Dr. Donald Adongo, FH 6A-2

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Office Hours: MTRF 11:30 am – 12:20 pm; and by appointment

Section 1 CRN 84460

Meeting: 9:30 am – 10:20 am MTRF FH 309

http://campus.murraystate.edu/faculty/dadongo

DEPARTMENT: MATHEMATICS AND STATISTICS

COURSE PREFIX: MAT **COURSE NUMBER: 120** **CREDIT HOURS:** 4

I. TITLE:

College Algebra with Business Applications

II. COURSE DESCRIPTION AND PREREQUISITE(S):

A study of algebra with motivating examples and applications from various fields of business. Topics include linear, quadratic, rational, exponential and logarithmic equations and functions, systems of linear equations and the mathematics of finance. Restriction: A student may not receive credit for MAT 120 and MAT 130 or 140 or 150.
Prerequisite(s): ACT Math standard score of at least 21 or MAT 097.

III. COURSE OBJECTIVES:

The student will be able to:

A. apply algebraic techniques to manipulate equations and expressions;
B. solve linear, quadratic, basic polynomial, rational, and root equations;
C. solve exponential and logarithmic equations;
D. solve systems of equations;
E. construct cost, demand, supply, revenue, elasticity, and profit functions and understand their import;
F. compute average rate of change of a function and understand its significance;
G. use the Cartesian Coordinate system to analyze these functions;
H. use the knowledge of the above to translate an application problem from English words to a Mathematical context;
I. solve the resulting mathematical problem using techniques from above, and then reinterpret the mathematical solution;
J. compute applications regarding time dependence of the value of money such as compound interest, loans, and annuities.

IV. CONTENT OUTLINE:

A. Fundamentals
    1. Sets and Real numbers
    2. Ordering and absolute values
    3. Exponents and radicals
    4. Rational expressions
    5. Factoring
    6. Fractions

B. Equations and inequalities in one variable
    1. Linear equations, and equations leading to linear equations
    2. Quadratic equations and equations leading to quadratic equations
    3. Applications of equations.
    4. Linear and absolute value inequalities
    5. Applications of inequalities

C. Functions
    1. Functions and special functions
    2. The algebra of functions
    3. Linear functions
    4. Quadratic functions
    5. Applications of linear and quadratic functions
    6. Systems of linear equations
    7. Applications of systems of equations

D. Exponential and logarithmic functions
    1. Exponential functions

2. Logarithmic functions
3. Properties of Logarithms
4. Logarithmic and exponential equations

E. Mathematics of Finance

1. The time-dependent value of money
2. Compound interest
3. Present value
4. Annuities
5. Amortization of Loans

V. INSTRUCTIONAL ACTIVITIES:

A. The development of mathematical skills requires hands-on experiences by the student. With this in mind, activities and assignments are chosen to allow students to study and practice the mathematical skills introduced in the course. In the classroom an interactive format is used; student input is critical to the presentation of the day's material. On occasion, the class is broken into small groups where students work in teams to solve more complicated problems, wrestle with challenging concepts and experience the synthesis of knowledge that occurs in explaining concepts to one another. Students are encouraged to continue these small group experiences by forming study partner relationships with other members of the class.

B. The development of the mathematical framework is a continuous exercise in critical thinking. Applied problems are approached by a four step process: 1) read and understand the problem -- illustrate the situation by a diagram or table; 2) develop a strategy -- look for patterns, think of analogous problems, find a way to connect the known information with the unknown; 3) carry out the strategy; and 4) interpret the results within the context of the original situation. Students are expected to be able to explain their steps with words, graphs and/or charts and tables; this explanation is a fundamental part of the problem.

VI. FIELD, CLINICAL, AND/OR LABORATORY EXPERIENCES:

None

VII. TEXT(S) AND RESOURCES:

College Mathematics for Business, Economics, Life Sciences, and Social Sciences by Barnett, Ziegler and Byleen.

VIII. EVALUATION AND GRADING PROCEDURES:

A. Your course grade will be based on Exams, Homework (written), Online Assignments, and the Final Exam. Sixty percent of the course grade will come from 4 major exams (each exam counts 15 percent of the grade), the written homework and online assignments are each worth ten percent, whereas twenty percent of the course grade will come from the final exam.

Grading Scale:

90 - 100 %	A
80 - 89 %	B
70 - 79 %	C
60 - 69 %	D
Below 60%	E

Exams: Exams are used to assess the student's development of mathematical skills, their understanding of key concepts and their ability to express this understanding via numerical and graphical and narrative methods. Critical thinking and mathematical writing are major components of exams. These skills are evaluated in terms of clarity, organization, notation, correctness of mathematical procedures and ability to explain results. The Exams will test your comprehension of concepts and skills not covered on a previous exam. Exams occur for everyone (to be fair to everyone) on the scheduled date. Sometimes, however, extenuating circumstances do exist. If you absolutely must miss an exam, you are to stop by or call me (or leave a message with the office if I am not in when you call) before the exam to tell me why you cannot be at the exam. In addition, you must complete the "missed exam form" (see the course website) within one day. If you do not, you will get a zero on that exam with no opportunity to make it up. An excused missed exam will be made up in my office within two days (an extension may be granted in rare cases), with the grade to be determined as explained at that time. Our four exams will be **August 30, September 20, October 18**, and **November 11**.

Final: The Final will be a comprehensive exam covering any material addressed that semester. The Final exam will be on **Tuesday, December 6th** at **9:30 a.m**. in **FH 309**.

Homework: Homework (written) will be assigned at the beginning of each section and will also be listed on the course web site. Homework will be collected at least once a week (generally Mondays). **(No Late Homework)**. Homework must be completed in pencil, separate from your notes, and on loose-leaf paper or paper without rough edges. **Staple** your papers together if you have used more than one sheet otherwise your homework **will not be graded**. Your name and class meeting time should be written on the top right part of the first page.

Online Assignments: These are located at **www.MyMathLab.com**. The instructor will give you the Course ID. You will generally have two (2) attempts on each set of problems. The assignments will be available at the beginning of each section covered and will automatically switch off on the due dates. It is your responsibility to check online assignments at the start of any new sections.

Important Grade-dates: The last day to drop a course without receiving a grade (or a W) is Monday, August 22. The last day to drop individual courses and receive a grade of "W" (no penalty) is Tuesday, November 15. The last day to change a full semester class from AUDIT to CREDIT is Monday, August 22. The last day to change a full semester class from CREDIT to AUDIT is Tuesday, November 15.

No classes during Labor day September 5, Fall break October 6-7, and Thanksgiving November 23-25.

B. **Auditing**: If you seek to change your status to audit, you must continue to do all the graded assignments, to attend classes regularly after the audit is given, to miss no more than 2 class periods after the audit is given, and to maintain at least a 40% average in the course. If these requirements are not followed, then an "E" will be earned for this course.

IX. ATTENDANCE POLICY:

Students are expected to adhere to the MSU Attendance Policy outlined in the current MSU Bulletins.

Class attendance will be taken daily. If you miss class you are responsible for obtaining the day's notes and assignments. While you are not graded on class attendance, you are expected to attend every class period or your grade will suffer (indirectly) if you do not attend. If you miss three or fewer days (or do not miss at all) this semester, I will drop your four lowest online assignment scores and two written homework scores. To level the playing field between those who must miss classes because of MSU and those who do not, the only kind of absence which will not be counted in this regard is a university-required absence. Thus, anything else (for instance, being sick, going on a job interview, taking care of a sick relative, etc.) will count as one of these absences.

Note the following provisions on arriving late to class or leaving early:

Every two tardies (arriving late) will count as an absence.

Leaving class early will count as an absence unless you provide me with a reason in advance.

X. ACADEMIC HONESTY POLICY:

Murray State University takes seriously its moral and educational obligation to maintain high standards of academic honesty and ethical behavior. Instructors are expected to evaluate students' academic achievements accurately, as well as ascertain that work submitted by students is authentic and the result of their own efforts, and consistent with established academic standards. Students are obligated to respect and abide by the basic standards of personal and professional integrity.

Violations of Academic Honesty include:

Cheating - Intentionally using or attempting to use unauthorized information such as books, notes, study aids, or other electronic, online, or digital devices in any academic exercise; as well as unauthorized communication of information by any means to or from others during any academic exercise.

Fabrication and Falsification - Intentional alteration or invention of any information or citation in an academic exercise. Falsification involves changing information whereas fabrication involves inventing or counterfeiting information.

Multiple Submission - The submission of substantial portions of the same academic work, including oral reports, for credit more than once without authorization from the instructor.

Plagiarism - Intentionally or knowingly representing the words, ideas, creative work, or data of someone else as one's own in any academic exercise, without due and proper acknowledgement.

Instructors should outline their expectations that may go beyond the scope of this policy at the beginning of each course and identify such expectations and restrictions in the course syllabus. When an instructor receives evidence, either directly or indirectly, of academic dishonesty, he or she should investigate the instance. The faculty member should then take appropriate disciplinary action.

Disciplinary action may include, but is not limited to the following:

1) Requiring the student(s) to repeat the exercise or do additional related exercise(s).
2) Lowering the grade or failing the student(s) on the particular exercise(s) involved.
3) Lowering the grade or failing the student(s) in the course.

If the disciplinary action results in the awarding of a grade of E in the course, the student(s) may not drop the course.

Faculty reserve the right to invalidate any exercise or other evaluative measures if substantial evidence exists that the integrity of the exercise has been compromised. Faculty also reserve the right to document in the course syllabi further academic honesty policy elements related to the individual disciplines.

A student may appeal the decision of the faculty member with the department chair in writing within five working days. Note: If, at any point in this process, the student alleges that actions have taken place that may be in violation of the Murray State University Non-Discrimination Statement, this process must be suspended and the matter be directed to the Office of Equal Opportunity. Any appeal will be forwarded to the appropriate university committee as determined by the Provost.

In this Course, violations of Academic Honesty will result in a failing grade awarded on the particular exercise involved.

XI. NON-DISCRIMINATION POLICY AND STUDENTS WITH DISABILITIES:

Murray State University endorses the intent of all federal and state laws created to prohibit discrimination. Murray State University does not discriminate on the basis of race, color, national origin, gender, sexual orientation, religion, age, veteran status, or disability in employment, admissions, or the provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities equal access to participate in all programs and activities. In particular and without limiting the preceding and pursuant to and consistent with the requirements of Title VI of the Civil Rights Act of 1964 and its regulations 34 CFR 100 et seq.; Section 504 of the Rehabilitation Act of 1973 and its regulations 34 CFR 104; Title IX of the Education Amendments of 1972, 20 USC 1681 et seq., and its regulations 34 CFR 106 et seq; and the Age Discrimination Act of 1975 and its regulations 34 CFR 110, Murray State University does not discriminate on the basis of race, color, national origin, sex, handicap, or age in its educational programs and activities. This non-discrimination in education programs and activities extends to employment and admissions and to recruitment, financial aid, academic programs, student services, athletics, and housing. Murray State is required by Title IX and 34 CFR part 106 not to discriminate on the basis of sex and the prohibition against sex discrimination specifically includes a prohibition of sexual harassment and sexual violence. For more information contact the Executive Director of Institutional Diversity, Equity, and Access/ Murray State University Title IX Coordinator, Murray State University, 103 Wells Hall, Murray, KY 42071 Telephone: (270) 809-3155 Fax: (270) 809-6887; TDD: (270) 809-3361; Email: msu.titleix@murraystate.edu

XII. Other required departmental or collegiate committee information

Electronic Communication Policy: It is the default policy of the Department of Mathematics and Statistics that, without the prior consent of the course instructor, no device may be used for electronic communication in class. This shall include cell phones, smart-phones, computers, laptops, and tablets. In addition, this includes verbal calling, incoming calls, email, text messaging, the use of cell phone calculators on tests and quizzes, and the use of the wireless capabilities of calculators or other electronic devices. Unless given special permission in advance from the course instructor for potential cases of emergency or critical family situations, cell phones must be kept on silent and out of sight (i.e. secured to a person's belt or kept in a bag or purse away from desks). Should a student's cell phone be visible, ring, or should the student be engaged in some other form of unauthorized usage that the course instructor finds to be disruptive to the class, the student may be asked to leave class and not return for that class period, and be counted absent for that day. Similar restrictions and penalties apply to use of other electronic devices, unless permitted by the instructor for that class period. *In particular, I will count absent for that day any one texting during this class.*

Please fill out this portion, detach and return to the instructor by **Friday August 19, 2016**.

By my signature below, I certify that I have received a copy of the course syllabus for MAT 120-(01) taught by Dr. Donald Adongo during the Fall Semester of 2016. Furthermore, I certify that I have read and understand the contents of the course syllabus.

Printed Name: .....

Signature: .....

Date: .....