Math 1240 (previously 150) **PRE-CALCULUS** **Spring 2020**
(Generic)

Instructor: Daishu Komagata Email:ryugen@unm.edu
Office Hour:TR 1400-1500 SMLC 230a & F 0900-0950 Algebra Table. **Office:SMLC 230A**
The Algebra Table is located in DSH 2nd floor next to the elevators.
Textbook: 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.

3 In-Class Exams (100 pts. each)	300 points
Quizzes	60 points
Homework	60 points
Final Exam	200 points
Total	**620 points**

Accumulating 70% of these points guarantees a minimum grade of a C.

Extra Credit: NONE! Please do not ask for any "extra credit"!

Exam Policy: **Calculators** are **NOT ALLOWED** on any in-class quizzes or exams (including the final exam). Homework may be done with the help of a graphing calculator. The instructor may use a graphing calculator during class as a teaching aid. **Notes** of any kind, 3x5 cards, books, cell phones, computers, headphones, smart watches, etc. are also **NOT ALLOWED** on in-class quizzes or exams.

Missed Exams: If you miss an exam, contact your instructor immediately. Make-up exams and quizzes 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: All homework assignments will be due at the beginning of class. Late homework assignments may not be permitted. The homework will be due on every Friday. The homework assignments are on my department website: math.unm.edu/~ryugen. The homework assignments are all EVEN NUMBERS, which is on my department website and has what problems to do. Your homework assignments will be written in a clear and concise manner and will have proper mathematical notation to receive full credit.Your homework is your most important effort in this class. Homework is how you actually learn the material that will be on the quizzes and exams. Expect to do 2-3 hours of homework for every hour of class meeting time (on average 10-15 hours per week). Keep all of your homework together in a folder so that if you are having trouble in the course, you can bring it with you when you go to see your instructor or tutor. You are expected to do all of the homework problems listed in the syllabus whether they are graded or not.

Quizzes: There will be weekly quizzes. The quiz problems will be very similar to the homework problems, if not the same. Most of the quizzes will be in-class and announced, but occasionally there may be a pop quiz. No make-up quizzes will be given, even if you have an excused absence.

Word-of-Advice: If you are struggling with the material, seek help IMMEDIATELY!

Attendance: Attendance is mandatory. If a student has more than three unexcused absences, he/she may be dropped from the course. Tardiness or early departure may be regarded as an absence. After the withdrawal deadline the instructor will not drop any student. 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 underlinedocumented 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.

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: We will accommodate students with documented disabilities (through ARC). During the first two weeks of the semester, those students should inform the instructor of their particular needs. Extra Help: In addition to your instructor's office hours, there is extra help available at:
  -The Algebra Tutoring Table, staffed by algebra instructors every day (see posted schedule), 2nd floor DSH, behind room #224.
  - CAPS: Center for Academic Program Support. Located on the 3rd floor of Zimmerman Library, 277-4560.
  - MEP Engineering Annex, room 210, or call the study group at 277-8795
  - CATS: Counseling and Therapy Services, Student Health Center, 277-4537. (For test anxiety, etc.)

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, especially the LoboRESPECT Advocacy Center and the support services listed on its website (http://loborespect.unm.edu/). 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). For more information on the campus policy regarding sexual misconduct, see: https://policy.unm.edu/university-policies/2000/2740.html

Note: These problems are not the homework assignments, but you can do them for more practice. The actual homework assignments are on my department website:math.unm.edu/~ryugen. ONLY the even number problems are to be turned in. The coordinator for this class reserves the right to change the syllabus at any point of time during the semester. **For practice sheets, and sample exams, please check our website:http://www.math.unm.edu**

Week		MATH 1240 Topics	Homework (Do the odd numbered problems).
Jan. 22	1.2	Exponents/Radicals	29-55,61-67,71,73,89-93
Jan. 24	1.3	Algebraic Expressions	29-39,49-57,63-113,119-123,125-128 all,
Jan. 27	1.4	Rational Expressions	13,17-21,27,33,35,39,43-47,59,65,69,71,75,77
Jan. 29	1.8	Inequalities	51,55-65,73-85
Jan. 31	1.9	Coordinate Geometry	23,27-31,35,37,53,55,61,69,77, 83-107
Feb. 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
Feb. 5	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
Feb. 7	2.6	Transformations of Functions	5-13,23-29,33,39-43,55-65,75,83,95
Feb. 10		Page 237 Modeling p.240)	5-17,19b,21b, 23a, 25a
Feb. 12	2.7	Combining Functions	11-15,16,27-31,35-41,45,49,51,61-65,67
Feb. 14	2.8	One-to-One, Inverse Functions	13,15,21,31-35,43,45,49-57,61,63,85,95
Feb. 17	1.6	Complex Numbers	19,21,27,29,33-53,57,59,61,67,70,71

| Feb. 19 | | Make-up Work No Assignment |
| Feb. 21 | | **EXAM 1** |

Feb. 24	3.1	Quadratic Functions/Models	15-33,39-43,49,51-65
Feb. 26	3.2	Polynomial Functions/Graphs	5-9,13,18,25,27,28,29,33-39,43,51
Feb. 28	3.3	Dividing Polynomials	3-19,47-67, (replace synthetic div. by long div.)

Mar. 2	3.4	Real Zeros of Polynomials	17,19,25,29,33,35,45,47,51,55,59
Mar. 4	3.6	Rational Functions	9,11,13,19,23,25,29,31-37,43,49,54,58,69-73
Mar. 6	3.6	Rational Functions	

Mar. 9	8.4	Parametric Equations	1-11 <u>all</u>, 31-34 <u>all</u>
Mar. 11	10.1	Systems of 2 Linear Equations	29-49,59-75
Mar. 13	10.8	Systems of Nonlinear Equations	3,9,15,17,21,23,27,31,45

| March 16-20 | | Spring Break |

Mar. 23	4.1	Exponential Functions	21-30 <u>all</u>, 31-41,44
Mar. 25	4.2	Natural Exponential Function	9-15,24,25(a-c),33-37
Mar. 27		Make-up Work	

Mar. 30		**EXAM 2**	
Apr. 1	4.3	Logarithmic Functions	9-19,27,29,33,53,55,63-77
Apr. 3	4.4	Laws of Logarithms	15-19,32,39,45,53,61

Apr. 6	4.5	Exp. /Log. Equations	15,21,35,39,45,61,65,67,89-97
Apr. 8	4.6	Modeling with Exponential Fun.	3-27
Apr. 10	12.1	Sequences	5-9,11-15, 17, 19, 29, 31

Apr. 13	13.1	Limits: Numerically/Graphically	5-9, 17-19, 29,31
Apr. 15	13.2	Limits: Algebraically	5-30 <u>all</u>,33,43,35,37,39,41,43
Apr. 17	13.3	Tangent Lines and Derivatives	11-17, 21,23,25,39,41,43,45

Apr. 20	13.4	Limits at Infinity	5-15,19-21 (table only) 23-27,31,33
Apr. 22	11.1	Parabolas	5-9,15-19,33,39,43,53
Apr. 24	11.2	Ellipses	5-13,23-27,33,39,51-55

Apr. 27	11.3	Hyperbolas	3-7,11,15,17,23,25,37-39
Apr. 29		Make-up Work	
May 1		**EXAM 3**	

| May 4-8 | | Study Week |

| May 11 | | FINAL EXAM Monday (10am -Noon) Room TBA |

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.