

# Precalculus Math 150

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Office Hours  
MW 10:30-12 and TR 10-12  
Or by appointment

## 1 Overview

Welcome to Math 150. Here is the UNM course description.

In-depth study of polynomial, rational, exponential and logarithmic functions and their graphs. Includes the fundamental theorem of algebra, systems of equations, conic sections, parametric equations and applications in geometry. Exploration of the graphing calculator. May be taken concurrently with 123. Meets New Mexico Lower-Division General Education Common Core Curriculum Area II: Mathematics. (I)

Prerequisite: 121 or ACT Math  $\Rightarrow$ 25 or SAT Math Section  $\Rightarrow$ 590 or ACCUPLACER College-Level Math  $\Rightarrow$ 69-99.

In this course we will make an in-depth study of many topics learned in Math 121, along with new topics such as conic sections and systems of equations. One of the main goals is for students to acquire the mathematical maturity to take future mathematics courses.

## 2 Course Learning Outcomes

- Course Goal #1: Communication
  - SLO 1: Students will be able to use correct mathematical notation and terminology.
  - SLO 2: Students will be able to read and interpret graphs.
- Course Goal #2: Functions
  - SLO 1: Students will be able to evaluate functions and difference quotients for a variety of functions.
  - SLO 2: Students will be able to graph some basic functions; this includes power, root, reciprocal, and piecewise defined functions.
  - SLO 3: Students will be able to calculate an average rate of change of a function and to interpret its meaning.
  - SLO 4: Students will be able to shift, and reflect graphs, and to compress and stretch graphs horizontally and vertically.

- SLO 5: Students will be able to set up models using functions in word problems.
  - SLO 6: Students will be able to find extreme values of quadratic functions.
  - SLO 7: Students will be able to compose functions and to express a given functions as a composition of two simpler functions.
  - SLO 8: Students will be able to identify one-to-one functions and find and graph their inverses.
- Course Goal #3: Polynomial and rational functions
    - SLO 1: Students will be able to determine the end behavior and the zeros of polynomial functions. They will be able to use this to graph the function.
    - SLO 2: Students will be able to divide polynomials and to understand the Division Algorithm.
    - SLO 3: Students will be able to solve quadratic equations with complex roots.
    - SLO 4: Students will be able to use the Fundamental Theorem of Algebra and the Complete Factorization Theorem.
    - SLO 5: Students will be able to find horizontal, vertical, and skew asymptotes of rational functions. They will be able to graph rational functions.
  - Course goal #4: Exponential and logarithmic functions
    - SLO 1: Students will be able to graph exponential and logarithmic functions.
    - SLO 2: Students will be able to solve a variety of exponential and logarithmic equations.
    - SLO 3: Students will be able to set up exponential growth and decay models and to solve the associated word problems.
  - Course goal #5: Analytic Geometry
    - SLO 1: Students will be able to identify and graph the conic sections.
    - SLO 2: Students will be able to graph parametric equations in two dimensions that involve algebraic functions. They will be able to eliminate the parameter.

### **3 Required Text**

The required text for this course is:

- Precalculus 10th Edition by Ron Larson.

### **4 Attendance Policy**

Attendance in the course is required. If a student misses two classes in the first two weeks of the semester, three consecutive class periods or five total, I reserve the right (but not the obligation) to drop the student from the class. If you stop attending class for any reason, it is your responsibility to make sure you dropped the class, or risk getting a failing grade.

## 5 Course Structure

Every class, I will assign a reading assignment and one or two warm up exercises to try on your own. On every reading assignment, I ask that you write down two or three questions that you have about the reading. I'm only going to check the exercises to see if you attempted them, not for correctness.

After class, I will assign a set of exercises for homework. I will check these for correctness.

There will be a midterm and final. The midterm will count for 10% of your grade and the final 30%. In addition, you must receive a 70% or higher on the final to get credit for the class.

I will also give 4 extra credit assignments throughout the semester that you can use to improve your homework grades.

## 6 Grading Policy

Your grades will be calculated as follows.

<b>Requirement</b>	<b>% of Grade</b>
1. Attendance	10%
2. Reading Assignments	20%
3. Homework	30%
4. Midterm	10%
5. Final	30%

*You must receive at least 70% on the final exam to get credit for the class.*

## 7 Make-up Policy

I will allow up to four late submissions of homework assignments, but not reading assignments. You can use the extra credit assignments to make up any missed reading assignments.

## 8 A note on academic integrity

We will follow university policy and on academic integrity.

Having academic integrity is paramount to your success in any class. Plagiarism or cheating is not tolerated. Any instance of this will result in a grade of zero for that assignment. Here is the link to the UNM Academic Dishonesty Policy: <https://policy.unm.edu/regents-policies/section-4/4-8.html>. The policy states:

Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or who otherwise fails to meet the expected standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course.

Academic Dishonesty is defined as: "Academic dishonesty" includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

## **9 Students with Disabilities**

If you have a documented disability, please provide me with a copy of your letter from Equal Access Services as soon as possible to ensure that accommodations are provided in a timely manner.

## **10 EQUAL OPPORTUNITY AND NON-DISCRIMINATION:**

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see page 15 - <http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf>). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity ([oeo.unm.edu](http://oeo.unm.edu)). For more information on the campus policy regarding sexual misconduct, see: <https://policy.unm.edu/university-policies/2000/2740.html>.

Note: This syllabus is subject to change, if needed.