



Mathematics Central Campus

Math 1325: Elements of Calculus with Applications

CRN 74252 – Spring 2014

SJAC 342 | 11:30am – 1pm | Mon and Wed

3 hour lecture course / 48 hours per semester/ 16 weeks

Textbook: Mathematics with Applications; 10th ed.; Lial, Margaret L.

ISBN-13: 978-0-321-64553-1

Instructor: Victor Hernandez

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Office location and hours: SJAC 369: Mon and Wed 10-11:30am, Tue and Thur 10-11am

Course Description

MATH 1325: Elements of Calculus with Applications. A survey of differential and integral calculus including the study of functions and graphs from a calculus viewpoint as applied to problems in business and the natural and social sciences.

Prerequisites

MATH 1314 or the equivalent.

Course Goal

The intent of this course is to provide the student certain manipulative skills with limits insofar as they apply to concrete but elementary problems in the social and natural sciences. Mathematical rigor will be kept to a minimum.

Course Student Learning Outcomes (SLO):

1. Find limits of functions and determine continuity of functions.
2. Find derivatives of algebraic, logarithmic, and exponential functions, and use derivatives to solve applied problems and produce graphs.
3. Find integrals, either approximate and exact, of some algebraic and exponential functions, and use integrals to solve applied problems.
4. Find partial derivatives of multi-dimensional functions, and use partial derivatives to solve applied problems and produce graphs.

Learning outcomes

Students will:

- 1.1 Find the limit of a function as x approaches a .
- 1.2 Find the average and instantaneous rate of change.
- 1.3 Use a limit to find the derivative of a function.
- 1.4 Tell if a function is continuous at given values of x .
- 2.1 Use the quotient rule to find the derivative of a function.
- 2.2 Use the power rule to find the derivative of a function.
- 2.3 Find the derivative of exponential and logarithmic functions.
- 2.4 Find the absolute extrema of a given function.
- 2.5 Use the second derivative to find all relative extrema for a function.
- 2.6 Use derivatives for various applications and sketching of curves.
- 3.1 Find antiderivatives for indefinite integrals and find indefinite integrals using substitution.
- 3.2 Given a definite integral, find the area under the curve.
- 3.3 Evaluate the results of a summation.
- 3.4 Using the fundamental theorem of calculus, evaluate definite integrals.
- 3.5 Apply definite integrals for various applications and use the table of integrals to find antiderivatives .
- 3.6 Find general solutions for given differential equations.
- 4.1 Graph the first octant portion of a given plane.
- 4.2 Given a function $f(x,y)$, find all second-order partial derivatives.
- 4.3 Given a function $f(x,y)$, find the values of any relative extrema and identify saddle points.

CALENDAR

Week	Date	Material to be covered
1	1/13	Section 1.3, 2.3
	1/15	Section 3.7
2	1/20	MLK DAY

	1/22	Section 4.1, 4.3
3	1/27	EXAM 1 (1.3-4.3)
	1/29	Section 11.1, 11.2
4	2/3	Section 11.2, 11.3
	2/5	Section 11.4, 11.5
5	2/10	Section 11.5, 11.6
	2/12	Section 11.6, 11.7
6	2/17	PRESIDENT'S DAY
	2/19	Section 11.7, 11.8
7	2/24	Section 11.8, 11.9
	2/26	EXAM 2 (Chapter 11)
8	3/3	Section 12.1
	3/5	Section 12.1, 12.2
	3/10-3/12	SPRING BREAK
9	3/17	Section 12.2, 12.3
	3/19	Section 12.3, 12.4
10	3/24	EXAM 3 (Chapter 12)
	3/26	Section 13.1
11	3/31	Section 13.1, 13.2 (LAST DAY TO DROP THE CLASS: 4pm)
	4/2	Section 13.2, 13.3
12	4/7	Section 13.3
	4/9	Section 13.4
13	4/14	Section 13.5
	4/16	Section 13.7
14	4/21	EXAM 4 (Chapter 13)
	4/23	Section 14.1
15	4/28	Section 14.2
	4/30	Section 14.3
16	5/5	FINAL EXAM 11am – 1pm

Instructional Methods

As an instructor, it is my duty to give students access to the subject at hand. Instead of providing facts to be memorized, I find it important to help students learn to think and reason mathematically, and to connect these things so that they are more flexible and capable students.

Student Assignments

Suggested homework sets have been designated for each section. Up to 10 points will be added to an exam if the suggested homework is turned in on the day of the exam. 4 in class exams, and a Cumulative Final Exam will be used to calculate your class grade. The lowest class grade (which includes a zero from a missed exam) will be dropped. No make-ups will be given for any assignment.

Assessments

Avg of highest 3 Exams	75 % of your final grade
Final Exam	25 % of your final grade

HCC Policy Statement - ADA

Services to Students with Disabilities

Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Disability Services Office at his or her respective college at the beginning of each semester. Faculty members are authorized to provide only the accommodations requested by the Disability Support Services Office. Persons needing accommodations due to a documented disability should contact the ADA counselor for their college as soon as possible. For questions, please contact Donna Price at 713.718.5165. To visit the ADA Web site, please visit www.hccs.edu then click Future students, scroll down

the page and click on the words Disability Information. Also, interested students may wish to consult the **Disability Support Services Student Handbook** which may be found on-line.

HCC Policy Statement: Academic Honesty

Any student found cheating in any way during this course will be immediately dropped from the course with the grade of F and a note of academic dishonesty will be noted on your transcript.

A student who is academically dishonest is, by definition, not showing that the coursework has been learned, and that student is claiming an advantage not available to other students. The instructor is responsible for measuring each student's individual achievements and also for ensuring that all students compete on a level playing field. Thus, in our system, the instructor has teaching, grading, and enforcement roles. You are expected to be familiar with the University's Policy on Academic Honesty, found in the catalog. What that means is: If you are charged with an offense, pleading ignorance of the rules will not help you. Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Penalties and/or disciplinary proceedings may be initiated by College System officials against a student accused of scholastic dishonesty. "Scholastic dishonesty": includes, but is not limited to, cheating on a test, plagiarism, and collusion.

Cheating on a test includes:

- Copying from another student's test paper;
- Using materials not authorized by the person giving the test;
- Collaborating with another student during a test without authorization;
- Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or part the contents of a test not yet administered;
- Bribing another person to obtain a test that is to be administered.

Plagiarism means the appropriation of another's work and the unacknowledged incorporation of that work in one's own written work offered for credit.

Collusion means the unauthorized collaboration with another person in preparing written work offered for credit. Possible punishments for academic dishonesty may include a grade of 0 or F in the particular assignment, failure in the course, and/or recommendation for probation or dismissal from the College System. (See the Student Handbook)

HCC Policy Statements

Class Attendance - It is important that you come to class! Attending class regularly is the best way to succeed in this class. Research has shown that the single most important factor in student success is attendance. Simply put, going to class greatly increases your ability to succeed. You are expected to be on time at the beginning of each class period. For complete information regarding Houston Community College's policies on attendance, please refer to the Student Handbook. You are responsible for materials covered during your absences. Class attendance is checked daily. Although it is your responsibility to drop a course for nonattendance, the instructor has the authority to drop you for excessive absences.

If you are not attending class, you are not learning the information. As the information that is discussed in class is important for your career, **students may be dropped from a course after accumulating absences in excess of six (6) hours of instruction.** The six hours of class time would include any total classes missed or for excessive tardiness or leaving class early.

You may decide NOT to come to class for whatever reason. As an adult making the decision not to attend, you do not have to notify the instructor prior to missing a class. However, if this happens too many times, you may suddenly find that you have "lost" the class.

Poor attendance records tend to correlate with poor grades. If you miss any class, including the first week, you are responsible for all material missed. It is a good idea to find a friend or a buddy in class who would be willing to share class notes or discussion or be able to hand in your work if you unavoidably miss a class

HCC Course Withdrawal Policy

If you feel that you cannot complete this course, you will need to withdraw from the course prior to the final date of withdrawal. Before, you withdraw from your course; please take the time to meet with the instructor to discuss why you feel it is necessary to do so. The instructor may be able to provide you with suggestions that would enable you to complete the course. Your success is

very important. Beginning in fall 2007, the Texas Legislature passed a law limiting first time entering freshmen to no more than **SIX** total course withdrawals **throughout** their educational career in obtaining a certificate and/or degree.

To help students avoid having to drop/withdraw from any class, HCC has instituted an Early Alert process by which your professor *may* “alert” you and HCC counselors that you might fail a class because of excessive absences and/or poor academic performance. It is your responsibility to visit with your professor or a counselor to learn about what, if any, HCC interventions might be available to assist you – online tutoring, child care, financial aid, job placement, etc. – to stay in class and improve your academic performance.

If you plan on withdrawing from your class, you **MUST** contact a HCC counselor or your professor prior to withdrawing (dropping) the class for approval and this must be done **PRIOR** to the withdrawal deadline to receive a “W” on your transcript. ****Final withdrawal deadlines vary each semester and/or depending on class length, please visit the online registration calendars, HCC schedule of classes and catalog, any HCC Registration Office, or any HCC counselor to determine class withdrawal deadlines. *Remember to allow a 24-hour response time when communicating via email and/or telephone with a professor and/or counselor. Do not submit a request to discuss withdrawal options less than a day before the deadline.* If you do not withdraw before the deadline, you will receive the grade that you are making in the class as your final grade. **The last day to withdraw March 31, 2014****

Repeat Course Fee

The State of Texas encourages students to complete college without having to repeat failed classes. To increase student success, students who repeat the same course more than twice, are required to pay extra tuition. The purpose of this extra tuition fee is to encourage students to pass their courses and to graduate. Effective fall 2006, HCC will charge a higher tuition rate to students registering the third or subsequent time for a course. If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your study habits, reading and writing homework, test taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available.

Classroom Behavior

As your instructor and as a student in this class, it is our shared responsibility to develop and maintain a positive learning environment for everyone. Your instructor takes this responsibility very seriously and will inform members of the class if their behavior makes it difficult for him/her to carry out this task. As a fellow learner, you are asked to respect the learning needs of your classmates and assist your instructor achieve this critical goal.

Use of Camera and/or Recording Devices

As a student active in the learning community of this course, it is your responsibility to be respectful of the learning atmosphere in your classroom. To show respect of your fellow students and instructor, you will turn off your phone and other electronic devices, and will not use these devices in the classroom unless you receive permission from the instructor.

Use of recording devices, including camera phones and tape recorders, is prohibited in classrooms, laboratories, faculty offices, and other locations where instruction, tutoring, or testing occurs. Students with disabilities who need to use a recording device as a reasonable accommodation should contact the Office for Students with Disabilities for information regarding reasonable accommodations

Instructor Requirements

As a student in this class, it is your responsibility to read the textbook, submit assignments on the due dates, study for the exams, attend and participate in class, and to think about the material beyond just memorization. As thinking mathematically requires a great deal of exposure and practice, homework sets are strongly encouraged for students to get the most out of this class.

Grading Scale

90 - 100 = A
80 - 89 = B
70 - 79 = C
60 - 69 = D
Below 60 = F

Personal Communication Device Policy:

All personal communication devices (any device with communication capabilities including but not limited to cell phones, blackberries, pagers, cameras, palmtop computers, lap tops, PDA's, radios, headsets, portable fax machines, recorders, organizers, databanks, and electronic dictionaries or translators) must be muted or turned off during class. Such activity during class time is deemed to be disruptive to the academic process. Personal communication devices are to not be on the student desk during examinations. Usage of such devices during exams is expressly prohibited during examinations and will be considered cheating (see academic honesty section above).

Student Course Reinstatement Policy:

Students have a responsibility to arrange payment for their classes when they register, either through cash, credit card, financial aid, or the installment plan. Faculty members have a responsibility to check their class rolls regularly, especially during the early weeks of a term, and reconcile the official class roll to ensure that no one is attending class whose name does not appear on it. Students who are dropped from their courses for nonpayment of tuition and fees who request reinstatement after the official date of record (OE Date) can be reinstated by making payment in full and paying an additional \$75 per course reinstatement fee. A student requesting reinstatement should present the registrar with a completed **Enrollment Authorization Form** with the signature of the instructor, department chair, or dean who should verify that the student has been attending class regularly. Students who are reinstated are responsible for all course policies and procedures, including attendance requirements.

Resources:

Additional help is also available through the Learning Resource Center and through Student Support Services. Students can get free assistance, 24 hours a day, 7 days a week, in Math, English and other subjects, at www.hccs.askonline.net. Typically, posted questions are answered by an HCC tutor or faculty within 24 hours (usually under 6 hours). There are also several online math resources that you can find with an internet search. You may also find information on the Learning Web site accessible through your specific HCCS campus website.

KEY POINTS

- All tentative dates are given on the calendar in this syllabus
- You have 4 in class exams and a final exam, all of which are required.
- There are no make-up exams; any exam that is missed will be assigned a grade of zero.
- The lowest exam grade is dropped
- The ONLY extra credit assignment that will be given is the homework sets from the book.
- You can be dropped from the class after missing too many days.
- Anyone caught cheating in any way will be dropped from the course with an F as a grade
- The last day to withdraw is March 31, 2014 at 4pm