



**DEPARTMENT OF MATHEMATICS  
SOUTHWEST COLLEGE**

**COURSE SYLLABUS – SUMMER I 2018  
MATH 1325: Calculus for Business & Soc. Sci.**

**CRN 75116 / Mo - Fr 8:00 AM – 9:50 AM / West Loop Center, Room C243**

<b>INSTRUCTOR:</b>	Houssam Kalajo
<b>CONTACT INFORMATION:</b>	<a href="mailto:Houssam.kalajo@hccs.edu">Houssam.kalajo@hccs.edu</a> web page <a href="http://learning.hccs.edu/faculty/houssam.kalajo">http://learning.hccs.edu/faculty/houssam.kalajo</a>
<b>My Math Lab Course ID:</b>	<b>Kalajo85923</b> <b>All homework assignments Due on or before 07/01/2018</b>

**Office location and hours:** West Loop Campus, Student Success Center F15, 7–8 am, Mo – Fr; by appointment.

**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.

**Credits:** 3 credit hours (3 lectures).

**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.

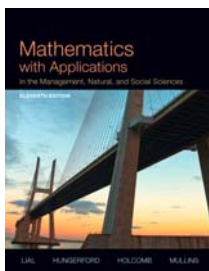
**Communication Skills:** to include effective development, interpretation and expression of ideas through written, oral and visual communication.

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

## **Instructional Materials**

### **Textbook:**

- Mathematics with Applications 11/e
- Lial | Hungerford | Holcomb | Mullins
- Textbook ISBN- 13: 9780321935441
- Publisher: Pearson



Students will either need to purchase their textbook/access code bundle from the bookstore, OR they can purchase online via MyMathLab registration process.

## **Course Outline**

<b>APPROXIMATE TIME</b>	<b>TEXT REFERENCE</b>
<b>UNIT I Algebra Review (8 hours)</b>	
1.5 hours	1.3 Factoring
1.5 hours	2.3 Linear Models
1.5 hours	3.6 Rational Functions
1.5 hours	4.1 Exponential Functions
2 hours	4.3 Logarithmic Functions
<b>UNIT II Differential Calculus (12 hours)</b>	
1.5 hours	11.1 Limits
1.5 hours	11.2 One-sided Limits and Limits Involving Infinity
1 hour	11.3 Rates of Change
1 hour	11.4 Tangent Lines and Derivatives
1.5 hours	11.5 Techniques for Finding Derivatives
1.5 hours	11.6 Derivatives of Products and Quotients
1.5 hours	11.7 The Chain Rule

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1.5 hours	11.8 Derivatives of Exponential and Logarithmic Functions
1 hour	11.9 Continuity and Differentiability

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### **UNIT III Applications of the Derivative (10 hours)**

1.5 hours	12.1 Derivatives and Graphs
1.5 hours	12.2 The Second Derivative
2 hours	12.3 Optimization Applications
1.5 hours	12.4 Implicit Differentiation
1.5 hours	12.5 Related Rates
2 hours	12.6 Curve Sketching

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### **UNIT IV Integral Calculus (12 hours)**

2 hours	13.1 Antiderivatives
2 hours	13.2 Integration by Substitution
2 hours	13.3 Area and the Definite Integral
2 hours	13.4 The Fundamental Theorem of Calculus
2 hours	13.5 Applications of Integrals
2 hours	13.7 Differential Equations

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### **UNIT V Multivariate Calculus (6 hours)**

2 hours	14.1 Functions of Several Variables
2 hours	14.2 Partial Derivatives
2 hours	14.3 Extrema of Functions of Several Variables

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### **Instructional Methods**

As an instructor, I want my students to be successful. I feel that it is my responsibility to provide you with knowledge concerning mathematical concepts contained in our developmental math curriculum. This knowledge will prepare you for College Algebra and will allow you to meet the math requirements that are needed for your career of choice. As a student wanting to master the mathematical concepts contained in the developmental math curriculum, it is your responsibility to read the textbook, submit assignments on the due dates, study for the exams, participate in classroom activities, attend class, and enjoy the learning experience. In this course, you will be involved in discussions with your classmates and your instructor. As you will want to contribute to these discussions, you will need to come to class prepared to discuss, analyze, and evaluate information from your text and notes.

### **Student Assignments**

Assignments have been developed that will enhance your learning. To better understand a topic, you will be given assignments on key information that you will need to remember for your success in your career. Students will be required to successfully complete the following:

### **Mathematics Homework Assignments**

All homework assignments for this class must be completed online using MyMathLab. The MyMathLab Course ID to be used for registration purposes only, and the school zip code is 77477 or 77081. To register for MyMathLab and to access the homework, go to [www.coursecompass.com](http://www.coursecompass.com).

### **Notes:**

- ❖ Be sure that your name in MyMathLab exactly matches your name on Class Roster.
- ❖ No extra work is given for extra credit.
- ❖ No extra work is given to “bring up my grade”.

**Calculator Policy:** A scientific or graphing calculator is allowed to be used ***on any examinations, including the final exam.***

**Exam Policy:** There will be three or four major examinations plus the final exam. Each exam is worth 100 points. Before each exam, please clear your desk of all material except pencils/pens, erasers, calculator, and scratch work. In addition, please do not share any material during an exam.

### **Make-up Policy**

Tests must be taken on the specified day. **No MAKE-UP** examinations will be given. The final examination grade will be substituted for one missed test only, **regardless of the reason**. If a second test is missed, the score for that test is zero.

### **Final Examination:**

The final exam consists of 33 multiple choice problems. The problems cover only the required material. The final examination must be taken by all students.

### **Test Schedule:**

Test 1	Sections 1.3, 2.3, 3.6, 4.1, and 4.3	TBA in class
Test 2	Sections 11.1 – 11.9	TBA in class
Test 3	Sections 12.1 – 12.6 and 13.1 – 13.2	TBA in class
Test 4	Sections 13.4 – 13.7 and 14.1 – 14.3	TBA in class
Final Exam	Comprehensive – All of the above sections	07/05/2018   8:00 AM – 9:50 AM

### **Students with disabilities**

HCC strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please meet with a campus Abilities Counselor as soon as possible in order to establish reasonable accommodations. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Ability Services. It is the policy and practice of HCC to create inclusive and accessible learning environments consistent with federal and state law. For more information, please go to <http://www.hccs.edu/district/students/disability-services/>

### **Ability Services Contact Information**

Central College	713-718-6164	
Coleman College	713-718-7376	
Northeast College	713-718-8322	
Northwest College	713-718-5422	713-718-5408
Southeast College	713-718-7144	
Southwest College	713-718-5910	
Adaptive Equipment/Assistive Technology	713-718-6629	713-718-5604
Interpreting and CART services	713-718-6333	

### **HCC Policy Statement: Title IX**

Houston Community College is committed to cultivating an environment free from inappropriate conduct of a sexual or gender-based nature including sex discrimination, sexual assault, sexual harassment, and sexual violence. Sex discrimination includes all forms of sexual and gender-based misconduct and violates an individual's fundamental rights and personal dignity. Title IX prohibits discrimination on the basis of sex-including pregnancy and parental status-in educational programs and activities. If you require an accommodation due to pregnancy please contact an Abilities Services Counselor. The Director of EEO/Compliance is designated as the Title IX Coordinator and Section 504 Coordinator. All inquiries concerning HCC policies, compliance with applicable laws, statutes, and regulations (such as Title VI, Title IX, and Section 504), and complaints may be directed to:

David Cross  
Director EEO/Compliance  
Office of Institutional Equity & Diversity  
3100 Main  
Houston, TX 77266-7517 or [Institutional.Equity@hccs.edu](mailto:Institutional.Equity@hccs.edu)  
Phone number: (713) 718-8271

### **Basic Needs Security Statement**

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable us to provide any resources that HCC may possess.

### **Campus Carry – HCC**

At HCC the safety of our students, staff, and faculty is our first priority. As of August 1, 2017, Houston Community College is subject to the Campus Carry Law (SB11 2015). For more information, visit the HCC Campus Carry web page at <http://www.hccs.edu/district/departments/police/campus-carry/>

### **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 that has not been 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 attend all lecture and labs regularly. 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, for excessive tardiness or for 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 paper if you unavoidably miss a class. Class attendance equals class success.

### **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. If you wish to drop the class, then it is your responsibility to do that before the final drop date. **Neither you nor your instructor will be able to perform the drop after the final drop date and I will not drop you for nonattendance. The last day to withdraw from this course with a grade of W is June 25, 2018.**

**ATTENDANCE POLICY:** Attendance is compulsory and is checked during every class. When you have accumulated 12.5 % or 6 hours of absences, the instructor is obligated by law to drop you from the class. ***It is your responsibility to be sure that you are marked present before leaving the class.*** Students are expected to attend class regularly, and they are responsible for materials covered during their absences. Students can contact their friends or myself if available regarding it. The nature of the course is such that perfect attendance is essential for mastery of the course content. A missed class can never be duplicated.

**INSTRUCTIONS POLICY:** All instructions given in class must be followed strictly. No excuse shall be accepted if you do not follow or miss instructions. It is your responsibility to clarify the doubts immediately.

### **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.

### **Misuse of Electronic Devices in the Classroom**

The use of electronic devices by students in the classroom is up to the discretion of the instructor. Any use of such devices for purposes other than student learning is strictly prohibited unless authorized as an appropriate ADA accommodation from the ADA Counselor.

### **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).

### **Instructor Requirements**

**As your Instructor, it is my responsibility to:**

- Provide the grading scale and detailed grading formula explaining how student grades are to be derived
- Facilitate an effective learning environment through class activities, discussions, and lectures
- Provide a description of any special projects or assignments
- Inform students of policies such as attendance, withdrawal, tardiness and make up
- Provide the course outline and class calendar which will include a description of any special projects or assignments
- Arrange to meet with individual students before and after class as required

To be successful in this class, it is the student's responsibility to:

- Attend class and participate in class discussions and activities
- Read and comprehend the textbook
- Complete the required assignments and exams:
- Complete Chapter Exams, MyMathLab Homework, Final Exam
- Ask for help when there is a question or problem

Keep copies of all paperwork, including this syllabus, handouts and all assignments

**Grading policy**

Your instructor will conduct exams, and monitor your progress on homework assignments to determine how successful you are at achieving the course learning outcomes (mastery of course content and skills) outlined in the syllabus. If you find you are not mastering the material and skills, you are encouraged to reflect on how you study and prepare for each class. Your instructor welcomes a dialogue on what you discover and may be able to assist you in finding resources on campus that will improve your performance.

Your course grade will be computed as follows:  
One lowest major exam out of 4 will be dropped.

3 exams                    45% (each 15%)  
Homework                20%  
Final exam                35%

**Final Average Score = Average of 3 exams \* 0.45 + HWK (Connect Math) \* 0.20 + Final Exam \* 0.35**

Your final course grade is based on the following standard HCC scale.

Final Average Score	$90 \leq \text{Avg} \leq 100$	$80 \leq \text{Avg} < 90$	$70 \leq \text{Avg} < 80$	$60 \leq \text{Avg} < 70$	$\text{Avg} < 60$
Final Course Grade	A	B	C	D	F or FX

**FINAL GRADE OF FX** Students who stop attending class and do not withdraw themselves prior to the withdrawal deadline may either be dropped by their professor for excessive absences or be assigned the final grade of "FX" at the end of the semester. Students who stop attending classes will receive a grade of "FX", compared to an earned grade of "F," which is due to poor performance.

Please note that HCC will not disperse financial aid funding for students who have never attended class. Students who receive financial aid but fail to attend class will be reported to the Department of Education and may have to pay back their aid. A grade of "FX" is treated exactly the same as a grade of "F" in terms of GPA, probation, suspension, and satisfactory academic progress.

**Resources**

The HCC Tutoring Centers provide free tutoring for individual subjects offered at specific times throughout the week on various campuses. There is no need to make an appointment. If you need a tutor, visit: [www.hccs.edu/findatutor](http://www.hccs.edu/findatutor) for times and locations. For more information about tutoring at HCC, visit [www.hccs.edu/district/students/tutoring](http://www.hccs.edu/district/students/tutoring).

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 <https://hccs.upswing.io/>. 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.

**EGLS3 -- 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](http://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
- Admin. Assistant	Tiffany Pham	SW Campus	713-718-7770	Stafford, Scarcella, N108
- Admin. Assistant	Christopher Cochran	SW Campus	713-718-2477	Stafford, Scarcella, N108
Math Assoc. Chair	Clen Vance	CE Campus	713-718-6421	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

For issues related to your class, please first contact your instructor.

If you need to contact departmental administration, then contact the appropriate Associate Chair.

If further administrative contact is necessary, then contact the appropriate Department Chair.