

Mathematics 1080-01

Fall, 2014

- Instructor:** Kelly A. MacArthur
- Class Time and Place:** 11:50 a.m. - 12:40 p.m.
Mondays, Tuesdays, Wednesdays, Thursdays and Fridays
in JFB102
- Office Hours:** Mondays 2:00 – 3:00 p.m., Wednesdays 8:30 – 9:30 a.m.,
Thursdays 1:00 – 2:00 p.m., or by appointment
- Office Location:** JWB226
- E-mail address:** macarthur@math.utah.edu
- Class Web Page:** <http://www.math.utah.edu/~macarthu> (go to Current Teaching and our class)
- Text:**
- (1) *Precalculus*, by Schulz, Briggs, Cochran.
ISBN-10: 0-13-393628-7
ISBN-13: 978-0-13-393628-5
 - (2) My class notes which will be posted on my website (possibly per day or possibly by week). You will need to print those out and bring them to class, because I'll refer to them regularly. (Please note: You can print them in the Math Computer Lab for no cost.)
- Course Information:** Math1080, Precalculus is a 5-credit semester course.
- Prerequisite:** At least a B grade in Math1010 or Math1050 or Math1060 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 our 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 continue on with your math classes, then you will be dropped from this class on Friday of the first week of classes. If that is the case for you, then it is in your best interest to drop yourself from this class before you are forcibly dropped and get into a class for which you have the prerequisites.
- Course Description:** Provides in-depth review of college algebra and trigonometry to prepare for science-track calculus courses. Most topics from Math1050 and Math1060 are covered in this course.
- Expected Learning Outcomes:** Upon successful completion of this course, a student should be able to:
- Solve absolute value linear inequalities and polynomial/rational inequalities.
 - Graph polynomial, rational, radical, exponential, logarithmic, trigonometric, and piecewise functions, using transformations as well as information about the domain, asymptotes, symmetry, and intercepts.
 - Given the graph of a function, be able to identify the domain, asymptotes, symmetry and zeros, as well as find the formula for the function if it is obtained from a standard

function through transformations.

- Find the inverse of a function algebraically and graphically.
- Understand and be able to find the domain of functions. Perform composition of functions and operations on functions.
- Find all zeros, including complex, of a polynomial function.
- Solve optimization problems involving quadratic functions.
- Solve exponential, logarithmic, rational, radical, trigonometric, and polynomial equations.
- Use the Binomial Theorem and Pascal's Triangle to expand a binomial expression.
- Understand sequences and be able to differentiate between geometric, arithmetic and Fibonacci-type sequences, giving direct formulas where available.
- Understand series notation and know how to compute sum of finite arithmetic and geometric series.
- Solve systems of linear equations with matrices, using Gauss-Jordan elimination and inverse matrices.
- Perform matrix arithmetic and compute inverse matrices.
- Recognize the formulas for and graph parabolas, hyperbolas and ellipses (including circles).
- Understand trigonometric function definitions in the context of the right triangle and on the unit circle.
- Be able to convert to and from rectangular and trigonometric-form coordinates (polar coordinates).
- Use trigonometric inverses correctly, understanding the domain/range restrictions.
- Verify trigonometric identities, using proper logic.
- 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.
- Graph complex numbers in a plane, perform operations on such numbers and use DeMoivre's theorem to find roots and powers of complex numbers.

Tutoring Lab:

T. Benny Rushing Mathematics Student Center (adjacent to JWB and LCB), Room 155

M - Th 8 a.m. - 8 p.m.

F 8 a.m. - 6 p.m.

(opens Wednesday) (closed Saturdays, Sundays and holidays)

They are also offering group tutoring sessions. If you're 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 JWB233.

Computer Lab:

also in the T. Benny Rushing Mathematics Student Center, Room 155C.

M - Th 8 a.m. - 8 p.m.

F 8 a.m.- 6 p.m.

Link to computer lab is <http://www.math.utah.edu/ugrad/lab.html>

Grading:

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:

I will collect homework on Tuesdays and Fridays of each week. All of the homework assigned from sections covered in the previous few days is due at that time.

- Each section of homework will be worth ten points. For example, if you have three sections of homework assigned, then that homework set is worth a total of 30 (raw) points.
- You will get half credit if you DO every problem. I will NOT be grading for correctness for this half of the grade, so it is your responsibility to make sure you understand the problems and their solutions. This is basically motivation for you to do the homework because that is the only way to survive a math class. (Please notice that there is no way to get an A in this course if you choose not to do any of the homework. On the other hand, turning in all of the homework can help your grade substantially.)
- The other half of the points for each homework set will be given for correct and neat solutions, with all work shown. The grader will grade a few problems on each homework set to check for correctness. We will not tell you ahead of time which problems will be graded for correctness.
- The homework is to be turned in according to the following instructions:

•The homework set MUST be stapled together with the corresponding cover sheet as the first page. (I will provide the cover sheets in class.) A homework set turned in without being stapled together or without a cover sheet will not be counted!! Please do not come to class hoping that I or someone else will have a stapler. Be prepared when you arrive.

•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. I accept these late homework sections to allow for illness, oversleeping, hectic schedules, etc. Do not ask for special favors with regard to the homework policy, unless the circumstances are extraordinarily severe, because my response will not be in your favor. Also, it is not necessary nor recommended that you tell me why your homework is late. This policy is meant to be flexible enough to cover all reasons.

•I only collect homework on Tuesdays and Fridays!! If you need to turn in homework late, you will have to do so on a Tuesday or Friday in class (within two weeks from its due date). This is the only time and location that I will accept homework. If you slide homework underneath my office door, I will throw it away without looking at it.

You are responsible for knowing these policies.

- Weekly Quizzes:** There will be a total of 15 weekly online MyMathLab quizzes, which means you'll have a quiz every week of classes, even test weeks. The weekly quiz will cover the material presented that week in class. The quizzes will open on Fridays at 5:00 a.m. and close on Sundays at 11:59 p.m. The quizzes will be timed, so you need to complete them in one sitting. **Your lowest two quiz scores will be dropped.**
- Midterms:** There will be three one-hour midterm exams throughout the semester, and the dates will be fixed, according to the course outline/schedule that is on our class web page. They will be during normal class time, in our usual classroom.
- Final Exam:** The final exam for this class is comprehensive and it will occur on Thursday, December 18th, from 3:30 to 5:30 p.m.
- Online Grades:** I will put your grades online on Canvas. You can get there easily from the main University of Utah website www.utah.edu. To log in, you use the same student id and password that you use for Campus Information System. I do my best to update the grades on a regular basis and keep everything accurate. However, I would advise you to check your grades often to make sure there were no data entry mistakes. I'm always happy to correct any mistakes I've made. You just need to let me know about them.
- Calculators:** You may find it helpful to have a graphing calculator for your own personal use. However, if I allow calculators on exams or quizzes, I will only allow scientific calculators (no graphing or programmable calculators will be allowed ever). Most of the time, you will not have use of a calculator on exams and quizzes. This will be discussed more in class with each quiz and test. Additionally, there are plenty of free online graphing calculator applications that you can use, rather than purchasing an expensive calculator.
- Grading Scale:** Although I'm not philosophically opposed to curving grades, I find it's rarely necessary. The grade scale will be the usual:
A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D+ (67-69), D (63-66), D- (60-62), E (0-59).
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 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.
- 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>

Teaching Philosophy:

I believe strongly that mathematics, at its core, is the art/experience/science of problem solving and pattern recognition. It is inherently a creative process, one to be struggled with, repeated, and enjoyed. The process requires imagination, persistence, courage, processing time, and ultimately produces experiential, mathematical skill. It is from this perspective that I teach. I'm not as concerned with the destination, i.e. the answer, as I am about the journey of problem-solving and mathematical exploration since it is exactly the entirety of the journey that creates the answer. And, self-confidence and mastery are then natural by-products of the mathematical journey.

Additional Policies:

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

- I do NOT allow the use of laptop computers in my classroom. At this point, it's almost impossible to take notes for a math class on a laptop in real time. Thus, it is unnecessary in class. 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 totally fine.
- There will be no retakes of exams, for any reason.
- You may take an alternate exam if you talk to me about it first and explain the emergent, extenuating circumstances that make it necessary. It is 100% your responsibility to communicate with me as soon as is possible, before the exam occurs (or as soon as possible). Talking to me *after* the problem will be sufficient reason for me to allow you to get a zero on that test. I reserve the right to make alternate exams more difficult than the scheduled exam.
- 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.
- 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.
- You need to have a valid email address registered with Campus Information System. I will regularly send emails to the class and will hold you accountable for receiving that information. If you have troubles receiving my weekly emails, you can (1) check to make sure your email

address at Campus Information System is correct, (2) make sure my emails are not going directly to your junk mail folder, or (3) contact the webmaster at Campus Information System.

- 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.
- 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 exam. I'm happy to look over your appeal and/or questions and give my feedback in order to benefit your learning. But, it must be done in this timeframe of a week from when I hand back the exam/quiz/homework.
- 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. Most likely, I just won't respond to such emails or questions in person.
- If you cheat on any homework, project, quiz or exam, I will automatically give you 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 quiz or 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 and send the change in email.