

**MIDSTATE COLLEGE**  
411 W. NORTHMOOR RD. PEORIA, IL 61614  
(309) 692-4092 (800) 251-4299  
Summer 2015

**Course number & Name:** MAT 138—Intermediate Algebra

**Credit hours:** 4 Quarter Hours

**Method of Delivery:** Flex learning – Monday nights 6pm-9:30pm

**Course Description:** This is an intermediate college algebra course of the real number systems. It is designed for those students who have some background in Algebra, either one year of high school algebra or MAT 130, but lack the preparation needed to study college algebra. Fundamental concepts will be reviewed quickly from introductory college algebra. This will be followed by a rigorous schedule of topics that include the algebra of polynomials and rational expressions, exponents, radicals and radical expressions, first and second degree equations and inequalities in both one and two variables including graphing, relations and functions, systems of linear equations, determinants and series and sequences.

**Prerequisite:** Math 101/001

**Text(s) & Manual(s):**

1. *Intermediate Algebra*, 11th Edition
  - Author: Margaret L. Lial, American River College and John Hornsby, University of New Orleans
  - Publisher: Addison Wesley
  - ISBN# 0-321-71541-1

**Materials needed for this course:**

- Scientific calculator – no cell phone calculators permitted!

**Topics:**

1. Review of the real number system
2. Linear equations and inequalities
3. Graphs, linear equations and functions
4. Systems of linear equations
5. Exponents and polynomials
6. Factoring
7. Quadratic equations and inequalities
8. Rational expressions
9. Roots and radicals
10. Exponential and logarithmic functions

**Learning Objectives:** Upon completion of this course the student will be able to:

1. Interpret real-world applications algebraically, and verify the solutions (including but not limited to problems involving mixtures, percents, and geometric applications)
2. Solve formulas for a specified variable and use formulas to solve applications

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3. Solve and graph the solution set of linear inequalities
4. Simplify expressions with exponents
5. Factor polynomials
6. Solve binomials, trinomials by factoring, special factoring, or quadratic equations
7. Interpret information that is given graphically
8. Graph and find linear equations/inequalities
9. Explain concepts of linear equations
10. Solve systems of equations by graphing, substitution, or addition

**Midstate Grading scale:**

90-100	A
80-89	B
70-79	C
60-69	D
0-59	F

**Midstate Plagiarism Policy:**

Plagiarism is using another person's words, either by paraphrase or direct quotation, without giving credit to the author(s). Plagiarism can also consist of cutting and pasting material from electronic sources by submitting all or a portion of work for assignment credit. This includes papers, computer programs, music, sculptures, paintings, photographs, etc. authored by another person without explicitly citing the original source(s). These actions violate the trust and honesty expected in academic work. Plagiarism is strictly against the academic policy of Midstate College. Its seriousness requires a measured, forceful response which includes consequences for inappropriate and/or no citation.

In courses containing writing assignments, the college promotes the use of an electronic resource which compares the student's writing against previously submitted papers, journals, periodicals, books, and web pages. Students and instructors can use this service to reduce the incidence of plagiarism. This electronic resource has been found to conform to legal requirements for fair use and student confidentiality. It is able to provide a report to the student indicating the parts of the assignment that match.

**Student Success:**

The Office of Student Success is available to students seeking tutoring for individual classes or who need assistance with writing assignments. Information is also available on test taking techniques, how to take notes, developing good study skills, etc. Contact student success using the following email: [studentsuccess@midstate.edu](mailto:studentsuccess@midstate.edu)

**Instructor:** Sara Leigh

**Office:** Room 132

**Email:** [saleigh@midstate.edu](mailto:saleigh@midstate.edu)

**Office Hours:** Flexible availability, by appointment

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**Methods of Evaluating Student Performance:** Quizzes, homework, participation, and final exams will be used to evaluate student performance. Please see the instructor's grading scale for the weight of each assignment.

**GENERAL POLICIES**

1. **Homework:** Weekly homework will be assigned on the material covered that week and will be due the following week. The odd problems will be assigned, which have answers in the back of the book – thus you must SHOW WORK to receive credit on the homework!
2. **Quizzes & Exams:** Quizzes will be given weekly, covering the material from the previous week. There will be 2 exams given – a midterm and a final. You MUST show work in order to receive credit for a correct answer. Correct answers with no work will receive ZERO points. No makeups are given for exams without extreme extenuating circumstances, and I will require documentation.
3. **Summaries (starting week 3):** Online weekly summaries are meant as an alternative for classroom discussion, and therefore are required for students that did not attend the in-class session in a given week. If you attended class, you do NOT need to complete the summary STARTING IN WEEK 3. All students are required to do the chapter summary as explained in the syllabus for weeks 1 & 2. Starting week 3, this summary should be an overview of what you learned from ONE section of the reading (for example, section 1.3 in Chapter 1), and should be more than just a list of topics. Please attempt to EXPLAIN the material (with examples, if needed), as though you were explaining it to a friend or fellow student. **IMPORTANT:** Each student completing a summary MUST explain a different section – you may not summarize a section that has already been explained and posted!
4. **Extra credit:** Students may complete the even numbers of a homework assignment for extra credit. The number of extra credit points awarded is proportional to the number of problems completed, up to a maximum of double points for the homework.
5. **Late Work:** Late assignments will be accepted for up to one week following the due date, with a 20% penalty. This applies ONLY to homework and quizzes – late submissions of the midterm and/or final will NOT be accepted! Assignments turned in more than one week late will receive no credit.

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**Instructions for submitting work:**

**On-campus students:** All homework, quizzes, and exams assigned for that week must be turned the following Monday evening at the beginning of class.

**eLearning students:** All homework, quizzes, and exams must be scanned (as a Word or pdf file) and uploaded to their respective dropboxes by 8am Monday mornings. Summaries can be typed directly into the forum, or you can upload a scanned/typed file. You also have the option of dropping your handwritten work off at the front desk of Midstate for me (I recommend making a copy first, just in case!), but it MUST be turned in by 6pm Monday evening. The front office hours are: 8am-9pm, Mon-Thurs; 8am-4:30pm Friday; and 9am-noon Saturday. Please note that the office is NOT open on Sunday.

**Grading Specifications:**

Attendance:	10%
Homework:	10%
Quizzes:	30%
Exams:	50% (25% for each exam)

**Material to be Covered (subject to change at the discretion of the instructor)**

**Week 1:**

**Objectives**

- Review of the real number system

**Sections Covered**

- 1.1 Basic Concepts
- 1.2 Operations on Real Numbers
- 1.3 Exponents, Roots & Order of Operations
- 1.4 Properties of Real Numbers

**Homework (odd problems only) – DUE JUNE 8<sup>TH</sup> BY 6PM**

- Pg. 42-43: 1-67
  - Chapter 1 Summary (all students): Please summarize the material in sections 1.1-1.4. This summary should be roughly one page long.
  - Class goals (counts as a quiz grade!)
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**Week 2:**

**Objectives**

- Linear Equations and Applications

**Sections Covered**

- 2.1 Linear Equations in One Variable
- 2.2 Formulas and Percent
- 2.3 Applications of Linear Equations
- 2.4 Further Applications of Linear Equations

**Homework (odd problems only) – DUE JUNE 8<sup>TH</sup> BY 6PM**

Pg. 127-129: 1-35

Chapter 1 Quiz

Chapter 2 Summary: Please summarize the material in sections 2.1-2.4. This summary should be roughly one page long.

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**Week 3:**

**Objectives**

- Linear Inequalities, Set Operations, and Applications

**Sections Covered**

- 2.5 Linear Inequalities in One Variable
- 2.6 Set Operations and Compound Inequalities
- 2.7 Absolute Value Equations and Inequalities

**Homework (odd problems only) – DUE JUNE 8<sup>TH</sup> BY 6PM**

Pg. 129-130: 37-71

2.1 – 2.4 Quiz

Summary (eLearning students only)

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**Week 4:**

**Objectives**

- Graphing Linear Equations

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**Sections Covered**

- 3.1 The Rectangular Coordinate System
- 3.2 The Slope of a Line
- 3.3 Linear Equations in Two Variables

**Homework (odd problems only)**

Pg. 202-203: 1-35  
2.5-2.7 Quiz  
Summary (eLearning students only)

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**Week 5:**

**Objectives**

- Graphing Linear Inequalities
- Function Notation

**Sections Covered**

- 3.4 Linear Inequalities in Two Variables
- 3.5 Introduction to Relations and Functions
- 3.6 Function Notation and Linear Functions

**Homework**

Pg. 203-204: 37-57 odds, 59-70 ALL  
3.1-3.3 Quiz  
Summary (eLearning students only)

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**Week 6:**

**Objectives**

- Review for and take midterm!
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**Week 7:**

**Objectives**

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- Systems of Linear Equations

**Sections Covered**

- 4.1 Systems of Linear Equations in Two Variables
- 4.2 Systems of Linear Equations in Three Variables
- 4.3 Applications of Systems of Linear Equations

**Homework (odd problems only)**

Pg. 257-259: 1-25  
3.4-3.6 Quiz  
Summary (eLearning students only)

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**Week 8:**

**Objectives**

- Exponents and Polynomial Functions

**Sections Covered**

- 5.1 Integer Exponents and Scientific Notation
- 5.2 Adding and Subtracting Polynomials
- 5.3 Polynomial Functions, Graphs, and Composition

**Homework (odd problems only)**

Pg. 311-313: 1-55  
4.1-4.3 Quiz  
Summary (eLearning students only)

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**Week 9:**

**Objectives**

- Polynomial Functions

**Sections Covered**

- 5.4 Multiplying Polynomials

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- 5.5 Dividing Polynomials

**Homework (odd problems only)**

Pg. 299: 5-21, 43-61  
Pg. 306-307: 5-13, 17-33  
5.1-5.3 Quiz  
Summary (eLearning students only)

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**Week 10:**

**Objectives**

- Factoring

**Sections Covered**

- 6.1 Greatest Common Factors and Factoring by Grouping
- 6.2 Factoring Trinomials
- 6.3 Special Factoring

**Homework (odd problems only)**

Pg. 356-357: 1-35  
5.4-5.5 Quiz  
Summary (eLearning students only)

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**Week 11:**

**Objectives**

- Factoring

**Sections Covered**

- 6.5 Solving Equations by Factoring
- 9.2 The Quadratic Formula

**Homework (odd problems only)**

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Pg. 357: 37-55

Pg. 511: 5-23

6.1-6.3 Quiz

Summary (eLearning students only)

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**Week 12:**

**Objectives**

- Take the Final Exam!
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