



Course Syllabus

MATH 1351-Mathematics for Teachers 2

Catalog Description: This course is intended to build or reinforce a foundation in fundamental mathematics concepts and skills. It includes the concepts of geometry, measurement, probability, and statistics with an emphasis on problem solving and critical thinking.

Prerequisites: Math 1314 or equivalent

Semester Credit Hours: 3

Lecture Hours per Week: 3

Lab Hours per Week: 0

Extended Hours: 1

Contact Hours per Semester: 64

State Approval Code: 27.0101.57 19

Class section meeting time: Online—students are expected to spend at least 3-4 hours per week reading, reviewing, and participating in assigned activities for successful completion of this course.

Alternate Operations During Campus Closure: In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Panola College to move to altered operations. During this time, Panola College may opt to continue delivery of instruction through methods that include, but are not limited to: online learning management system (CANVAS), online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor Panola College's website (www.panola.edu) for instructions about continuing courses remotely, CANVAS for each class for course-specific communication, and Panola College email for important general information.

Artificial Intelligence (AI) Course Policy: There are situations throughout the course where you may be permitted to use artificial intelligence (AI) tools to aide in further understanding of mathematical concepts. However, AI tools may not be used for any graded assignments including but not limited to exams, quizzes, and projects. Use of any AI-generated content in this course without the instructor's consent qualifies as academic dishonesty and violates Panola College's standards of academic integrity.

Core Components and Related College Student Learning Outcomes

This course counts as part of the academic requirements of the Panola College Core Curriculum and an Associate of Arts or Associate of Science degree. Yes No: If no, skip to Instructional Goals.

The items below marked with an X reflect the state-mandated outcomes for this course **IF this is a CORE course:**

- Critical Thinking Skills – to include creative thinking, innovation, inquiry and analysis, evaluation and syntheses of information
 - CT1: Generate and communicate ideas by combining, changing, or reapplying existing information
 - CT2: Gather and assess information relevant to a question

- CT3: Analyze, evaluate, and synthesize information
- Communication Skills – to include effective development, interpretation, and expression of ideas through written, oral, and visual communication
 - CS1: Develop, interpret, and express ideas through written communication
 - CS2: Develop, interpret, and express ideas through oral communication
 - CS3: Develop, interpret, and express ideas through visual communication
- Empirical and Quantitative Skills – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
 - EQS1: Manipulate and analyze numerical data and arrive at an informed conclusion
 - EQS2: Manipulate and analyze observable facts and arrive at an informed conclusion
- Teamwork – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
 - TW1: Integrate different viewpoints as a member of a team
 - TW2: Work with others to support and accomplish a shared goal
- Personal Responsibility – to include the ability to connect choices, actions, and consequences to ethical decision-making
 - PR1: Evaluate choices and actions and relate consequences to decision-making
- Social Responsibility – to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities
 - SR1: Demonstrate intercultural competence
 - SR2: Identify civic responsibility
 - SR3: Engage in regional, national, and global communities

Instructional Goals and Purposes:

The purpose of this course is to demonstrate:

1. Competence in Probability.
2. Competence in Data Analysis and Statistics.
3. Competence in introductory Geometry.
4. Competence in congruence and similarity with constructions.
5. Competence in area, Pythagorean Theorem and volume.
6. Competence in transformations.

Learning Outcomes: [from the ACGM catalog]

After studying all materials and resources presented in the course, the student will be able to:

1. Apply fundamental terms of geometry such as points, lines, and planes to describe two- and three-dimensional figures.
2. Make and test conjectures about figures and geometric relationships.
3. Use a variety of methods to identify and justify congruence and similarity of geometric objects.
4. Perform geometric transformations.
5. Demonstrate fundamental probability techniques and apply those techniques to solve problems.
6. Explain the use of data collection and statistics as tools to reach reasonable conclusions.
7. Recognize, examine, and utilize the basic principles of describing and presenting data.
8. Perform measurement processes and explain the concept of a unit of measurement.
9. Develop and use formulas for the perimeter, area, and volume for a variety of figures.

Course Content:

A general description of lecture/discussion topics included in this course are listed in the Learning Objectives / Specific Course Objectives sections of this syllabus.

Students in all sections of this course will learn the following content:

1. How probabilities are determined
2. Experimental and theoretical probabilities
3. Properties of probabilities
4. Mutually exclusive and non-mutually exclusive events
5. Geometric probabilities
6. Multistage experiments
7. Independent events
8. Conditional probabilities
9. Modeling games
10. The fundamental counting principle
11. Permutations
12. Combinations
13. Use of counting techniques in probability problems
14. Designing experiments to collect data
15. Variability in data and how it relates to the study of statistics
16. The difference between a population and a sample
17. Misuses of statistics based on samples and populations
18. Categorical, numerical, and ordinal data
19. Dot plots and stem and leaf plots
20. Histograms and bar graphs
21. Circle graphs
22. Line graphs
23. Scatterplots
24. Measures of central tendency
25. Measures of variation
26. Basic undefined and defined terms in Geometry
27. Knowledge of basic shapes in Geometry
28. Names, classifications, and measurement of angles
29. Types of angles
30. Properties of parallel lines and angles associated with them
31. Knowledge of three-dimensional properties
32. Properties of congruent triangles
33. Compass constructions
34. Similar figures
35. Linear measure
36. Areas of polygons and circles
37. Pythagorean Theorem, distance formula, and equation of a circle
38. Surface areas
39. Volume and Mass
40. Translations, rotations, and tessellations
41. Reflections and glide reflections
42. Dilations

Extended Hours:

Additional content in relation to state based assessments, Grade K-8 core standards, and other mathematics education related applications.

Methods of Instruction/Course Format/Delivery:

Methods employed by faculty will include lecture/demonstration, discussion, problem solving, analysis, and reading assignments. Homework will be assigned. Faculty may choose from, but are not limited to, the following methods of instruction:

1. Internet
2. Video
3. Television
4. Projects
5. Group work
6. Field Trips
7. Research

Major Assignments/Assessment:

Faculty may assign both in and out of class activities to evaluate students' knowledge and abilities. Faculty may choose from, but are not limited to, the following methods: attendance, class preparedness, participation, collaborative learning projects, exams/tests/quizzes, homework, internet, library assignments, readings, research papers, scientific observations, student-teacher conferences, and written assignments.

The Mathematics Department does not accept late work.

Assessment(s):

1. Homework and quizzes
2. Exams per chapter or over combined chapters
3. Math education assignments/Projects/Group work/Research/Observations
4. Comprehensive Final Exam

Course Grade:

Class Participation	10%
Homework/Quiz Average	15%
Math Education/Projects/Research/Observations	15%
Exams	40%
Comprehensive Final Exam	20%

Letter Grades for the Course will be assigned as follows:

- A: 90 < Average < 100
- B: 80 < Average < 90
- C: 70 < Average < 80
- D: 60 < Average < 70
- F: 00 < Average < 60

Texts, Materials, and Supplies:

- The textbook is free and is in the Canvas course. It was written and provided by Roane State Community College.
- Canvas
- Computer access
- Internet / wifi connection
- Webcam

- Pdf scanner (smartphone apps can do this)
- Compass, ruler, protractor
- Required printed material

Other:

- Courses conducted via video conferencing may be recorded and shared for instructional purposes by the instructor.
- For current texts and materials, use the following link to access bookstore listings: <https://www.panolacollegestore.com>
- For testing services, use the following link: <https://www.panola.edu/student-services/student-support/academic-testing-center>
- If any student in this class has special classroom or testing needs because of a physical learning or emotional condition, please contact the ADA Student Coordinator in Support Services located in the Charles C. Matthews Student Center or go to <https://www.panola.edu/student-services/student-support/disability-support-services> for more information.
- Panola College welcomes pregnant and parenting students as a part of the student body. This institution is committed to providing support and adaptations for a successful educational experience for pregnant and parenting students. Students experiencing a need for accommodations related to pregnancy or parenting will find a Pregnancy and Parenting Accommodations Request form in *The Pathfinder* or may request the form from the course instructor.
- Withdrawing from a course is the student's responsibility. Students who do not attend class and who do not withdraw will receive the grade earned for the course.
- Student Handbook, *The Pathfinder*: <https://www.panola.edu/> (located at the bottom under students)