

College Algebra
Math 1050-006
FALL 2017

Instructor: Anna Miller

Time and Location: MWF 3:00-4:20pm, M LI 1130

E-mail: amiller@math.utah.edu

Office Hours: TBD, LCB 317

Course Website: The course has a Canvas page where all information will be kept including the link to WebAssign, information about lecture videos, and reviews for exams. Either sign in through CIS or go to <https://utah.instructure.com/courses/461446>.

Course Goals:

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

Topics to be covered:

Numbers, functions, sequences, series, graphs of functions, inverse functions, polynomials, rational functions, n-th roots, exponential functions, logarithms, piecewise defined functions, matrices, and matrix equations.

Expected Learning Outcome:

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, identify x and y intercepts, vertical, horizontal and oblique asymptotes (end behavior), and domain. Use information to sketch graphs of functions.
3. 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.
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 non-linear 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.

Text:

Precalculus, 9th Edition, 2013 Larson. The University of Utah has negotiated special pricing for the text and WebAssign;

- For \$75 you may purchase the online version of the text with Enhanced WebAssign. This price covers both 1050 and 1060.
- **OPTION:** if you would like, you may also purchase a loose-leaf version of the text for \$40.

The text may be purchased at: [http:// www.cengagebrain.com/course/2233827](http://www.cengagebrain.com/course/2233827) see text flier for more information

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.

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 are not required for this course, and will not be permitted for quizzes or exams.

Grading:

Your grades will be posted on Canvas. Please let me know if the posted grade is not the same grade that you received on paper. Numerical semester scores will be determined using the following formula:

- Homework: 15%
- Quizzes: 7%
- Midterm Exams: 18% **each** (for 54% total)
- Final Exam: 24%

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.

Your semester letter grade will be based on the following scale:

A [92.5-100], A- [90-92.5), B+ [87.5-90), B [82.5-87.5), B- [80-82.5),
C+ [77.5-80), C [72.5-77.5), C- [70-72.5), D+ [67.5-70), D [62.5-67.5),
D- [60-62.5), E [0-60).

Homework:

All homework is to be completed on WebAssign. Due dates for homework assignments can also be found on WebAssign. **Late homework will not be accepted.** You will be given ample time to do your assignments, you may ask me questions, or you may work with others on assignments. 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 a total of 10 weekly quizzes (on Fridays when there is no midterm.) You will be allowed to use your homework and notes on the quizzes, and you may work with others. You must be in attendance to take the quiz, however the three lowest quiz scores will be dropped. Therefore, there are **no make-up quizzes**.

Important Dates:

Class will meet every Monday, Wednesday, and Friday.

There will be no class on:

Monday, September 4 (Labor Day)

Monday – Friday, October 9 – 13 (Fall Break)

Thursday – Friday, November 23 – 24 (Thanksgiving Break)

MIDTERMS:

Friday, September 22

Friday, October 27

Friday, December 1

FINAL:

Thursday, December 14, 1:00 – 3:00pm (see: <http://registrar.utah.edu/academic-calendars/final-exams-fall.php>). The location will be announced in class. The final exam will be cumulative.

Make-up Exams

In general, **there are no make-up exams**. All students are expected to arrange their personal schedule to allow them to take the exams on the predetermined dates.

Exceptions to this policy include University scheduled events such as sports games (for athletes only) and religious holidays, and arrangements to make-up an exam should be made in advance.

If you have an unexpected emergency at the time of a midterm, you must notify me ASAP. I reserve the right to require documentation supporting your reason for missing the exam (doctor's note, etc.).

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 (<http://www.math.utah.edu/ugrad/lab.html>), 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 (<http://www.math.utah.edu/ugrad/tutoring.html>).

Other Tutoring:

The ASUU Tutoring Center (330 SSB) offers inexpensive private tutoring. A list of private tutors is also available from the math department office (JWB 233) or the desk in the tutoring center.

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 the class, reasonable prior notice needs to be given to the Center for Disability Services (CDS), 162 Olpin Union Building, 581- 5020 (V/TDD). CDS will work with you and me to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to CDS.