Math 1240 PRE-CALCULUS Spring 2021

Instructor: Precious Andrew email: pandrew@unm.edu
Office: Online via Zoom or email
Office Hours/Study Sessions: Most Mondays and Wednesdays 1:15-2:45, most Tuesdays and Thursdays 12:00-1:30 or by 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
Prerequisite: Grade of C (not C-) or better in Math 1220.
Grades: Your grade will be based on the following allocation of points.

Worksheets	200 points
Two Written Exams	200 points
Final Exam	150 points
Total	**550 points**

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 watching online lectures for each section**. Lectures are posted in Learn under the "Lectures" link on the left sidebar. These lectures must be watched in their entirety just as if you were in a classroom lecture. You must 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 Learn for due dates by clicking the "Submit Assignments" link on the left sidebar. 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 closely. I suggest filling them in as you watch 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 Learn, 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 will appear in UNM Learn at the designated times. You will print the exam and complete it, then upload your completed exam in Learn as you do the worksheets. All work needs to be shown and to be neat, clear, and in order or you will not receive credit. **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.

Tentative dates/times for exams: (Please keep these days and times available)

Exam 1 Monday, February 22, 3pm-4:45pm (estimated time window)
Exam 2 Monday, April 12, 3pm-4:45pm (estimated time window)
Final Exam Monday, May 10, 3pm-5pm (estimated time window)

Calculator/Notes Policy: Scientific **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. **In a remote class, not turning in an assignment, not watching required lectures, or missing an exam may be regarded as an absence.** 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: We will accommodate students with documented disabilities. Those students should inform the instructor of their particular needs ASAP. The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodations of their disabilities. 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.

Blackboard's Accessibility statement
Microsoft's Accessibility statement

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: 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

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

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).
Jan. 18	1.2	Exponents/Radicals	29-55,61-67,71,73,89-93
	1.3	Algebraic Expressions	29-39,49-57,63-113,119-123,125-128 all
	1.4	Rational Expressions	13,17-21,27,33,35,39,43-47,59,65,69,71,75,77
Jan. 25	1.8	Inequalities	51,55-65,73-85
	1.9	Coordinate Geometry	23,27-31,35,37,53,55,61,69,77, 83-107
	2.1	What is a Function?	11,17-25 all, 27, 29, 31-41 all,47-61
Feb. 1	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
	2.6	Transformations of Functions	5-13,23-29,33,39-43,55-65,75,83,95
Feb. 8		Page 237 Modeling p.240)	5-17,19b,21b, 23a, 25a
	2.7	Combining Functions	11-15,16,27-31,35-41,45,49,51,61-65,67
	1.6	Complex Numbers	19,21,27,29,33-53,57,59,61,67,70,71
Feb. 15	2.8	One-to-One, Inverse Functions	13,15,21,31-35,43,45,49-57,61,63,85,95
	3.1	Quadratic Functions/Models	15-33,39-43,49,51-65
	Work on Review		
Feb. 22	**Exam 1 Monday, February 22, 3pm-4:45pm (estimated time window)**		
	3.2	Polynomial Functions/Graphs	5-9,13,18,25,27,28,29,33-39,43,51
	3.3	Dividing Polynomials	3-19,47-67, (replace synthetic div. by long div.)
Mar. 1	3.4	Real Zeros of Polynomials	17,19,25,29,33,35,45,47,51,55,59
	3.6	Rational Functions	9,11,13,19,23,25,29,31-37,43,49,54,58,69-73
	3.6	Continued	
Mar. 8	8.4	Parametric Equations	1-11 all, 31-34 all
	10.1	Systems of 2 Linear Equations	29-49,59-75
	10.8	Systems of Nonlinear Equations	3,9,15,17,21,23,27,31,45
March 15-19		Spring Break	
Mar. 22	4.1	Exponential Functions	21-30 all, 31-41,44
	4.2	Natural Exponential Function	9-15,24,25(a-c),33-37
	4.3	Logarithmic Functions	9-19,27,29,33,53,55,63-77
Mar. 29	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
Apr. 5	4.6	Modeling with Exponential Fun.	3-27
	12.1	Sequences	5-9,11-15, 17, 19, 29, 31
	Work on Review		
Apr. 12	**Exam 2 Monday, April 12, 3pm-4:45pm (estimated time window)**		
	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
Apr. 19	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
	11.1	Parabolas	5-9,15-19,33,39,43,53
Apr. 26	11.2	Ellipses	5-13,23-27,33,39,51-55
	11.3	Hyperbolas	3-7,11,15,17,23,25,37-39
May 3-7		Review Week	
May 10	**Final Exam Monday, May 10, 3pm-5pm (estimated time window)**		

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: use the Fundamental Theorem of Algebra and the Complete Factorization Theorem.
SLO 5: 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.
SLO 2: graph parametric equations in two dimensions that involve algebraic functions. They will be able to eliminate the parameter.