**MAT 111 – College Algebra with Applications**

Credit: 3 semester hours

*Prerequisite: None*

**COURSE DESCRIPTION:**

This course covers algebra topics with a focus on practical applications involving linear, quadratic, and rational equations and inequalities, linear and quadratic functions, systems of equations, and exponential and logarithmic functions.

**PREREQUISITES**: None

**RATIONALE:** Learning to think logically and precisely is an important outcome that is desired for all Mississippi College students. It is universally known that abstract thinking such as what is done in a mathematics course is very helpful in developing that ability. MAT 111 is designed to serve as a basic introduction to that process. The course also is designed to provide students with a number of practical ways that abstract thinking can be used to solve real-world problems. Further, various courses in many disciplines require College Algebra with Applications as a pre-requisite and also counts toward completing the core curriculum

**LEARNING OBJECTIVES:** Upon successful completion of this course the student will demonstrate an understanding of algebra techniques related to solving practical applications using the following:

* Solving linear, quadratic and rational equations and inequalities
* Understanding linear and quadratic functions and their graphs
* Solving linear and non-linear systems of equations
* Understanding inverse functions, exponential and logarithmic functions and their graphs

**TEXT:**

**College Algebra and Calculus: An Applied Approach**, 2nd edition

Ron Larson, Anne Hodgkins

CENGAGE Learning

ISBN: 978-1133105060

**OTHER MATERIALS AND RESOURCES:**

* Calculator: Students may use a scientific calculator but not a graphing calculator.
* Online homework assignments in WeBWorK: <https://math.mc.edu/webwork2/>
* Mathematics Tutoring Center: (hours listed <https://www.mc.edu/academics/tutoring>)
* You should check MC Moodle and your MC email every day for important information.

**EVALUATING STUDENT PROGRESS:**

(Instructor specific: It is recommended that a test be given after each chapter covered and that a comprehensive final exam be given at the time assigned by the college.)

**MAKE UP POLICY:**

(Instructor specific)

**OUTLINE OF TOPICS TO BE COVERED IN THE COURSE WITH EMPHASIS ON APPLICATIONS THROUGHOUT:**

Chapter 0: (max 2 weeks) – This is considered a review of prerequisite material.

* Real numbers and absolute value
* Exponent rules
* Simplifying radical and rational expressions
* Factoring with a focus on quadratics

Chapter 1:

* Solving linear and quadratic equations and inequalities
* Mathematical Modeling
* Ratios

Chapter 2:

* Graphing
* Linear modeling and direct variation
* Functions and their graphs

Chapter 3:

* Quadratic and higher degree models
* Solving equations in higher degrees
* Complex numbers

Chapter 4:

* Inverse functions
* Exponential and logarithmic functions: as inverses of each other, solving and graphing, various bases (especially natural, common, and binary),
* Exploring exponential and logarithmic models

Chapter 5:

* Solving linear systems of equations by substitution and elimination
* Graphing linear systems
* Solution sets of inequalities
* Linear programming

**MAT 111 - BUILDING YOUR COURSE GRADE (print for your convenience):**

No extra credit work is given to students on an individual basis.

No extra credit work is given after the final exam is given.

Your grade cannot be negotiated before or after the final exam is given.

**Your grade is determined as follows:**

* **(50%) UNIT TESTS**

There will be 3 unit tests. Each test will count equally. Test dates will be announced at least one week in advance.

**BE PRESENT ON TEST DAY**

If you are absent on test day these are your options:

* + Arrange to take the test early if you have a valid reason to miss on test day, or
	+ Contact me PRIOR to the class meeting following the test to arrange to make up the test, or
	+ The make-up test will be a part of your final exam

Students are expected to take tests on the day they are assigned. Make-ups for tests are the responsibility of the student and should be cleared with the instructor ***in advance*** whenever possible. Email is the best method for contact. You must have a valid excuse and have permission to make up the test. The responsibility for missed work rests entirely with the

student.

* **(10%) DAILY/QUIZ**

Your daily/quiz grade will be determined by the average of your in-class quizzes and out-of-class assignments (aka Take Home Quizzes). Take Home Quizzes are due at the BEGINNING of the NEXT class meeting. Late assignments are NOT accepted. In the case of an unavoidable absence, you may EMAIL me a picture of your take home quiz PRIOR to class time. If the time stamp is after the start of class (i.e. 9:25 AM, 12:00 PM, etc), the quiz will not be counted. Missed quizzes will be recorded as a zero (0). **There are no make-ups for missed in-class quizzes regardless of the circumstances (excused/unexcused).** You will be given one drop grade for quizzes.

* **(10%) WeBWorK ONLINE HOMEWORK**

Online Homework will be assigned using the online platform WeBWork throughout the semester. The student is expected to go online and complete the assigned homework by the designated deadline. **Once the assignment closes, it will NOT reopen**. \*\*You are permitted to request ONE assignment to be reopened at any point during the semester due to a missed deadline or an incomplete section. Only ONE request per student is allowed. \*\*

* **(10%) GROUP PROJECTS**

Two group projects will be assigned during the semester. All group members are expected to participate and contribute to the project. No late projects will be accepted.

* **(20%) COMPREHENSIVE FINAL EXAM**

There will a comprehensive final exam given at the time specified by the college. If you do not take the final exam with your class, for whatever reason, you may be given an alternate final.

**GRADING SCALE:** 90—100 A

80—89 B

70—79 C

 60—69 D

 Below 60 F

(This is a generic grading scale for this course. Individual instructors are free to choose a different grading scheme so students should consult their section's particular syllabus for the official grading scale to be utilized.)

**MISSISSIPPI COLLEGE ACADEMIC POLICIES:** Honesty and integrity are basic virtues expected of all students at Mississippi College. Please refer to the Mississippi College Policy Manual as appropriate:

* **Class attendance - Policy 2.10**
* **Grading - Policy 2.15**
* **Cheating - Policy 2.19**
* **Counseling and Career Services - Policy 2.25**
* **Research - Policy 2.27**
* **Counseling and Testing Center - Policy 2.34**

**DROPPING A COURSE:**

The last day to drop a traditional class with a “W” is listed on the official Mississippi College calendar and is a number of weeks BEFORE final exams.

**ATTENDANCE:** University policy states:

A student receives a grade of F in a course immediately upon accumulating the following number of absences, whether excused or unexcused:

12 in semester classes meeting 3 times per week

8 in semester classes meeting 2 times per week

4 in semester classes meeting 1 time per week

4 per session in the Accelerated Degree program (ADP)

6 in summer day classes

In other classes which meet on different schedules, a student will receive an F in a classes immediately when absences, whether excused or unexcused, (including university functions), exceed 25% of the class meetings.

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**STUDENT ALERT SYSTEM:**

Mississippi College has adopted the practice of finding students early in the semester who may be exhibiting behaviors that could ultimately have a negative impact on their academic progress. These behaviors are often called “red flag” behaviors and include, but are not limited to, excessive absences, poor test grades, and lack of class participation or evidence of non-engagement. Identifying these behaviors early gives the instructor the opportunity to raise the “red flag” on behalf of a particular student so that the student can take the appropriate action to redirect his/her progress. The system alerts the student, the student’s advisor, and the Office of Student Success.

These messages are intended to help a student recognize an area of concern and to encourage him/her to make some choices to improve the situation. When a student receives a Student Alert message via MC Advantage, the student should quickly make an appointment to talk with his/her professor about the situation. Also, students can make full use of the Office of Student Success to set academic goals and connect to campus resources.

**AMERICANS WITH DISABILITIES ACT POLICY:**

In order for a student to receive disability accommodations under Section 504 of the Rehabilitation Act of 1973, he or she must schedule an individual meeting with Student Counseling and Disability Services(SCDS) before each semester or upon immediate recognition of the disability. The student must provide written documentation from a medical physician and/or licensed clinician that verifies his or her disability with recommended accommodations.  Documentation must be current (within 3 years**).**   SCDS will assist the student in notifying his or her professors about the recommended academic accommodations.  SCDS is located in Alumni Hall Room #4.  SCDS may also be reached via email at  mbryant@mc.edu or by telephone at 601-925-7790.

For more information go to:[MC Student Counseling and Disabilities](https://www.mc.edu/offices/counseling/student-disabilities/)