

MATH 010 Departmental Syllabus

MATH 010 Course Description (As posted in the Spring 2021 description on UDSIS) This course prepares students with the skills necessary for pre-calculus and college mathematics and statistics. Topics include solving equations (linear, rational, and quadratic) and inequalities, linear functions, systems of equations, and operations with polynomial, rational, and radical expressions.

PREREQUISITE: Students can enroll in this math course with any math placement level. See <https://www.mathsci.udel.edu/courses-placement/ud-math-placement> for more information.

RESTRICTIONS: Requires arithmetic and Algebra I skills. MATH010 does not earn credit towards graduation or any degree.

TEXTBOOK: Intermediate Algebra by Miller, O'Neill and Hyde, 5th edition, McGraw-Hill

OTHER REQUIRED MATERIALS: Math 010 Spring 2021 course pack, ALEKS 360 access (online homework), scientific calculator

TEXTBOOK SECTIONS AND/OR TOPICS

This teaching schedule is designed for 35 class meetings, each 50 minutes long.

Chapter 1: Linear equations and inequalities in one variable

- 1.1: Linear equations in one variable (1 day)
- 1.2: Applications of linear equations in one variable (1 day)
- 1.3: Applications to geometry and literal equations (0.5 days)
- 1.4: Linear inequalities in one variable (0.5 days)

Chapter 2: Linear equations in two variables and functions

- 2.1: Linear equations in two variables (0.5 days)
- 2.2: Slope of a line and rate of change (0.5 days)
- 2.3: Equations of a line (1 day)
- 2.4: Applications of linear equations and modeling (1 day)
- 2.5: Introduction to relations (0.5 days)
- 2.6: Introduction to functions (0.5 days)

Chapter 3: Systems of Linear Equations and Inequalities

- 3.1: Solving systems of linear equations by the graphing method (1 day)
- 3.2-3.3: Solving systems of linear equations by the substitution method and addition method (1 day)
- 3.4: Applications of systems of linear equations in two variables (2 days)

Chapter 4: Polynomials

- 4.1: Properties of integer exponents and scientific notations (2 days)
(NOTE: Scientific notation is not taught)
- 4.2-4.3: Addition, subtraction and multiplication of polynomials (1 day)
- 4.5: Greatest common factor and factoring by grouping (1 day)
- 4.6-4.7: Factoring trinomials and factoring binomials (1 day)
- Factoring summary (1 day)
- 4.8: Solving equations by using the Zero Product Rule (2 days)

Chapter 5: Rational Expressions and Rational Equations

- 5.1: Rational expressions and rational functions (1 day)
- 5.2: Multiplication and division of rational expressions (1 day)
- 5.3: Addition and subtraction of rational expressions (2 days)
- Operations on rational expressions summary (1 day)
- 5.4 Complex fractions (2 days)
- 5.5 Solving rational equations (1 day)
- 5.6 Applications of rational equations and proportions (1 day)

Chapter 6: Radicals and Complex Numbers

- 6.1: Definition of an n -th root (0.5 days)
- 6.2: Definition of rational exponents (0.5 days)
- 6.3: Simplifying radical expressions (1 day)
- 6.4: Addition and subtraction of radicals (1 day)
- 6.5: Multiplication of radicals (0.5 days)
- 6.6: Division of radicals and rationalization (1.5 days)

Chapter 7: Quadratic equations, functions, and inequalities

- 7.1: Square root property and completing the square (1 day)
(NOTE: Completing the square is not taught)
- 7.2: Quadratic formula (1 day)

GRADING SCALE: $A \geq 90\%$, $A^- \geq 87\%$, $B^+ \geq 84\%$, $B \geq 80\%$, $B^- \geq 77\%$, $C^+ \geq 74\%$, $C \geq 70\%$, $C^- \geq 67\%$, $D^+ \geq 64\%$, $D \geq 60\%$, $D^- \geq 57\%$, $F < 57\%$.

ASSESSMENT COURSE GRADE WEIGHT: 2-4 Mid-term exams 44-48%, Final Exam 20-26%, ALEKS homework 13-16%, Attendance and other assignments 16-17%

Notes:

- Prepared by Anthony Mak, 2021 Summer. Referenced syllabi from the Newark campus: Fall 2019, Spring 2020 (pre-pandemic) and Fall 2021 (face-to-face). Approved by the Foundational Math Committee.