

# Mathematics 1080-01

Spring 2019

- Instructor:** Sean Groathouse  
he/him/his pronouns  
preferred name/address: Sean
- Class Time and Place:** 11:50 am – 1:15 pm; Monday, Wednesday, Friday  
in [ST 104](#)
- Office Hours (Tentative):** Tuesdays 3:30-4:30 pm, room TBA  
Fridays 1:30-2:30 pm, room TBA  
before class most days, after class on Fridays  
or by appointment
- Office Location:** LCB Loft (4<sup>th</sup> floor)
- Email address:** [sean@math.utah.edu](mailto:sean@math.utah.edu)
- Class Web Page:** On Canvas; sign in through CIS or go to <https://utah.instructure.com/>

## Dates:

- Homework:** Due at the start of class most days
- Online Quizzes:** Open from Friday-Sunday
- Exams:** Monday, February 4, 5-6:30 pm, JFB 103  
Monday, March 4, 5-6:30 pm, JFB 103  
Monday, April 8, 5-6:30 pm, JFB 103
- Final Exam:** Thursday, April 25, 3:30-5:30 pm, location TBA
- Last Day to Add/Drop:** Friday, January 18
- Last Day to Withdraw:** Friday, March 8

## Course Materials:

- (1) *Precalculus, A Functional Approach to Graphing and Problem Solving*, 6<sup>th</sup> Edition, Karl J. Smith
- (2) Website accompanying the text book at [www.webassign.net](http://www.webassign.net).

For information about the options to purchase the above book and website access, go to [http://www.math.utah.edu/schedule/bookInfo/Textbook%20Info%20Math%201080\\_revised2018.pdf](http://www.math.utah.edu/schedule/bookInfo/Textbook%20Info%20Math%201080_revised2018.pdf)

- (3) Class note for Spring 2019. You may purchase the notes as a soft-bound book from Amazon (info will be given by email) or download and print them from Canvas. You can print them for free in the math computer lab. You will use the notes in each class, filling in the blanks. This way you can spend more time in class thinking and less time copying down information. The class notes are updated each semester, so make sure you have the most recent version.

Updated December 29, 2018

- (4) Homework Cover-sheets. You are required to submit the homework with these cover sheets. There is a pdf containing all the cover sheets for the entire semester. You can print these for free in the math computer lab.

**Course Description:** Provides an accelerated, in-depth review of college algebra and trigonometry to prepare for science-track calculus courses. Most topics from Math 1050 and Math 1060 are covered in this course.

**Course Information:** Math 1080, Precalculus is a 5-credit semester course. Students with a typical background should expect to spend approximately 15 hours per week working on this class, in addition to class time.

**Prerequisite Information:** At least a B grade in Math 1010 or Math 1050 or Math 1060 OR Math ACT score of at least 24 OR Math SAT score of at least 560 OR Accuplacer CLM score of at least 65 (within the last two years).

*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. Please let me know if you have any questions about your prerequisites.

**Future Courses:** Most students who take Math 1080 plan to go on to calculus. A grade of C in Math 1080 is a prerequisite for Calculus 1, Math 1210. You can obtain the same prerequisite by completing Math 1050 and Math 1060.

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

1. Solve absolute value linear inequalities and polynomial/rational inequalities.
2. Graph polynomial, rational, radical, exponential, logarithmic, trigonometric, and piecewise functions, using transformations as well as information about the domain, asymptotes, symmetry, and/or intercepts.
3. Given the graph of a function, be able to identify the domain, range, asymptotes, symmetry and zeros, as well as find the rule for the function if it is obtained from a standard function through transformations.
4. Find the inverse of a function algebraically and graphically.
5. Understand and be able to find the domain of functions. Perform composition of functions and operations on functions.
6. Find the difference quotient of a function and use this to find lines related to curves of functions.
7. Understand the connections between graphic, algebraic, and verbal descriptions of functions, in particular polynomials.
8. Find all zeros, including complex, of a polynomial function.
9. Solve exponential, logarithmic, rational, radical, trigonometric, and polynomial equations.

10. Solve systems of linear equations with matrices, using Gauss-Jordan elimination and inverse matrices.
11. Perform matrix arithmetic and compute inverse matrices.
12. Recognize the formulas for and graph parabolas, hyperbolas and ellipses (including circles).
13. Understand trigonometric function definitions in the context of the right triangle and on the unit circle.
14. Be able to convert to and from rectangular and trigonometric-form coordinates (polar coordinates not explicitly covered).
15. Use trigonometric inverses correctly, understanding the domain/range restrictions.
16. Verify trigonometric identities, using proper logic and use trigonometric identities to evaluate expressions.
17. Solve for all measurements in any triangle, using the Pythagorean Theorem, trigonometric functions of angles, the Law of Sines and Law of Cosines, along with applications.
18. Graph complex numbers in a plane, perform operations on such numbers and use DeMoivre's theorem to find roots and powers of complex numbers.
19. Understand sequences and be able to differentiate between geometric, arithmetic and Fibonacci-type sequences, giving direct formulas where available.
20. Understand series notation and know how to compute the sum of finite arithmetic and geometric series.

**Free Math Tutoring:** T. Benny Rushing Mathematics Student Center (adjacent to JWB and LCB), Room 155

M – Th	8 am – 8 pm
F	8 am – 6 pm

The center opens the second week of classes. It is closed Saturdays, Sundays and holidays. They also offer group tutoring sessions, if you form a group. If you are interested, inquire at the Tutoring Lab. <http://www.math.utah.edu/ugrad/tutoring.html>

**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.

**Computer Lab:** also in the T. Benny Rushing Mathematics Student Center, Room 155C. Same hours as Tutoring center above. Link to computer lab is <http://www.math.utah.edu/ugrad/lab.html>

**Course Breakdown:** The grades will be calculated as follows:

Homework	15%
Weekly Quizzes	10%
Midterm	20%
Midterm	20%
Midterm	10%
Final Exam	25%

(Note: There will be 3 midterms. Your lowest midterm score will count for 10% of your grade and your top two midterm scores will each count for 20% of your final grade.)

**Homework:** Each section of homework will be worth ten points. For example, if there are three sections of homework assigned, then that homework set is worth a total of 30 points. There is a pdf containing all the cover sheets for homework assignments for the entire semester. The cover sheets list

the problems and may provide space to work some problems. You should attach additional pages to the cover sheets as necessary.

Most sections will be graded on completeness and the correctness of one problem. Some sections will be graded on completeness alone. A rubric explaining what is required to be complete and correct will be provided in class. Since you will only be given feedback on up to one problem per section, it is your responsibility to make sure that you understand the homework content, so that you are prepared for exams. Please let me know if you have any questions about homework problems that were not graded. Homework counts for 15% of the final grade, so turning in all of the homework will help your grade substantially!

The homework is to be turned in according to the following instructions.

- **Each homework set must be stapled together with the corresponding cover sheet.** Please be prepared to hand in the homework when you arrive to class.
- **I will accept 10 late homework sections, up to two weeks late, throughout the semester for full credit. I will not accept homework more than two weeks late.** This policy allows for oversleeping, hectic schedules, illness where you do not visit a doctor, etc. Except for extraordinarily severe circumstances, there are no exceptions to this policy. It is not necessary to explain why homework is late, since this policy is designed to accommodate all reasons.
- **Homework must be turned in to me in person, or neatly scanned and emailed to me.** Homework that is left in my office can be lost or overlooked if it ends up on the wrong desk or in the wrong stack of papers.
- **If you know you will be absent on a day when homework is due, you can turn it in early or arrange to have it turned in on the due date.** This applies to unexcused absences (for example vacations or work schedules) and to absences due to planned medical events, officially sanctioned University activities, government obligations and religious obligations.
- **If there is an unplanned situation beyond your control and reasonable prevention, that prevents you from turning in homework on time** (like an illness, injury, car accident, or serious family situation), **then please let me know and provide documentation if available.** With this documentation, you may turn in the homework without penalty at the next class after the situation is resolved. If you will need more time than this to complete the homework, we will arrange an alternative due date. Homework that is turned in after this date will be counted late.
- **We will have three exam reflections which count as homework, but cannot be submitted late,** except for excused reasons. Instead, you can earn extra credit for turning them in early.

**Weekly WebAssign Quizzes:** There will be a weekly online WebAssign quiz, even on test weeks. The weekly quiz will cover the material presented that week in class. There first week's quiz is a pre-test and the last week's is a post-test. They both count toward your course grade. The quizzes will

open on Fridays at 5:00 am and close on Sundays at 11:59 pm. The quizzes will be timed (usually 2 hours), so you need to complete them in one sitting. **Your lowest two quiz scores will be dropped.**

You may use your notes and textbook on the quizzes, however you may find it is beneficial to study before the quiz so that you can be more efficient during the quiz time. Most quiz questions can be submitted twice for full credit.

It is recommended that you take quizzes earlier in the quiz window, especially if you are traveling or working on the last day to take the quiz. If you are unable to take a quiz due to an unplanned situation beyond your control and reasonable prevention, submit documentation to your instructor and request an extension of the quiz.

**Midterm Exams:** There will be three ninety-minute midterm exams during the semester. The exams will be held outside of class, at the times and location on the first page of the syllabus. The other Math 1080 classes meet for 50 minutes at a time, so having exams outside of class allows us to have 90 minute exams rather than 50 minute exams. This is beneficial for a couple reasons. First, since Precalculus is an accelerated course, more material is covered on each exam than in college algebra or in trigonometry. The longer exam time allows the exam to reflect more of the material covered in class, providing more opportunities for you to demonstrate your learning. Second, the longer exam time means that you will have more time to complete the exams, so you will not be as rushed.

If you are unable to take an exam at the time given, an alternate exam can be set-up, provided the situation preventing you from taking the exam is beyond your reasonable control and you provide documentation as follows:

- Students who have planned absences (for example officially sanctioned University activities like band, debate, student government, intercollegiate athletics, government obligations like military duty or religious obligations) must provide documentation early in the semester and then send a reminder at least five business days before the exam.
- Students who have absences that arise suddenly (like illnesses, deaths in the family or last-minute university-related sports activities) must contact their instructor as soon as possible, given the situation, and follow-up with documentation if available. Even if documentation is not available, students should contact their instructor to describe the situation.
- Please provide documentation of the situation if available. You may black out or leave out personal information beyond your name and the general explanation of the situation.

All other students should arrange their work and personal schedules to take exams at the scheduled times.

**Final Exam:** The final exam for this class is comprehensive. Math 1080 has a departmental final, which means all students in all Math 1080 classes take it at the same, instead of during the slot that is assigned based on class meeting time. You are required to take it at this time, unless you have multiple finals scheduled for the same time slot. The location will be announced in class and on Canvas toward the end of the semester. Early on in the semester, you must determine the times of your other finals to see if there is a conflict and contact your instructor with this information. If there is a conflict, we will make alternate arrangements.

**Gradescope:** Exams will be graded with an online grading program, Gradescope. When exams are graded, an email with a link to the graded exam will be sent to your university email address.

**Calculators:** Most of the math that we cover can be done without the use of calculators. Exams will be written so that using a calculator is not necessary and calculators will not be allowed. You should not use calculators on quizzes, unless the problem instructs you to do so (in which case a scientific calculator is sufficient). It is in your best interest to try to do homework problems without calculators, however there are a few calculation intensive problems for which scientific or graphing calculators are appropriate. When in doubt, please ask me. If you do not own a scientific/graphing calculator, there are free online calculator applications which work well for our class. Please let me know if you would like some recommendations of online applications to use.

**Online Grades:** I will post grades online on Canvas. You can get there from CIS or by going to [utah.instructure.com](http://utah.instructure.com). To log in, you use the same student id and password that you use for CIS. I do my best to update the grades regularly and keep everything accurate. However, please check your grades often to make sure there were no data entry mistakes. I'm always happy to correct any mistakes I've made.

**Grading Scale:** The grade scale will be: 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). Although I'm not philosophically opposed to curving grades, I find it's rarely necessary. If I do need to curve the grades, I will simply shift everything down by a few points (whatever is necessary).

**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, formerly CDS). To do so, contact them at 801-581-5020 (V/TDD) to set-up an appointment. CDA 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 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. <http://regulations.utah.edu/academics/6-400.php>

**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).

**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](http://www.wellness.utah.edu) or 801-581-7776.

**Classroom Social Equity:** I strive to be ethical, kind, fair, inclusive and respectful in my classroom and expect students to behave likewise. In this regard, I have these requests of you, my student:

1. If it would be helpful for you, please tell me discreetly if you have any sort of anxiety disorder, TBI, PTSD, C-PTSD, or any other challenge that could potentially cause psychological harm to you by being called on in class. I generally will not call on students in class unless they are volunteering, but if I am aware of your specific situation I can confidentially accommodate your request.
2. If your name is different than your legal first/last name please let me know. If you have set your "preferred name" in CIS, then I can see this on the class roster and will assume this is the name you would like me to use for you in class. You can also change your name in Canvas if you would like by going to Account (on far left)-->Settings and change your Display Name.
3. If there is ever a time that you feel this course or the curriculum is not equitable, please email me or meet with me to discuss your concerns so I have a chance to address that.

**Student Names and Personal Pronouns:** Class rosters are provided to the instructor with the students legal name as well as preferred first name (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your U-ID card, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email [bpeacock@sa.utah.edu](mailto:bpeacock@sa.utah.edu) to schedule a time to drop by. The LGBT Resource Center hours are M-F 8am-5pm, and 8am-6pm on Tuesdays.

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

- Laptops are not allowed in class, to avoid distracting other students. However, if you are writing digitally using a tablet, iPad, hybrid laptop, or similar device which can lay flat on your desk, that is totally fine.
- There will be no retakes of exams, for any reason.
- If you have crisis-level extenuating circumstances which affect your class performance and you need guidance/advice/flexibility, please communicate with me as soon as possible so I can help you in some manner, which I'm truly happy to do. The longer you wait to communicate with me, the less I can do to help.
- I will kindly demand respectful behavior in our classroom.

- Since I send out class announcements and messages through Canvas, it is important that you check Canvas regularly, or have announcements and messages forwarded to an email address that you 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 it being returned. I'm happy to look it over with you, answer any questions you have, and fix any grading issues when appropriate.
- 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 am happy to brainstorm ideas to help you maximize your study strategies and improve your mathematical understanding. Extra credit is available on each exam, but no extra credit will be offered at the end of the semester. Please talk with me early on about any concerns with your grade.
- Cheating will result in a grade of zero for that homework, project, quiz or exam. Depending on the severity of the cheating, additional consequences may include failing the course. Please note that the use of a cellphone during an exam (or even just pulling it out of your pocket) is considered cheating, and will result in a grade of zero for that exam.
- I reserve the right to change the policies stated in this syllabus throughout the semester as needed. If I do make a change to a policy, I will announce it in class and on Canvas.