MATH 0314 - Algebraic Foundations Course Syllabus

Description
The course supports students in developing skills, strategies, and reasoning needed to succeed in mathematics, including communication and appropriate use of technology. Topics include the study of numeracy and the real number system; algebraic concepts, notation, and reasoning; quantitative relationships; mathematical models; and problem solving.
Corequisites Math 1314 or 1324

Semester Offered
Fall
Spring
Credits 3
Lecture Hours 3
Lab Hours 0
Extended Hours 0
Contact Hours 48
State Approval Code 32.0104.51 19
Instructor Name Marie Graham
Semester/Year Fall 2024

Meeting Time and Location
MATH 0314.401 Online--Students are expected to spend at least 3-4 hours per week (based on the number of contact hours for the particular course, change the number to reflect that) 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.

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.

Instructional Goals and Purposes

The purpose of this course is to increase academic proficiency in expression of mathematical solutions have mathematical reasoning, mathematical understanding and support the co-enrolled credit level course.

Learning Outcomes

Upon successful completion of this course, students will:

1. Define, represent, and perform operations on real and complex numbers.
2. Recognize, understand, and analyze features of a function.
3. Recognize and use algebraic (field) properties, concepts, procedures (including factoring), and algorithms to combine, transform, and evaluate absolute value, polynomial, radical, and rational expressions.
4. Identify and solve absolute value, polynomial, radical, and rational equations.
5. Identify and solve absolute value and linear inequalities.
6. Model, interpret and justify mathematical ideas and concepts using multiple representations.
7. Connect and use multiple strands of mathematics in situations and problems, as well as in the study of other disciplines

Course Content

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

The objectives for this course are aligned with the Texas College Readiness Standards as adopted by the Texas Higher Education Coordinating Board.

1. ***Numeric Reasoning***
    a. To perform computations with and to compare real numbers.
    b. To use estimation to check for errors and reasonableness of solutions.
2. ***Algebraic Reasoning***
    a. To explain and differentiate between expressions and equations using words such as "solve", "evaluate", and "simplify".
    b. To recognize and use algebraic field properties, concepts, procedures, and algorithms to combine, transform, and evaluate expressions.
    c. To explain the difference between the solution set of an equation and the solution set of an inequality.
    d. To recognize and use algebraic field properties, concepts, procedures, and algorithms to solve equations.
    e. To interpret multiple representations of equations and relationships.
    f. translate among multiple representations of equations and relationships.
3. ***Geometric Reasoning***
    a. To recognize and apply right triangle relationships.
    b. To make connections between geometry and algebra.
4. ***Measurement Reasoning***
    a. To find the perimeter and area of two-dimensional figures.
    b. To determine indirect measurements of figures using Pythagorean Theorem.
5. ***Functions***
    a. To recognize whether a relation is a function.
    b. To recognize and distinguish between linear and quadratic functions.
    c. To understand and analyze features of a function.
    d. To algebraically construct and analyze linear and quadratic functions.
    e. To apply linear and quadratic function models to real-world situations.
    f. To develop a linear or quadratic function to model a situation.
6. ***Problem Solving and Reasoning***
    a. To analyze given information, formulate a plan or strategy, determine a solution have justify the solution, and evaluate the problem-solving process.
    b. To formulate a solution to a real-world situation based on the solution to a mathematical problem.
    c. To use a function to model a real-world situation.
7. ***Communication and Representation***
    a. To use mathematical symbols, terminology, and notation to represent given and unknown information in a problem.
    b. To use mathematical language to represent and communicate the mathematical concepts in a problem.
    c. To use mathematics as a language for reasoning, problem solving, making connections, and generalizing.
    d. To model and interpret mathematical ideas and concepts using multiple representations.
    e. To summarize and interpret mathematical information provided orally, visually, or in written form within the given context.
    f. To communicate mathematical ideas, reasoning, and their implications using symbols have diagrams, graphs, and words.
    g. To create and use representations to organize, record, and communicate mathematical ideas.
    h. To explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications.
8. ***Connections***
    a. To connect and use multiple strands of mathematics in situations and problems.
    b. To connect mathematics to the study of other disciplines.
    c. To use multiple representations to demonstrate links between mathematical and real-world situations.
    d. To know and understand the use of mathematics in a variety of careers and professions.

Methods of Instruction/Course Format/Delivery

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 and 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.

Major Assignments/Assessments

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

Course Grade

Assignment Weights

1. Daily Grades 25%
2. Major Exams 50%
3. Comprehensive Final Exam 25%

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

TEXAS SUCCESS INITIATIVE (TSI): *You must have a C or better to complete your TSI requirements or pass the credit level MATH course with a C or better.*

Texts Materials, and Supplies

- Canvas Access

Addendum

Each student will adhere to the instructor's course handout presented in the Canvas Course. See link for details.

Course Survival Guide

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)