

Mathematics 1210

Spring, 2016

- Instructor:** Kelly A. MacArthur
- Class Time and Place:** 8:35 a.m. - 9:25 a.m.
Mondays, Tuesdays, Wednesdays, and Fridays
in JWB335
***Note: Each of you is also signed up for a lab session that is considered mandatory.*
- Office Hours:** Tuesdays 10:00 – 11:00 a.m.,
Thursdays 11:30 a.m.– 12:30 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) *Calculus with Differential Equations*, 9th edition,
by Varberg, Purcell and Rigdon. ISBN: 0-13-230633-6
(2) My class notes which will be posted on my website. 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:** Math1210, Calculus 1 is a 4-credit semester course.
- Prerequisite:** At least a C grade in Math1050 (College Algebra) AND Math1060 (Trigonometry) OR in Math1080 (Precalculus) or an Accuplacer score of 95 on the College Level Math test or at least a 3 on the AB Calculus AP exam
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:** Functions and their graphs, differentiation of polynomial, rational and trigonometric functions. Velocity and acceleration. Geometric applications of the derivative, minimization and maximization problems, the indefinite integral, and an introduction to differential equations. The definite integral and the Fundamental Theorem of Calculus.

Expected Learning Outcomes:

Upon successful completion of this course, a student should be able to:

- Take limits of algebraic and trigonometric expressions of the form $0/0$ (that simplify), non-zero number over 0, including limits that go to (positive or negative) infinity, limits that don't exist and limits that are finite.
- Use the limit definitions of derivative and definite integral for polynomial, rational and some trigonometric functions; understand definition of continuity.
- Differentiate all polynomial, rational, radical, and trigonometric functions and compositions of those functions; perform implicit differentiation and compute higher order derivatives.
- Use differentiation to find stationary, singular and inflection points, as well as domain and limit information to determine vertical and horizontal asymptotes, and then use all of that information to sketch the graph of a curve, $y = f(x)$.
- Apply differentiation to optimization and related rates problems.
- Compute indefinite and definite integrals, using the power rule and basic u-substitution and the Fundamental Theorems of Calculus.
- Apply the definite integral to compute area between two curves, volumes of solids of revolutions, arc length, surface area for surfaces of revolution and center of mass.

Tutoring Lab:

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

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

Daily Quizzes 10%

Weekly Assignments 15%

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:

There are homework problems assigned for each section of the book that we cover. You can access that list of problems at my website. It is important to do the homework problems even though I will not collect the homework. If you don't do the homework for practice, it is highly unlikely that you will pass the daily quizzes and exams. Practice makes perfect...or at least it makes you head in the direction of perfect. :) Observing someone else do the problems is VERY different from working the problems yourself!!

Daily Quizzes:

There will be a ten (or fifteen)-minute quiz on Canvas that opens every Monday, Tuesday, and Wednesday morning at 9:00 a.m. and closes the next day before class, including exam weeks. You will need to complete that online quiz on your time, outside of class hours, every Monday, Tuesday and Wednesday. Each daily quiz will be one to four questions about the material covered in class/video lecture that day. If you are keeping up with the work, these quizzes should be reasonably straight forward. There will be a total of about 40 of these quizzes. **I will drop the lowest eight scores.**

Weekly Assignments:

There will be a total of 11 weekly assignments, given out in the lab sessions and due on Monday mornings, by **exactly** the time class starts. The weekly assignment will cover the material presented that week in class. Questions will be similar to text examples, class examples, assigned problems or harder conceptual problems. The weekly assignments will be much harder than the daily quizzes, assessing more of your big-picture learning than just one problem. The weekly assignments will have roughly five to ten questions per week. **I will drop your lowest two assignment scores to create a buffer for any types of problems throughout the semester.**

IMPORTANT NOTE: You must pick up the weekly assignment in your assigned lab section. This is *your* responsibility as the student, to retrieve the paper assignment. I cannot stress this fact enough. I will NOT provide the quiz for you in some other manner, nor will the TA. If you have an emergent situation and absolutely cannot make it to your lab session, you can email me and pick up a copy of the assignment from class on Friday morning, but those are the only two options for obtaining a copy of the assignment. Additionally, the weekly assignment is due at the beginning of class on Monday. By 8:40 a.m. every Monday, I will put the assignments in my backpack and then no other assignments will be accepted. I also will not accept assignments via email or any other electronic means. I will be consistently strict (and thereby fair) about this policy. There will be no late assignments accepted for any reason. Absolutely no exceptions. I am already dropping the two lowest assignment scores to account for any possible mishaps along the semester.

Midterms:

There will be three one-hour midterm exams throughout the semester, and the dates are 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 Friday, April 29th, from 8:00 to 10:00 a.m. I'll reserve our classroom starting at 7:00 a.m. that day, in case you would like some extra time for the final exam.
- 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. This will be discussed more in class.
- 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.