

# College Algebra Math 1050, Summer 2018

Rebecca Noonan Heale, PhD

JWB 213

Contact: [rebecca@math.utah.edu](mailto:rebecca@math.utah.edu)

Office Hours: Mondays 12:30-1:30, Wednesdays 12:30-1:30, or by appointment

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

**Instructor's Goal:** Provide a well-structured course in which each student a) is successful, b) enjoys the learning experience, and c) gains skill and confidence in logical reasoning.

**Course Information:** Math1050, Precalculus is a 4-credit semester course. According to 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 outside of lecture time.

**Topics to be covered:** 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.

**Canvas Page for communication:** The course has a Canvas page where all essential information will be kept including links to WebAssign, information about lecture videos, and reviews for exams.

**Text:** *PRECALCULUS*, 9<sup>th</sup> Edition, 2013 Larson. The University of Utah has negotiated special pricing for the text and Webassign.

**Homework Website:** WebAssign (homework, practice materials, extra videos)

## **Purchasing Access to WebAssign and the E-book:**

In the first week, use the free trial on WebAssign to complete assignments and access the e-book. After you are certain you will stay in the class, buy access to WebAssign and the e-book directly from this link. DO NOT buy it at the WebAssign site, since the price on WebAssign is more expensive!

<http://services.cengagebrain.com/course/site.html?id=2765767>

- For \$75 you may purchase WebAssign access and e-book access
- OPTION: if you would like, you may also purchase a loose leaf version of the text for \$40.

After purchase, you will be sent an access code which you will need to redeem at WebAssign. If you need to purchase through the bookstore, please contact your instructor.

**Prerequisite Information:** The prerequisite for this course is at least a C (preferably a B) in mathematics 1010 or its equivalent or an ACT score of at least 23. Students are expected to already have the basic algebra skills.

Important Note: 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.

**Dates:**

**Quizzes:** Every day except exam days

**Exam 1:** Wednesday, May 30th

**Exam 2:** Wednesday, June 13

**Final Exam:** Wednesday, June 20th

**Drop Day:** Thursday, May 17<sup>th</sup>

**Withdrawal Day:** Friday, June 1st

**Grade Breakdown:**

15% homework, 10% quizzes, 20% **each** midterm exam, 30% final exam.

**Grading Scale:** A [93-100), A- [90-93), B+ [87-90), B [83-87), B- [80-83), C+ [77-80), C [73-77), C- [70-73), D+ [67-70), D [60-67), D- [50-60), E [0-50).

**Course Components:**

- **Homework:** All homework is to be completed on Webassign. Due dates for homework assignments can also be found on Webassign. You can request 5-day extensions of WebAssign assignments up to 2 weeks after they are due. This deduction is automatically granted by WebAssign. There is a penalty of 30% of the unearned points for using this feature (i.e. a penalty of 1-15 points per assignment). Please note, homework is a substantial part of your grade for the course (15%), it is to your benefit to do all your homework.
- **Quizzes:** There will be a short quiz every day except on exam days. Quizzes will be given at the start, middle and end of class at random. You must be in attendance to take the quiz, however the three lowest quiz scores will be dropped.
- **Exams:** There will be two exams and one final.

**Early/Late Policy:** Exams and quizzes cannot be taken early or late or excused, except for documentable reasons beyond your control. Vacations, trips, and job commitments are not sufficient reasons.

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

**Expected Learning Outcomes:** Upon successful completion of this course, a student should be able to:

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 connections 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.
11. Understand series notation and know how to compute sums of finite or infinite arithmetic or geometric series.
12. Solve systems of equations (3x3 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.

**The Americans with Disabilities Act:** 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 notice needs to be given to the Center for Disability & 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 alternative format with prior notification to the Center for Disability & Access.

## Resources for Help:

- **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.
- **Private Tutoring:** University Tutoring Services, 330 SSB (they offer inexpensive tutoring). There is also a list of tutors at the Math Department office in JWB 233.
- **Math Department Video Lectures:** Video lectures are available at: <http://www.math.utah.edu/lectures/math1050.html>

**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. <http://regulations.utah.edu/academics/6-400.php>

**Additional Policies:** From experience, I have decided to make some additional policies regarding my classroom administration and grading.

- Cell phones should be put away during class. If you are using a computer to take notes, it must be flat. (No computers with open screens). If you need to use your phone during class, please leave the classroom.
- If you have crisis-level extenuating circumstances which require flexibility, it is completely your responsibility to communicate with me as soon as possible so I can help you in some manner. The longer you wait to communicate with me, the less I can and am willing to do to help.
- 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, 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.

- There will be no cursing nor negative ranting (for example, "math sucks") on any written work turned in. The penalty for such things on written work will be a zero score on that assignment or test.
- You need to check e-mails in Canvas. If you do not check Canvas regularly, you should have announcements forwarded to an e-mail address that you do check regularly.
- If you have questions about any exam/quiz/homework grade, or you want to appeal the grading of the exam/quiz/homework, you must bring it to me within one week of the return of the exam. I'm happy to look over your appeal and/or questions and give my feedback in order to benefit your learning.
- 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 offer an extra credit question on every midterm and final exam, to help make up for arithmetic mistakes. But, 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 don't like your grade.
- If you cheat on any homework, project, quiz or exam, you will automatically get a zero for that grade. Depending on the severity of the cheating, I may decide to fail you from the class. Please note that the use (or even just pulling it out of your pocket) of a cell phone or any other electronic internet device is considered cheating and cause for receiving an automatic zero on any exam. Also, if you exhibit any other behaviors that are unethical, like offering me a bribe to give you a better grade (even if you later claim you were joking), I will report your behavior to the Dean of Students.
- I reserve the right to change my policies stated in this syllabus at some point in the semester. If I do make a change to a policy, I will announce it in class on Canvas.