

Welcome to

# MATH 1240

PRE-CALCULUS

## INSTRUCTOR:

Precious Andrew  
pandrew@unm.edu  
Office: AS123

## OFFICE HOURS:

I'm available via Zoom Fridays 4-6pm, and by appointment.

## COURSE DESCRIPTION:

We will expand our knowledge of functions and their graphs. We will analyze quadratic, polynomial, rational, exponential, and logarithmic functions in detail, including applications. We will further study functions in the context of rates of change, transformations, inverse functions, inequalities, and systems of two equations. We will introduce the conic sections and wrap up the course with an introduction to limits and the definition of the derivative.

## PREREQUISITES:

C or better in Math 1220 or an appropriate placement test. Check with your advisor to make sure you meet the requirements.

Start by **exploring** our course at [canvas.unm.edu](https://canvas.unm.edu).

Here you will find course information and the link to our etextbook: *Pre-calculus Mathematics for Calculus*, 7th Edition, Stewart, Redlin, Watson.

In Canvas you can also access other course materials.

The **grade you earn** will be based on the following assignments and scale:

Midterm Exam	200 points
Final Exam	200 points
Worksheets/Assignments	200 points
Total	600 points

  

A+: 96.5-100%	A: 92.5-96.4%	A-: 89.5-92.4%
B+: 86.5-89.4%	B: 82.5-86.4%	B-: 79.5-82.4%
C+: 76.5-79.4%	C: 72.5-76.4%	C-: 69.5-72.4%
D+: 66.5-69.4%	D: 62.5-66.4%	D-: 59.5-62.4%
F: < 59.5%		

For this class, **you will need** reliable internet access, access to a printer (you can use one at the library) or a tablet, a scanner or scanner app like AdobeScan or CamScanner, and a scientific (non-graphing) calculator.

**Late work** is generally not accepted, but please contact me if you have special circumstances.

**Attending class is essential.** Please commit to attend every class meeting, unless there is an emergency. If you miss three classes, you may be dropped from the course. **In an online course, not submitting an assignment will be regarded as an absence.** Students who miss an exam may be dropped from the course. Please communicate any special circumstances with me.

Students who do not submit any of the week 1 assignments may be dropped from the course.

## MECS DIVISION CHAIR:

Ariel Ramirez  
aramirez8@unm.edu

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## ABOUT YOUR INSTRUCTOR:

I hope to see you in office hours! For now, here is a little about me. My name is Precious Andrew. Most students call me my first name, Precious, or Ms. Andrew if you prefer. I have been teaching mathematics at UNM since 2007. I have lived in New Mexico since I was a child, I studied at UNM, I love red chile, and I enjoy powerlifting.



## TUTORING:

You can schedule an appointment for free in-person or online **tutoring**. Stop by the Learning Center in the UNM-Valencia Campus library, email [tutor@unm.edu](mailto:tutor@unm.edu), call (505)228-8860, or visit the link to schedule an appointment –

<https://outlook.office365.com/owa/calendar/TESTLearningCommons@unmm.onmicrosoft.com/bookings/>



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# “You can totally do this!”

Here are some additional **resources**:

UNM Valencia Library -  
<http://valencia.unm.edu/library/>

UNM Valencia Life Resources -  
<http://valencia.unm.edu/students/student-resources.html>

Veteran’s Resource Center -  
[vrc@unm.edu](mailto:vrc@unm.edu)

PASOS Resource Center - (505) 925-8546, [pasos@unm.edu](mailto:pasos@unm.edu). The Resource Center is an on-campus center that serves as a “one-stop” for all non-academic needs of UNM-Valencia students.

Here are some of the **student learning outcomes:**

By the end of the semester, students should be able to:

#### **Course Goal 1: Communication**

SLO 1: use correct mathematical notation and terminology.

SLO 2: read and interpret graphs.

#### **Course Goal 2: Functions**

SLO 1: evaluate functions and difference quotients for a variety of functions.

SLO 2: graph some basic functions; this includes power, root, reciprocal, and piecewise defined functions.

SLO 3: calculate an average rate of change of a function and to interpret its meaning.

SLO 4: shift, and reflect graphs, and to compress and stretch graphs horizontally and vertically.

SLO 5: set up models using functions in word problems.

SLO 6: find extreme values of quadratic functions.

SLO 7: compose functions and to express a given functions as a composition of two simpler functions.

SLO 8: identify one-to-one functions and find and graph their inverses.

#### **Course Goal 3: Polynomial and Rational Functions**

SLO 1: determine the end behavior and the zeros of polynomial functions. They will be able to use this to graph the function.

SLO 2: divide polynomials and to understand the Division Algorithm. Students will be able to solve quadratic equations with complex roots.

SLO 3: 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: graph exponential and logarithmic functions.

SLO 2: solve a variety of exponential and logarithmic equations.

SLO 3: set up exponential growth and decay models and to solve the associated word problems.

#### **Course goal 5: Analytic Geometry**

SLO 1: identify and graph the conic sections.

### **University Policies:**

#### **Title IX:**

Our classroom and our university should always be spaces of mutual respect, kindness, and support, without fear of discrimination, harassment, or violence. Should you ever need assistance or have concerns about incidents that violate this principle, please access the resources available to you on campus. Please note that, because UNM faculty, TAs, and GAs are considered "responsible employees" by the Department of Education, any disclosure of gender discrimination (including sexual harassment, sexual misconduct, and sexual violence) made to a faculty member, TA, or GA must be reported by that faculty member, TA, or GA to the university's Title IX coordinator.

For more information on the campus policy regarding sexual misconduct, please see: <https://policy.unm.edu/university-policies/2000/2740.html>.

**Grade mode and Withdrawals:** You must select your grade mode (Letter Grade, CR/NC, or Audit) within the first 2 weeks of the semester. Students who withdraw after the deadline will receive a grade of W. If you do not withdraw (but stop attending), you may receive a failing grade. Make sure to drop the class on my.unm if you wish to do so. See the list of all deadlines: [www.registrar.unm.edu](http://www.registrar.unm.edu)

### **Accessibility Statement and Accommodations:**

UNM is committed to providing equitable access to learning opportunities for students with documented disabilities. As your instructor, it is my objective to facilitate an inclusive classroom setting, in which students have full access and opportunity to participate. To engage in a confidential conversation about the process for requesting reasonable accommodations for this class and/or program, please contact the UNM-Valencia Equal Access Services, at (505) 925-8910 and/or The Accessibility Resource Center at [arcsrvs@unm.edu](mailto:arcsrvs@unm.edu) or by phone at 505-277-3506

## Schedule of Topics:

Week of	Topics	Textbook Homework (check your answers!)
June 3	2.1 What is a Function?	11,17-25 all, 27, 29, 31-41 all,47-61
	2.2 Graphs of Functions	17,19,25,35-41,49,53,56,61,63
	2.3 Information from Graphs	5,7,9,11,15,31,33,43-45
	2.4 Average Rate of Change	5,7,11,13-20 all,23-31
June 10	2.6 Transformations of Functions	5-13,23-29,33,39-43,55-65,75,83,95
	2.7 Combining Functions	11-15,16,27-31,35-41,45,49,51,61-65,67
	2.8 One-to-One, Inverse Functions	13,15,21,31-35,43,45,49-57,61,63,85,95
June 17	3.1 Quadratic Functions/Models	15-33,39-43,49,51-65
	3.2 Polynomial Functions/Graphs	5-9,13,18,25,27,28,29,33-39,43,51
	Juneteenth Holiday, June 19 <sup>th</sup>	
June 24	3.3 Dividing Polynomials	3-19,47-67, (replace synthetic div. with long div.)
	3.6 Rational Functions	9,11,13,19,23,25,29,31-37,43,49,54,58,69-73
	1.8 Inequalities	51,55-65,73-85
	Review	
July 1	<b>Midterm Exam Monday, July 1st, 4pm-6pm (This exam must be taken IN-PERSON, see details in Canvas)</b>	
July 1	4.1 Exponential Functions	21-30 all, 31-41,44
	4.2 Natural Exponential Function	9-15,24,25(a-c),33-37
	Holiday, July 4 <sup>th</sup>	
July 8	4.3 Logarithmic Functions	9-19,27,29,33,53,55,63-77
	4.4 Laws of Logarithms	15-19,32,39,45,53,61
	4.5 Exp. /Log. Equations	15,21,35,39,45,61,65,67,89-97
July 15	4.6 Modeling with Exponential Fun.	3-27
	11.2 Ellipses	5-13,23-27,33,39,51-55
	11.3 Hyperbolas	3-7,11,15,17,23,25,37-39
July 15	10.8 Systems of Nonlinear Equations	3,9,15,17,21,23,27,31,45
	Project <b>due Friday, July 19<sup>th</sup></b>	
Jul 22	13.1 Limits: Numerically/Graphically	5-9, 17-19, 29,31
	13.2 Limits: Algebraically	5-30 all,33,43,35,37,39,41,43
	13.4 Limits at Infinity	5-15,19-21 (table only) 23-27,31,33
	13.3 Tangent Lines and Derivatives	11-17, 21,23,25,39,41,43,45
	Review	
July 29	<b>Final Exam Tuesday, July 30<sup>th</sup>, 4pm-6pm (This exam must be taken IN-PERSON, see details in Canvas)</b>	