MA 111 College Algebra

Mississippi Valley State University
Fall 2018

College: Arts & Sciences **Department:** Department of Mathematics, Computer & Information Sciences

Course Number: MA 111 **Course Name:** College Algebra

Instructor: Mr. E. Holman, Jr. **Office:** lab 108/109

Time: Tuesday & Thursday 9:25am – 10:40am Room 203 CRB

Office Hours: Tuesday 11:00am – 1:00pm & 2:00pm – 4:00pm, Wednesday 10:00am – 11:00am & 2:00pm – 3:00pm, Thursday 11:00am – 12:00pm & 1:00pm – 4:00pm

Office Number: 106A

Telephone: 662.254.3917

Email: *edgar.holman@mvsu.edu*

Course Description:
Exponents and radicals, polynomials, factoring, functions and graphs, linear and quadratic equations inequalities systems of equations

Course Credit
3 hours

Prerequisites
It is preferred that students would have completed several courses in advance mathematics in high school and have a subtest score of 20 or above on the mathematics portion of the ACT.

Purpose/Rationale
This course will serve as a tool to provide the necessary background in algebra for students who need additional preparation for the study of higher mathematics and related courses in fields such as the sciences, business and education. Students are expected to read extensively from the textbook and spend a considerable amount of time solving problems to help understand the concepts. This course will allow students the opportunity to use mathematics more effectively as a problem- solving tool in their personal and professional lives. A combination of exercises and activities will be included to help all students acquire certain skills that must be embedded in every

potential holistic transformer. Topics will be taken from chapters throughout rather than chapter by chapter coverage.

Course Objectives And Goals

The objectives and goals of this course are:

1. To provide students with adequate exposure and subject matter to prepare them for a more in-debt study of upper level mathematics courses.
2. To help students develop their critical thinking, technological and mathematical writing skills.
3. To help students develop a step-by-step procedure for solving problems.
4. To prepare students to communicate mathematically both orally and in writing.

Course Content:

Text (REQUIRED)

Sisson, R. (2008). **College Algebra. 2nd ed.** Charleston, SC: Hawkes Learning Systems/Quant Systems, Inc.

Major Areas of Study:

1. Number Systems and Fundamental Concepts of Algebra

1.6 The Complex Number System

2. Equations and inequalities in one variable

2.1 Linear equations in one variable

a. Equivalent equations and the meaning of solutions
b. Solving linear equations
c. Solving absolute value equations
d. Solving linear equations for one variable
e. Interlude: Distance and Interest Problems

2.2 Linear Inequalities in one variable

a. Solving linear inequalities
b. Solving compound linear inequalities
c. Solving absolute value inequalities

2.3 Quadratic Equations in one variable

a. Solving quadratic equation by factoring
b. Solving "perfect square" quadratic equations
c. Solving quadratic equation by completing the square
d. The quadratic formula

2.4 Higher Degree Polynomials Equations

a. Solving quadratic-like equations
b. Solving general polynomial equations by factoring

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c. Solving polynomial-like equations by factoring

2.5 Rational expressions and equations
- a. Simplifying rational expressions
- b. Combining rational expressions
- c. Simplifying complex rational expressions
- d. Solving rational equations

2.6 Radical equations
- a. Solving radical equations
- b. Solving equations wit positive rational exponents

3. Linear equations and inequalities of two variables

3.1 The Cartesian coordinate system
- a. The components of the Cartesian coordinate system
- b. The graph of an equation
- c. The distance and midpoint formulas

3.2 Linear equations in two variables
- a. Recognizing linear equations in two variables
- b. Intercepts of the coordinate axes
- c. Horizontal and vertical lines

3.3 Forms of linear equations
- a. The slope of a line
- b. Slope-intercept form of a line
- c. Point-slope form of a line

3.4 Parallel and perpendicular lines
- a. Slopes of parallel lines
- b. Slopes of perpendicular lines

3.6 Introduction to Circles
- a. Standard form of a circle
- b. Graphing circles

4. Relations, functions, and their graphs

4.1 Relations and functions
- a. Relations, domain, and ranges
- b. Functions and the vertical line test
- c. Functional notation and function evaluation
- d. Implied domain of a function

4.2 Linear and Quadratic functions
- a. Linear functions and their graphs
- b. Quadratic functions and their graphs

4.5 Combining Functions
- a. Combining functions arithmetically
- b. Composing functions

4.6 Inverse Functions
- a. Inverses of relations

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b. Finding inverse function formulas

5. Polynomial Functions
5.2 Polynomial division and the division algorithm
a. Polynomial long division and synthetic division
5.3 Locating Real Zeros of Polynomials
a. The Rational Zero Theorem

8.1 Solving systems by substitution and elimination
a. Definition and classification of linear systems of equations
b. Solving systems by substitution
c. Solving systems by elimination

(**OPTIONAL)**
7. Exponential and Logarithmic Functions
7.1 Exponential Functions and Their Graphs
7.2 Applications of Exponential Functions
7.3 Logarithmic Functions and Their Graphs
7.4 Properties and Applications of Logarithms
7.5 Exponential and Logarithmic Equations

Student Learning Outcomes
After successfully completing the course, the student will be able to do the following:

- Express relationships using the concept of a function and use verbal, numerical, graphical and symbolic means to analyze a function.
- Model situations from a variety of settings by using polynomial, exponential and logarithmic functions.
- Manipulate mathematical information, concepts, and thoughts in verbal, numerical, graphical and symbolic form while solving a variety of problems which involve polynomial, exponential or logarithmic functions.
- Apply a variety of problem-solving strategies, including verbal, algebraic, numerical, and graphical techniques, to solve multiple-step problems involving polynomial, exponential, logarithmic equations and inequalities and systems of linear equations.
- Shift among the verbal, numeric, graphical and symbolic modes in order to analyze functions.
- Use appropriate technology in the evaluation, analysis and synthesis of information in problem-solving situations.

Teaching Methods
The method used to accomplish the goals and objectives of this course include a combination of lectures, demonstrations, class discussions, use of technology and group activities.

Technology Infusion

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The text is accompanied by a *cd* that serves as supplementary material to the text. This *cd* also contributes to completion of homework, quizzes, and exams given by the instructor. Also, the students may use calculators in this course. (**No sharing of calculators allowed/No cell phones may serve as calculators)**. Students are also encouraged to use the internet to explore other activities on a given concept.

Major Student Activities
(Including attendance policy, make-up policy, etc…)

Class Requirements:

- Every student must have a textbook or Access Code from Hawkes.
- An organized notebook consisting of all the students' work should be neatly kept.
- The notebook should contain lecture notes and all homework assignments properly labeled
- Students are expected to attend class, take notes, and carefully complete all homework assignments and submit them when due. Incomplete or late assignments will not be accepted.
- Students are strongly encouraged to participate in all class activities.
- Failure to make up an exam or other work will result in a grade of zero.
- Students are expected to pass written examinations based on classroom lectures and homework assignments.
- Any individualized problems should be discussed in the office and not in the classroom.
- DO NOT wait until the end of the semester to ask for help. Use my office hours, as well as tutors, if and when you may need extra practice.

Evaluation Criteria
The evaluation methods, with exception to the midterm and final exam, may vary with instructors. **(See Final Exam below)**

Grading Scale

Score (Average)	Grade
90-100	A
80-89	B
70-79	C
60-69	D
Below 60	F

Classroom Activities (Quizzes, Exams, Journal, etc…)……25%
Homework……25%
Midterm……25%
Final Exam……..25%

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Quizzes and Homework
There will be a quiz and a graded homework assignment given during each week. They must be completed before each **expiration date and time**. **No extension will be given**. You must be in "Certify" in order for the software to record your score. **NOTE: You will not be given help on your quizzes or tests.**

Make-Up Policy
No make-up work will be allowed. All students can make up a missed exam with an approved absence. If an exam is missed due to a serious verifiable circumstance, the zero exam grade will be replaced with the final exam grade (see Replacement Policy)**.** Students who must miss work due to official University business must make other arrangements **beforehand.**

Replacement Policy
Zeros due to an unexcused absence or academic misconduct **will not be replaced.** Students who miss an exam but have an excused must turn in an official university excuse and supporting documents within **two days of missed work.** The missed exam will be replaced if the instructor verifies the excuse.

Final Exam
The final exam is a comprehensive examination consisting of all topics covered. The final exam is common to all MA 111 courses. **The time and date of the final exam will be announced.** Students *should not* bring personal items (backpacks, cell phones, etc…) to the testing area. However, students should bring two (2) pencils and a calculator (optional) to the exam site.

Attendance Policy
It is necessary for students to attend every class meeting and lab sessions. Any student who misses more than the allowed number **(3)** of absences will be subject to a decrease in their final grade. * **Three tardies will be counted as an absence**.

ADA/Special Needs Statement
Students having any special needs (handicaps, problems, or any factors that may affect their performance in class or require special instructional strategies) should make these special needs known to the instructor during the **first week** of the course. The instructor meets with the student to insure access of available resources in the university and make appropriate instructional modifications.

APA Accommodation:

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If you have a disability that qualifies under the American with Disabilities Act (ADA) and require accommodations, contact the Services for Students with Disabilities (SSD) program for information on appropriate policies and procedures. Disabilities covered by ADA may include learning, psychiatric, physical disabilities, or chronic health disorders. You can contact SSD if you are not certain whether a medical condition/disability qualifies. (see INFO BELOW)

Mississippi Valley State University is committed to providing reasonable accommodations for students with a documented disability. If you feel you are eligible to receive accommodations for a covered disability (medical, physical, psychiatric, learning, vision, hearing, etc.) and would like to request it for this course, you must be registered with the Services for Students with Disabilities (SSD) program administered by University College. It is recommended that you visit the Disabilities Office located inside the EMAP Computer Lab in the Technical Education (IT) Building to register for the program at the beginning of each semester. If you are determined to be eligible after your confidential consultation, you will be provided with a Memo of Accommodations that must be submitted to each of your instructors.

For more information or to schedule an appointment, please contact Mr. Billy Benson, Jr.

Mr. Billy Benson, Jr., ADA Coordinator
Mississippi Valley State University
Office for Disability Accommodations, EMAP Computer Lab
Technical Education (IT) Building
Itta Bena, MS 38941
Telephone: 662-254-3005 or University College: 662.254.3442
Email: billy.benson@mvsu.edu

Cheating, Plagiarism/Academic Integrity and Penalties:
Cheating is a serious offense and will not be tolerated. You are expected to complete your own work for the homework assignments submitted on Hawkes Learning Systems for a grade, although you are free to seek assistance with similar problems before submitting your homework problems. Any student(s) found cheating on homework or any other class activity will be subject to disciplinary action. Penalties for academic dishonesty might include the assignment of an "F" for the course grade and/or other administrative penalties consistent with the policies of the university.

Pagers or Cell Phones
No cell phones or any other electronic device will be allowed for usage in class. You may bring a calculator for the benefit of computing during class.
Class Disturbance/Distractions

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Any student who intentionally disrupts class may be kindly asked to leave the class for the remainder of the class setting.

Arriving late/tardy to class.
If a student arrives after class has begun, the student is to quietly enter the room and have a seat without disturbing the class. It is advantageous for the student to arrive on time as many activities will be timed. * **Three tardies will be counted as one absence.**

Attention!!! All work that is turned in for a grade MUST be done in pencil and it must be written legibly and dark enough to be understood!

Calendar of Activities/Course Outline/Schedule
***This is left entirely to the discrepancy of the instructor. A detailed schedule of events may be given to the student within one week of receiving this document.**

NOTE: Failure to adhere to any of the preceding statements could cause a decrease in the FINAL GRADE!!!!!!

Bibliography

Barnett, R., Ziegler, M., & Byleen, K. (2001). College Algebra (7th ed.). McGraw-Hill.

Crisler, N. and Froelich, G. (2002). College Algebra: Modeling Our World. W.H. Freeman & Company.

Dwyer, D. and Gruenwald, M. (2000). College Algebra A Contemporary Approach. (2nd ed.). Brooks/Cole Publishing Company.

Gustafson, R. & Frisk, P. College Algebra (7th ed). Brooks/Cole -Thomas Learning Publishing Company.

Kaufmann, J. (2001). College Algebra (5th ed). Brooks/Cole Publishing.

McKeague, C. (2000). Elementary Algebra (6th ed). Saunders College Publishing Co.

*Other resources available in the MVSU library

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