



Syllabus: **Math 146 Mathematics for Elementary Teachers 1**

Course Information	
Course Prefix/Number: Math 146 Semester: Spring 2020 Class Days/Times: Friday 3:45 pm	Credit Hours: 3 Course Title: <i>College Mathematics</i> Room: <i>CENTR 501</i>

Instructor Information: Name: Lucinda Begay	Phone/Voice Mail: TBD E-mail: lbegay@tocc.edu Office location: TBD Office hours: <i>TBD</i>
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Course Description:
 An overview of mathematical concepts, principles and applications specifically for elementary teachers. Includes real number properties and patterns, arithmetic operations and algorithms in subsets of real numbers, alternative numbers systems, set theory, and algebraic reasoning and problem solving. Also includes the technology to teach mathematics.

Prerequisite(s):
 Information: It is not recommended that students enroll concurrently in MAT 146 and 147.

Course Structure:

Upon successful completion of the course, the student will be able to:

1. Apply number properties, analyze number patterns to solve problems, and identify numbers as natural, whole, integer, prime, composite, rational, and irrational.
2. Use appropriate arithmetic operations to solve problems with integers and rational numbers, and explain the algorithms used.
3. Solve problems using number bases other than base 10.
4. Describe and use set operations and Venn Diagrams.
5. Use different strategies to solve problems using algebraic reasoning moving from concrete models or verbal descriptions to symbolic descriptions.

Outline:

- I. Real Number Properties and Patterns
 - A. Whole numbers
 - B. Integers
 - C. Rational numbers
 - D. Irrational numbers
 - E. Number theory
 - 1. Primes versus composite
 - 2. Factors and multiples
 - 3. Divisibility
 - F. Teaching tools and resources
 - 1. Identifying and utilizing teaching resources
 - 2. World Wide Web, national organizations
 - 3. Classroom presentation
 - 4. Software programs, math games
 - 5. Manipulatives
 - 6. Structured and guided practice
- II. Arithmetic Operations and Algorithms in Subsets of Real Numbers
 - A. Conceptual understandings
 - 1. Interconnectedness
 - 2. Underlying structure
 - B. Algorithms
 - 1. Traditional
 - 2. Nontraditional
 - C. Teaching tools and resources
 - 1. Identifying and utilizing teaching resources
 - 2. World Wide Web, national organizations
 - 3. Classroom presentation
 - 4. Software programs, math games
 - 5. Manipulatives
 - 6. Structured and guided practice
- III. Alternative Number Systems
 - A. Binary
 - B. Octal
 - C. Hexadecimal
 - D. Teaching tools and resource
 - 1. Identifying and utilizing teaching resources
 - 2. World Wide Web, national organizations
 - 3. Classroom presentation
 - 4. Software programs, math games
 - 5. Manipulatives
 - 6. Structured and guided practice
- IV. Set Theory
 - A. Set operations
 - B. Venn Diagrams
 - C. Teaching tools and resources
 - 1. Identifying and utilizing teaching resources
 - 2. World Wide Web, national organizations
 - 3. Classroom presentation
 - 4. Software programs, math games
 - 5. Manipulatives
 - 6. Structured and guided practice
- V. Algebraic Reasoning and Problem Solving

- A. Problem solving strategies
 - 1. Trial and error
 - 2. Organizing data (charts, tables, graphs)
 - 3. Patterns
 - 4. Systematic elimination of alternatives
 - 5. Modeling
- B. Algebraic reasoning
 - 1. Verbal descriptions
 - 2. Symbolic descriptions
 - 3. Concrete models
- C. Teaching tools and resources
 - 1. Identifying and utilizing teaching resources
 - 2. World Wide Web, national organizations
 - 3. Classroom presentation
 - 4. Software programs, math games
 - 5. Manipulatives
 - 6. Structured and guided practice

Texts and Materials: No text required.
Reference book: Mathematics for Elementary Teachers by Michelle Manes.

Evaluations and Grading & Assignments:

90 and above is an A
 80 - 89 is a B
 70 - 79 is a C
 60 - 69 is a D
 Under 60 is Failing

Your grade will be determined by the following:

Your final grade will be calculated as follows:

Attendance	100 points
Homework project	300 points
Tests	300 points
Final Exam	100 points
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Total possible	800 points

Himdag Cultural Component:

Course will explore math by using hands on strategies to teach elementary mathematics. Exploring math may develop and build new understanding on how it applies to Tohono O’odham people to continue improving or restoring components

of Himdag. Students will also formulate a personal ethic regarding the use of mathematical thinking in teaching and research, incorporating perspectives from TOCC Core values.

Policies and Expectations:

Course Policies:

- 1) Students are expected to attend each class, arriving on time, except in the case of an excused emergency.**
- 2) Students are expected to contact instructor prior to absences, coming late to class or leaving early.**
- 3) Unexcused late arrivals or early departures will count against attendance record.**
- 4) Class participation and preparation are essential to student success. Students must read textual material, prepare for projects, complete required research as stated on the course schedule.**
- 5) Students are expected to come to class prepared for class and having done any preliminary work required as per the course schedule.**
- 6) Students are expected to stay in class and work diligently throughout the whole time. Sleeping, frequent/continued exiting from the class during the class period will constitute one (1) absence.**
- 7) No cell phone use is allowed during class. Use of cell phone during class, unless permitted by instructor, is a violation of the T-So:son.**
- 8) Late work is marked down 10 points for each day of tardiness.**
- 9) Failure to submit a project results in a grade of zero (0).**

No Work accepted after the last class.

Classroom Behavior

- Visitors may be only allowed at class sessions or on field trips with instructor approval, visitor's safety and behavior are the responsibly of the student.
- Possession of drugs, alcohol or firearms on college property is illegal.
- Food and beverages are allowed in classrooms at discretion of the instructor.
- Cellphones should be turned off during class, unless the instructor is allowing students to use their tools (calculator, internet access).
- Students creating disturbances that interfere with the conduct of the class or the learning of others will be asked to leave.
- Student behavior is also detailed in student handbook under Student Code of Conduct Violations

Make-up policy:

Late assignments that can be made up will be accepted but will be penalized 25%. Laboratories cannot be made up except in the case of college closure. At the

instructor's discretion, extra credit opportunities and optional activities may be provided.

Academic Integrity:

Violations of scholastic ethics are considered serious offenses by Tohono O'odham Community College, the Student Services Department, and by your instructor. Students may consult the TOCC Student Handbook sections on student code of conduct, on scholastic ethics and on the grade appeal procedure. Copies are available at Tohono O'odham Community College.

All work done for this class must be your own, or the original work of your group. While you may discuss assignments with other class members, the final written project must clearly be original. You may use work from books and other materials if it is properly cited. Copying from a book without proper reference or from a person under any circumstances will result in an "F" for the assignment, and at the instructor's discretion, possibly an "F" for the course. If you are uncertain about proper citations ask your instructor or the librarian.

Course Feedback:

All assignments will be graded and returned to the students promptly, typically within a week after the assignment is closed for handing in. E-mail and phone messages will be returned within two days. A student or the instructor may request a student conference at any time during the semester. Quarterly grade reports will be provided to each student, either in person, by email or via the electronic system of Canvas.

Attendance Policy

You are expected to arrive to class on time and be prepared to participate in each class period. Four unexcused absences may result in withdrawal and a "W" or "Y" will be recorded. You may request to be excused from class for religious observances and practices, for illness, for school or work-related travel or for personal or family emergency. If you will be absent, please notify the instructor as soon as possible (approved by Faculty Senate April 2014).

Incomplete Policy

Incomplete (I) grades are not awarded automatically. The student must request an "I" from the instructor who can choose to award an Incomplete only if all three of the following conditions are met:

1. The student must be in compliance with the attendance policy.
2. The student must have unavoidable circumstance that would prohibit the student from completing the course.
3. The student must have completed over 75% of the course requirements with at least a "C" grade.

Incompletes are not a substitute for incomplete work due to frequent absences or poor academic performance. Incomplete grades that are not made up by the end of the ninth week of the following semester will be automatically changed to an F if the agreed upon work, as stipulated on the written form signed by the instructor and the student when the I grade is awarded, is not completed.

Instructor Withdrawals

Students who have missed four consecutive classes (or the equivalent) not submitted any assignments nor taken any quizzes by the 45th day census report, due on [date of 45th day found in Academic Calendar on TOCC website] are assumed NOT to be participating in the class and may be withdrawn at the faculty member's discretion. [faculty members should be clear in their withdraw policy, if you do not withdraw students please note in appropriate sections].

Student Withdrawals

Students may withdraw from class at any time during the first 2/3 of the semester without instructor permission and without incurring any grade penalty. Please be sure to withdraw yourself by [withdrawal deadline date found in Academic Calendar on TOCC website] if you do not expect to complete the class, otherwise you may receive an "F" grade.

Special Withdrawals (Y) Grade

The "Y" grade is an administrative withdrawal given at the instructor's option when no other grade is deemed appropriate. Your instructor must file a form stating the specific rationale for awarding this grade. "Y" grades are discouraged since they often affect students negatively. Your instructor will not award a "Y" grade without a strong reason.

Equal Access Statement/Disability Accommodations

Tohono O'odham Community College seeks to provide reasonable accommodations for qualified individuals with disabilities. The College will comply with all applicable regulations, and guidelines with respect to providing reasonable accommodations as required to ensure an equal educational opportunity. This process includes self-identifying as a student with a disability, providing supporting documentation of their disability, and being approved for services through the Disability Resources Office (DRO). It is the student's responsibility to make known to their instructor(s) the student's specific needs within the context of each class in order to receive appropriate accommodations. We will work together in order to develop an accommodation plan specifically designed to meet the individual student's requirements.

For more information or to request academic accommodations, please contact: Anthony Osborn, TOCC Disabilities Resource Coordinator, aosborn@tocc.edu, or 520-360-5044 for additional information and assistance.

Title IX

Tohono O'odham Community College encourages each student to have the knowledge and skills to be an active bystander who intervenes when anyone is observed or being harassed or endangered by sexual violence. Sexual discrimination and sexual violence can undermine students' academic success and quality of life on campus and beyond. We encourage students who have experienced or witnessed any form of sexual misconduct to talk about their experience and seek the support they need.

Confidential support and academic advocacy can be found with: Student Services Title IX Coordinator/Counselor, Alberta Espinoza, M.Ed. located in I-We:mta Ki: Room 18. Phone 520-383-0033 email: aespinoza@tocc.edu

Conduct: Bias, Bullying, Discrimination and Harassment

Tohono O'odham Community College faculty and staff are dedicated to creating a safe and supportive campus environment as a core value. Harassment based on age, class, color, culture, disability and ability, ethnicity, gender, gender identity and expression, immigration status, marital status, political ideology, race, religion/spirituality, sex, sexual orientation, and tribal sovereign status will not be tolerated.

DISCLAIMER: *This syllabus is designed to evolve and change throughout the semester based on class progress and interests. You will be notified of any changes as they occur.*