Department of Mathematics, Computer and Information Sciences
Mississippi Valley State University
MA 111-2, College Algebra
Fall, 2017

College	**Department**	**Course #**
Arts and Sciences	**MCIS**	**MA111-2(College Algebra)**
Instructor	**Class Meetings-Location/Time:**	**Office Location:**
Dr. Xiaoqin Wu	TH 8:00 – 9:15pm CRB 206	CRB 148
Office Phone:	**E-mail Address:**	**Office Hours:**
254 – 3402 254 – 3422 (main office)	xpwu@mvsu.edu	MWF 9:00 - 12:00 noon TH 11:00 – 12:00 noon

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. Otherwise MA 100B is a prerequisite for this course.

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
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

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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
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

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(**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 functions
- Manipulate mathematical information, concepts, and thoughts in verbal, numeric, graphical and symbolic form while solving a variety of problems which involve polynomial functions.
- Apply a variety of problem-solving strategies, including verbal, algebraic, numerical, and graphical techniques, to solve multiple-step problems involving polynomial 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
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.

> ***Note** *You are responsible for submitting your work to my online gradebook. I do not have control over technical issues you may encounter with YOUR computer at home. Therefore, if you do no submit your work to me by the deadline because of technical issues, then you should find another avenue to do your work. (The Math Lab 108/109 is open for your convenience from 8am-5pm).*

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

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Class Requirements:

- Every student must have a textbook and must bring it to class.

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 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 ……..…55%

Quizzes [20%]
Exams 1 & 3 [20%]
Exam 2 (MIDTERM) [15%]

Homework…….……..20%
Final Exam…….…….....25%

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.**

Working From Home

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The MA 111 course work can be done on your personal computer. However, there is a risk when working outside the Lab. Internet access is required to reach the website where the notes and quizzes are found. **Students doing graded work from home risk grades not being properly saved**. If scores are not successfully sent from home and the deadline passes, you will NOT be able to make up the work.

> ***Note** *You are responsible for submitting your work to my online gradebook. I do not have control over technical issues you may encounter with YOUR computer at home. Therefore, if you do no submit your work to me by the deadline because of technical issues, then you should find another avenue to do your work. (The Math Lab 108/109 is open for your convenience from 8am-5pm).*

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 final exam will be given on TUESDAY OF FINALS WEEK from 3-5pm lecture students in Social Science Auditorium and ONLINE for online students**.) 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.

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.

For more information or to schedule an appointment, please contact:

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 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
The volume of cell phones and pagers must be turned **off/vibrate** if you have these items with you in class. The noise is distracting not only to the instructor but to your classmates as well.

Calendar of Activities/Course Outline/Schedule

Exam 1 Material

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Week	Dates	Section/ Time Required	Section Title	Important Information	Total Time Required
1	8/21-8/25	Intro to Class/Lab **(50 min)**	Introductions, Syllabus, Hawkes Orientation, Lab accounts, Temporary Access Codes, Review, Homework Assignment	**8/21 Classes Begin** Late Registration Fee - $100.00 Assessed	**150 min**
		Pre-TEST **(50 min)**	Pre-TEST		
		1.6 **Learn, Practice,Certify** **(50 min**)	REVIEW		
2	8/28-9/1	2.1 **Learn, Practice, Certify** **(50 min**)	Linear Equations in One Variable		**150 min**
		2.2 **Learn, Practice, Certify** **(50 min)**	Linear Inequalities in One Variable		
		QUIZ 2.1-2.2 **(50 min)**	-Attempt 1 -Attempt 2		
3	9/4/-9/8	**9/ 4 (MONDAY) Labor Day Holiday—NO CLASS**			
		2.3 **Learn, Practice, Certify** **(50 min**)	Quadratic Functions in One Variable -Factoring -Square Root Property		**100 min**
		QUIZ 2.3 (Part 1) **(50 min)**	-Attempt 1 -Attempt 2		

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4	9/11-9/15	2.3 **Learn, Practice, Certify (50 min**)	Quadratic Functions in One Variable -Completing the Square -Quadratic Formula	**9/11 MONDAY Last Day to Drop/Add Classes Registration Closes**	**150 min**
		2.4 /EXAM 1 REVIEW **Learn, Practice (50 min**)	**Higher Degree Polynomials/EXAM 1 REVIEW**		
		Exam 1 **(50 min)**			

Exam 1 *is Friday, 9/15.Failure to report for exam will result in a penalty. See exam rules.*

Exam 2 Material

Week	Dates	Section no	Section Title	Important Information	Total Time Required
5	9/18-9/22	2.5 **Learn, Practice, Certify (50 min**)	Rational Expressions and Equations		**150 min**
		2.6 **Learn, Practice, Certify (50 min**)	Radical Equations		
		QUIZ 2.5-2.6 **(50 min)**	-Attempt 1 -Attempt 2		
6	9/25-9/29	3.1 **Learn, Practice, Certify (50 min**)	The Cartesian Coordinate System		**150 min**
		3.2 **Learn, Practice,**	Linear Equations in Two Variables		

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		Certify (50 min)			
		Quiz 3.1-3.2 **(50 min)**	-Attempt 1 -Attempt 2		
7	10/2-10/6 **MIDTERMS WEEK**	MIDTERM REVIEW **Practice (50 min)**	Unlimited Attempts		**175 min**
		Midterm Exam **(50 min)**	**MIDTERM EXAM WEDNESAY, Oct 4**		
		Algebra Research Project (75 min)	*Instructor will distribute/post information		
8	10/9-10/13	3.3 **Learn, Practice, Certify (50 min**)	Forms of Linear Equations	**10/9*Monday-10/11Wednesday*** Academic Advisement **10/12 *Thursday*** Online Registration begins for Spring 2018	**150 min**
		3.4 **Learn, Practice, Certify (50 min**)	Parallel and Perpendicular Lines		
		Quiz 3.3-3.4 **(50 min)**	-Attempt 1 -Attempt 2		

MIDTERM *is 10/4. Failure to report for exam will result in a penalty. See exam rules.*

Exam 3 Material

Week	Dates	Section no	Section Title	Important Information	Total Time Required
9	10/16-10/20	3.6 **Learn, Practice, Certify (50 min**)	Introduction to Circles		

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		4.1 **Learn, Practice, Certify (50 min**)	Relations and Functions		**150 min**
		Quiz 3.6-4.1 **(50 min)**	-Attempt 1 -Attempt 2		
10	10/23-10/27	4.2 **Learn, Practice, Certify (50 min**)	Linear Functions		**150 min**
		4.2 **Learn, Practice, Certify (50 min**)	Quadratic Functions		
		Quiz 4.2 **(50 min)**	-Attempt 1 -Attempt 2		
11	10/30-11/3	4.5 **Learn, Practice, Certify (50 min**)	Combining Functions		**150 min**
		4.6 **Learn, Practice, Certify (50 min**)	Inverse Functions		
		Quiz 4-5-4.6 **(50 min)**	-Attempt 1 -Attempt 2		
12	11/6-11/10	Exam 3 REVIEW (**50 min)**	Unlimited Attempts	**11/10 Friday** Last Day to Withdraw from the University	**150 min**
		EXAM 3 **(50 min)**	Wednesday, NOV 8		
		Algebra Research Project (75 min)	*Instructor will distribute/post information		

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Exam 3 *is* 11/8. *Failure to report for exam will result in a penalty. See exam rules.*

QUIZ MATERIAL

Week	Dates	Section no	Section Title	Important Information	Total Time Required
13	11/13-11/17	5.2 **Learn, Practice, Certify (50 min**)	Polynomial Division and the Division Algorithm		**150 min**
		5.3 **Learn, Practice, Certify (50 min**)	Locating Real Zeros of Polynomials		
		Quiz 5.2-5.3 **(50 min)**	-Attempt 1 -Attempt 2		
14	11/20-11/24	**NO CLASS----FALL BREAK/THANKSGIVING HOLIDAY**			
15	11/27-12/1	8.1 **Learn, Practice, Certify (50 min)**	Solving Systems by Substitution and Elimination		**150** min
		Quiz 8.1 (**50 min)**	-Attempt 1 -Attempt 2		
		Final Exam Review **(50 min)**	Unlimited Attempts		
16	12/4-12/8 **FINAL EXAMS' WEEK**	***Final Exam Tuesday, Dec 5, 2017 3-5 pm Social Science Auditorium***		**Please bring 2 pencils ONLY!!! Calculators are optional.**	**120 min**

Comprehensive Final Exam (TBA). Failure to report for the final exam will result in a penalty. See exam rules.

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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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