

Precalculus Syllabus

General Information

MAT172 Precalculus: *4 hours, 4 credits.* Polynomial, rational, logarithmic, and trigonometric functions, with applications to problems in mathematics and the sciences.

Prerequisite: A grade of C (or better) in MAT 104 or placement by the Department.

Notes: Students may not receive credit for both MAT 171 and MAT 172. A grade of C (or better) in MAT 172 is a prerequisite for MAT 175.

Instructor: *Your instructor will provide contact information, office hours and meeting times for your section*

Grading Policy

Expectations: Students are expected to learn both the mathematics covered in class and the mathematics in the textbook and other assigned reading. Completing homework is part of the learning experience. Students should review topics from prior courses as needed and, if needed, go to their instructor's office hours, to the Math Lab or to problem sessions regularly.

Homework: Approximately two hours of homework will be assigned in each lesson as well as additional review assignments.

Grades: Students who do not pass the departmental final will not pass the course. *The precise grading policy for your section will be distributed by your instructor.*

Materials, Resources, and Accommodating Disabilities

Textbook: R. Larson, *Precalculus*, Cengage Learning 7th, 8th, or 9th Edition

Technology: Students can use a Scientific Calculator in class and on homework.

Graphing Calculators are not permitted at all.

Tutoring: Departmental tutoring is available in the Math Lab on the 2nd floor of Gillet Hall.

Reserve: Selected books have been placed on reserve in the library.

Accommodating Disabilities: Lehman College is committed to providing access to all programs and curricula to all students. Students with disabilities who may need classroom accommodations are encouraged to register with the Office of Student Disability Services. For more info, contact the Office of Student Disability Services, Shuster Hall, Room 238, 718-960-8441.

Course Objectives

At the end of the course, students will be able to:

1. Graph linear, polynomial, rational, trigonometric, exponential, and logarithmic equations. (a,b)
2. Identify equations for given graphs. (a,b,e)
3. Work with functions: inverting, composing, multiplying, and dividing. (a,b,e)
4. Represent and solve real-world problems requiring optimization of quadratic functions. (a,b,c)
5. Use the unit circle to determine the values of trigonometric functions. (b,e)
6. State and apply trigonometric identities. (b,e)
7. Represent and solve real-world problems involving exponential growth and decay. (b,c)

These objectives will be assessed on the final exam along with other important techniques.

Course Topics

There is flexibility in the order and time allotted to each of the topics below, but all topics must be covered by the instructor and understood by the student. *Section numbers refer to the most RECENT edition of the text; consult with your instructor if you are using an older edition.*

Lesson 1: A.3, A.5 - Review Polynomials and Factoring

Lesson 2: A.1, A.6 – Review Intervals and Inequalities

Weekend Review: A.2 and A.4 check the answers to all your homework in the back of the book.

Lesson 3: 1.2 - Graphs of Equations; 1.3 - Linear Equations in Two Variables

Lesson 4: 1.4 - Functions; 1.5 Analyzing Graphs of Functions

Lesson 5: 1.6 - A Library of Functions

Lesson 6: 1.7 - Shifting, Reflecting, and Stretching; Graphs 1.8 Composition of Functions

Lesson 7: Review for Exam I

Lesson 8: Exam I

Students who fail this exam should consider dropping the course and auditing MAT 104.

Please consult with your professor or a math advisor during office hours for more personalized advising.

Bring a copy of your exam and completed homework

Lesson 9: 1.9 - Inverse Functions; 1.10 - Mathematical Modeling

Lesson 10: A.3, 2.1- Maximizing Quadratic Functions

Lesson 11: 2.3 - Polynomial and Synthetic Division; Review exponents, A.2

Lesson 12: 3.1- Exponential Functions and Their Graphs

Lesson 13: 3.2 - Logarithmic Functions and Their Graphs; 3.3 Properties of Logarithms

Lesson 14: 3.4 - Exponential and Logarithmic Equations

Lesson 15: Review for Exam II

Lesson 16: Exam II

Students who fail both exams should probably drop the course.

Please consult with your professor or a math advisor for more personalized advising.

Bring a copy of your exams and completed homework.

Lesson 17: 3.5 Exponential and Logarithmic Models

Lesson 18: 4.1- Radian and Degree Measure; 4.2 - Trigonometric Functions: The Unit Circle, Pythagorean Identity

Lesson 19: 4.3 - Right Triangle Trigonometry; 4.4 - Trigonometric Functions of Any Angle

Lesson 20: 4.5 - Graphs of Sine and Cosine Functions; 4.6 - Graphs of other trigonometric functions

Lesson 21: 4.7- Inverse Trigonometric Functions; 4.8 - Applications and Models

Lesson 22: Review for Exam III

Lesson 23: Exam III

Lesson 24: 5.1 - Using Fundamental Identities; 5.2 - Trigonometric Identities; 5.4 – Sum/Difference Formulas/Proofs

Lesson 25: 6.1 – 6.2 Law of Sines and Law of Cosines

Lesson 26: 2.2 and 2.6 - Graphing Polynomial and Rational Functions

Lesson 27: Catch up or 2.7 - Partial Fractions

Lesson 28: Review for the Final

Final Exam: A Uniform Final Exam will be given to all sections of Precalculus during Finals Week covering the entire course especially topics needed in future courses. A sample final will be distributed. No calculators will be permitted on the final exam.

Department of Mathematics and Computer Science, Lehman College, City University of New York

Last Updated: Summer, 2013