

# MAT 172: 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:** (1) Students may not receive credit for both MAT 171 and MAT 172. (2) MAT 172 is a prerequisite for MAT 175.

Students planning on taking MAT 174 should take MAT 171 instead of MAT 172.

**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:** Online homework using Pearson's MyLab will be assigned at the end of each lesson. Students will be required to complete these assignments as part of their final grade.

**Grades:** Homework will be worth at least 15% of a student's final grade and the uniform final exam will be worth at least 35% of a student's final grade. Students must pass the department final exam to pass the course. The precise grading policy for your section will be distributed by your instructor.

## Materials, Resources, and Accommodating Disabilities

**Textbook** Blitzer, *Precalculus (Custom Lehman Version)* Students will receive purchasing information on their first day of class.

**Technology:** Students can use a Scientific Calculator in class and on homework. *Graphing Calculators not permitted.*

**Tutoring:** Departmental tutoring is available in the Math Lab on the 2nd floor of Gillet Hall Room 233. For updated information please visit the following website (<http://www.lehman.edu/academics/math-lab.php>)

**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, 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.***

*Last Updated, Summer 2022*

## 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:** Chapter P – The Real Numbers, Inequalities, Absolute Value, Interval Notation

**Lesson 2:** 1.1 – Equations and Their Graphs

**Lesson 3:** 1.9 – Distance Formula and Circles

**Lesson 4:** 1.4, 1.5 – Linear Equations, Perpendicular, Parallel Lines

**Lesson 5:** 1.2, 1.3 – Function Evaluation, Algebra, and Difference Quotients

**Lesson 6:** 1.6, 1.7 – Transformation of Functions, Function Composition

**Lesson 7:** 1.8 – Inverse Functions

**Lesson 8:** Review for Exam 1

**Lesson 9:** Exam I

**Students who fail this exam should consider dropping the course.**

**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 10:** 2.2 – Quadratic Functions and Applications (See posted worksheet.)

**Lesson 11 & 12:** 2.3, 2.4, 2.5 – Polynomial Functions and Their Graphs

**Lesson 13 & 14:** 2.6 – Rational Functions

**Lesson 15:** 3.1 – Exponential Functions

**Lesson 16 & 17:** 3.2 – Introduction to Logarithms and Logarithmic Functions

**Lesson 18:** 3.3 – Exponential and Logarithmic Equations

**Lesson 19:** Review for Exam II

**Lesson 20:** 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 21:** 4.3 – Review of Right Triangle Trigonometry (specifically angles 45, 30, 60)

**Lesson 22:** 4.1, 4.2 – Radians and the Unit Circle

**Lesson 23:** 4.4 – Trig Functions of Any Angle

**Lesson 24:** 4.5, 4.6 – Graphs of Sine, Cosine, and other Trig Functions

**Lesson 25:** 5.1, 5.2 – Verifying Trig Identities, Sum and Difference Formulas (Including Proofs)

**Lesson 26:** 6.1, 6.2 – Law of Sines and Cosines

**Lesson 27:** 4.7 – Inverse Trig Functions

**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, Lehman College, City University of New York