College Algebra Math 1050, Spring 2020

Class Meetings: M/T/W/F at 8:35-9:25 in CSC 208
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Office Hours: TBA

Course Goal: Improve quantitative reasoning and prepare for future math learning in calculus, linear algebra, and discrete mathematics.

NOTE about Math 1050: Very few majors on campus require Math 1050. Math 1050 is a technical mathematics course designed primarily to prepare students for calculus. The general education QA requirement is also fulfilled by Math 1030 or Math 2000 for students not needing 1050 for their degree program. These courses are a better fit for those majors that do not require 1050.

Topics to be covered: Numbers, functions, sequences, series, counting problems, graphs of functions, inverse functions, polynomials, rational functions, n-th roots, exponential functions, logarithms, piecewise defined functions, matrices, and matrix equations.

Expected Learning Outcome:

- 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.

- For rational functions, identify x and y intercepts, vertical, horizontal and oblique asymptotes (end behavior), and domain. Use information to sketch graphs of functions.

- For polynomial functions identify all zeros (real and complex), factors, x and y intercepts, end behavior and where the function is positive or negative. Use information to sketch graphs.

- Understand the relationships between graphic, algebraic, and verbal descriptions of functions.

- 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.

- Define i as the square root of -1 and know the complex arithmetic necessary for solving quadratic equations with complex roots.

- Solve absolute value, linear, polynomial, rational, radical, exponential and logarithmic equations and inequalities.

- Find the inverse of a function algebraically and graphically.

- Perform composition of functions and operations on functions.

- 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.

- Understand series notation and know how to compute sums of finite arithmetic and finite and infinite geometric series.

- Solve systems of equations (3 x 3 linear) and non-linear equations in two variables.

- Make sense of algebraic expressions and explain relationship among algebraic quantities including quadratic, exponential, logarithmic, rational, radical, and polynomial expressions, equations and functions.

- Represent and interpret "real world" situations using quadratic, exponential, logarithmic, rational, radical, and polynomial expressions, equations, and functions.

Text: The text is available on the course canvas page. You may print or download any portion you would like, or may view it entirely online. Homework is also entirely available on the course Canvas page.

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

Homework: Homework will be a mixture of online homework and handwritten homework.Online homework is to be completed on MyOpenMath, which you will access on the course Canvas page. Due dates for homework assignments can also be found there. The handwritten homework, Formal Homework, will be a formal write-up of some problems chosen from the online homework set. *Late homework will not be accepted*. I will answer any questions you may have about your homework. Additionally, you may work with others on assignments and 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.*

Quizzes: There will be 8-10 weekly quizzes (Fridays when there is no midterm.) **You must be in attendance to take the quiz**, however the three lowest quiz scores will be dropped.

Attendance: Attendance is not required. 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.

Important dates:

Classes will meet every Monday, Tuesday, Wednesday, and Friday with the exception of MLK Jr Day, President's Day, and Spring Break.

MIDTERMS:
Friday, February 7
Friday, March 6
Friday, April 10

FINAL:
TUESDAY, April 28, 1:00-3:00 (see https://registrar.utah.edu/academic-calendars/final-exams-fall.php). The location will be announced in class.

There are no "make-up" exams or quizzes. Students who miss an exam or quiz will receive a "0" on the missed exam.

Grades: Numerical semester scores will be determined using the following formula: 15% homework, 7% quizzes, 18% *each* midterm exam, 24% final exam. The three lowest quiz scores will be dropped. 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. You may NOT drop the final.

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

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100 ≥ N ≥ 93: A
93>N≥90:A−
90>N≥88:B+
88>N≥83:B
83>N≥80:B−
80>N≥78:C+
78>N≥73:C
73>N≥70:C−
70>N≥68:D+
68>N≥63:D
63>N≥60:D−
60>N   :E
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ADDITIONAL RESOURCES:

Mathematics Tutoring Center: Drop in, sit down, and if you have a question, someone will come by who can help you. There are also study areas free of tutors, a computer lab, group study

rooms available through reservations, and group tutoring sessions that can be arranged to meet at a regular time. Located on 1st Floor of JWB or LCB. Open 8am-8pm MTWH; 8am-6pm F.

CANVAS Page for the course: The course has a Canvas page where all information will be kept including the link to your textbook, MyOpenMath, information about lecture videos, and reviews for exams.

Math 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 this class, reasonable prior notice needs to be given to the Center for Disability and Access, 162 Olpin Union Building, 801-581-5020. CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability and Access.

Addressing Sexual Misconduct:
Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Official Dates:
The last day to drop classes is Friday, January 17; the last day to withdraw from this class is Friday, March 6. Please check the academic calendar for more information pertaining to dropping and withdrawing from a course. Withdrawing from a course and other matters of registration are the student's responsibility.

Wellness Statement:
Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at

the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801-581-7776.

Safety Statement:
The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.