MATH 1351 - Mathematics for Teachers II Course Syllabus

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

Semester Offered
Fall
Summer 2
Credits 3
Lecture Hours 3
Lab Hours 0
Extended Hours 1
Contact Hours 64
State Approval Code 27.0101.57 19
Instructor Name Roberta Collinsworth
Semester/Year Fall 2024

Meeting Time and Location
Math 1351.401
Online—students are expected to spend at least 3-4 hours per week

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.

Student Basic Needs
Unexpected circumstances may arise, but Panola College offers various resources to support students. If you need mental health services or are facing challenges with transportation, affording class materials and supplies, or accessing food regularly—issues that may impact your class performance—please visit panola.edu/resources.

Class Attendance
Regular and punctual attendance of classes and laboratories is required of all students. When a student has been ill or absent from class for approved extracurricular activities, he or she should be allowed, as far as possible, to make up for the missed work. If a student has not actively participated by the census date, they will be dropped by the instructor for non-attendance. This policy applies to courses that are in-person, online, hybrid, and hyflex.

Attendance in online courses is determined by submission of an assignment or participation in an activity. According to federal guidelines, simply logging into a distance learning course without participating in an

academic assignment does not constitute attendance. Distance learning is defined as when a majority (more than 50%) of instruction occurs when the instructor and students are in separate physical locations. Students must engage in an academic activity prior to the course census date.

When an instructor feels that a student has been absent to such a degree as to invalidate the learning experience, the instructor may recommend to the Vice President of Instruction that the student be withdrawn from the course. Instructors may seek to withdraw students for non-attendance after they have accumulated the following number of absences:

Fall or spring semesters:

3 or more class meeting times per week - 5 absences

2 class meeting times per week - 3 absences

1 class meeting per week - 2 absences

The student is responsible for seeing that he or she has been officially withdrawn from a class. A student who stops attendance in a class without officially withdrawing from that class will be given a failing grade; consequently, the student must follow official withdrawal procedures in the Admissions/Records Office.

Please note: Health Science and Cosmetology courses may require more stringent attendance policies based on their accreditation agencies. Please see the addendum and/or program handbook for further information concerning attendance.

Pregnant/Parenting Policy

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 Student Handbook or may request the form from the course instructor.

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.

Student Learning Outcomes

Critical Thinking Skills – to include creative thinking, innovation, inquiry and analysis, evaluation and syntheses of 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

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

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

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 steam 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 have and reading assignments. Homework will be assigned. Faculty may choose from, but are not limited to have the following methods of instruction:

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

Major Assignments/Assessments

The following items are assigned and assessed during the semester and used to calculate the student's final grade.

Assignments

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.

Assessments

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%	10%
Homework/Quiz Average 15%	15%
Math Education/Projects/Research/Observations 15%	15%
Exams 40%	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

Addendum

Math 1351---Additional Class Information

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/studentsupport/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/studentservices/student-support/disability-support-services for more information.
- 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: https://www.panola.edu/ (located on at the bottom under student)