



Syllabus **MAT 142H** College Mathematics

Course Information

Course Prefix/Number: **MAT 142H Section 3**
Semester: **Fall 2019**
Course Title: **College Mathematics**
Credit Hours: **4**

Class Days/Times: **MW 5:30P - 7:30P**
Place: **Phoenix Campus**

Instructor Information

Name: **Shreya Kelly**
E-mail: **skelly@tocc.edu**

Office location: **classroom (TBD)**
Office hours: **immediately after the class**

Course Description

Basic algebraic functions, including the language of sets, lines in the plane, systems of linear equations, expressions and equations in rational, radical, quadratic, exponential and logarithmic form. This course will also include a survey of real-life topics in the social sciences and management, along with an introduction to probability and statistics.

Course Objectives

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

- Add, subtract, multiply and divide numbers in the real number system.
- Solve (linear, rational, radical, quadratic, exponential and logarithmic) equations and inequalities. Realize that some equations and inequalities may have no solution - or infinitely many of them.
- Graph equations.
- Add, subtract, multiply and divide expressions.
- Apply the principles of counting in problem solving situations.
- Compute theoretical and empirical probabilities. (in percentages and in fractions).
- Compute the mean, median, mode and standard deviation for a data set.
- Use descriptive statistics to analyze data.
- Solve interest problems using interest formulas for simple, compound and continuous interest.
- Analyze and solve problems using linear and exponential growth.
- Analyze exponential models of real world situations to find and estimate solutions, including growth and decay models beyond financial concepts.
- Describe the patterns and behavior of exponential models using words, algebraic symbols, graphs, and tables.
- Identify when an exponential model or trend is reasonable for given data or context.
- Explain the impact of changing parameters.
- Interpret visualizations for exponential models.
- Perform basic logarithmic operations to address questions arising in exponential models.
- Critically evaluate statistics presented in media

- Explain hypothesis testing, including the purpose of and differences between experiments and observational studies.
- Interpret study conclusions, including P -values.
- Compute and interpret Z -scores.
- Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.
- Rewrite expressions involving radicals and rational exponents using the properties of exponents.
- Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
- Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

Student Learning Outcomes

After completion of the course students will be able to:

- Compare relationships represented in different ways.
- Be able to use and interpret percentages in a variety of contexts including, but not limited to: Parts to whole comparisons, decimal representations of percentages, quantifying risks and other probabilities, rates, change, and margins of error.
- Create (mathematical) models of situations, including representations such as tables, graphs, equations and words, using multiple variables to represent quantities and attributes. Furthermore, students will describe why these tools are a useful strategy for understanding the world, along with their limitations.
- Critically evaluate statistics being presented in a media report including: identifying the reference value for a reported percentage, evaluating the sampling strategy, determining sources of bias, describing the difference between correlation and causation, identifying confounding variables.

Course Structure

This course will be operating on a combination of **class activity and lectures** that will enhance the student's knowledge of mathematical concepts. Some of this work will need to be done outside of class utilizing TOCC Canvas (<https://tocc.instructure.com/login/canvas>).

Text and Materials

- **[Required]** Quantway College Version 2.7 ISBN-13 9781975024208
- **[Required]** A calculator.

Course Evaluation

Grades will be determined using the following scale:

Category	Weight
Quizzes	30%
Mid-term Exam	25%
Comprehensive Final Exam	35%
Homework	15%
Total	100%

Himdag Cultural Component

My interpretation of what Nahban said in the *Desert Smells Like Rain* is this: while the *himdag* discourages direct, exact answers, in the mathematical world, one is expected to be able to come up with a precise answer for the situation. That being said, there are a few common issues shared:

- *Baban* (coyotes) are not going to affect your homework or my tests - they didn't write either.
- While one must go through a maze to see *i'ittoi*, there was no mention as to how many mazes there were to get to him. Likewise, you will discover in this course that there are many different ways to perform the algebra necessary to see the final answer.
- *I-we:tma*: for your success and the college's and the community's, you should not go work on mathematics alone - it can be a group activity (except on the tests, of course).
- *T-pik elida*: we respect each other and ourselves. We respect and take pride in our own work. We respect each other's abilities, quirks and privacy.

Policies and Expectations

Student Conduct

- Please be respectful of myself and other students in the class. Disruptive behavior may result in you being asked to leave the class. This includes but is not limited to talking, eating, rustling papers, clicking on electronics, texting or playing with your phone, late arrival and early departures (late arrival to class disrupts the learning activities and is unprofessional and disrespectful towards fellow classmates), any abusive or indecent language. Collegial behavior is required at all times. Turn off cell phones, PDAs, iPods, laptops, and other electronic devices not related to the course before entering the class.
- Cheating in my class is unacceptable. If you are caught cheating, you will be given a zero on that exam or quiz and may result in my filing an Academic Honesty Incident Report which could result in suspension or expulsion from the college.

E-mail Requirement

- All students must activate and regularly check their Tohono O'odham Community College e-mail account. It is mandatory that students use the TOCC e-mail account for all communications with the instructor.
- The instructor will not reply to any non-TOCC e-mail address the student uses to contact him.

Homework

- Each week, there will be a collection of homework/practice problems. Please submit the following Monday.

Quizzes

- Each Monday, you will complete a timed quiz consisting of questions over the previous week's material in the classroom. My hope is that students will work through the previous week's homework problems. There will be **no make-up quizzes**. However, at the end of the semester, I will drop your lowest quiz grade.

Exams

- There will be one timed **mid-term exam** and one timed **comprehensive final exam**.
- There will be **no make-up exams**.

Participation

- You are expected to work some problems on the board. I will be guiding you if you get stuck. I will ask you to work on the board after the related material is taught. You are encouraged to ask questions in the classroom.

Important Dates

- Drop/Full Refund deadline is **Tuesday, Sep 3rd 2019**.
- Withdrawal deadline is **Monday Nov 4th 2019**.

Final Grades

They will be sent to the address on record. Per FERPA and the Himdag, I will not give grades over the phone and am strongly discouraged from emailing same. (Again, see *t-pik elida* above.)

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.