



SOUTHWEST COLLEGE
Department of Mathematics

MATH 1324: Mathematics for Business & Social Sciences
COURSE SYLLABUS

Summer I, 2017 / CRN 14101 / MoTuWeTh 5:30pm to 8:00pm
Stafford, Learning Hub R 219

INSTRUCTOR:	Dr. Roderick V. James
CONTACT INFORMATION:	Phone: 713 503 0785 Email: mathprof@swbell.net
Learning Web	Prof James
MyMathLab	james52869

Office location and hours:

Please feel free to contact me concerning any problems that you are experiencing in this course. You do not need to wait until you have received a poor grade before asking for my assistance. Your performance in my class is very important to me. I am available to hear your concerns and just to discuss course topics. Feel free to call or email me to set up a consultation time.

Course Description:

MATH 1324 Mathematics for Business with Applications.

Finite Mathematics with Applications. The application of common algebraic functions, including polynomial, exponential, logarithmic, and rational, to problems in business, economics, and the social sciences are addressed. The applications include mathematics of finance, including simple and compound interest and annuities; systems of linear equations; matrices; linear programming; and probability, including expected value.

Prerequisite: A grade of C or better in Math 0312 or its equivalent or Meet TSI college-readiness standard for Mathematics.

Course Goal: This course is intended for students majoring in liberal arts and secondary education.

Audience: Students who are enrolled in the business area may take this course as an elective in order to obtain a broader background in the technique of linear programming and to further expand their mathematical knowledge.

Course Student Learning Outcomes (SLO):

Upon successful completion of this course, students will:

1. Apply elementary functions, including linear, quadratic, polynomial, rational, logarithmic, and exponential functions to solving real-world problems.
2. Solve mathematics of finance problems, including the computation of interest, annuities, and amortization of loans.
3. Apply basic matrix operations, including linear programming methods, to solve application problems.
4. Demonstrate fundamental probability techniques and application of those techniques, including expected value, to solve problems.
5. Apply matrix skills and probability analyses to model applications to solve real-world problems.

Objectives:

Students will:

1. Be able to graph systems of linear equations in two variables.
2. Be able to solve systems of linear equations using Gauss-Jordan elimination.
3. Be able to add, subtract, and multiply matrices.
4. Be able to find the inverse of a square matrix.
5. Find simple and compound interest.
6. Find the future value of a given annuity.
7. Find the monthly payment and the total interest for a given simple interest amortized loan.
8. Be able to graph systems of linear inequalities in two variables.
9. Use the graphical method for solving a linear programming problem.
10. Use the simplex method for solving standard maximization and standard minimization problems.
11. Be able to perform the basic set operations.
12. Be able to use the multiplication principle, permutations and combinations in counting arguments.
14. Calculate basic probabilities using classical methods.
15. Calculate conditional probabilities.
16. Use expected values in real-world applications.
17. Use the binomial distribution to model and analyze probability experiments.

Core Objectives:

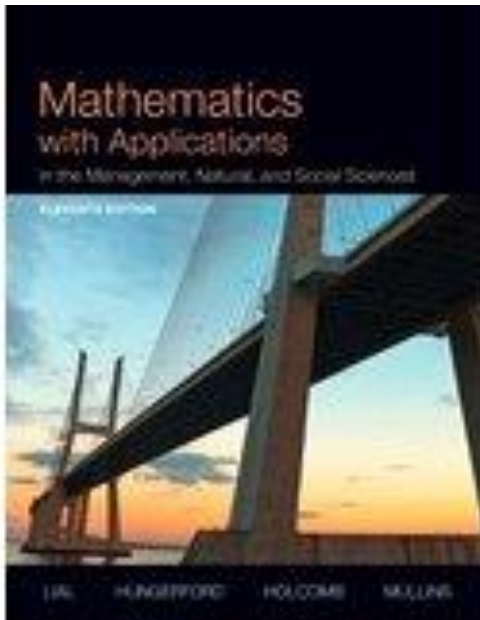
Given the rapid evolution of necessary knowledge and skills and the need to take into account global, national, state, and local cultures, the core curriculum must ensure that students will develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, 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.

Students enrolled in this core curriculum course will complete a research project or case study designed to cultivate the following core objectives:

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.

**Textbook: Mathematics with Applications;**

11th ed.; Lial, Margaret L

Hungerford, Thomas

Holcomb Jr., John

Mullins, Bernadette

ISBN-13: 978-0-321-93107-8

Course Outline:

APPROXIMATE TIME	TEXT REFERENCE
<hr/>	
UNIT I	Review (2 hours)
1 hour	2.1 Graphs
1 hour	2.2 Equations of Lines
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UNIT II	Nonlinear Functions (12 hours)
2 hours	3.4 Quadratic Functions and Applications
2 hours	3.6 Rational Functions
2.5 hours	4.1 Exponential Functions
2.5 hours	4.3 Logarithmic Functions
3 hours	4.4 Logarithmic and Exponential Equations
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UNIT III	Systems of Linear Equations (8 hours)
1.5 hours	6.1 Systems of Two Linear Equations in Two Variables
2 hours	6.2 Larger Systems of Linear Equations
2 hours	6.3 Applications of Systems of Linear Equations
1 hour	6.4 Basic Matrix Operations
1.5 hours	6.5 Matrix Products and Inverses
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UNIT IV	Linear Programming (8.5 hours)
1 hour	7.1 Graphing Linear Inequalities in Two Variables
1.5 hours	7.2 Linear Programming: The Graphical Method
2 hours	7.3 Applications of Linear Programming
2 hours	7.4 The Simplex Method: Maximization
2 hours	7.5 Maximization Applications
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UNIT V	Sets and Probability (6 hours)
1 hour	8.1 Sets
	8.2 Applications of Venn Diagrams and Contingency Tables (Optional)
1.5 hours	8.3 Introduction to Probability
1.5 hours	8.4 Basic Concepts of Probability
2 hours	8.5 Conditional Probability and Independent Events
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UNIT VI	Counting, Probability Distributions, and Further Topics in Probability (6 hours)

1.5 hours	9.1 Probability Distributions and Expected Value
1.5 hours	9.2 The Multiplication Principle, Permutations, and Combinations
1.5 hours	9.3 Applications of Counting
1.5 hours	9.4 Binomial Probability

UNIT VII Mathematics of Finance (5.5 hours)

1 hour	5.1 Simple Interest and Discount
1 hour	5.2 Compound Interest
1.5 hours	5.3 Annuities, Future Value, and Sinking Funds
2 hours	5.4 Annuities, Present Value, and Amortization

CALENDAR

Week 1	Monday	Tuesday	Wednesday	Thursday
	5-Jun	6-Jun	7-Jun	8-Jun
	Intro	3.4	3.6	4.1-4.2
	2.1, 2.2			
Week 2	Monday	Tuesday	Wednesday	Thursday
	12-Jun	13-Jun	14-Jun	15-Jun
	Test 1			
	4.3-4.4	6.1-6.2	6.3-6.4	6.5
Week 3	Monday	Tuesday	Wednesday	Thursday
	19-Jun	20-Jun	21-Jun	22-Jun
	Test 2			
	7.1	7.2-7.3	7.3-7.4	7.5
Week 4	Monday	Tuesday	Wednesday	Thursday
	26-Jun	27-Jun	28-Jun	29-Jun
	Test 3			
	8.1-8.2	8.3-8.5	9.1-9.2	9.4-9.5
Week 5	Monday	Tuesday	Wednesday	Thursday
	3-Jul	4-Jul	5-Jul	6-Jul
	No Test			
	5.1-5.3		5.4	Final

Instructional Methods

MATH 1324 is a math course with many practical applications.

As an instructor, I want my students to be successful. I feel that it is my responsibility to provide you with knowledge concerning the field of mathematics, modeling good analytical problem solving strategies, and organizing and monitoring the success of each student with homework that allows you to connect the information that you learn in this course to applications in other course work and life in the real world.

As a student wanting to learn about the field of mathematics, 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 yourself while experiencing the real world of mathematics.

As I believe that engaging the students in the learning is essential for teaching to be effective, you will spend a portion of class time involved in problem solving activities. 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 other assigned readings.

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:

Homework

All homework must be completed online using [MyMathLab](#). The MyMathLab Course ID to be used for registration purposes is [james52869](#). To register for MyMathLab and to access the homework, go to <http://www.coursecompass.com/>.

Your course grade will depend on your performance throughout the semester. Your final course grade will be the **weighted average** of your homework, the three tests and the FINAL examination.

Your grade in this class depends on your PERFORMANCE during the semester. There is no such thing as EXTRA CREDIT in this class. Your grade depends on your PERFORMANCE and ONLY your PERFORMANCE during the semester.

Specifically, your grade is NOT a negotiation during week 5!!!!

Please do NOT fall behind in this class. It is very difficult to catch up in this class.

THERE WILL BE NO EXTRA WORK GIVEN FOR “EXTRA CREDIT”

THERE WILL BE NO EXTRA WORK GIVEN TO “BRING UP YOUR GRADE”

The weights for the three parts of the course are shown in the example below.

Homework	10%
Test 1	20%
Test 2	20%
Test 3	20%
Final	30%

There will be THREE (3) tests during the semester. The test will be ONE hour long in class CLOSED Book. Each test will contain 16 problems. The test will be written out; no multiple choice, no scantrons. The first part of the class will be a review of the test material. The test dates are:

Monday Jun 12, 2017
Monday Jun 19, 2017
Monday Jun 26, 2017

Final Examination: The final exam is departmental, consisting of 33 problems, some of which may be multiple choice. The problems cover only the required material.

FINAL EXAM Date: Thursday Jul 5 at 5:30 PM.

If you perform below your expectations or fail any test, please set-up a conference with me as soon as possible.

Make-up

There will be NO make-up exams.

Withdrawal from Class:

The last day to withdraw from (drop) this class is

Monday June 26, 2017u at 4:30 PM.

After that date you cannot be given a course grade W.

Grading policy:

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

FINAL AVERAGE	FINAL COURSE GRADE
$90 \leq \text{Average} \leq 100\%$	A
$80 \leq \text{Average} < 90\%$	B
$70 \leq \text{Average} < 80\%$	C
$60 \leq \text{Average} < 70\%$	D
Average < 60%	F

Your course grade will depend on your performance throughout the semester. Your final course grade will be the **weighted average** of the **HOMEWORK, THREE TESTS** and the **FINAL** examination. The weights for the three parts of the course are as follows and shown in the example below.

HOMEWORK **10%**
3 TESTS **60% (20% each)**
FINAL **30%**

<u>Name</u>	Homework	Test 1	Test 2	Test 3	Final	Average	Letter Grade
Points	520	100	100	100	100	920	
Weights	10%	20%	20%	20%	30%	100%	
Weighted Points	52	20	20	20	30	142	

Adam	492	90	95	85	93	92.32%	A
Stacy	448	85	85	80	84	84.51%	B
Micah	384	70	75	70	72	72.54%	C
Cass	420	60	65	60	65	69.37%	D
Flo	102	50	45	60	60	41.69%	F

Grading Formula

$$\text{Homework} \cdot .10 + (\text{T1} + \text{T2} + \text{T3}) \cdot .20 + \text{Final} \cdot .30$$

Final Examination:

The final exam is departmental, consisting of 33 problems, some of which may be multiple choice. The problems cover only the required material.

FINAL EXAM Date:

Thursday Jul 06, 2017 at 5:30 pm

Departmental Policies:

1. Each instructor must cover all course topics by the end of the semester. The final exam is comprehensive and questions on it can deal with any of the course objectives.
2. Each student should receive a copy of the instructor's student syllabus for the course during the first week of class.
3. A minimum of three in class tests and a comprehensive final departmental examination must be given. The final examination must be taken by all students.
4. All major tests should be announced at least one week or the equivalent in advance.
5. The final exam must count for at least 25 to 40 percent of the final grade.
6. The final course average will be used in the usual manner (90-100 "A"; 80-89 "B"; 70-79 "C"; 60-69 "D"; Below 60 "F").
7. Either an open book or a take home major test may be given at the discretion of the instructor.
8. Any review sheet should be comprehensive and the student should not feel that classroom notes, homework, and tests may be ignored in favor of the review sheet for any examination.

Resource Materials: Any student enrolled in Math 1324 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.

Academic Honesty: 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.

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.

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.

Sexual Harassment: It is a violation of HCCS policy for an employee, agent, or student of the college to engage in sexual harassment as defined in the EEOC guidelines (EEO/AA Compliance Handbook 47).

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 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 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.

Last Day to DROP class is Monday June 26, 2017.

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 charges 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

It is our shared responsibility to develop and maintain a positive learning environment for everyone. As your instructor, I take 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 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 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
- 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

Student Requirements

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:
- Chapter Exams, 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

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.

Grading

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.

Here are links to the School Academic Calendar and Final Schedule.

<http://www.hccs.edu/district/events-calendar/academic-calendar/>

<http://www.hccs.edu/district/events-calendar/academic-calendar/final-exam-schedule/#/?i=2>

