

Math 1050-001: College Algebra, Summer 2018

Time and Location	MTWH 12:30PM - 2:45PM, JWB (John Widtsoe Building) 335.
Instructor	Chee Han Tan. (My first name is Chee Han.)
Contact	Office : JWB 129. Email : tan@math.utah.edu (Please include "Math 1050" in the subject line). Office Hours : MTWH 11:45AM - 12:15PM and 2:45PM - 3:15PM or by appointment.
Other Contacts	Course coordinator: Maggie Cummings (cummings@math.utah.edu)
Course Website	Canvas will be used regularly for this course. I will regularly post announcements in Canvas and will hold you accountable for receiving that information. If you do not check Canvas regularly, you should have announcements forwarded to an email address that you do check regularly. Either sign in through CIS or go to https://utah.instructure.com/courses/501052 .
Textbook	PRECALCULUS, 9th Edition, 2013 Larson. The University of Utah has negotiated special pricing for the text and WebAssign. <ul style="list-style-type: none">• Unless you are certain about staying in this class, please use the free trial on WebAssign to complete assignments and to access the E-book during the first week.• After you are certain about staying in the class, you must purchase the access to WebAssign and the E-book at http://www.cengagebrain.com/course/2989053 DO NOT buy it at the WebAssign website since the price there is more expensive! This costs \$75 and it covers both Math 1050 and Math 1060.• Optional: you may also purchase a loose-leaf version of the text for an extra \$40.• After purchase, you will be sent an access code which you will need to redeem at WebAssign. Please contact the instructor if you need to purchase through the bookstore.
Prerequisites	At least a C grade or better in Math1010 (Intermediate Algebra) OR Math1060 (Trigonometry) OR Math1080 (Precalculus) OR Math1090 (Business Algebra) OR Accuplacer CLM score of 60 or better OR ACT Math score of 23 or better OR SAT Math score of 570 or better. <i>Important note:</i> The mathematics department DOES enforce prerequisites for all undergraduate courses. If you were able to register for this class based on your enrollment in the prerequisite course last semester and you did not receive the minimum grade in that course to enter this class, then you will be dropped from this class on Friday of the first week of classes. If you are in this situation, it is in your best interest to drop yourself from this class and enroll in a class for which you have the prerequisites before you are forcibly dropped.
Course Objective	The goal of Math 1050 is to improve quantitative reasoning and prepare for future mathematics learning in Calculus, Linear Algebra and Discrete Mathematics.
Course Information	Math 1050 is a 4-credit semester course. According to the university guidelines, during the Fall-Spring semester, an average student should expect to spend 8 – 12 hours per week working on this class in addition to the lecture time. During the accelerated Summer semester, you should expect to spend 16 – 20 hours per week outside of lecture time.
Course Description	Numbers, functions, sequences, series, graphs of functions, inverse functions, polynomials, rational functions, inequalities, n -th roots, exponential functions, logarithms, piecewise defined functions, matrices and matrix equations.

Reading

You are strongly encouraged to have read the chapters before the corresponding class. Even if you spend as little as 10 minutes on this, it makes the discussion in class much clearer, and overall you will save time.

Expected Learning Outcomes

1. Sketch the graph of basic polynomials (second and third order), rational, radical, exponential, logarithmic and piecewise functions with or without transformations. Be able to identify important points such as x and y intercepts, maximum or minimum values; domain and range; and any symmetry.
2. For rational functions, be able to identify x and y intercepts, horizontal, vertical and oblique asymptotes (end behavior) and domain. Use information to sketch graphs of functions.
3. For polynomial functions, be able to identify all zeros (both real and complex), factors, x and y intercepts, end behavior and where the function is positive or negative. Use information to sketch graphs of functions.
4. Understand the relationships between graphic, algebraic and verbal descriptions of functions.
5. Given the graph of a function, be able to identify the domain, range, any asymptotes and/or symmetry, x and y intercepts, as well as find a rule for the function if it is obtained from a standard function through transformations.
6. Define i as the square root of -1 and know the complex arithmetic necessary for solving quadratic equations with complex roots.
7. Solve absolute value, linear, polynomial, rational, radical, exponential and logarithmic equations and inequalities.
8. Find the inverse of a function algebraically and graphically.
9. Perform composition of functions and operations on functions.
10. Understand sequences and be able to differentiate between geometric, arithmetic and others such as Fibonacci-type sequences, giving direct formulas where available or a numeric representation.
11. Understand series notation and know how to compute sums of finite arithmetic and finite and infinite geometric series.
12. Solve systems of equations (3×3 linear) and nonlinear equations in two variables.
13. Make sense of algebraic expressions and explain relationship among algebraic quantities including quadratic, exponential, logarithmic, rational, radical and polynomial expressions, equations and functions.
14. Represent and interpret “real world” situations using quadratic, exponential, logarithmic, rational, radical and polynomial expressions, equations and functions.

Attendance

Like any college course, attendance is not mandatory. However, concepts will be thoroughly explained and reviewed in class, thus it is to your absolute benefit to attend all classes. Students who regularly attend score on average 30% higher on exams than those who do not.

Calculators

Calculators will be useful for homework, but they will not be permitted on exams.

Grading

Grades for each student will be calculated using the following formula:

$$\begin{aligned} & \text{Homework (15\%)} + \text{Quizzes (15\%)} \\ & + 2 \text{ Midterms (2} \times 20 = 40\%) + \text{Final (30\%)} \end{aligned}$$

Your score on the final exam will replace your lowest midterm score or you will receive a 2% bonus to your final exam grade, whichever results in the highest grade. **There are no make-up exams. Students who miss an exam will receive a “0” on the missed exam.**

1. **Homework:** All homework is to be completed on WebAssign. Due dates for homework assignments can be found on WebAssign. **Late homework will not be accepted.** You will be given ample time to do your assignments. You are encouraged to work with other students. You may submit unlimited answers for each prompt. Please note, homework is a substantial part of your grade for the course (15%), it is to your benefit to do all your homework - partial credit is better than no credit.
2. **Quizzes:** There will be a total of 14-15 daily quizzes with the exception of reviews, midterms and holidays. The daily quiz will cover the material presented the previous day in class. You must be in attendance to take the quiz. They will be approximately 10-15 minutes and given near the end of class. **There will be no make-up quizzes but 3 lowest quiz scores will be dropped.**
3. **Midterm Exams:** There will be 2 in-class midterm exams. The content will be determined based on the pace of the course. Please note the time:

MIDTERMS: July 5 & July 19, all on Thursdays

4. **Final Exam:** All students are expected to take the comprehensive final exam. **The room will be announced during the last week of classes.** All students are expected to arrange their personal schedule to allow them to take the exam. Students with conflicts should speak to the instructor as soon as possible but unless it is an absolute emergency no student will be allowed to take the final exam early. Please note the time:

FINAL: Thursday, August 2, 2018, 12:30PM - 2:30PM

Letter Grades

Semester letter grades will be converted from the numerical semester scores N as follows:

$93 \leq N \leq 100$: A	$73 \leq N < 78$: C
$90 \leq N < 93$: A-	$70 \leq N < 73$: C-
$88 \leq N < 90$: B+	$68 \leq N < 70$: D+
$83 \leq N < 88$: B	$63 \leq N < 68$: D
$80 \leq N < 83$: B-	$60 \leq N < 63$: D-
$78 \leq N < 80$: C+	$N < 60$: E

Important Dates

Quizzes: Daily except exam days
Drop Day: Tuesday, June 26
Withdrawal Day: Friday, July 13

Midterm 1: Thursday, July 5
Midterm 2: Thursday, July 19
Final Exam: Thursday, August 2

Cheating

If a student is caught cheating on any homework, quizzes or exams, they will automatically receive a “0” for that assignment. Depending on the severity of the cheating, they may fail the class. Please note that the use (or even just pulling it out of your pocket) of a cellphone or any other electronic device is considered cheating and cause for receiving an automatic zero on any exams. If you exhibit any other behaviors that are unethical, I will not hesitate to report your behavior to the Dean of Students.

Additional Resources

Mathematics Tutoring Center : The math department offers free drop-in tutoring for students, at the T. Benny Rushing Mathematics Student Center. The center is located underneath the walkway between LCB (LeRoy E. Cowles Building) and JWB (John Widtsoe Building), and can be accessed by entering either building.

Opening hours : Monday - Thursday 8AM- 8PM and Friday 8AM - 4PM.

Website : <http://www.math.utah.edu/undergrad/mathcenter.php>

Mathematics Department Video Lectures : Video lectures are available at <http://www.math.utah.edu/lectures/math1050.html>

ADA Statement

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability & Access (CDA), located at 162 Olpin Union Building. To do so, contact CDA at 801-581-5020 (V/TDD) to set up an appointment. CDA will work with you and the instructor to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to CDA.

Student Responsibilities

All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. You have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, collusion, fraud, theft, etc. Students should read the Code carefully and know you are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee. See <http://regulations.utah.edu/academics/6-400.php>

Additional Policies

I have decided to make some additional policies regarding my classroom administration and grading.

1. I will demand respectful behavior in my classroom. Examples of disrespect include, but are not limited to, reading a newspaper or magazine in class, social chatting with your friend in class, text-messaging your buddies during class or cuddling with your girl/boyfriend in class. If you choose to be disrespectful with distracting behavior during my class, I can guarantee I will take action to terminate your disruptive behavior, and that action may not be desirable for you.
2. Cellphones and laptops are prohibited in the classroom. If you need to use your phone during class, please leave the classroom. It is almost impossible to take notes for a math class on a laptop in real time. However, if you are using a tablet or iPad or some similar device to take notes and the screen lies parallel to your desk, that is fine.
3. There will be no retakes of exams, for any reason.
4. If there are any emergencies that prevents you from attending the exam or turning in homework, it is your responsibility to notify me before any of these events. I will try my best to accommodate, but the longer you wait to communicate me, the less I can and am willing to do to help. The best way to contact me is by email or in office hours. Please keep in mind that I do not check my email regularly during the weekend.
5. There will be no cursing nor negative ranting (for example, "math sucks") on any written work turned in. The penalty for such things on your written work will be a zero score on that assignment or test.

6. If you have questions about any exam/quiz/homework grade, or you want to appeal the grading, you must bring it to me within one week of the return of the exam/quiz/homework. I am happy to look over your appeal and/or questions and give my feedback to benefit your learning.
7. Please make sure you do your best throughout the semester, knowing the grading scheme and what's expected of you, and come talk to me if you need further study strategies. I will be happy to brainstorm ideas to help you maximize your study strategies and improve your mathematical understanding. I will NOT offer any additional extra credit at the end of the semester or any other way for you to improve your grade at that time. No exceptions. Please respect this and do not ask for special favors or extra credit when you realize you do not like your grade. Most likely, I just will not respond to such emails or questions in person.
8. **Don't be afraid to ask questions!** Most of the time, there might be at least 8 other students who have the same questions as you. You are encouraged to speak to me immediately after the class about any questions concerning the course materials, although I very much prefer you to do that during the class, as this will benefit the entire classroom.

Disclaimer

This syllabus is not a binding legal contract. I reserve the right to make changes as I see fit at any time, but all adjustments will be announced.

Tentative Course Schedule, Summer 2018

Week	Section	Topic
Week 1 (June 21)	1.1	Rectangular Coordinates
	1.2	Graphs of Equations
Week 2 (June 25 - 28)	1.3	Linear Equations in Two Variables
	1.4	Functions
	1.5	Analyzing Graphs of Functions
	1.6	A Library of Parent Functions
	1.7	Transformations of Functions
	1.8	Combination of Functions: Composite Functions
	1.9	Inverse Functions
	2.1	Quadratic Functions and Models
	2.2	Polynomial Functions of Higher Degree
Week 3 (July 2 - 5)	NO CLASS Wednesday July 4	
	2.3	Polynomial and Synthetic Division
	2.4	Complex Numbers
		REVIEW in class
		Midterm 1 (Thursday, July 5)
	2.5	Zeros of Polynomial Functions
Week 4 (July 9-12)	2.6	Rational Functions
	2.7	Nonlinear Inequalities
	3.1	Exponential Functions and Their Graphs
	3.2	Logarithmic Functions and Their Graphs
	3.3	Properties of Logarithms
	3.4	Exponential and Logarithmic Equations
Week 5 (July 16 - 19)	3.5	Exponential Models
	7.1	Linear and Nonlinear Systems of Equations
	7.2	Two-Variable Linear Systems
		REVIEW in class
		Midterm 2 (Thursday, July 19)
	7.3	Multivariable Linear Systems
Week 6 (July 23 - 26)	NO CLASS Tuesday July 24	
	7.5	Systems of Inequalities
	8.1	Matrices and Systems of Equations
	8.2	Operations with Matrices
	8.3	The Inverse of a Square Matrix
	9.1	Sequences and Series
Week 7 (July 30 - August 2)	9.2	Arithmetic Sequences and Partial Sums
	9.3	Geometric Sequences and Series
		REVIEW in class
		Final Exam (Thursday, August 2, 12:30PM - 2:30PM)