

Mathematics is useful.

Mathematics is beautiful.

Mathematics disciplines the mind!

Math 112 - Calculus I, Kalamazoo College, Spring 2019

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Office Hours. Right after class, M-W 3-4, Tue 11-12 *and* Tue 2-3. (Tentatively.)

AND you are welcome to try your luck and just swing by my office anytime OR even better you can email me to schedule an appointment. *I am always happy to meet with students!*

Textbook. James Stewart, *Calculus: Concepts and Contexts*, 4th edition, 2010 Brooks/Cole Publishing Company

Grading. To pass the class you must (1) take all quizzes and exams (2) consistently attend class and hand in homework (3) **not** fail multiple quizzes/exams. If your quiz/exam grades are consistently Fs and Ds you will not pass the class and I will encourage you to withdraw.

If your quiz and exam grades are acceptable then your overall course grade will be computed using the following weights:

Algebra Mastery Exam	5 %
Differentiation Mastery Exam	5 %
Online Homework (warm ups)	10 %
Written Homework & other miscellaneous assignments	20 %
2 Midterms	15 % each = 30 %
Final Exam	15 %
Quizzes	15 %

For each course component you will receive a grade on the four point (gpa) scale and your grade for the class will be the weighted average of all the components according to the weights given above. Below is how the college handbook describes the four point scale.

Letter Grade	A	B	C	D	F
Points	4.00	3.00	2.00	1.00	0.00
Quality	Excellent	Above Average	Average	Below Average	Failure

You will be able to keep up with your grades on Moodle.

Special Accomodations (Disability). If you might need disability accommodations please discuss this with me. And note that you need to get officially registered with Dean Joshua-Wathel.

Exams. We will take all exams in our classroom.

Midterm 1: Week 4 **Fri, Apr 5**, during class time

Midterm 2: Week 8 **Wed, May 22**, during class time

Final Exam: Finals Period **Sun, Jun 09**, 3:30-6pm (as scheduled by registrar)

COURSE CONTENT

The focus of this course is single-variable differential calculus. We will cover the first four chapters of our textbook:

Stewart Chapter 1 (**Functions and Models**)

Stewart Chapter 2 (**Limits and Derivatives**)

Stewart Chapter 3 (**Differentiation Rules**)

Stewart Chapter 4 (**Applications of Differentiation**)

GOALS

Students should master the algebraic and analytic skills needed for differential calculus. Additionally, students should also go beyond a procedural/computational understanding of mathematics and increase in their :

- mathematical reading and writing skills
- critical thinking skills
- ability to formulate good questions
- ability to identify and formulate logically sound mathematical arguments
- appreciation for the power of abstraction and generalization
- ability to relate unfamiliar problems to material they've learned

GETTING HELP

- Please come to office hours!
- Use the **Math Physics Center!!** It is located in Old/Upton 205 and is open SUN-THU, 8pm-11pm.

This is an incredible resource. It is staffed by older students who have passed the course you are taking and are available to assist you with problems/concepts you are stuck on. They will NOT give you answers, rather they will GUIDE you. ~ If you want some free homework points (equivalent to one written homework assignment) do the following: take a copy of this syllabus to the MPC and get one of the consultants to sign it. (And I want you to actually *talk* to the consultants, e.g. learn their name, what their major is, and why they like working in the MPC.) To get the points, show me your signed syllabus *on/before Monday of week 2*. ~ Note that even if you don't need help you can go work at the Math Physics Center and enjoy the social atmosphere, make friends and eat free candy.

EXPECTATIONS

- I encourage you to **work on homework with friends** BUT your final calculations and write-up must be your own. Definitely get help from friends but make sure you understand the material.
- On exams your work should be entirely your own. No talking or passing notes or looking at others' work.
- I expect you to attend class.
- Do not start homework the night before. Give it enough time. Do your reading.
- Class participation is encouraged. I enjoy all comments and questions. I just really like it when my students talk to me! And I have very, very rarely had a student ask a 'stupid' question.
- Maths is hard. Significant effort and time must be invested to attain understanding. Do not assume you will get an A in this class without working hard.
- PUT AWAY ALL ELECTRONICS DURING CLASS! And during exams!

ASSIGNMENTS

Please note that your solutions on homework, quizzes and exams will be judged not just on mathematical correctness but also on clarity, organization, logical flow and general readability.

Reading and Section Summaries. Part of your homework is **reading** the textbook. I am not expecting deep reading with full comprehension, but I do want you going through every section in its entirety at least once and try to determine what are the major themes/facts. After reading you should understand well enough to be able to tackle the (typically straightforward) online homework.

I expect you to **summarise** each book section you read according to the following guidelines

- (1) The summaries should be written in the back of your notebook.
- (2) Write down what you think are the FIVE most important items in that section. These may be definitions, theorems, techniques, examples ... they could be anything. Make sure you copy down whatever you are writing (eg a theorem) *in full*.
- (3) Your summary should be at least half a page in your notebook. Your summary may be longer if you want and may contain more than 5 items if you want.

I will ask you to come to my office and show me your summaries every two or three weeks. I will grade them and record them as quiz grades.

Homework. This will involve **reading** (and Section Summaries, as discussed above), **online homework** (using the system WEBWORK) and **written homework**. All the homework will be listed on my webpage.

On class day $n - 1$ you will be assigned a section in the textbook to read, online homework and written homework. The reading and online homework should be done by class day n , and those sections read/online homework(webassign) will form the basis of our classroom discussion on day n , after this you should have a better understanding of the material, and you will hand in the written homework on this topic on class day $n + 1$ at the start of class.

Homework should be handed in at the START of class. I will **NOT** accept late homework unless you have obtained an exemption from me.

Quizzes. Every week that we do not have an exam there will be a short quiz on Friday.

Exams. There will be two in class midterm exams and a final exam. There are NO EXCUSES, other than incapacitating illness, a religious holiday, or the like, for missing an exam. If you do have such a conflict, see me immediately. The exams will be closed book and I will provide you with a simple (four function) calculator to use (you may not use your own calculator).

Also, the exam problems will be quite sophisticated; they will be the same level of difficulty as the hardest homework problems. Review problems for the exam will be provided on our course webpage/moodle and can also be found at <https://reason.kzoo.edu/mpc/pe/>.

Algebra Mastery Exam. <http://people.kzoo.edu/soloo/masteryexams/algebramasteryexam.html>

You can only get ZERO or FULL credit on this, but you get as many attempts at it as you need. Go to the webpage above for further instructions.

It must be attempted at least once by 4pm on Wednesday of week 1 and must be completed by 4pm on Tuesday of week 2.

If you are completely stuck you may get help (eg at the Math Physics Center OR from me OR from a friend) to clarify what's confusing you but then you have to print out and do a NEW exam.

Differentiation Mastery Exam. <http://people.kzoo.edu/soloo/masteryexams/diffmasteryexam.html>

It must be attempted at least once by 4pm on Tuesday of week 9 and must be completed by 4pm on Monday of week 10.

The instructions for this are the same as those for the Algebra Mastery Exam (see above).

Miscellaneous Assignments. You will frequently have **groupwork** to do in class in groups of 3. Some will be graded and some won't but take all class work seriously because it will help you master the material.

There may also be a few short graded **writing** assignments. These will either be responses to an article or video (typically to do with the nature of learning) or a reflection on your performance in the class and your feelings about mathematics.