



Calculus I
MAC 2311 – Section 4
Spring 2017

This course is part of the University of South Florida's Foundations of Knowledge and Learning Core Curriculum. It is certified for Mathematics and Quantitative Reasoning and for the following dimensions: Critical Thinking, Inquiry-based learning, Scientific Processes, and Quantitative Literacy. Students enrolled in this course might be asked to participate in the USF General Education assessment effort. This might involve answering questions that measure quantitative reasoning skills (but are not directly related to the course), responding to surveys, or participating in other measurements designed to assess the FKL Core Curriculum learning outcomes.

Instructor: Dr. Dmytro Savchuk **Office:** CMC 310
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Class Times: TR 11:00am-12:15pm **Room:** CHE 102
F 11:00am-11:50am

Office Hours: TR 9:50am – 10:50am, CMC 310 or by appointment.

Prerequisite(s): C (2.0) or better in MAC 1114 *and* C (2.0) or better in MAC 1140, *or* C (2.0) or better in MAC 1147, *or* SAT Math score of 650 or better, *or* ACT Math score of 29 or better, *or* College-Level Math CPT score of 90 or better, *and* knowledge of trigonometry.

Text: *Essential Calculus, Early Transcendentals*, 2nd edition, James Stewart. Note: If you buy your text at the bookstore, you are buying the enhanced edition, which contains an access code to webassign, the online homework system. On webassign, you also have an electronic copy of the textbook, together with other resources. If you did not purchase your book at the bookstore, you will need to separately purchase an online access to webassign. You may also choose to only have an electronic version of the book. More details about how to login to webassign are on the Canvas course site. You may already have access to webassign from a previous semester.

Note: Stewart also maintains a website with additional resources, which you may be interested in: http://www.stewartcalculus.com/media/6_home.php

Course description and content: This course features topics that develop some basic mathematical tools that are used to solve problems in mathematics and the sciences. The topics include limits, differentiation, differentials, extrema, and indefinite and definite integrals. Most of Chapters 1, 2, 3, 4, and Chapter 5 (sections 5.1 through 5.4/5.5) of the text will be covered.

Course Design: Several strategies in the learning process will be applied in this course, such as lectures as well as individual and group in class inquiry work. You will have access to an online homework system called webassign and will submit part of your homework electronically. Every Friday, you will work in groups of 3 or 4 on guided inquiry activities that will be led by two undergraduate students, your peer leaders. Attendance at the peer leading sessions is mandatory. More detail about your peer led sessions is available in the Peer Leading Syllabus, posted in Canvas.

Course Objectives: At the end of this course, you should be able to (1) perform computations involving the following mathematical tools: general exponential and logarithm functions, limits, derivatives, and integrals; (2) use mathematical symbols and language correctly; (3) interpret the above mathematical tools in a concrete context; (4) apply the mathematical tools learned to model and solve real world problems.

Student Learning Outcomes:

1. The student will be able to use general exponential and logarithm functions to solve equations involving these functions.
2. The student will be able to perform differentiation and integration computations involving exponential and functions.
3. Given a concrete problem involving exponential and logarithmic growth, the student will be able to translate the problem into mathematical language, solve the concrete problem, and interpret the answer in context.
4. The student will be able to analyze a graph or manipulate a mathematical expression to find a limit.
5. The student will be able to define what it means for a function to be continuous and determine whether a given function is continuous at a point.
6. The student will be able to compute the derivative(s) of a given function.
7. The student will be able to use the derivative(s) of a function to analyze the shape and behavior of the graph of the function. In particular, the student will be able to use the derivative of a function to make conclusions about the slopes of the lines tangent to the graph of the function.
8. The student will be able to examine a differentiation problem, choose an appropriate method of differentiation, and perform the relevant differentiation.
9. The student will be able to find extreme values of functions.
10. Given a concrete problem involving optimization, the student will be able to translate the problem into mathematical language, solve the concrete problem, and interpret the answer in context.
11. The student will be able to use the connection between antiderivatives and definite integrals, established by the Fundamental Theorem of Calculus, in order to compute integrals.
12. The student will be able to express an area of a region as an integral and compute the integral to find the area.
13. Given a concrete problem involving area, the student will be able to translate the problem into mathematical language, solve the concrete problem, and interpret the answer in context.
14. The student will be able to examine an integration problem, choose an appropriate method of integration, and perform the relevant integration.

Expectations: Calculus is hard and requires a lot of thought. Homework is extremely important. In general, for each hour of class, you should expect to have to do two hours of work outside of class doing the homework and learning the material.

Grading Policy:

- There will be **three in-class tests** and one cumulative two hour **final exam**.
- Every Friday there will be a short **multiple choice quiz during your peer leading** session.
- There will be **unannounced quizzes** during regular class time over the assigned homework.
- I will assign weekly **homeworks** in [WebAssign](http://www.webassign.net/) that will count towards your final grade. To access these assignments go to <http://www.webassign.net/> and use the following class key: **usf 4755 8041**
- Additionally, some handwritten problems will be assigned, which will be collected at the beginning of class on the dates that the homework is due.

If your overall percentage of total points falls into the following range, you will receive the corresponding grade:

97-100 (A+), 93-96 (A), 90-92 (A-), 87-89 (B+), 83-86 (B), 80-82 (B-),
77-79 (C+), 73-76 (C), 70-72 (C-), 67-69 (D+), 63-66 (D), 60-62 (D-), 0-59 (F).

Grading breakdown:

Class Tests: 3 x 15% each = 45%

Final Exam: 20%

Webassign homework: 15%

Handwritten homework: 5%

Tuesday-Thursday Quizzes: 5%

Peer leading grade: 10%

Attendance Policy: Attendance during the whole class time is required. It is your responsibility to know what is going on in class. Class announcements and materials as well as homework assignments will be posted on Canvas, except for the webassign homework which will be posted on the webassign site. No late assignments will be accepted and no webassign homework extensions will be granted except for technical issues. If you fail to take a quiz or a test, or if you do not hand in an assignment on time, you will receive a grade of 0 for that quiz, test, or assignment. Make up tests will only be scheduled at the discretion of the instructor, given a documented emergency, and if the instructor is notified by email within 24 hours of the emergency. Students who must miss an exam due to a major religious observance must notify the instructor of this absence, in writing, by the end of the first week of classes. Employment schedules, family reunions, vacations and athletic training/practice schedules of students do not comprise a valid excuse for absences. If you have more than two unexcused absences, your final class grade will drop one grade for each additional absence (e.g., from A- to B+). Students who anticipate the necessity of being absent due to the observation of a major religious holiday must provide notice of the date in writing to me by the second class meeting. There will be no make up quizzes. Instead, if a student misses a quiz due to a documented emergency, the grade for this quiz will be computed as the average of the grades for other quizzes at the end of semester. One quiz grade with the lowest score will be dropped at the end of the course. Any grade appeals will be considered only within a week after the grade is posted in Canvas.

Tutoring Center: For extra help in this class, please be sure to visit the Math Center in the SMART Lab (<http://usf.edu/smartlab/>) in the Library (LIB232). The Center is open six days a week (excluding Saturdays). Call 974-9944, or stop by the second floor of the Library for more information.

Students needing special accommodation: Students in need of academic accommodations for a disability may consult with the office of Students with Disabilities Services to arrange appropriate accommodations. Students are required to give reasonable notice prior to requesting an accommodation. Contact SDS at 974-4309 or go to the website at www.sds.usf.edu.

Cell Phones, laptops, calculators: Please **turn your cell phone** and laptop **off** before you come into class and store them **out of sight**. No cellular phones are permitted during examinations. Calculators may or may not be allowed during certain quizzes or exams, but you should feel free to use your calculator on homework assignments. If your cell phone is not turned off and stored out of sight during class, you might be asked to leave the class, and any work that was handed in that day will count as a 0, including homework, tests, or quizzes.

Retaining Exams: You should keep all your returned exams and quizzes until you receive your final grade. You will need these exams to demonstrate that a grade was incorrectly recorded, should that happen. Any unclaimed exams and quizzes will be kept until the next exam is given, after which they will be discarded.

Academic Integrity and Disruption of Academic Process: I expect the highest standard of academic integrity from my students. Any cheating will result in a failing grade for the assignment or test in question, and possibly for the course. Cheating may result in a grade of FF for the course and may

jeopardize your attendance at the University of South Florida. The university policy on Academic Dishonesty is explained at the website: <http://www.ugs.usf.edu/catalogs/0607/adadap.htm>. Students may discuss homework with each other, however, I expect each student to write up his or her own solutions.

Miscellaneous Policies:

- You are encouraged to take notes and may tape the lectures, but neither your notes nor your tapes are to be sold.
- The last day to withdraw from this course and receive a tuition refund is Friday, August 26. Students who have not registered or paid for this course by this date and time must stop attending, unless the instructor has given written permission otherwise.
- Students who anticipate the necessity of being absent from class due to the observation of a major religious observance must provide notice of the date(s) to the instructor, in writing, at the beginning of the term.
- The last day to withdraw from this course and receive a grade of “W” is Saturday, October 29.
- A grade of “I” indicates incomplete work and will only be assigned when most of the coursework has already been completed with a passing grade. See the website <http://www.ugs.usf.edu/catalogs/0607/gradetc.htm#i> for further information.
- This course may not be taken on an S-U basis.
- In the event of an emergency, it may be necessary for USF to suspend normal operations. During this time, USF may opt to continue delivery of instruction through methods that include but are not limited to: Canvas, Elluminate, Skype, and email messaging and/or an alternate schedule. It’s the responsibility of the student to monitor the Canvas site for each class for course specific communication, and the main USF, College, and department websites, emails, and MoBull messages for important general information.
- USF has a commitment to the safety and well-being of our students. Please be aware that educators must report incidents of sexual harassment and gender-based crimes including sexual assault, stalking, and domestic/relationship violence that come to their attention. I am required to report such incidents in order for the Office of Student Rights and Responsibilities or the Office of Diversity, Inclusion, and Equal Opportunity can investigate the incident or situation as a possible violation of the USF Sexual Misconduct/Sexual Harassment Policy and provide assistance to the student making the disclosure. If you disclose in class or to me personally, I must report the disclosure and will assist you in accessing available resources. The Center for Victim Advocacy and Violence Prevention, the Counseling Center and Student Health Services are confidential resources where you can talk about such situations and receive assistance without the incident being reported. *Center for Victim Advocacy and Violence Prevention: (813) 974-5757 <http://sa.usf.edu/advocacy/page.asp?id=72>; Counseling Center (813) 974-2831; <http://www.usf.edu/student-affairs/counseling-center/> Student Health Services (813) 974-2331 <http://www.usf.edu/student-affairs/student-health-services/>*
- Student academic grievance procedures are explained at the following link: <http://www.ugs.usf.edu/policy/StudentAcademicGrievanceProcedures.pdf>

Class Schedule:

WEEK 1	T 1/10	1.1 (review), 1.2 (review), 1.3
	Th 1/12	1.4, 1.5
	F 1/13	Peer Leading Activity L4 (Continuity) HW 1 (1.1, 1.2) due
WEEK 2	T 1/17	1.5, 1.6 HW 2 (1.3, 1.4) due
	Th 1/19	1.6
	F 1/20	Peer leading Activity D1 (Introduction to Derivatives)
WEEK 3	T 1/24	2.1, 2.2 HW 3 (1.5, 1.6) due
	Th 1/26	2.2
	F 1/27	Peer Leading Activity D3 (Derivative as a function)
WEEK 4	T 1/31	2.3, 2.4 HW 4 (2.1, 2.2) due
	Th 2/2	Review for Test 1
	F 2/3	Peer led review for Test 1
	Sa 2/4	TEST 1 (on sections 1.3, 1.4, 1.5, 1.6, 2.1, 2.2)
WEEK 5	T 2/7	2.5 HW 5 (2.3, 2.4) due
	Th 2/9	2.6
	F 2/10	Peer Leading Activity DA1 (Related Rates)
WEEK 6	T 2/14	2.7 HW 6 (2.5, 2.6) due
	Th 2/16	2.7, 2.8
	F 2/17	Peer Leading Activity DA2 (Linear approximation and differentials)
WEEK 7	T 2/21	3.1 HW 7 (2.7, 2.8) due
	Th 2/23	3.2
	F 2/24	Peer Leading Activity DT3 (Derivatives of exponential functions)
WEEK 8	T 2/28	3.3, 3.4 HW 8 (3.1, 3.2) due
	Th 3/2	Review for Test 2
	F 3/3	Peer led review for Test 2
WEEK 9	Sa 3/4	TEST 2 (on sections 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 3.1, 3.2)
	T 3/7	3.5 HW 9 (3.3, 3.4) due
	Th 3/9	3.7
WEEK 10	F 3/10	Peer Leading Activity (L'Hospital's Rule)
	T 3/21	4.1 HW 10 (3.5, 3.7) due
	Th 3/23	4.2, 4.3
WEEK 11	F 3/24	Peer Leading Activity DA4 (Maximum and Minimum Values)
	T 3/28	4.4 HW 11 (4.1, 4.2, 4.3) due
	Th 3/30	4.5
WEEK 12	F 3/31	Peer Leading Activity DA6 (Optimization)
	T 4/4	4.5, 5.1

		HW 12 (4.4, 4.5) due
	Th 4/6	Review for Test 3
	F 4/7	Peer led review for Test 3
	Sa 4/8	TEST 3 (on sections 3.3, 3.4, 3.5, 3.7, 4.1, 4.2, 4.3, 4.4, 4.5)
WEEK 13	T 4/11	5.1, 5.2
	Th 4/13	4.7 HW 13 (5.1) due
	F 4/14	Peer Leading Activity I1 (Area and Distance)
WEEK 14	T 4/18	5.3 HW 14 (5.2, 4.7) due
	Th 4/20	5.4
	F 4/21	Peer Leading Activity I4 (Fundamental Theorem of Calculus)
WEEK 15	T 4/25	Review for the Final HW 15 (5.3, 5.4) due
	Th 4/27	Reading Day
	F 4/28	Reading Day
	Sa 4/29	FINAL EXAM