic equations, graphs, functions, zeros of functions, exponential and logarithmic functions.

The course is designed to be covered in 15 weeks on the basis of 5 contact hours per week (i.e. daily lecture).

Prerequisites:

Not Applicable

Course Resources

Resources for the course include the instructor; textbook and references; class notes and handouts; your teammates; the library; and the World Wide Web.

Instructor

Office Hours

The office Hours are posted at my office window

Textbook

College Algebra: With Trigonometry, 9th ed. Barnett, Ziegler, and Byleen McGraw: Boston, 2011.

References

Think well's Per-calculus Companion Workbook. E Burger Think well, 2005.

Websites (sample)

www.purplemath.com

www.themathpage.com

www.algebrahelp.com

www.mathleague.com

Course Objectives

General Objectives

1. To remedy the mathematical deficiencies in the student's background.
2. To prepare students for a smooth transition to the academic programs in professional schools.
3. To teach students to think and reason.

Intended Learning Outcomes

At the end of this course, students should be familiar with:

- Mathematical symbols and notations
- The number set (natural, integer, decimal, rational, irrational, and prime numbers)

Chapter R: Basic algebraic operations

R1: Algebra of the real number system

R2: Exponents

R3: Radicals

R4: Polynomials

R5: Polynomials: Factoring

R6: Rational expressions

Chapter 1: Equations and inequalities:

1-1 Linear equations

1-2 Linear inequalities

1-3 Absolute value in equations and inequalities

1-4 Complex numbers

1-5 Quadratic equations

1-6 Additional equation-solving techniques

Chapter 2: Graphs

2-1 Cartesian coordinates

2-2 Distance in the plane

2-3 Equation of the line

Chapter 3: Functions

3-1 Functions

3-2 Graphing functions

3-3 Transformations of functions

3-4 Quadratic functions

Chapter 5: Exponential and Logarithmic functions

5-1 Exponential function

5-3 Logarithmic function

Detailed Course Outline

| WEEK | Date | Chapter | Suggested exercises | Test |
|-------|------|--------------|------------------------|------------|
| 1-2 | | | | |
| 3-4 | | R-1 | 59-66 | |
| | | R-2 | 95,99 | |
| | | R-3 | 87,88 | |
| | | R-4 | 75,77 | |
| | | R-5 | 84 | |
| | | R-6 | 55,56 | |
| 5-6-7 | | 1-1 | 45,48,52 | |
| | | 1-2 | 85,87 | |
| | | 1-3 | 89,91 | |
| | | 1-4 | 1,11,21,37,45,55,75,81 | |
| | | 1-5 | 75,77,80,82 | |
| | | 1-6 | 61,64 | |
| 8 | | 2-1 | 73,79 | |
| | | 2-2 | 67,69 | |
| | | 2-3 | 93,100 | |
| | | | | |
| 9 | | | | |
| 10-11 | | 3-1 | 99,103 | |
| | | 3-2 | 72,77 | |
| | | 3-3 | 97,98 | |
| | | 3-4 | 101-105 | |
| | | | | |
| | | | | |
| 12 | | Cumulative R | | |
| | | | | |
| 13-16 | | 5-1 | 116,118, | |
| | | 5-2 | 17,22 | |
| | | 5-3 | 119,120 | |
| | | 5-4 | 1617 | |
| | | 5-5 | 81,83 | |
| 17 | | Cumulative R | | |
| | | | | Final exam |

Assessment and Evaluation

Many aspects of the course will receive on-going, real-time assessments and feedback to help improve students' performance. This will be done by discussing performance in class and by arranging individual meetings.

Assessment in the following areas will be converted to points, to compute your final grade in the course:

| Assessment Item | Marks |
|------------------------|--------------|
| <i>Attendance</i> | 10% |
| <i>Homework</i> | 10% |
| <i>Quizzes</i> | 10% |
| <i>First Exams</i> | 20% |
| <i>Second Exams</i> | 20% |
| <i>Final</i> | 30% |
| <i>Total</i> | 100% |