

Math 1240 PRE-CALCULUS Fall 2022

Instructor: Precious Andrew

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CRN: 64336

Class Meets: TR 3-4:15 in VAAS 131

Office Hours/Study Sessions **(feel free to stop by!)**: Tuesdays and Thursdays 4:15-5:45 in-person at Valencia Campus, Room Arts and Sciences 123 (A123).

Additional times available on Main (Central) campus in-person to accommodate online Main campus students who wish to meet in person (see updates in Canvas).

Online via Zoom (Tentatively-see updates in Canvas) Mondays 5-6:30pm (or please email me for an appointment!).

Course Description

This course extends students' knowledge of polynomial, rational, exponential and logarithmic functions to new contexts, including rates of change, limits, systems of equations, conic sections, and sequences. May be taken concurrently with MATH 1230.

Textbook: **Ebook in Learn** - Pre-calculus Mathematics for Calculus, 7th Edition, Stewart, Redlin, Watson

MECS Division Chair: Ariel Ramirez; aramirez8@unm.edu

Prerequisite: Grade of C (not C-) or better in Math 1220.

Grades: Your grade will be based on the following allocation of points.

Attendance/Board Problems	20 points
Worksheets/Quizzes/Other Assignments	130 points
Two Written Exams	200 points
Final Exam	150 points

Total	500 points
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How Grades Are Determined:

A+: 97-100%	A: 93-96%	A-: 90-92%	B+: 87-89%	B: 83-86%	B-: 80-82%
C+: 77-79%	C: 73-76%	C-: 70-72%	D+: 67-69%	D: 63-66%	D-: 60-62%
F: < 60%					

Course Format:

1 - You will be attending in person class meetings on UNM Valencia Campus. Class meets Monday and Wednesday 3-4:15 in VAAS 131. You should take careful notes on each and every example from each lecture. You should write down every example and all steps I show to reach a solution. These notes should be labeled clearly, organized, and neat and clear. Keep these in a notebook where you can easily access them.

2 - You will submit written worksheets approximately once every week or so – see the assignments posted in Canvas for due dates. These worksheets must be organized and labeled, all work and steps must be shown, and must be presented consecutively, clearly, and legibly. You'll be submitting via UNM Learn. Worksheets must be submitted as one readable pdf file. You will print each worksheet, complete it, then use a scanner or free scanner app on your device to create one pdf file of your completed worksheet to upload for a grade. The alternative is to complete your worksheets on a tablet using a stylus and submit a pdf of that work. You'll need to access to either a printer or a tablet to complete the worksheets. Note that all worksheets are posted under the "Blank Worksheets" link in Learn. This means if you'll have difficulty accessing a printer, you could have them printed up all at one time at the library if necessary. The worksheets are designed to follow along with the lectures.

3 - You must complete written homework from the textbook for each section. These problems are listed on the schedule towards the end of this document. These are from your textbook, located in Canvas, by clicking on the "ETextbook" link. These are all odd problems, so you have the answers. Thus, it wouldn't make sense for me to grade these. These are for you to practice. **If you don't do these, you are very unlikely to succeed in the class.**

4 - You will complete two written tests and a written cumulative final. The exams are not open book or notes, and you may not use a graphing calculator, phone, the internet, etc. You should use only your writing instrument (and a

basic 4-function calculator if you so choose) to complete the exam – nothing else. The use of anything beyond your pencil and basic calculator on the exams and final may be considered academic dishonesty, may be reported to the Dean of Students, and may be grounds for receiving an F in the course.

Calculator/Notes Policy: Scientific or graphing **calculators** are **not allowed** on any exams (including the final exam). I will demonstrate examples without the use of a calculator. If you'd like, you may use a basic, 4 function calculator on exams, but nothing more. There may be a few homework problems that require a scientific calculator, but these won't be used on exams. **Notes**, books, cell phones, web searches, consultations with friends or tutors, etc. are also **not allowed** on exams.

Missed Exams: If you miss an exam, contact your instructor immediately. Make-up exams will only be given in cases of a university-excused absence or a verifiable documented emergency or illness. If you miss an exam and do not contact your instructor immediately, you may be dropped from the course.

Homework: Your homework is one of your most important efforts in this class. Homework is how you actually practice the material, worksheets and exams are how you demonstrate that understanding to me. Expect to do 2-3 hours of homework for every hour of class meeting time (on average 10-15 hours per week). You are expected to do all of the homework problems listed in the syllabus whether they are graded or not. **Extra Credit is not offered.** Please do not ask for any extra credit.

Attendance: Attendance is mandatory. If a student has more than three unexcused absences, he/she may be dropped from the course. Please note that it is the student's responsibility to drop the course if he/she stops attending. A failing grade of F may be assigned if the student stops attending and does not drop before the posted deadline. No early final exams will be permitted except in documented emergencies: flight reservations, weddings, vacations, birthdays, non-NCAA sporting events, etc. are not considered emergencies.

Student Behavior: All students have to abide by the Student Code of Conduct: www.pathfinder.unm.edu. According to the Code of Conduct, student activities that interfere with the rights of others to pursue their education or to conduct their University duties and responsibilities will lead to disciplinary action. This includes any activities that are disruptive to the class and any acts of academic dishonesty. Students are expected to behave in a courteous and respectful manner toward the instructor and their fellow students. The use of cell phones, headphones, smart watches, etc. is not permitted during class or exams.

Academic Integrity: Academic dishonesty of any kind will not be tolerated. Examples include, looking at a neighbor's exam; plagiarizing; using a calculator when not permitted; using a book, online material, and/or notes of any kind; modifying an exam after it is graded; etc. The instructor may warn an offending student, the score of the exam may be reduced, the score may be set to zero, the student may get dropped from the class, the student may get a grade of F for the class, and in most cases the incident will be reported to the Dean of Students. You should be familiar with UNM's Policy on Academic Dishonesty and the Student Code of Conduct.

Grading: To get full credit on graded work students must address all mathematical components presented by the problem, showing all steps and calculations. The use of proper notation, well-structured procedures, and legibility will be taken into account when assigning points.

Deadlines: The Department of Mathematics and Statistics will adhere to all of the registration deadlines published by the Office of the Registrar in the schedule of classes: www.registrar.unm.edu. We will not give permission to override any deadline except in documented emergencies; failing a class is not considered an emergency.

Grade mode and Withdrawals: You must select your grade mode (Letter Grade, CR/NC, or Audit) within the first 2 weeks of the semester. We will not give permission to change the grade mode after the deadline. Students who are in the regular grade mode and who withdraw after the end of week 3 will receive a grade of "W". If you do not withdraw (but stop attending), you will receive a letter grade of A, B, C, D, or F (not a W). Students who are in the CR/NC grade mode and who withdraw after the end of week 3 will receive a grade of "W". If you do not withdraw (but stop attending), you will receive a letter grade of NC (not a W). See the list of all deadlines: www.registrar.unm.edu

Accessibility Statement and Accommodations: UNM is committed to providing courses that are inclusive and accessible for all participants. As your instructor, it is my objective to facilitate an accessible classroom setting, in which students have full access and opportunity. If you are experiencing physical or academic barriers, or concerns related to mental health, physical health and/or COVID-19, please consult with me after class, via email/phone or during office/check-in hours (I am not legally permitted to inquire about the need for accommodations). We can meet your needs in collaboration with the Accessibility Resource Center (<https://arc.unm.edu/>). If you have a disability requiring accommodation, please contact <http://valencia.unm.edu/students/student-services.html> or by phone 505-925-8560. Information about your disability is confidential and your instructor cannot refer you for accommodations. Be aware that you will need to provide documentation. If you need assistance in obtaining documentation, the office above can assist you.

Extra Help and Resources: In addition to your instructor's office hours, there is extra help available at:

- The Learning Center - <https://valencia.unm.edu/campus-resources/the-learning-center/index.html>
- UNM Valencia Library - <http://valencia.unm.edu/library/>
- 'Life Resources' - <http://valencia.unm.edu/students/student-resources.html>
- Student Health and Counseling (SHAC) - <https://shac.unm.edu/>
- Veteran's Resource Center - vrc@unm.edu

Title IX Reporting Obligations: 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>

COVID-19 Health and Awareness: UNM is a mask friendly, but not a mask required, community. To be registered or employed at UNM, Students, faculty, and staff must all meet UNM's Administrative Mandate on Required COVID-19 vaccination. If you are experiencing COVID-19 symptoms, please do not come to class. If you have a positive COVID-19 test, please stay home for five days and isolate yourself from others, per the Centers for Disease Control (CDC) guidelines. If you do need to stay home, please communicate with me; I can work with you to provide alternatives for course participation and completion. UNM faculty and staff know that these are challenging times. Please let us know that you need support so that we can connect you to the right resources and please be aware that UNM will publish information on websites and email about any changes to our public health status and community response.

MATH 1240: Student Learning Outcomes

(All SLOs listed below address UNM Core Area 2, HED Area II: Mathematics, Algebra Competencies).

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

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: 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.

Note: The instructor for this class reserves the right to change the syllabus at any point during the semester.

Week		MATH 1240 Topics	Homework (Do the odd numbered problems).
Aug 22	2.1	What is a Function?	11,17-25 <u>all</u> , 27, 29, 31-41 <u>all</u> ,47-61
Aug 29	2.2 2.3 2.4	Graphs of Functions Information from Graphs Average Rate of Change	17,19,25,35-41,49,53,56,61,63 5,7,9,11,15,31,33,43-45 5,7,11,13-20 <u>all</u> ,23-31
Sep 5	2.6 2.7	Transformations of Functions Combining Functions	5-13,23-29,33,39-43,55-65,75,83,95 11-15,16,27-31,35-41,45,49,51,61-65,67
Sep 12	2.8 3.1	One-to-One, Inverse Functions Quadratic Functions/Models	13,15,21,31-35,43,45,49-57,61,63,85,95 15-33,39-43,49,51-65
Sep 19	3.1 3.2	Finish Polynomial Functions/Graphs	5-9,13,18,25,27,28,29,33-39,43,51
Sep 26	3.3 Review	Dividing Polynomials	3-19,47-67, (replace synthetic div. by long div.)
Oct 3	Exam 1 3.6	Rational Functions	9,11,13,19,23,25,29,31-37,43,49,54,58,69-73
Oct 10	3.6	Finish Fall Break Oct 13-14	
Oct 17	1.8 10.8	Inequalities Systems of Nonlinear Equations	51,55-65,73-85 3,9,15,17,21,23,27,31,45
Oct 24	10.8 4.1 4.2	Finish Exponential Functions Natural Exponential Function	21-30 <u>all</u> , 31-41,44 9-15,24,25(a-c),33-37
Oct 31	4.3 4.4	Logarithmic Functions Laws of Logarithms	9-19,27,29,33,53,55,63-77 15-19,32,39,45,53,61
Nov 7	4.5 4.6	Exp. /Log. Equations Modeling with Exponential Fun.	15,21,35,39,45,61,65,67,89-97 3-27
Nov 14	Review Exam 2		
Nov 21	13.1 13.2 13.4	Limits: Numerically/Graphically Limits: Algebraically Limits at Infinity Thanksgiving Break Nov 24-25	5-9, 17-19, 29,31 5-30 <u>all</u> ,33,43,35,37,39,41,43 5-15,19-21 (table only) 23-27,31,33
Nov 28	13.3 11.2 11.3	Tangent Lines and Derivatives Ellipses Hyperbolas	11-17, 21,23,25,39,41,43,45 5-13,23-27,33,39,51-55 3-7,11,15,17,23,25,37-39
Dec 5	11.3 Review	Finish	
Dec 12	FINAL EXAM Tuesday, Dec 13 3pm-5pm		