HOUSTON COMMUNITY COLLEGE SYSTEM

SOUTHWEST COLLEGE
Department of Mathematics
COURSE SYLLABUS

MATH 1325: Elements of Calculus with Applications
Spring 2011 / Saturday 8:00-12:00 noon / Scarcella Bldg Rm 114 / CRN: 71350

INSTRUCTOR:	Henry Ibekwe, B.S., M.S.
CONFERENCE TIMES:	By Appointment Only
CONTACT INFORMATION:	henry.ibekwe@hccs.edu, henri8@math.com
MyMathLab Course ID:	**ibekwe25161**

Catalog 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 equivalent.
3 credit (3 lecture).

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Course Intent: 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.

Audience: This course is intended for students majoring in business, and the natural and social sciences.

Course Objectives: 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.

Textbook: *Mathematics with Applications*, 9th ed.; Lial, Margaret L., Thomas W. Hungerford; Addison-Wesley Longman; 2007 ISBN-10: 0321334337

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

Final Average	90 ≤ Avg ≤ 100	80 ≤ Avg < 90	70 ≤ Avg < 80	60 ≤ Avg < 70	Avg < 60
Final Course Grade	**A**	**B**	**C**	**D**	**F**

Determination of Your Final Grade: There will be 3 or 4 major examinations given in this class plus one comprehensive final examination. Your final course grade is awarded based on the following standard HCCS ten point scale.

1. **3 or 4 test = 40%**
2. **Homework = 30%**
3. **Class participation = 5%;**
4. **Final Exam = 25%**

Final Examination:
The final examination is departmental and consists of 33 multiple-choice problems. The problems cover all the material required in the course.

Make-up policy:
Any exam makeup will be at the discretion of the instructor and the student must provide sufficient reasons why they were unable to take the exam at the regular scheduled time.

Attendance policy:
Attendance is checked during every class. When you have accumulated 12.5 % or 6 hours of absences, the instructor will drop you from the class.

Tardiness policy:
Students must make sure they come to class on time. You are responsible for any material or discussion missed as a result of their tardiness

Withdrawal policy:
If your name is on the roll at the end of the term, you WILL receive a 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. Please refer to the following notice before dropping the class.

NOTICE: Students who take a course three or more times will face significant tuition or fee increases at HCC and other Texas public colleges and universities. In addition, state law dictates that students are allowed a maximum of 6 course withdrawals during their entire college career. Starting in the fall of 2007, students with more than 6 drops will be required to pay additional fees. Prior to course withdrawal, you must confer with your professor or counselor about your study habits, homework, test-taking skills, attendance, course participation, and tutoring or other assistance that is available.

Homework policy:
All homework must be completed online using MYMATHLAB. All homework must be completed before the stated due dates.

Calculators:
Calculators will be allowed depending on the test difficulty as determined by the instructor.

Student conduct:
Students should not engage in disruptive activities while in the classroom. Any conduct that is deemed detrimental to the academic atmosphere, such as cell phone use or consistently talking during instructional delivery, will not be tolerated. Any student found guilty of such conduct will be asked to leave the classroom until further notice.

Academic dishonesty:
All students are required to exercise academic honesty in completion of all tests and assignments. Penalties for academic dishonesty (cheating on a test, collusion on an assignment, etc.) include, but are not limited to, a reduced grade, a "0" on that test or assignment, a "W" in the course, or an "F" in the course. The use of recording devices, including camera phones and tape recorders, is prohibited in all locations where instruction, tutoring, or testing occurs. Students with disabilities who need to use a recording device as a reasonable accommodation should contact the Disability Services Office for information.

Course Outline: Instructors may find it preferable to cover the course topics in the order listed below. However, the instructor may choose to organize topics in any order, but all materials must be covered.

APPROXIMATE TIME	TEXT REFERENCE
Algebra Review (6 hours)	
½ hour	Course introduction
½ hour	1.3 Factoring
1 hour	2.3 Linear Models
1 hour	3.7 Rational Functions
1 hour	4.1 Exponential Functions
1 hour	4.3 Logarithmic Functions
Differential Calculus (10 hours)	
1 hour	11.1 Limits
1 hour	11.2 Rates of Change
1 hour	11.3 Tangent Lines and Derivatives
1 ½ hours	11.4 Techniques for Finding Derivatives
1 ½ hours	11.5 Derivatives of Products and Quotients
1 hour	11.6 The Chain Rule
1 hour	11.7 Derivatives of Exponential and Logarithmic Functions
1 hour	11.8 Continuity and Differentiability
Applications of the Derivative (9 hours)	
2 hours	12.1 Derivatives and Graphs
2 hours	12.2 The Second Derivative
2 hours	12.3 Optimization Applications
2 hours	12.4 Curve Sketching
Integral Calculus (13 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
Multivariate Calculus (7 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

Test Schedule:

Test	Chapters Covered on Test	Date
Test #1	Review and Chapter 11	TBA:
Test #2	Chapter 12	TBA:
Test #3	Chapter 13	TBA:
Test #4	Chapter 14	TBA:
Final Exam	All Chapters	**Sat 8:00-11:00am May 14th**

Resource Materials: Any student enrolled in Math 1325 at HCCS has access to the Academic Support Center where they may get additional help in understanding the theory or in improving their skills. The Center is staffed with mathematics faculty and student assistants, and offers tutorial help, video tapes and computer-assisted drills. Also available is a student's Solutions manual which may be obtained from the Bookstore.

Suggested Methods: It is helpful to begin each class with questions concerning the material discussed and the assigned homework problems. In presenting new material, it is suggested that an explanation be followed by students working examples in class. Students should be encouraged to work the review exercises at the end of each chapter. Also, they should be encouraged to visit the Academic Support Center at their respective colleges.

Americans With Disabilities Act (ADA): 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 their college at the beginning of each semester. Faculty members are authorized to provide only the accommodations requested by the Disability Support Services Office.