

Sul Ross State University Rio Grande College
MTH 3309

Survey of Basic Mathematical Theory II

Location: Teleconference

Lecturer: Patricia Nicosia, Ph.D.

Term: Spring 2017

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Day/Time: Tuesday & Thursday / 9:30 A.M. – 10:45 P.M.

Description: Math 3309 will include the following topics—fractions and decimal numbers, problem solving, algebra, probability, statistics, measurement and geometry. Prerequisite- Math 3308.

Student Learning

Objectives: The student will be able to-understand and use mathematical reasoning to identify, extend and analyze patterns, understand the relationships among variables, expressions, equations, inequalities, relations and functions, understand how to use graphical and numerical techniques to explore data, characterize patterns, and describe departures from patterns, understand the theory of probability, and master the essential concepts of geometry and measurement.

Text: Long, DeTemple & Millman, *Mathematical Reasoning for Elementary Teachers*, Seventh Edition, AddisonWesley Longman, Inc., 2012. ISBN: 978-0-321-90099-9

Attendance: You are expected to attend all meetings. If you miss a session, you must make arrangements to get all notes, assignments, handouts and announcements from the missed class. Test dates are fixed and will not change. No make-up examinations will be given except for genuine emergencies. The student is responsible for providing the instructor with written justification for the emergency absence. All documentation will be reviewed and then a decision will be made. **All exams will be taken at the site where you are officially enrolled.**

Grading: Your grade will be based on two exams (40% each) including homework folders, a manipulative activity folder (15%) and a written report (1-2 typed pages) about Carl Frederick Gauss (5%). Grades will be assigned as follows- A: 90%-100%, B: 80%-89%, C: 70%-79%, D: 60%-69%, F: below 60%.

Schedule: Math 3309 will cover Chapters 6 – 11, 13

Weeks 1 & 2: Fractions and Rational Numbers (The Basic Concepts of Fractions and Rational Numbers, Addition and Subtraction of Fractions, Multiplication and Division of Fractions, The Rational-Number System)

Weeks 3 & 4: Decimals, Real Numbers, and Proportional Reasoning (Decimals and Real Numbers, Computations with Decimals, Proportional Reasoning, Percent)

Weeks 5 & 6: Algebraic Reasoning and Representation (Algebraic Expressions, Functions, and Equations, Graphing, Geometry, and Algebra in the Cartesian Plane)

Weeks 7, 8 & 9: Geometric Figures (Figures in the Plane, Curves and Polygons in the Plane, Figures in Space, Networks)

Weeks 10, 11 & 12: Measurement: Length, Area and Volume (The Measurement Process, Area and Perimeter, The Pythagorean Theorem, Volume, Surface Area)

Week 13: Transformations, Symmetries, and Tilings (Rigid Motions and Similarity Transformations, Patterns and Symmetries, Tilings and Escher-like Designs)

Week 14: Statistics: The Interpretation of Data (Organizing and Representing Data, Measuring the Center and Variation of Data, Statistical Inference)

Week 15: Probability (The Basics of Probability)

Test dates: Exam I / March 2 / First Homework Folder Due
Exam II / May 4 / Second Homework Folder Due
March 9 / Carl Frederick Gauss Report Due*
April 20 / Manipulative Activity Folder Due (during class)

Additional Information:

1. Sul Ross State University Rio Grande College is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is the student's responsibility to initiate a request for accessibility services. Students seeking accessibility services must contact the Student Support Specialist on their campus.
2. Office Location: Del Rio, Room 219; Hours:
Monday: 9 – 9:30 am, 11 – 12 pm, Tuesday: 9 – 9:30 am, 11 - 12 pm
Wednesday: 9 – 9:30 am, 11 – 12 pm, Thursday: 9 – 9:30 am, 11 - 12 pm
Also available anytime I'm in my office and by appointment.
***If I am teaching at another location, I will be available at that site.*
3. *No lecture Thursday, March 9. Class time to work on Carl Gauss report (RGC computer labs). The report will be submitted before midnight on March 9 and e-mailed to me (pnicosia@sulross.edu) as a word document.
4. Activities in ETA Cuisenaire binder for folder: (1)Decimal Draw, (2)Fractured Fractions, (3)Mismatched Circles, (4)Fraction Riddles, (5)Spin a Graph, (6)Geoboard Polygons, (7)Geoboard Tic-Tac-Toe, (8)Predict, Shake, and See, (9)Sides and Angles, (10)Spin to Win.
5. No lecture Thursday, April 13. Class time for work on manipulative activities.
6. Texas Essential Knowledge and Skills (TEKS) web site is [www. tea.state.tx.us](http://www.tea.state.tx.us)
7. **Student Learning Outcomes-** See Department of Education outcomes- The preservice teacher understands how students learn mathematical skills and uses

that knowledge to plan, organize and implement instruction and assess learning. The preservice teacher understands concepts related to numbers, operations and algorithms and the properties of numbers. The preservice teacher understands concepts related to patterns, relations, functions and algebraic reasoning. The preservice teacher understands concepts and principles of geometry and measurement. The preservice teacher understands concepts related to probability and statistics and their applications. The preservice teacher understands mathematical processes and knows how to reason mathematically, solve mathematical problems and make mathematical connections within and outside of mathematics.