Mathematics
Pinemont Campus

Math 1325: Elements of Calculus with Applications
CRN 11865 – Fall 2016
Rm 147| 8:00 – 9:30 | Tue and Thu
3 hour lecture course / 48 hours per semester/ 16 weeks
Textbook: Mathematics with Applications; 11th ed.; Margaret Lial, Thomas Hungerford,
John Holcomb, Jr., Bernadette Mullins; ISBN-13: 978-0-321-93107-8

Instructor: Hien Nguyen

Instructor Contact Information: Hient.Nguyen@hccs.edu / 713-718-2440

Learning Web: http://learning.hccs.edu/faculty/hient.nguyen/math1325 (where to download class syllabus)

Office location and hours: B112 Pinemont: 11:00 a.m. – 12:00 p.m. on MTR
                                                  B112 Pinemont: 7:30 a.m. – 8:00 a.m. on MTWR

Homework, Quiz, and E-book Web Site:
Homework is assigned on www.mymathlab.com and e-book is also viewable on this site. The hardcopy of the text book is optional, but the access code for homework and e-book is required.

MyMathLab CourseID: nguyen27247

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. Apply calculus to solve business, economics, and social sciences problems.
2. Apply appropriate differentiation techniques to obtain derivatives of various functions, including logarithmic and exponential functions.
3. Solve application problems involving implicit differentiation and related rates.
4. Solve optimization problems with emphasis on business and social sciences applications.
5. Determine appropriate technique(s) of integration.
6. Integrate functions using the method of integration by parts or substitution, as appropriate.
7. Solve business, economics, and social sciences applications problems using integration techniques.

Learning outcomes
Upon completion of this course, a student should be able to:
1. Find the limit of a function as x approaches a.
2. Find the average and instantaneous rate of change.

3. Use a limit to find the derivative of a function.
4. Use the quotient rule to find the derivative of a function.
5. Use the power rule to find the derivative of a function.
6. Find the derivative of exponential and logarithmic functions.
7. Tell if a function is continuous at given values of x.
8. Find the absolute extrema of a given function.
9. Use the second derivative to find all relative extrema for a function.
10. Use derivatives for various applications and sketching of curves.
11. Find antiderivatives for indefinite integrals and find indefinite integrals using substitution.
12. Given a definite integral, find the area under the curve.
13. Evaluate the results of a summation.
14. Using the fundamental theorem of calculus, evaluate definite integrals.
15. Apply definite integrals for various applications and use the table of integrals to find antiderivatives.
16. Find general solutions for given differential equations.
17. Graph the first octant portion of a given plane.
18. Given a function f(x,y), find all second-order partial derivatives.
19. Given a function f(x,y), find the values of any relative extrema and identify saddle points.

Core Objectives

Given the rapid evolution of necessary knowledge and skills and the need to take into account global, national, state, and local cultures, the core curriculum must ensure that students will develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in life. Through the Texas Core Curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world, develop principles of personal and social responsibility for living in a diverse world, and advance intellectual and practical skills that are essential for all learning.

Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.

Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication.

Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

CALENDAR

Sections	Topics	Exams
Algebra Review		
Course introduction		
1.3 Factoring		
2.3 Linear Models		
3.6 Rational Functions		
4.1 Exponential Functions		
4.3 Logarithmic Functions		

Differential Calculus

11.1 Limits
11.2 One-sided Limits and Limits Involving Infinity
11.3 Rates of Change
11.4 Tangent Lines and Derivatives
Exam I: Covers all sections above

11.5 Techniques for Finding Derivatives
11.6 Derivatives of Products and Quotients
11.7 The Chain Rule
11.8 Derivatives of Exponential and Logarithmic Functions
11.9 Continuity and Differentiability
Exam II: Covers 11.5 – 11.9

Applications of the Derivative
12.1 Derivatives and Graphs
12.2 The Second Derivative
12.3 Optimization Applications
12.4 Implicit Differentiation
12.5 Related Rates
Exam III: Covers 12.1 – 12.5

Integral Calculus
13.1 Antiderivatives
13.2 Integration by Substitution
13.3 Area and the Definite Integral
13.4 The Fundamental Theorem of Calculus
13.5 Applications of Integrals
13.7 Differential Equations
Exam IV: Covers 13.1 – 13.7

Multivariate Calculus
14.1 Functions of Several Variables
14.2 Partial Derivatives
14.3 Extrema of Functions of Several Variables
These sections will be tested in the final exam.

Comprehensive Final Exam is given in the final exam week. Per department policy, everyone MUST take the final exam.

Student Assignments

<u>**Homework policy:**</u>
Math 1325 has an online Homework that must be done from the Web Site (www.mymathlab.com) by all students. This homework can be done from your home computer,

the Learning Center computers on Campus, or the computers in the Open Lab; you can even load it on your office computer with permission, and maybe on your smart phone. To register into the homework for my section, use The CourseID: **nguyen27247**. The online homework counts 15% of the course grade. This homework is not optional. There is a deadline for completion for each exercise set. You are supposed to complete them before each exam date. Be sure you are aware of these dates; they will affect your homework grade.

Quiz policy:
Quizzes are also assigned online on MML. For each chapter, there are two quizzes: chapter review quiz and chapter post-test quiz. Some quizzes may be dropped at the end of the semester. Quiz average counts 10% of the final course grade.

Testing policy:
There are four major exams and a comprehensive final exam. The worse major exam will be dropped. Each major exam will count 15% of the course grade.

Make-up policy:
There is no make-up exam in this class. If you miss one exam, it will be dropped. If you miss the second exam, it will be zero.

Final Examination:
The final examination is comprehensive and consists of 33 multiple-choice problems. The problems cover all the material required in the course. **Per department policy, everyone MUST take the final exam**.

Calculator policy:
A scientific calculator is recommended. Graphing calculators are allowed during the class, but not on any exam.

Grading policy:

Final Average = **15%(HW) + 10%(Quiz) + 45%(best 3 exams) + 30%(Final)**

Grading Average:
Your final course grade is based on the following standard HCCS scale.

FINAL AVERAGE	FINAL COURSE GRADE
90 ≤ Average ≤ 100%	A
80 ≤ Average < 90%	B
70 ≤ Average < 80%	C
60 ≤ Average < 70%	D
Average < 60%	F

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 appropriate HCC Disability Support Service (DSS) Counselor at the beginning of each semester. Faculty is authorized to provide only the accommodations requested by the Disability Support Services Office.

Students who are requesting special testing accommodations must first contact the appropriate (most convenient) DSS office for assistance:
Disability Support Services Offices:
http://www.hccs.edu/district/students/disability-services/ada-counselors/

Central College
713.718.6164
Coleman College
713-718-7376
Northeast College
713-718-8322
Northwest College
713-718-5667
713-718-5408
Southeast College
713-718-7053
Southwest College
713-718-7909
After student accommodation letters have been approved by the DSS office and submitted to DE Counseling for processing, students will receive an email confirmation informing them of the Instructional Support Specialist (ISS) assigned to their professor.

Title IX of the Education Amendments of 1972 requires that institutions have policies and procedures that protect students' rights with regard to sex/gender discrimination. Information regarding these rights are on the HCC website under Students-Anti-discrimination. Students who are pregnant and require accommodations should contact any of the ADA Counselors for assistance. It is important that every student understands and conforms to respectful behavior while at HCC. Sexual misconduct is not condoned and will be addressed promptly. Know your rights and how to avoid these difficult situations. Log in to www.edurisksolutions.org*. Sign in using your HCC student email account, then go to the button at the top right that says* Login *and enter your student number.*

HCC Policy Statement: Academic Honesty

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 students' 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 mean 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 is 10/28/2016 before 4:30 pm.**

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:
You are expected to behave like an adult. Your attitude in the classroom will affect your final class grade.

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

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:

Free tutoring is available in **Room 423 at Northline Campus and 149 at Pinemont Campus.** Additional help is also available 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.

EGLS$_3$ -- Evaluation for Greater Learning Student Survey System
At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time, you will be asked to answer a short online survey of research-based questions related to instruction. The anonymous results of the

survey will be made available to your professors and division chairs for continual improvement of instruction. Look for the survey as part of the Houston Community College Student System online near the end of the term. Visit www.hccs.edu/EGLS3 for more information.

Administration contact information

College - Level Math Courses

Chair of Math	Jaime Hernandez	SW Campus	713-718-2477	Stafford, Scarcella, N108
Secretary	Tiffany Pham	SW Campus	713-718-7770	Stafford, Scarcella, N108
Math Assoc. Chair	Clen Vance	CE Campus	713-718-6448	San Jacinto Building, Rm 369
Math Assoc. Chair	Ernest Lowery	NW Campus	713-718-5512	Katy Campus Building, Rm 112
Math Assoc. Chair	Mahmoud Basharat	NE Campus	713-718-2438	Codwell Hall Rm 105

Developmental Math Courses

Chair of Dev. Math	Susan Fife	SE Campus	713-718-7241	Felix Morales Building, Rm 124
Secretary	Carmen Vasquez	SE Campus	713-718-7056	Felix Morales Building, Rm 124
Dev. Math Assoc. Chair	Marisol Montemayor	SE Campus	713-718-7153	Felix Morales Building, Rm 124
Dev. Math Assoc. Chair	Jack Hatton	NE Campus	713-718-2434	Northline Building, Room 321

Note:
For issues related to your class, please first contact your instructor first.
If you need to contact departmental administration, then contact the Associate Chair, Mr. Basharat.
If further administrative contact is necessary, then contact the Department Chair, Dr. Hernandez.

Some Additional Thoughts and Suggestions

- I strongly recommend that you do all of the MyMathLab homework on paper, and then enter your answers into the website. Keep a notebook with all of your homework notes in it. It is extremely important especially for calculus class.

- In general, in college you are expected to spend at least 3 hours doing work outside of class for each hour that you are in class. Thus, since our class is 3 hours per week, you should expect to spend at least 9 hours doing work outside of class per week for this course.

- Studying is all about efficiency; using your time optimally in order to learn the material as completely as possible. To do this, you will need to know and what you don't know. Once you understand which parts of the material you do know and don't know, you will need to focus on what you don't know until you eventually know it. This means spending a lot of time with material that you don't know which can feel uncomfortable. This is the secret to studying mathematics: becoming more comfortable with being uncomfortable. We need to spend time on topics we don't yet understand in order to understand them.

- I highly encourage you to talk with your peers and with me about mathematics. It can be fun, invigorating, and useful to discuss mathematics from different vantage points. But don't let someone's beautiful explanation of a homework problem trick you into thinking that you know how to do that problem. Until you can come up with that beautiful explanation on your own, you don't yet know it and thus must continue to learn that topic.

- Technology can be an extremely useful tool. It can help you to gain an intuition for the material, it can help you to check your work, and it can make the material more fun. But again, don't let technology trick you into thinking you understand something that you don't. It's your responsibility to use technology as a tool to help you gain understanding and not as a crutch to aid you in avoiding understanding.

NOTE: *THIS SYLLABUS IS SUBJECT TO CHANGE AS NEEDED TO MEET THE OBJECTIVES OF THE COURSE OR TO AID IN COURSE ADMINISTRATION AT THE DISCRETION OF INSTRUCTOR. IT IS NOT ANTICIPATED THAT THERE WILL BE ANY SUBSTANTIVE CHANGES.*

Let's have a wonderful semester!!!