MATH 1324
Math for Business and Social Sciences
(3:3:0)

DEPARTMENT OF MATHEMATICS & ENGINEERING

ARTS & SCIENCES DIVISION SOUTH PLAINS COLLEGE

Fall Semester, 2016
Mr. Robert E. Plant, II

General Course Syllabus

Department: Mathematics and Engineering

Discipline: Mathematics

Course Number: Math 1324

Course Title: Mathematics for Business and Social Sciences

Credit: 3 **Lecture**: 3 **Lab**: 0

This course satisfies a core curriculum requirement: Yes – Mathematics

Prerequisites: *(courses/TSI compliance)*: Two years of high school algebra or Math 0320, TSI compliance

Available Formats *(conventional/internet/ITV)*: conventional

Campuses: Levelland Campus, Reese Campus, Byron Martin ATC Lubbock Campus

Textbook: College Mathematics for Business, Economics, Life Sciences, and Social Sciences, 13th Edition, Barnett, Ziegler, and Byleen, Pearson Education, 2015. ISBN-10: 0-321-94551-4, ISBN-13: 978-0-321-94551-8

Supplies (*computer access/software/art material/camera/instrument*): Graphing calculator: TI-86 or lower. This course may include online supplemental instruction. Consult your instructor's course information sheet.

Course Specific Instructions (internet – go to Blackboard site etc.): There are video tapes of many topics available in the room M116 in the math building at the Levelland campus. These tapes can be viewed in the lab, or checked out and taken home for viewing. Video information is also available online through various websites.

Course Description *(from the catalog)*: Topics include inequalities, progressions, relations, functions, systems of equations, matrices, linear programming, compound interest and annuities.

Course Purpose/Rationale/Goal – *(what some may call objectives)*: The purpose/rationale/goal of this course is to introduce students to the fundamental principles in business mathematics including functions, systems of equations, linear programming, and financial math and to prepare students to study Mathematical Analysis II.

Course Requirements: To maximize the potential to complete this course, a student should attend all class meetings, complete all homework assignments and examinations including final projects and/or examinations.

Course Evaluation: Please see the instructor's course information sheet for specific items used in evaluating student performance.

Student Learning Outcomes/Competencies:

1. Functions: Student will
   1.1. identify, evaluate, characterize and graph linear, polynomial, rational, exponential and logarithmic functions. (1.2, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6)
   1.2. determine the domain of a function. (2.1)

2. Linear Models: Student will
   2.1. set up and solve linear business functions: cost, price-supply, price-demand, revenue, and profit. (1.1)
   2.2. set up and solve problems involving break-even points. (1.1)
   2.3. set up and solve problems involving equilibrium points. (1.2)

3. Finance: Student will
   3.1. use business formulas to calculate simple and compound interest. (2.5, 3.1, 3.2)
   3.2. use business formulas to calculate effective rates. (3.2)
   3.3. use business formulas to evaluate annuities. (3.3, 3.4)

4. Systems of Equations: Student will
   4.1. solve systems of equations: by substitution, elimination, Gauss-Jordan elimination and matrix inversion. (4.1, 4.3, 4.6)
   4.2. analyze the nature of the solution to a system of equations. (4.1)
   4.3. apply the use of technology to perform matrix operations, find the inverse of a matrix, and solve systems of equations. (4.2, 4.4, 4.5)
   4.4. set up and solve applications involving systems of equations. (4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7)

5. Linear Programming: Student will
   5.1. use graphical methods to solve linear programming problems. (5.3)
   5.2. use the Simplex Method to solve linear programming problems. (6.1, 6.2, 6.3, 6.4)
   5.3. set up and solve applications involving linear programming problems. (5.3, 6.1, 6.2, 6.3, 6.4)

6. Algebra: Student will
   6.1. simplify and factor algebraic expressions involving polynomials, rational expressions, exponents, and radicals. (A.2, A. 3, A.4, A.5, A.6)
   solve linear, quadratic, exponential, logarithmic and rational equations. (1.1, 2.3, 2.4, 2.6, A.7)

MATH 1324—Math for Business and Social Sciences
South Plains College, Levelland Campus
Fall Semester 2016

Sections: 001, MW, 11:00 AM–12:15 PM
002, MW, 2:30–3:45 PM

Room: Levelland Math Bldg., Room 124 (Section 001)
Levelland Math Bldg., Room 112 (Section 002)

Instructor: Mr. Robert E. Plant, II, M.S.

Office Info: Room—Math Building, Room 116B
Phone—(806) 716-2734
Hours—the following table will display the regular office hours.

Monday	Tuesday	Wednesday	Thursday	Friday
13:00-14:15	*10:45-12:00*	*13:00-14:15*	*10:45-12:00*	*9:00 – 12:00*
or by appointment				

E-mail: rplant@southplainscollege.edu

O.P.I.*:   This syllabus is © 2016 by Mr. Robert E. Plant, II
* O.P. I. means "other pertinent information," or in layman terms, "something else that you need to know."

Tutoring: Free tutoring is available in room 116 of the Mathematics-Engineering Building, at the Reese Center campus in Building 2, and at the Byron Martin ATC in Lubbock (34th and Avenue Q). (Please remember to verbally request a tutor and to sign in when you seek the help of a tutor in each of these places.) There are alternate tutoring resources available online for students upon request.

"True knowledge exists in knowing that you know nothing."

—Socrates

Fundamental Principles of Mathematics

Mathematics is built upon two fundamental principles—pattern recognition and problem solving. Students must become able to recognize patterns in order to solve *types* of problems. Too often have I observed students hang a majority of time up on each specific problem, so it is my mission as your instructor to emphasize that there are sets of problems within the homework (HW) assigned that require *one concept or skill to solve all problems in each set!* It is the ultimate objective of this and any other mathematics course to enable you as the student to become proficient in both of these areas. But until you have reached the point of mastery in both, I submit to you a paraphrase of a quote taken from Tupac Shakur: **"All eyes on me!"**

Guide to Being Successful in This Course

In order for YOU the student to be successful at this or any other level of higher education, YOU must be aware of one very important aspect: student accountability. I as the instructor am accountable for aiding in your success by properly presenting the mathematical concepts of this course, as well as any real-world applications, in a manner that allows for the general group of students to display understanding of said information. YOU as the student are accountable for your success by putting forth the effort necessary to gain such understanding. This is achieved by completing all assignments using the information that I have presented in the lecture and by asking questions regarding any concepts that are not understood. If YOU fail to do what is required in this course, then YOU will be responsible for the just grade that is received.

Guide to Solving Mathematical Problems

When solving a mathematical problem, the following questions must be answered:
Q1.   What *known* information does the problem give me?
A1.   You will be shown, through examples given by the instructor, how to list the known information of the problem. Use this process unless a more suitable one is known by you. Spare no details until you have *mastered* this concept of setting up the problem. Once you have done so, then you can afford to spare some of the details.
Q2.   What information given in the problem do I *not know*, and how do I *find* it?
A2.   In this course, you will deal with problems that have unknown information which must be found. Most of these problems will have one unknown; however, there will be a few that will have two, which is the *maximum* number of unknowns that will be examined for any problem. The instructor will show you the procedures necessary for finding these unknowns.
Q3.   When is the problem solved or completed?
A3.   The problem will be solved or completed *when there is no unknown information remaining*. Each section covered in this course will have problem exercises that are designed to reinforce the concept(s) of the section, and there will be more than one problem assigned per concept (unless otherwise stated by the instructor at the time of assignment).

Expectations of the Student for the Instructor

The Student is within all rights to expect that the Instructor do the following:
➢ Show up, as scheduled, to teach all information pertaining to the course.
➢ Use the entirety of the lecture period as well as the allotted lab time for this course.
➢ Provide notice of any schedule changes.
➢ Maximize the time allotted for this course by assessing student aptitude of covered information at the close of each lecture, when time permits.
➢ Present the material in a manner that can generally be understood by the majority of the class.
➢ Be accessible to those who need assistance outside of the classroom setting, by way of e-mail or in person, during office hours or reasonably scheduled appointment times.
➢ Hold to any assignment(s) given during the course of the semester unless removed.
➢ Uphold the policies of the college as it pertains to the student's welfare in the course.
➢ Not make any exceptions regarding the dismissal of any student from the course for reasons listed herein.
➢ Allow each student the opportunity to discuss the material presented during the lecture period.
➢ Provide examinations based on the information discussed in class that contain problems which use solving methods *similar* to those assigned from sections pertaining to the exam.

Expectations of the Instructor for the Student

The Instructor is within all rights to expect that the Student do the following:
➢ Show up, as scheduled, to receive and learn all information pertinent to the course and be mindful of any schedule changes.
➢ Take advantage of *all* resources available to you. These resources, which include the Office Hours and the Tutoring Lab, have been previously stated in the syllabus.
➢ Be respectful of your peers and the Instructor as stated in the SPC Student Handbook. In the collegiate setting, all students are considered to be adults and are expected to uphold conduct worthy of such consideration. Failure to do so provides sufficient grounds for the Student to be dismissed from the course.
➢ Be willing to work together with—**BUT NOT DO WORK FOR**—fellow classmates. Networking is an essential tool both in the workforce and in the classroom; furthermore, the greater the numbers of minds there are involved, the less mental labor is required for each individual. No one is an island… *except on the exams!*
➢ Be mindful of the classroom setting and the roles therein. While student tuition is vital to the well-being of this academic institution, this does NOT warrant the concession of any instructor to you in a manner that compromises the integrity of the classroom setting and that of the institution itself.
➢ *Write all graded work legibly and in* <u>*pencil*</u> <u>*only*</u>. <u>*All work not done in pencil will not be accepted by me and will cause you to receive a grade of zero percent (0%) for the work in question.*</u>

- ➢ Turn all electronic devices *off* that have no use in the classroom setting.
    - o In the event that a cell phone must be on (family emergencies only), then the phone must be put on vibrate mode and placed on your desk.
    - o If an unsanctioned device is in use during an exam, then the grade for said exam will be zero percent (0%).
- ➢ Bring all materials needed for the course and refrain from bringing anything that is not needed. This allows you to pay attention to the subject matter only and shows me that you are prepared to learn.
    - ➢ Obtain all missed information and assignments from a fellow classmate. In the spirit of holding to the course objectives, I will not relay such information unless absolutely necessary—this means that *if there is no documented reason for missing the information, then find your peers, not me*.
    - ➢ READ THE SYLLABUS!!!

Attendance Policy

Optimal attendance and promptness on the part of both the Student and the Instructor are necessary in order for the Student to maximize the potential for success in this course; as such, an excess of either absences or tardiness cannot be tolerated from either party. Here are the ground rules for this course regarding attendance:
- ➢ Two (2) counts of a student being tardy is equivalent to one (1) count of a student being absent.
    - o Use of an unauthorized device during lecture is grounds for the Student being counted tardy and dismissed for the lecture period in question.
- ➢ Four (4) absences, or any combination of tardy counts and absences that add to equal four absences, are allowed **for any reason** in this course. *If this count is exceeded, the Instructor has the right to drop the Student with a grade of X or F.*
- ➢ The Student is provided the right to be reinstated to the course, at the discretion of the Instructor, by no later than one week after the initial drop date.
    - o All subsequent drops are final.
- ➢ All absences that are due to required attendance at SPC-sponsored events will be excused provided that the Instructor is properly notified before said event.
- ➢ Unless otherwise notified by the Office of the Dean of Students, no absences due to illness will be treated as excused.
    - o Such absences that cause the minimum count to be exceeded will be handled at the Instructor's discretion.
- ➢ If the Student has to withdraw from the course, then this action must take place by no later than **November 17, 2016**, which is the last day to withdraw from a course.

Failure to withdraw from the course by the deadline will subject the student to receiving the grade earned at the time of withdrawal.

Required & Disallowed Materials for the Course

The following materials are required of the Student for this course:
➢ Pencil—This will be required for all work that is to be graded by the Instructor
➢ Ruler—This will be required for the Graphing portion of this course
➢ Multi-subject Notebook (with at least 5 sections)—This will be required for the Student to keep his/her notes; any writing utensil may be used to take notes, and ***the notebook is to be used in this course only***
➢ Three-ringed Binder—This will be required to store all Homework (HW) that is assigned in the course; should be stocked with at least 250 sheets of loose-leaf writing paper and at least 100 sheets of graphing paper, which are sold separately
➢ **Graphing calculators—**These are allowed in this course and <u>cannot</u> <u>exceed</u> <u>the</u> <u>quality</u> <u>of</u> <u>a</u> <u>TI-84</u> <u>Calculator</u>; no extra calculators are required of the Instructor to provide in the event of the Student not having his/her own
➢ Syllabus Acknowledgment of Receipt—The filling in, signing, and returning of said form is prerequisite for any accommodations stated in the syllabus to be recognized for the Student; nonetheless, the Student is still expected to uphold any responsibilities that are stated herein

The following materials and situational items are disallowed in this course:
➢ Cell phones—Usage of cell phones during lecture is prohibited in this course
  o Usage during lecture may result in dismissal from lecture and a counted absence
  o Usage during an exam is grounds for immediate dismissal from the course
➢ Online math answering programs—Programs that provide "solutions" to unworked problems, such as Chegg, MathWay, PhotoMath, and Wolfram Alpha are strictly prohibited from use in this course
  o First Offense—Dismissal from lecture and counted absent
  o Second Offense—Student will be dropped from the course
➢ TI-89 and *n*-Spire calculators—As the TI-89 can symbolically differentiate as well as integrate, the use thereof is prohibited; as the *n*-Spire calculator can save webpage information, the use thereof is prohibited; cell phone calculator usage is also disallowed; repeated violation will result in the ***dismissal of the Student from the course***
➢ Pen for doing graded work—Use thereof in said circumstance will result in a zero percent (0%) for the assignment in question
  o All work must be shown in pencil
  o Writing each question in pen is permitted
  o Circling/boxing answers in pen/highlighter is allowed
➢ Notes on exams—Use thereof in said circumstance that is not permitted by the Instructor will result in the immediate dismissal of the Student from the course.
➢ Student Solutions Manuals during class time—Use thereof in said circumstance will result in the Student being dismissed from the classroom and being counted as absent for the day in question

If the Student has any concerns pertaining to the information above on this page, then the Student is to contact the instructor by the means stated in this document. The Instructor cannot be reasonably expected to address any such concerns if no communication is had with the Student.

Grading Policy

90% or above	A		Homework Notebooks:	4 @ 5% each;
80-89%	B		graded during each exam	
70-79%	C		In-class examinations:	4 @ 15% each;
60-69%	D		based on set of outcomes	
59% or below	F		Final Examination:	20%

*All grades are rounded from the first decimal. Borderline grades (within 2% of the minimum) will be handled by the Instructor based on the Student's compliance with the Syllabus. Upon the submission of grades at the end of the session, **ALL GRADES ARE FINAL!**

HW Grading Rubric

This is the rubric that will be used for the four (4) homework (HW) notebook checks during the semester and the Instructor will hold to this rubric. Each HW notebook check will be worth **5 points** with students required to *have the notebook ready at all times*. There will be 5 criteria evaluated at each check, with each criterion receiving a standard maximum of 1 point:

1. All problems in each section (up to the current section at that time) are attempted, or no more than 1 problem is missing for every 10 problems assigned.
    a. 1 point if satisfied; +0.25 point if all are attempted and worked
    b. 0.5 point if partially satisfied
    c. 0 points if not satisfied
2. All work is shown for *each* problem, and the Student is using an **authorized** calculator in this course.
    a. 1 point if satisfied; +0.25 point if *all* answers are correct with work shown
    b. 0.5 point if at least half of the problems have work shown with answers
    c. 0.25 point if less than half of the problems have work shown with answers
    d. 0 points if no work is shown with answers OR an unauthorized calculator is used
3. HW is organized based on the lecture calendar, is kept in a 3-ringed binder as per the Syllabus, and is grouped based on the mid-term exams.
    a. 1 point if completely satisfied; +0.15 point if a copy of the Syllabus is inside; +0.1 point if separated with tabbed sheets
    b. 0.5 point if kept in a folder/spiral notebook OR if out of order
    c. 0 points if not satisfied
4. HW is made available upon request (on time) with all work done in pencil.
    a. 1 point if completely satisfied; +0.25 point if Acknowledgment of Receipt is submitted before Week 3
    b. Prorated deduction for all sections not satisfied
    c. 0 points for entire assignment if late
5. Student correctly applies the information presented in the lecture to HW.
    a. 1 point if completely satisfied;
    b. 0.5 point if not completely satisfied, but work is attempted for all sections
    c. 0 points if all sections are not satisfied

Holiday/Travel Statement

If you the student have pre-existing plans to travel out of the area during scheduled class times, you must inform me by **NO LATER THAN Friday, September 13, 2013**. Failure to do so will result in the forfeiture of any assignments that will come into question during your dates of absence. These assignments will not be replaced or allowed for make-up work.

Religious Holy Days

In accordance with Section 51.911, Texas Education Code, South Plains College will allow a student who is absent from class for the observance of a religious holy day to take an examination or complete an assignment scheduled for that day within seven (7) calendar days after the absence. Students are required to file a written notification of absence with each instructor within the first fifteen (15) days of the semester in which the absence will occur. Forms for this purpose are available in the Student Services Office along with instructions and procedures. "Religious holy days" means a holy day observed by a religion whose place of worship is exempt from property taxation under Section 11.20, Tax Code.
(Copied from current South Plains College Catalog)

Final Examination Policy

There will be a final examination for this course. ***All students are required to take this exam at the appointed time listed herein unless the above statement applies.*** Also, due to the insurance of outcomes assessment, there will be no exemption from the final exam for this course. ***If any exam is missed, then the final will replace only one such exam upon the instructor being notified <u>before</u> the exam is scheduled.*** All other exams missed will receive a 0% grade or be handled at the instructor's discretion. **Failure to take the final exam when required to do so will result in a 0% for the exam and an "F" for the course!**

Equal Opportunity, Disability, and Diversity Statements

South Plains College strives to accommodate the individual needs of all students in order to enhance their opportunities for success in the context of a comprehensive community college setting. It is the policy of South Plains College to offer all educational and employment opportunities without regard to race, color, national origin, religion, gender, disability or age.

Levelland Campus– Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability. For more information, call or visit the Disability Services Office in the Health & Wellness Center, 806-716-2577.

In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Sexual Misconduct Confidentiality Statement

As a faculty member, I am deeply invested in the well-being of each student I teach. I am here to assist you with your work in this course. If you come to me with other non-course-related concerns, I will do my best to help. It is important for you to know, however, that all faculty members are mandated reporters of any incidents of sexual misconduct. That means that I cannot keep information about sexual misconduct confidential if you share that information with me.

Dr. Lynne Cleavinger, the Director of Health & Wellness, can advise you confidentially as can any Counselor in the Health & Wellness Center. They can also help you access other resources on campus and in the local community. You can reach Dr. Cleavinger by phone at 716-2563, by e-mail at lcleavinger@southplainscollege.edu, or by going to the Health & Wellness Center. You can schedule an appointment with a Counselor by calling 716-2529.

The "Course Fishing" Rule

This rule has been implemented for the Fall Semester of 2007 and is effective hereafter. As per House Bill 116 (Senate Bill 1231) of the Texas legislature, *all* students will be limited to a total of six (6) mid-semester withdrawals for their entire undergraduate academic career. A mid-semester withdrawal is one that occurs after the twelfth (12th) class day and is noted on the student's transcript as a "W", and upon the student receiving the sixth W, all future attempts to withdraw from a course mid-semester will be denied. As a result, a terminal course grade (A, B, C, D, or F) will be issued for the course in question. This does not include any withdrawals acquired by the student before the Fall Semester of 2007, so the count for each student under this rule is currently zero (0). **BE SURE OF YOUR INTENTIONS TO FINISH OUT THE COURSE BEFORE CONTINUING!**

Mr. Robert E. Plant, II
Fall 2016 Lecture & Homework Calendar
MATH 1324

Week (Dates)	Week Day 1	Week Day 2
1 (8/29 to 9/2)	1.1, 1.2	2.1, 2.2
2 (9/5 to 9/9)	**Labor Day Holiday**	2.3, 2.4
3 (9/12 to 9/16)	2.5	2.6
4 (9/19 to 9/23)	**Exam 1**	3.1, 3.2
5 (9/26 to 9/30)	3.3	3.4
6 (10/3 to 10/7)	**Exam 2**	4.1
7 (10/10 to 10/14)	4.2	4.3
8 (10/17 to 10/21)	4.4	4.5
9 (10/24 to 10/28)	4.6	4.7
10 (10/31 to 11/4)	**Exam 3**	5.1, 5.2
11 (11/7 to 11/11)	5.3, 6.1	6.2
12 (11/14 to 11/18)	6.3	6.4
13 (11/21 to 11/25)	**Exam 4**	**Thanksgiving Holiday**
14 (11/28 to 12/2)	A.2, A.3	A.4, A.5
15 (12/5 to 12/9)	A.6, A.7	Final Exam Review
16 (12/12 to 12/16)	**FINAL EXAMINATION SCHEDULE** **Monday, 12/12, 10:15-12:15 (Section 001)** **Monday, 12/14, 15:15 -17:15 (Section 002)** **ORIGINAL CLASSROOMS**	

The homework will be every 3rd problem from each section. The starting and stopping points will be given at the end of each class. If you fail to show up to class, then you will be required to *literally* do every 3rd problem. Do NOT ask the Instructor for information given in class if you are absent!
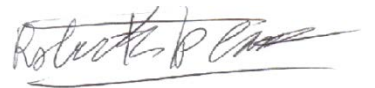
ACKNOWLEDGMENT OF RECEIPT

As a student in this course, I hereby acknowledge that I have received, read, and clearly understood the syllabus. Furthermore, I hold myself accountable for adhering to the expectations stated therein. I also acknowledge that it is my duty and responsibility to notify the instructor of all personal situations that affect my standing in this course before any occur. I am fully aware that any breach of said expectations and responsibilities will result in any necessary consequences that the instructor has stated to me through the syllabus, and that any differences of opinion will be discussed with the instructor in a manner befitting of adults. Finally, in the event of a later dispute by me, I will refer to the syllabus and will, by my signature, forfeit any pursuit that is not backed by the Syllabus.

_____   _____

Student's Printed Name   Date of Acknowledgment

_____

Student's Signature   Instructor's Signature

Monday & Wednesday Schedule		Tuesday & Thursday Schedule	
Class	**Time**	**Class**	**Time**